A Short term Subjective & Objective Analysis of Modified Endoscopic Lothrop’s procedure and its functional outcome – Our experience

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PURPOSE OF STUDY:

To study the short-term functional outcomes of endoscopic modified Lothrop procedure with well defined subjective and objective criteria. It is a retrospective cohort study with chart review carried out at a tertiary referral center. The study illustrates the benefit obtained from endoscopic modified Lothrop’s surgery in chronic frontal sinusitis refractory to medical treatment and standard endoscopic sinus surgery.

MATERIALS & METHODS:

43 patients with chronic frontal sinusitis refractory to medical treatment and conservative surgical management including Draf-I procedure and patients with extensive allergic fungal sinusitis with bilateral frontal sinus disease were included in the study. The study period was from January 2011 to January 2016. All patients were followed up for a minimum of 6 months post-surgery. Evaluation was done for patients on the basis of subjective severity scale considering the 5 common symptoms seen in Indian population and these were analyzed at 2 weeks, 6 weeks, 3 months and 6 months of follow up. Objective endoscopic assessment of the sinus cavity was done using the 5 point criteria suggested by Kennedy et al in 1995 including polyps, edema, crusting, discharge, scarring. They were reviewed at 2 weeks, 6 weeks, 3 months and 6 months in the post-operative period.

RESULTS:

The five most troublesome symptoms with respect to Indian population were analyzed. We found an incidence of headache (82%), postnasal drip (78%), nasal obstruction (81%), hyposmia/anosmia (86%), rhinorrhea (76%) in our study population. Characteristics of the two groups were compared using Fisher exact, and t tests where appropriate. Statistical significance was accepted when P<.05. Even though there was an improvement in the overall symptom score, statistically significant improvement was found for the 3 parameters headache (p<0.025), nose block (p<0.03) and rhinorrhea (p<0.05).

CONCLUSIONS:

In our experience, modified Lothrop procedure in conjunction with FESS is the procedure of choice for problematic frontal sinus disease refractory to medical treatment and other less radical frontal sinus procedures. This being a preliminary report, long term results are yet to be documented and published. However, the short term results seem to be promising for such patients.
A simple method for treatment of nasal septal perforation

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In nasal septal perforation at any size (in my experience as long as 45 millimeter) if we freshen perforation margins (like what we do in tympanoplasty) and elevating a nasal septal mucopricondrial flap (what we do in septoplasty) and harvesting a fascia from fascialata and making a fascialata sandwich in perforation site and fix the fascialata with only one or tow sutur and using silastic or tampon as supporter it will be treated in more than 90 percent of cases.

In 15 year I treated 112 cases of nasal septal perforation with this method. In 49 case that I used tampon as supporter, 45 cases treated.

In 63 case I used sailastic as supporter, 56 cases treated.

In cases I used tampon as supporter the nasal septal mucosal groth repaired the perforation in 42 cases and in 3 cases the facia lata became vasculated.

In cases I used sailastic as supporter vascularisation of facia lata repaired the perforation and ther was not any mucosal groth in any cases.

In one case that treated with using sailastic as supporter and became perforated 3 month later I treated her with fascialata graft and using tampon as supporter and the perforation treated in this case with the groth of nasal septal mucosa.
It is a fact that a large proportion of the world’s population lives in the tropics. It is prudent that Otolaryngologists worldwide are aware and are up-to-date with the diagnosis and management of tropical diseases, as there are no real boundaries restricting these diseases only to the tropics, with rapid globalization and migration of populations across the world. Tropical environment is a unique ecosystem which favors the habitation of a diverse spectrum of pathogenic micro-organisms which infest the ENT regions. They thrive well in a warm and humid climate that promotes their endemicity. Human factors such as pollution, cultural practices, inherent food habits and low socio-economic conditions are predisposing factors to such diseases.

Certain infective tropical diseases such as Rhinosporidiosis, Rhinoscleroma, Atrophic Rhinitis and other fungal Infections have predilection to infest the head and neck regions, while other granulomatous infections such as Tuberculosis, Filariasis and Leprosy have systemic manifestations, also seriously affecting the ENT regions. Chewable tobacco and areca nut use has lead to a high incidence of oral submucosal fibrosis (OSMF), a unique tropical ENT disorder, especially prevalent in the Indian subcontinent.

This presentation will highlight the epidemiology of common tropical disorders over the past and in the present day and their management.

OUTCOME OBJECTIVES

Upon completion of this symposium, it is expected that otolaryngologists worldwide are able

1) to recognize unique tropical diseases in ENT and Head-Neck regions such as Rhinoscleroma, Rhinosporidiosis, Atrophic Rhinitis, Oral Submucus Fibrosis (OSMF) and hence manage them appropriately.

2) to understand the reasons for resurgence of some of the conditions such as Tuberculosis, Leprosy and fungal infections and hence implement community based remedial measures.

PRESENTERS

Moderator: Dr Mohan Kameswaran

1. Tuberculosis - Drug resistance, resurgence, epidemiology and ENT manifestations: Dr Vijayakrishnan P, Chennai, India (15 minutes) (drpvk77@gmail.com)

2. Atrophic Rhinitis - Aetiology and Management options: Dr Sunil Narayan Dutt, Bangalore, India (10 minutes)(sunildutt@hotmail.com)

3. Fungal Sinus Disease - Pathology and Management: Dr Naresh Panda, Chandigarh, India (15 minutes)(npanda59@yahoo.co.in)
4. Rhinosporidioisis, Rhinoscleroma and Leprosy: Dr Mohan Kameswaran, Chennai, India (30 minutes)(merfmk30@yahoo.com)

5. Oral Submucus Fibrosis in the Indian Subcontinent: Dr Sunil Narayan Dutt, Bangalore, India (10 minutes)(sunildutt@hotmail.com)

6. Q and A session (10 minutes)

INTERNATIONAL SOCIETY INVOLVEMENT

Indian Academy of Otolaryngology and Head Neck Surgery (IAOHNS)

Dr Mohan Kameswaran (Founder President; merfmk30@yahoo.com)
Airways symptoms and sensitization among Congolese bakers and unexposed workers


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Background

Allergic airway symptoms are increasing in bakery individuals, but such investigations are unknown in Kinshasa.

Objective

We aimed to determine the prevalence of airway symptoms, sensitization and associated factors with airway diseases in Congolese bakery workers as compared to controls.

Methods

From April to August 2012, we performed a cross-sectional study among 263 workers directly exposed to flour (wheat, manioc and/or maize), 278 indirectly exposed and 268. Administrative bakery’s workers were defined as indirect exposed group. Skin prick tests responses were recorded. Individuals with recent and chronic respiratory diseases, recent surgery, pregnant and lactating women were excluded from the study.

Results

The 12-month prevalence of rhinitis, rhinoconjunctivitis, wheezing and nocturnal cough were reported among all respondents (Table 1).

Bakery workers (directly exposed to flour dust) showed a prevalence of rhinitis (57.4%), rhinoconjunctivitis (43.5%), and nocturnal cough (11.0%) significantly higher than the indirectly exposed (43.5%, 14.7% and 5.4%) and controls (unexposed) (37.3%, 11.6% and 6.3%), all p<0.05. However, wheezing was statistically similar between groups.

Sensitization was found in 37.5% of all participants with DPT and cockroaches being the most prevalent allergens in 18.0% and 13.9% respectively (Table 2). Positive reaction to storage mite was significantly more prevalent among workers directly exposed, while grass pollen mix, sunflower and crab were more prevalent in controls.

Sensitization to manioc flour was higher among individuals exposed to manioc and/or maize flour than those exposed to wheat flour within the directly exposed group.

About one third of individuals reporting rhinitis symptoms, showed positive reaction to at least one allergen. However, allergic rhinitis subjects expressed persistent and moderate to severe symptoms in 36.6% and 43.5% of respectively.

Using multivariate analysis, direct exposure to flour, neighborhood of flour mill and mice in house significantly increased the risk of having airway symptoms. In contrast, the presence of mice in the house was positively associated with sensitization. However, cooking at home with electricity decreased this risk of both sensitization and having airway symptoms.
To conclude, belonging to the directly flour dust exposed group was a risk factor for airway symptoms, despite the lower rate of sensitization in that group. Measures to reduce flour exposure at the workplace may be the most effective means to reduce the prevalence of work related airway diseases.
Allergic Fungal Sinusitis (AFS) is one of the most discussed and hot topic in all Rhinology/Otolaryngology events in last two decades. Its etiology, pathophysiology, clinical manifestations, investigations and management have already been standardized in past two decades by many authorities. It is now believed to be an allergic reaction to aerosolised environmental fungi, usually dematiaceous species in an immunocompetent host. Most patients with Allergic Fungal Sinusitis (AFS) have a history of allergic rhinitis, but timing for development of allergic fungal sinusitis is difficult to discern. Even though it is found in atopic immunocompetent host, with change in immunity status, it may occasionally invade the tissue and we have noticed it becoming invasive fungal sinusitis.

Surgery is the mainstay of the treatment with wide opening of the affected sinuses and removal of inciting mucus and fungal colonisation. Yet it is interesting to note that it has got very high recurrence rate. So we would like to share our experience of about treating seven hundred and sixty cases in last two decades. To reduce the recurrence rate and to improve the quality of life (QOL),

in our patients, we have recently adopted multi-modality approach in a management which includes meticulous perioperative care, proper counselling, immunotherapy and drug therapy to our patients. We also advocate our ancient procedures like NETI and YOGA. All these have considerably reduce the recurrence and helped in improve their quality of life.
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Aim of the research. The study of the clinical findings in children with allergic rhinitis with parasitic infestation and without it.

Material and methods. A study of patients with allergic rhinitis have been conducted on the basis of the children's diagnostic city center. We observed 100 patients aged from 3 to 14 years. They were divided into 2 groups: main group - 67 patients with perennial allergic rhinitis with concomitant parasitic infestation and comparison group - 33 patients with perennial allergic rhinitis without parasitic infestation. In main group in 55.5% cases was found Giardiasis, in 17.6% Enterobiasis, in 11.7% Ascariasis, 2.9% in Hymenolepiasis and in 11.7% mix parasitosis - Giardiasis and Hymenolepiasis. All examined children were urban. Children with a family history (according to parents), with concomitant diseases in the acute stage in the surveyed group were not included.

Results and discussion. Intermittent form of allergic rhinitis is set in 16 or 23.8% of patients of mains group and in 13 or 39.4% comparison group, and persistent forms in 51 or 76.1% of patients of mains group and in 20 or 60.6% the comparison group.

According the severity of allergic rhinitis all patients were divided into 3 groups: mild, moderate, severe. In the main group of children mild form was-15 or 22.3%, moderate-36 or 53.7% and severe 16 or 23.8%. In the comparison group, mild form was diagnosed in 14 or 42.4%, mid-11 or 33.3% and severe in 8 or 24.2% patients.

In patients with allergic rhinitis combined with parasitic infestation significantly we found typical symptoms of intestinal parasitosis: loss of appetite, abdominal pain, intermittent diarrhea and constipation, nausea and vomiting. Only in patients with allergic rhinitis combined with parasitic infestation celebrated amateurism. Dyspeptic syndrome naturally led to the loss of weight, which often met in patients with allergic rhinitis with parasitic infestation. In addition, patients were also observed other symptoms: salivation, gnashing teeth at night, pruritus in the anus.

The findings suggest that a careful examination of patients with allergic rhinitis may identify signs and symptoms characteristic to parasitosis, even when erased clinical forms. High percentage of people identifying with parasitosis among patients with allergic rhinitis points to the need for careful parasitological examination of the contingent.

Conclusions. Thus, the clinical picture of the allergic rhinitis associated with parasitosis in children is characterized by dyspeptic, astheno-vegetative, allegro-dermatological syndromes in addition to displays of typical allergic rhinitis.
**Allergic Rhinosinusitis and Its Occurrence Among the Younger Generations**

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**Introduction:**
In the last few years we have noticed increased frequency of acute rhinosinusitis, and the allergic component is prevalent. Rhinosinusitis can be divided into bacterial, viral, and allergic; most often it is a combination of these.

**Goal:**  
Our goal was treating, surveillance and study of patients with allergic rhinosinusitis, mostly from allergic etiology, during 2015.

**Materials and Methods:**  
The total number of such patients during 2015 was 394 patients (adults and children). We did the following tests:  
- ORL exam  
- Sinus ultrasound  
- Blood test  
- Microbiological analysis of nose and throat smear test  
- Cutaneous allergy-tests  
- Tympanometry  
- Audiometry

**Results:**  
Out of a total of 394 patients, 160 (40%) suffered from allergic rhinosinusitis, 132 (33%) with bacterial rhinosinusitis, and 102 (26%) viral rhinosinusitis. Out of the 160 patients with allergic rhinosinusitis, 89 (56%) were women and 71 (44%) were men; all of them were between 20 and 40 years old.

**Conclusion:**  
The results show that there is a significant rise of allergic rhinosinusitis among the younger generations. The occurrence of allergic rhinosinusitis was higher among patients between 20 and 40 years old.
An investigation of the prevalence of indoor and outdoor inhalant allergens in children with allergic rhinitis

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Aim: Indoor and outdoor inhalant allergens continue to have a key role in the pathogenesis of allergic rhinitis (AR). The aim of the present study was to determine prevalence of the aeroallergens sensitivity among children (preschool children, school children, adolescent) with allergic rhinitis, based on skin prick test (SPT) reactivity in the province of Istanbul European side region in Turkey.

Materials and methods: This study, including 729 AR patients with positive SPT was enrolled in three age groups. SPT with extracts including pollens, house dust mites (HDMs), animal dander’s (ADs) and molds had been performed on these patients. All these patients have positive reaction to at least one allergen with SPT.

Results: The allergen prevalence of 729 patients with positive SPT results were HDMs (33%), pollen (31%), molds (19%) and ADs (17%). The results of this study revealed that HDMs was the most common sensitizing aeroallergen in patients with AR. Both outdoor and indoor allergen positivity in preschool children (group 1) were 89 (%43,4) and in adolescent children (group 3) were 32 (%15,6) and also sensitivity to allergens significantly decreased according to increase of age (p<0,01).

Discussion: Avoiding exposure to allergens and also finding the best formulation of allergen immunotherapy for AR. SPT is important steps in clinical management of patients. So we provide regional allergens profile of children with AR, which was based on the identification of common aeroallergens with the pattern of SPT reactivity in Istanbul. The sensitivity to aeroallergens was significantly decreased if the age was increased (p<0,01).
Analysis of olfactory dysfunction in IgG4-related disease

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Aims

IgG4-related disease (IgG4-RD) is a newly recognized systemic disease characterized by extensive infiltration of lymphocytes and IgG4-positive plasma cells with fibrosis in affected various organs, and elevated serum IgG4 concentrations. Little is known about sino-nasal manifestations yet. The previous study has suggested that olfactory dysfunction is prevalent in IgG4-RD patients. In this study, we examined the olfactory function of IgG4-RD model mice (LAT*Y136F mice) to reveal the mechanism of olfactory dysfunction.

Method

We examined the behavioral tests to evaluate olfactory function. As a result, most of LAT*Y136F mice had olfactory dysfunction. Furthermore, we analyzed the histology of olfactory epithelium in LAT*Y136F mice.

Results

The thickness of the olfactory epithelium in LAT*Y136F mice was thinner than age-matched wild type mice. The result of immunohistochemical analysis was consistent with behavioral tests. The expressions of Olfactory Marker Protein (OMP) and Growth Associated Protein (GAP-43) in olfactory epithelium of the LAT*Y136F mice were markedly less than wild type mice. In the olfactory epithelium of LAT*Y136F, the newly differential cells and mature olfactory nerve cells are both impaired.

Conclusion

These data suggest that the olfactory epithelium impairment caused olfactory dysfunction in LAT*Y136F mice. We propose that olfactory dysfunction is a remarkable manifestation in IgG4-RD patients.

Division of Otolaryngology, Head and Neck Surgery, Kanazawa University Graduate School of Medical Sciences
Aspirin desensitization for aspirin-exacerbated respiratory disease (AERD)

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Study objectives: Aspirin-exacerbated respiratory disease (AERD) is a clinical syndrome characterized by chronic hyperplastic eosinophilic sinusitis, nasal polyposis, asthma and sensitivity to cyclooxygenase-1 inhibitors. The management of AERD can be difficult, with the use of systemic corticosteroids being commonly necessary. Another problem associated with AERD is the frequent postsurgical regrowth of nasal polyps. Aspirin desensitization proved to be effective in reducing upper airway congestion and nasal polyp formation and in improving asthma control in patients with AERD. Although aspirin desensitization offers a cheap treatment option for patients with AERD, it is underused. This study aims to report our results with aspirin desensitization in patients with AERD.

Material and methods: This study is a prospective analysis of cases of aspirin desensitization in patients with AERD in a tertiary referral center. Charts were reviewed for patient selection criteria, desensitization protocol and outcome. Clinical evaluation pre- and post-treatment included a symptom score (facial pain, headache, olfactory disturbance, nasal congestion, nasal discharge, overall discomfort, asthma exacerbations and dyspnea on exertion) on a 10 points visual analogue scale (maximum total score: 80), and the Lund-Mackay scoring system for computed tomography.

Results: Six of the twenty-seven patients with AERD were selected for aspirin desensitization and enrolled in the study (4 males and 2 females, mean age 57.3 ± 9.9). Incremental doses of aspirin were given to reach a target dose of 325 mg during a period of 3 days, with a time interval of 3 hours between doses. Once aspirin desensitization induction was completed, it was instituted an aspirin maintenance dose of 300 mg daily. Two patients had to discontinue the treatment. Clinical evaluation was carried out in the remaining four patients after on average 2 years of maintenance therapy with aspirin. The median (IQR) pre- and post-treatment total symptom score was respectively 49.5 (31.5;60) and 7.5 (5.5;15.5) (p=0.0679). Even though not statistically significant, in our sample, all listed symptoms improved with aspirin desensitization. The symptoms with greater improvement were olfactory disturbance, nasal congestion and overall discomfort. The median (IQR) pre- and post-treatment CT score of these patients was respectively 16 (11.5;22) and 10 (6.5;11.5) (p=0.0679).

Conclusion: Aspirin desensitization has beneficial effects in patients with AERD for control of upper airway disease and asthma. This treatment option should be considered as an adjuvant therapy for AERD in patients with severe symptoms.
Aspirin-exacerbated respiratory disease (AERD): ASA challenge, desensitization, and differential diagnosis of nasal hyperreactivity

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The Aspirin (ASA) intolerance syndrome or Aspirin-exacerbated respiratory disease (AERD) affects up to 11% of all asthmatics. The underlying pathologic mechanism is a disturbed metabolism of arachidonic acid after application of nonsteroid anti-inflammatory drugs (NSAIDs) leading to a blockage of Cyclooxygenase-1, reduced production of prostaglandins and increased leukotrienes production. Additional pathologic mechanisms leading to an increased bronchospastic effect of leukotrienes are not fully understood yet. The full clinical picture of AERD consists of intrinsic asthma, chronic eosinophilic rhinosinusitis with nasal polyps, and ASA hypersensitivity (Samter triad). Currently, no reliable in vitro test is available to confirm the diagnosis. In vitro-tests are mainly used in scientific investigations. AERD is diagnosed by oral provocation tests and incremental dosage of acetylsalicylic acid. Oral provocation tests are highly useful being part of the therapy of choice, the aspirin desensitization. After ASA desensitization, all patients can maintain desensitization by daily oral intake of ASA. However, the dose for AERD treatment has been in some debate. The primary risk of using ASA therapy is the development of GI complications. Leukotriene antagonists are alternative drugs for symptomatic therapy of this disorder.

This instructional session will detail how to diagnose and treat AERD and will describe the procedures associated with ASA challenge and desensitization. Differential diagnosis of nasal hyperreactivity will also be described.
Objective: The aim of this study is to investigate the impact of airborne pollen in urban Beijing area on the consultation rate of allergic diseases including allergic rhinitis and asthma.

Method: A modified pollen sampler (gravitational method) was used to monitor the distribution of main airborne pollen during Jan 1st 2015 to Dec 31 2015. The consultation rate of allergic rhinitis and asthma was obtained meanwhile among allergy, ENT and pneumology department through Hospital Special Package 2007. Relationship between pollen and consultation rate was analyzed by SPSS 23.0.

Result: Through the whole year of 2015, the total quantity of pollens amounted to 76164 grains. Two pollen peaks were observed which happened in March, April, August and September. The pollen grains were higher in autumn than spring with a significant difference. The peak consultation season of allergic rhinitis was presented in March-April and August-September with a higher rate in autumn than spring in both ENT and allergy department (P<0.05).

Conclusion: We monitored two peak seasons of airborne pollen distributed in Beijing urban area. The airborne pollen distribution was in accordance with consultation rate in allergy department. The pollen count in spring was higher than autumn in Beijing urban area with a consultation peak in autumn inversely. This indicates a higher sensitization ability of autumn pollen compared with spring pollen.
Central serous chorioretinopathy associated with Intranasal corticosteroid: 2 case reports.

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Title: Central serous chorioretinopathy associated with Intranasal corticosteroid: 2 case reports

Abstract: Intranasal corticosteroid is commonly used to manage symptoms of nasal obstruction, sneezing, itching sensation and watery rhinorrhea in allergic and non-allergic rhinitis. It can be also used to treat essential anosmia, to reduce growth rate of nasal polyp in rhinosinusitis. Intranasal corticosteroid can cause dryness in nasal cavity, eschar on nasal mucosa, nasal bleeding and septal perforation as a localized side-effect. But the symptoms are usually mild and transient. Topical steroid is much less likely to cause side-effect in other part of the body because of low systemic absorption.

Central serous chorioretinopathy can occur with the systemic or local use of steroid. It is caused by exudate from the choroidal capillaries which accumulates under the retina leading to macular and retinal detachment. Symptoms include visual loss, visual distortion and reduction in color discrimination. Although Intranasal corticosteroid is widely used drug in otorhinolaryngology, there are few reports of central serous chorioretinopathy after using a intranasal corticosteroid.

We report patients with allergic rhinitis and chronic rhinosinusitis with nasal polyp who developed central serous chorioretinopathy after using intranasal corticosteroids which suggests that otorhinolaryngologist must be cautious with prescription of intranasal corticosteroids.
Penetrating craniofacial trauma in pediatric age group is quite rare. A 4-year-old boy presented with craniofacial trauma caused by a pencil penetrating the medial canthus of the right orbita. He fell over the pencil while playing. At the time of presentation only the end of the pencil was observed externally through his right medial canthus. The patient was first treated with manual extraction of the pencil, Stick pen tried to be pulled out from patient’s eye in another hospital and the body of stick pen has been removed. Afterwards Computed tomography scan performed to our patient and the metal ballpoint tip of the stick pen was seen that is still in the skull base of head. Radiological evaluation is reported that presented with a stick pen penetration injury entering between the right nasal dorsum and medial canthus and pass through the orbital medial wall, anterior ethmoidal cells and right cribriform plate and then reaching the crista galli level and perforate the dura mater. All the vital structures were preserved. Imaging strategies may change with nature of penetrating foreign body. CT scans are not capable of identifying wooden objects, whereas MRI is contraindicated in injuries with metallic foreign bodies. 3D CT scans provide valuable data in the evaluation of patients with trauma. Foreign bodies into the cranium may pose many immediate complications, such as pneumocephalus, intracerebral hemorrhage, rhinorrhea, contusions, and brain stem injury. In the long term, it can lead to abscesses, meningitis, and encephalitis. Early management with surgery to debride the wound and remove the fragments are necessary for good outcomes. Postoperative antibiotic treatment should be administered to prevent infections. This report discusses radiological and surgical characteristics of this unusual penetrating craniofacial trauma.
Objective:
Differentiating AR from non-allergic rhinitis (NAR) is not easy, but it is an important clinical issue. In this study, we enrolled patients with characteristic chronic rhinitis symptoms and attempted to identify the clinical clue for differentiating AR from NAR among patients who present with similar rhinitis symptoms.

Methods
A total number of 2002 patients with AR symptoms underwent the allergy test. Nasal symptoms (rhinorrhea, nasal obstruction, itching and sneezing) and serum total IgE were evaluated. Univariate and multivariate regression tests were performed to identify factors which had correlation with allergic sensitization.

Results
We observed that 1236 patients (61.7%) showed allergic sensitization and 766 patients (38.3%) showed a negative test result. Among the 4 nasal symptoms, only itching showed a significant correlation with AR in the multiple logistic regression test (p<0.001). The proportion of male patients was significantly higher in the AR group (p<0.001). Younger age was a significant factor for allergic sensitization (p<0.001). All four nasal symptoms peaked in patients who were in their 10s and 20s. However, relative ratio for each symptom showed that itching decreased with age and rhinorrhea increased with age. The level of urbanization has no significant effect on allergic sensitizations.

Conclusions
The prevalence of allergic sensitization decreased with age. The sensitized group showed a higher TNS than the non-allergic rhinitis group. Non-allergic rhinitis rhinitis was relatively common in females than males and it was also common at an older age. Multiple regression test showed that itching, age under 60 years, and male gender had a significant correlation with allergic sensitization.
CLIMATE CHANGE: FURTHER INFLUENCE ON HAY FEVER MANIFESTATIONS

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Allergic rhinitis becomes a great challenge in a modern world due to its high prevalence and impact on quality of life, especially in children. Sensitization pattern of seasonal allergy vary in different areas, depending on climate type.

Purpose of the study: To evaluate hay fever clinical manifestation features and to determine allergen sensitivity in children and adolescents during changing pollen load.

Material and methods: 194 children and adolescents with hay fever were enrolled in our clinical-experimental study in 2014-2016. All patients underwent comprehensive examination at the allergological center “Umit” (Astana, Kazakhstan). Correlation between intensity and variability of clinical manifestations, consultation rate and pollen burden was estimated. Meteorological data was obtained in the Civil Aviation Meteorological Station of Astana airport. Total serum IgE and ECP levels levels were determined and skin prick tests were performed in all patients.

Results: hay fever was diagnosed in 194 patients, aged 10.05±4.5. Total serum IgE level was 376.70±146.24 IU/ml. High serum ECP level of 27.6±9.64 mkg/l proved allergic nature of the disease. The most prominent clinical symptom in all study years was rhinoconjunctivitis at 94.8% patients in 2014, 97.4% in 2015 and 97.1% in 2016. Bronchial obstruction caused by pollen was diagnosed at 27.5% patients in 2014, significantly increased up to 36.5% in 2015 and stayed on the same high level in 2016 – 34.3%. The incidence of dermatological symptoms increased from 25.2% in 2014 to 31.8% in 2015, not changing significantly in 2016. Sensitization pattern in skin prick tests showed that the highest reactivity belongs to the mix of weeds (68.9%), whereas to the mix of pratal grass was diagnosed in 31.5%, combination of weeds and pratal grass in 24.2% and the lowest level observed to the mix of trees in 8.6% cases. Due to continuing unusual weather changes, an important shift in pollination intensity was noticed. The consultation rate also increased with the atmospheric moisture capacity higher than 42% and with temperature above 31.0oC.

Conclusions: Climate change significantly affects pollen load and sensitivity pattern with subsequent worsening of pollinosis clinical manifestations in children and adolescents.

Key words: pollinosis, children, climate change.

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Introduction: Chronic rhinosinusitis (CRS) is a condition characterized by inflammation of the mucosa of the nose and paranasal sinuses persisting more than 12 weeks. There are several pharmacological treatments available to combat the disease, however not all patients respond satisfactorily to medical treatment, in which case endoscopic sinus surgery (FESS) is indicated. The use of preoperative systemic corticosteroids decreases intraoperative blood loss is explained by an increase in the effects of noradrenaline and endogenous adrenaline, as well as an increase in the spastic reactivity of vascular smooth muscle, which affects the vasoconstriction of the microcirculation and reduces capillary bleeding.

The objective of the study is to standardize the dose of systemic corticosteroids by comparing the management with deflazacort with the full dose with the deflazacort of the decreasing dose as a preoperative protocol.

Methods: Randomized clinical trial in patients with chronic rhinosinusitis with polyps who were candidates for surgical treatment with no history of surgery. The first group was given deflazacort 60 mg orally for 10 days starting 14 days prior to surgery, the patients in the control group received deflazacort dose decreasing 14 days prior to surgery. The surgical field was analyzed, the volume of bleeding and the duration of the surgery were quantified in minutes, beginning with the placement of the swabs with phenylephrine until the end of hemostasis.

Results: Each group included 58 patients. A favorable surgical field, with a lower volume of final bleeding, was found in the patients who used full-dose deflazacort, with a significant difference with a calculated value of $P < 0.05$. An improvement in the quality of life quantified by the SNOT 20 scale was observed, especially at the postoperative month.

Conclusión: An improvement in the surgical field and reduction of bleeding were observed in the patients when administering deflazacort 60mg. However, no statistical significance was found with surgical time compared to the control group.
Comparison of hypertonic seawater with essential oils vs xylometazoline 0.1% in common cold.

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Purpose of the study:

As common cold recovery is spontaneous, treatment objective aims at alleviating symptoms. To date, golden standard treatment consists in paracetamol, nasal irrigation and vasoconstrictors.

While effective, local vasoconstrictors present a number of contraindications, and have to be used over a limited period of time.

Hypertonic seawater has been demonstrated to significantly reduce nasal congestion in allergic rhinitis and chronic rhinosinusitis.

The aim of this study is to compare the efficacy of hypertonic seawater with essential oils (Rhinaction®) vs xylometazoline 0.1% nasal spray in common cold.

Materials and methods:

We conducted a prospective, multicenter, randomized and parallel group study in adults with common cold.

Patients received topical nasal sprays over a maximum 8 days-period: either hypertonic seawater with essential oils up to 6 times daily (Rhinaction®) or xylometazoline 0.1% up to 3 times daily.

Evolution of symptoms severity was assessed with the Wisconsin Upper Respiratory Symptom Survey (WURSS-21) questionnaire (mean and area under the curve AUC). Onset and duration of action, tolerability, product satisfaction were also evaluated.

Results:

A total of 560 patients were assigned to Rhinaction® (N=280) or xylometazoline (N=280) group with comparable baseline characteristics.

A similar reduction of global severity symptoms score was observed in Rhinaction® and xylometazoline groups from day 1 to last day of sickness (-69.5% vs -65.2% respectively, p=0.02) in line with individual symptoms reduction: -70.6% vs -69.4% (p=0.38) for plugged nose and -67.2% vs -65.4% (p=0.20) for runny nose. No significant difference was found between the WURSS-21 AUC of both treatments, 63.99 vs 57.10 in Rhinaction® and xylometazoline groups respectively (p= 0.066).

Relief from nasal obstruction was perceived in 1 minute and less for 68.7% of subjects in Rhinaction® vs 61.7% in xylometazoline group with an onset time of 1.92 vs 1.98 minutes and a lasting effect of 78.15 vs 97.72 minutes.

The tolerance was good in both groups Product satisfaction scored 78.71% and 79.14% in Rhinaction® and xylometazoline groups respectively.
Conclusion: Our results show the efficacy of hypertonic seawater with essential oils vs xylometazoline 0.1% in the relief of common cold with a fast onset of action, a prolonged effect and a safe profile. It can be considered as a natural alternative to xylometazoline.
COMPUTATIONAL FLUID DYNAMICS FOR AN EMPTY NOSE SYNDROME: A CASE REPORT

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INTRODUCTION:
Empty nose syndrome is a rare complication of nose and sinus surgery, and of inferior turbinectomy in particular. Physiopathology is still unclear but it seems to involve disorders in nasal airflow with changes in nasal physiological functions (humidification, warming, and cleansing of inhaled air). Several studies clearly demonstrated that significantly reduced inferior turbinate volume affects nasal cavity outflow regime, accelerating and increasing flow in the inferior at the expense of the superior part. Typical manifestations are paradoxical nasal obstruction, dryness and crusting are the leading symptoms in patients with ENS. Diagnosis is founded on clinical history. Management is problematic, based on nasal cavity hygiene and humidification techniques, and can require surgery in most severe cases, but the most important strategy is prevention, preferring the most conservative surgical techniques. Our proposal was to find correlations between CFD study and clinical situation, trying to understand parts of ENS pathophysiology.

MATERIAL AND METHODS:
We report the history of a female 66 years old patient, surgically treated for fibrous dysplasia and nasal polyposis of right nasal cavity, who suffers from nasal obstruction symptoms. Through CT images, using Nasal Flow® program, we perform a numerical simulation of nasal airflow studying different aerodynamic parameters pressure, velocity, streamlines, wall shear stress, and flow-rate partitioning and nasal resistance for each nasal cavity. To evaluate nasal breathe we used 0- to -10 unilateral visual analogic scale (VAS) and we performed an endoscopical exploration.

RESULTS:
In our study, the nasal aerodynamic features of the typical ENS model have been obtained by CFD simulation. We determined differences between parameters in both nasal cavities. The changes in right one were: decreased nasal resistance, velocities and wall shear stresses, more chaotic streamlines, changes in temperature and pressure patterns, coexisting with normal left parameters.

CONCLUSION:
ENS represents a iatrogenic entity with a hard management in which the best attitude is preventive, preferring the least invasive surgery possible, above all saving turbinates, in particular inferior one. The changes of nasal aerodynamic features are able to explain a number of typical symptoms of ENS, so we could begin to consider CFD as an important tool.
to study nasal pathologies and possibly to study physiopathology, to perform virtual surgery and to determine the most correct managements.
Objectives: The purpose of this study is to present the outcomes of endoscopic management of CSF leak in our department and our CSF closure techniques.

Materials and Methods: Retrospective analysis of our management of patients with CSF leak in the past 7 years. Demographic data, symptoms, management, complications and outcomes, patient satisfaction are recorded and discussed.

Results: Since 2009 we have treated 9 patients with CSF leak. Of them 5 were male and 4 - female. In five patients the CSF leak was iatrogenic due to sinus or skull base surgery. In three patients the CSF leak was traumatic and in one was due congenital meningocele. All patients were investigated with beta-2-transferrin test. It was positive in 8 of the patients. Our management was exclusively endoscopic. Depending on the size of the defect we performed overlay or underlay techniques. A variety of materials were used for closure - free flap grafts from septal mucosa and cartilage, middle turbinate grafts, subcutaneous fat tissue, fascia lata or Haddad flaps, at the end the closure was sealed with fibrin glue. Lumbar drainage was not used. Fluorescein was not required. Treatment was successful in all patients. The observed complications were mild and transient - headache, dizziness and nausea. Follow up was 1 year. There was no recurrence.

Conclusion: Our experience has shown excellent results from the endoscopic management of CSF leak and in accordance to the results published by other authors we believe the technique to be safe and effective.
DANYOUNG Classification 2017 Update-1 by Secondary Survey about Allergic Rhinitis Patients

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PURPOSE

After I first joined at 1996 AAO-HNSF Annual Meeting in Washington, DC as residency, I became interested in high resolution nasal endoscopy and I planned study design for allergic rhinitis patients. Research diagram of DANYOUNG classification consist of the study design, with the three periods at 20 years-strategic plan. Using digital HD 3chip endoscopy and 3chip endoscopy, DANYOUNG classification update is achieved by better objective visual data files. Primary Survey was introduced at 20th IFOS World Congress and based on 2007 - Oct 2012 Clinical Data in Seoul Metropolitan City. Secondary Survey based on Jul 2014 – Oct 2016 Clinical Data in Sejong Metropolitan Autonomous City.

METHOD

From Jun 2001 to Oct 2016, nasoendoscopic video data files were collected from allergic rhinitis patients in Korea, Republic of. Nasoendoscopic video system is consist of stryker 3chip video camera system 888, 988, 1088 model and stryker digital HD 3chip video camera system 1488 model. Video data storage system is consist of stryker SDC-pro, SDC-HD and SDC3 recording system.

RESULT

DANYOUNG classification hypothesis based on surface change of allergic rhinitis patient’s inferior turbinate mucosa.

This classification consists of 3 stages. Stage 1 is hypertrophy state. Stage 2 is dimple state. Stage 3 is wrinkle state. Secondary Survey Results are also similar to Primary Survey Results. Especially, irreversible change of nasal mucosa such as dimple and wrinkle shape is confirmed again on both Survey Results.

CONCLUSION

DANYOUNG classification has very simple, objective advantage and useful on early diagnosis of allergic rhinitis. This staging system is similar to skin aging change. The lining of the mouth, salivary glands, nasal passageways, and anus develop from ectoderm. Origin of skin and nasal mucosa are of same kind, ectoderm. A clear definition of stage is more characterized under digital HD endoscopic evaluation. DANYOUNG classification update can collaborate with ARIA 2010 revision, can be one in the future.

Keywords: allergic rhinitis, stryker digital HD 3chip endoscopy, Danyoung classification, Secondary Survey.
PURPOSE

Newly Allergic rhinitis classification-DANYOUNG Classification was introduced at 20th IFOS World Congress, 2013 for the first time and paper about Primary Survey Result was published by Korean Society of Otorhinolaryngologic Clinician in 2015. Allergic rhinitis is defined as an IgE-mediated inflammatory response of the nasal mucous membranes after exposure to inhaled allergen. During Secondary Survey period, Correlation Analysis between DANYOUNG Classification and Serum Specific IgE Test was done in conjunction with Secondary Survey research for Allergic rhinitis patients.

METHOD

From Jun 2014 to Oct 2016, Digital HD nasoendoscopic evaluation and Serum Specific IgE Test for Allergic rhinitis patients were done with and stryker digital HD 3chip video camera system 1488 model and ImmunoCAP Phadia 250 system. 6 individual allergens for children and adult are decided by research scheme, each other. (children: W6, D1, F2, F1, E5, E1, adult: W6, D1, M6, I6, E5, E1) Sera from 565 Allergic rhinitis patients were tested for Serum Specific IgE reactivity.

RESULT

DANYOUNG classification hypothesis based on surface change of allergic rhinitis patient’s inferior turbinate mucosa. This classification consist of 3 stages. Stage 1 is hypertrophy state. Stage 2 is dimple state. Stage 3 is wrinkle state. Of 565 AR patients, 63.7% were positive for ImmunoCAP Test. (Stage 1 - 68.8% positive specific IgE reactivity, Stage 2 - 63.1% positive specific IgE reactivity, Stage 3 - 46.7% positive specific IgE reactivity)

Keywords: allergic rhinitis,stryker 3chip endoscopy,Danyoung classification, Serum Specific IgE Test, ImmunoCAP Test
Delayed diagnosis of Rhinoentomophthoromycosis a case report

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Purpose:
Delay diagnosis of the rhinoentomophthoromycosis ‘rare chronic fungal infection’ is well documented and varies from moths to years, we want To review the pathophysiology, clinical features, radiological findings, histopathological features, culture results, immunological levels, and treatment of this rare disease. And to highlight the cause of the delay in diagnosis and the use of immunoglobulins level to monitor the response to treatment.

Clinical Findings:
A 19 years old Saudi male, medically free, who presented with a nine-month history of a progressive nasal mass. which was biopsied outside. On Examination, he had a diffuse, mildly tender, erythematous nasal mass which was filling the left nasal cavity and extending to the dorsum, lateral nasal walls and adjacent facial soft tissue bilaterally. Contrasted Computed Tomography (CT) Scan showed left anterior nasal mass with bilateral nasal bone destruction while Magnetic resonance imaging (MRI) confirmed that the low intensity on T2 nasal mass has subcutaneous extension anteriorly to medial aspect of the cheek bilaterally. laboratory investigations showed eosinophilia of 8.9% and elevated levels of IgG1, IgG4, IgA, and sky high level of IgE 4028(n = 0-100). First biopsy came to be non specific but suggestive of fungal infection. Then the patient underwent excision of the mass together with the left inferior turbinate. Histopathological examination of biopsies revealed Splendore-Hoepli phenomenon with no evidence of malignancy. Special Fungal stains confirmed the presence of fungal hyphae that is morphologically consistent with rhinoentomophthoromycosis or also known as conidiobolomycosis. Culture grew Conidiobolus coronatus and confirmed the diagnosis of rhinoentomophthoromycosis. The patient was started on oral Itraconazole 200 mg twice a day. Which reveal significant improvement in regard of nasal obstruction and the nasal and facial swelling with a significant reduction of immunoglobulin levels.

Conclusion:
The un-awareness of this chronic granulomatous disease and the improper work up of these cases ‘not requesting the tissue stain and culture’ for the possible fungal infection is the main cause in the delay of diagnosis in these cases. The prompt response to Itraconazole together with other antifungal medication make them the treatment of choice and the surgical role is to obtaining tissue for culture and staining.
The elevated immunological level and their response to treatment make their use as disease cure indicator.
Developing Endoscopic Endonasal Skull Base Surgeries In a resource constrained settings

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Developing Endoscopic Endonasal Skull Base Surgeries in a resource constrained settings

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Purpose of the study

Developing endoscopic endonasal skull base surgeries in resource constrained settings may be challenging as majority of patients in Sub-Saharan Africa present late due to financial constrain and lack of proper equipment and training in most of the hospitals.

Material and method

Prospective study of all consented patients with sinonasal and skull base lesions operated via endoscopic endonasal approach in national Ear care centre and dialogue specialist hospital Kaduna, Nigeria from August 2013 to September 2015. Skull base invasion was noted preoperatively from computerized tomography (CT) and magnetic resonance imaging (MRI), angiogram was done in few cases to rule out vascular involvement. Surgical procedures, duration of surgery and hospital stay were reviewed.

Results

Total of 8 patients underwent endoscopic endonasal approach to ventral skull base lesion 58% were female. 2 tuberculum sallae, 1 subfrontal, 3 midline anterior cranial fossa, 2 planum sphenoidale, commonest presenting symptom was visual loss. Two had previous bilateral external frontoethmoidectomy. Gross total removal of tumor was achieved in all patients; average operating time was 3 hours, 6 had skull base reconstruction, average hospital stay was 6 days and no post operative CSF leak was noticed in all patients after discharge from the hospital.

Conclusion

Endoscopic endonasal approach to ventral skull base is safe and has great advantages over the traditional open approaches with less burden of prolonged hospital stay, fewer chances of post operative infections with less post operative financial burden.
Differential diagnostic criteria of antineurotic edema


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Actuality: There are two types of antinuerotic edema: hereditary antineurotic edema (HAE) and allergic aneurotic edema (AAE). HAE is characterized by defects in C1 inhibitor protein activity, and is further categorized into type I and type II HAE. Two HAE types differ in the nature of the C1 inhibitor defects, where type I patients have decreased levels of the protein due to an autosomal dominant mutation, and present with heavier symptomatology. Antineurotic edema is wide-spread, affecting 1 in 10 000 people and leading to lethal consequences in 20-30% of the cases. However, the types and subtypes of the edemas are hard to distinguish, and the proper differential diagnostic tools are lacking. Here, a new algorithm is proposed with the goal of improving identification of the edema and provision of appropriate and timely treatment.

Objective: Conduct thorough immunologic examination of edema patients and develop an algorithm for type differentiation.

Methods: Results from 207 patients, selected based on presence of edema-related symptoms, and 30 healthy controls were compared in the analysis. All participants were analyzed on the following immunological factors: levels and functionality of C1 inhibitor protein; activity of kallikrein; and levels of α2M.

Results: Out of all patients with edema, 29 had HAE type I (10 men; 18-72 years old), 7 had HAE type II (4 men; 33-58 years old), and 82 presented with AAE (34 men; 19-72 years old). The results of immunological analysis showed a disturbance in the balance between kallikrein and α2M in the direction of increased activity of kallikrein enzyme. This disturbance was especially prominent in HAE patients. Next, we have determine a coefficient (K), which describes a relation between levels of kallikrein and α2M. The comparison showed that patients with edema had higher K values than controls. Furthermore, there was a clear distinction among edema types, where patients with AAE had coefficient K 1.4 times higher than controls and patients with HAE 5 times higher than controls. Increased levels of kallikrein could be explained by a high probability of C1 inhibitor deficit and decreased levels of α2M.

Conclusion: After examining a sample of patients with edema we have developed coefficient K, a simple relation of serum kallikrein levels to levels of α2M. In out sample, this coefficient was successful at differentiating patients with AAE from HAE, a potentially useful diagnostic tool in clinical practise.
Effect of nebulized budesonide on decreasing the recurrence of allergic fungal rhinosinusitis

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Objective: To evaluate the clinical efficacy and the effects on decreasing the recurrence of AFRS (allergic fungal rhinosinusitis) of a budesonide inhalation suspension delivered via transnasal nebulization to patients following endoscopic sinus surgery

Study design: Historical, prospective cohort study

Setting: Department of Otorhinolaryngology of a university medical center

Subjects and methods: Thirty patients were recruited into this study. Final diagnoses were reached using Bent and Kuhn’s criteria. The patients were divided into two groups randomly: the budesonide transnasal nebulization group (group A) and the topical nasal steroids group (group B). Nasal symptoms, Lund-Mackay scores, and Kupferberg grades were evaluated before and after surgery and during follow-up to assess the effects of these two approaches.

Results: The mean differences in nasal endoscopic grades (Kupferberg grades) from baseline were 0.13±0.35 in group A and 0.40±0.63 in group B at the 4th week of follow-up; this between-group difference was statistically significant (p=0.041). Computerized tomography (CT) was used to evaluate Lund-Mackay scores, which differed from baseline by 0.13±0.35 in group A and 0.80±0.94 in group B at the 24th week of follow-up; this between-group difference was statistically significant (p=0.036). Four of the 15 patients in group B (26.67%) developed recurrent disease, whereas no patients in group A developed recurrent disease. This difference was statistically significant (p=0.032).

Conclusion: Nebulized budesonide is an effective and safe treatment for patients with AFRS following endoscopic sinus surgery, as evidenced by reduced recurrence rate for the budesonide transnasal nebulization group relative to the topical nasal steroids group.
Efficacy of SLIT treatment on allergic rhinitis and the role of RQLQ

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Purpose of the study

Sublingual immunotherapy (SLIT) is one of the most challenging methods of treatment of allergic rhinoconjunctivitis (AR) and has been proved to be promising. The purpose of this study was to evaluate the clinical efficacy of sublingual immunotherapy in the health status and the usefulness of RQLQ in patients with AR.

Materials and methods used

A total group of 109 patients, with AR in either dust or grass, was subjected to SLIT for 2 years. RQLQ was the measure of clinical progress. Subjects were asked to complete the questionnaire in three different visits, at the start, after 6 months and after 2 years from the start of therapy. Statistical analysis was performed using repeated measures ANOVA.

Results

Every clinical section of RQLQ was specially analyzed. Based on the mean values, eye symptoms appeared to have the most statistically significant improvement (p<0.001), both between the first two measures, and during the whole therapy (first and third measure). Among the other RQLQ dimensions, sleep disturbance, nasal symptoms, non-hay-fever symptoms and personal activities, despite having lower difference in mean values, show statistically remarkable improvement (p<0.001). Even lower improvement but still statistically significant (p<0.001) was shown in practical problems and emotions. Finally, total RQLQ mean values also demonstrated statistically significant improvement in patients’ daily life. No significant difference in improvement was observed between the two groups of allergy, namely grass and dust.

Conclusion

SLIT is among the most efficient methods of therapy in AR, providing clinically essential improvement in all aspects of quality of life. RQLQ seems to be able to verify the progress in all areas of patients’ lives during SLIT.

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En Bloc Resection of Maxillary Sinus Inverted Papilloma Endoscopically is no longer a Myth

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Introduction

Inverted papillomas are benign tumor that has high recurrence and a small risk of malignant change. Traditionally, Inverted papilloma originating from the anterior and anterior lateral wall of the maxillary sinus is difficult to resect en-bloc. The tumour is usually removed piecemeal especially when resected endoscopically. This may lead to higher recurrence.

Material and Methods

We report 2 cases of inverted papillomas originating from the anterior and anterio-lateral aspect of maxillary sinus that are resected entirely en-bloc in one piece via a pre-lacrimal approach. A standard middle meatal antrostomy was performed to confirm the attachment of the tumour. A pre-lacrimal incision was made. The tumour was elevated off the bony wall along sub-periosteal plane without breaching the mucosa or tumor. The attachment was identified. The tumor was elevated off all its attachment and removed en-bloc via the pre-lacrimal incision. The bony attachment was drilled to prevent recurrence. The maxillary sinus mucosa was stripped and removed en-bloc with the tumor.

Results

The pre-lacrimal approach allowed the mucosa of the medial and anterior wall to be stripped completely under direct vision. The mucosa-striped maxillary sinus also resulted in a smaller contracted maxillary sinus which make surveillance easier. To date, no recurrence is noted.

Conclusion

With the advent of pre-lacrimal incision, inverted papilloma can be removed enbloc without cutting into the tumour. This will ensure a higher degree of completeness of tumour resection which is an important predictor of recurrence.
Endoscopic Dacryocystorhinostomy Surgery. Our experience

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Endoscopic Dacryocystorhinostomy

Keywords: dacryocystitis, endoscopic dacryocystorhinostomy, external Dacryocystorhinostomy, nasolacrimal duct obstruction, endoscopy

Methodology: To analyse advantages, complications and recurring cases of the Endoscopic Dacryocystorhinostomy. To compare surgical results of the endoscopic dacryocystorhinostomy with the classic surgical method which has been used until now in our country and also to review the literature related to the endoscopic dacryocystorhinostomy. To show the results of recurring external DCR and reoperation of these cases with endoscopic DCR. We have used χ² test to compare the percentage of categorical variables. For p value of p≤0.05.

Results and Discussion: This study is done at Albanian Eye Clinic during the period from February 2011- February 2015. There has been involved 174 patients (16 - 82 years) with nasolacrimal duct obstruction. The success rate of the patients treated with endoscopic DCR was 92.5% according to Umer et al at values 75-95%.

The success rate in the control group with the external Dacryocystorhinostomy was 89.2% according to the authors Jack J. Kanski 87.5% and Andre Aroni 98%.

Concussion: Endoscopic DCRS is a valuable method with a high success rate for the treatment of nasolacrimal duct obstruction. Endoscopic DCRS is less invasive preserves the anatomic structures, shortens the operation time and also a rapid rehabilitation of the patient. The results of the operated patients with this method at our clinic have a comparable result to the contemporary literature. Recurring (unsuccessful cases) are mainly as a result of granulation tissue.
Endoscopic Management of Refractory Epistaxis by Cauterization and ligation

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Endoscopic Management of Refractory Epistaxis by Cauterization and ligation

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Abstract

Introduction: Epistaxis is one of the most common oto-rhino-laryngologic emergencies, often requires urgent and intensive care. The purpose of this study is to show the effectiveness of the endoscopic cauterization of the sphenopalatine artery and anterior ethmoidal artery in a severe posterior and superior epistaxis.

Materials and Methods; from June 2011 to June 2015, nine consecutive patients with posterior and superior epistaxis were treated by (undergone) endoscopic cauterization and ligation of 7 sphenopalatine arteries and cauterization of the 2 ethmoidal arteries. The age ranged from 22 to 75 years and they were 6 male and 3 female.

Results: In all patients, their blood film was normal. All patients were discharged on 3rd postoperative day. In every case, no intra or post-operative complications were recorded in particular intracranial or intraorbital sequelae. Seven patients evolved without rebleeding after cauterization. In two cases epistaxis started again and they need sphenopalatine artery ligation. All patients have subsequently been followed up on average of 12 months with no further episodes of epistaxis.

Conclusion; The endoscopic cauterization of the sphenopalatine artery and anterior ethmoidal artery in a severe posterior and superior epistaxis patient was proven to be safe and efficient.

Keyword: Epistaxis, Endoscopic, Cauterization, sphenopalatine artery
Follow up with RQLQ in children treated with SLIT
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Purpose of the study
Allergic rhinitis is a major health problem in pediatric population not only due to its chronicity but also due to its concernment in the quality of life. Sublingual immunotherapy (SLIT) has proven to be a great intermediary in the process of treating allergic rhinitis. However, there are still no references of factors that predict treatment outcome. In this study, we investigated determinants that may predict treatment outcomes with the assist of a Rhinocconjunctivitis Quality of Life Questionnaire (RQLQ).

Materials and methods used
Thirty-five children under the age of seventeen, with AR in either dust or grass and following SLIT for two years were studied. We standard their clinical progress by using RQLQ. Participants rated their symptoms using the RQLQ at time zero, after 12 months and after 24 months. Statistical analysis was performed using repeated measures ANOVA.

Results
In addition to local symptoms (nasal and eye symptoms) RQLQ incorporated dimensions such as sleep disturbance, practical problems, activity limitations and emotional problems. Every dimension was separately analyzed and showed statistically remarkable improvement, p<0.001. Based on the mean values, non-hay-fever symptoms (tired, fatigue, worn out, reduced productivity, fatigue, poor concentration, thirst) had the most statistically significant improvement during the whole therapy (first and third measure). The lowest improvement after 24 months therapy, but still statistically significant (p<0.001), was shown in emotions. Total RQLQ mean values also demonstrated statistically significant improvement in patients’ daily life. Finally, no significant difference in amelioration of the symptoms was recorded between the two different groups of allergy, grass and dust.

Conclusion
Both grass and dust induced AR impair quality of life aspects in children. Treatment with SLIT resulted in clear improvement in local symptoms as well as in general quality of life symptoms. Our results suggest that a specific tool, such as RQLQ, should be utilized in order to assess this impact.

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FREQUENCY OF NASAL BREATHING DISORDERS IN PATIENTS FROM IODINE DEFICIENCY REGION

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In the structure of chronic rhinitis is dominated vasomotor rhinitis, the specific shape of which is hormonal. These violations occur during periods of endocrine imbalance, changing background levels of various endogenous hormones (sex, thyroid, pituitary, etc.). However, according to the literature, there are some differences in the evaluation of the characteristics and mechanisms of development of diseases of the nose with different endocrine pathology.

Aims

The aim of the work was to study the occurrence and characteristics of chronic rhinitis in patients with thyroid pathology.

Method

The study used specially compiled questionnaire, evaluation of nasal breathing method was used anterior active rhinomanometry (AARM) using rhinomanometer PC 300 "ATMOS". In accordance with the set objectives, the study included patients with thyroid dysfunction (n = 60), the mean age of 50.0±1.6 years. The control group consisted of healthy people (n = 30) of similar age. Statistical analysis was carried out to assess for significant differences in the prevalence and severity of symptomatology between cases and controls.

Results

Symptoms of difficulty in nasal breathing noted 68.3% of patients, rhinorrhea - 36.6% and dysosmia - 23.3% respectively. Subjective feelings disorders respiratory function of the nose often recorded in 80% patients with hypothyroidism. We surveyed a thyroid pathology revealed significant dependence of the deterioration of nasal breathing at night. The healthy individuals averages AARM amounted to 0.19±0.01 PA/cm³/s and 813.3±36.4 cm³/s, in patients with thyroid dysfunction – 420.9±22.2 cm³/s and 0.43±0.009 PA/ cm³/s, respectively (p<0.001). The deviation from normative values according to AARM, was recorded to 86.7 % of the patients with pathology of the thyroid gland.

Conclusion

Thus, patients with thyroid dysfunction revealed a high prevalence of nasal obstruction. Unfortunately, published data on the clinical manifestations of hormonal rhinitis are very few and contradictory, therefore, this issue requires further study.
How does the pattern of aeroallergen sensitization change over time?


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Purpose: Identification of aeroallergen sensitization is important for the diagnosis and management of allergic diseases. The aim of the present study was to investigate changes over time in the presence and patterns of sensitization in a group of patients with rhinitis.

Study design: A retrospective, longitudinal panel study.

Setting: One university-based, secondary referral hospital.

Methods: We recruited all patients who were diagnosed with rhinitis and who underwent in vitro IgE sensitization testing from 2007–2016. Of these, we enrolled 138 who underwent repeat testing. We analyzed epidemiological data and allergen sensitization patterns.

Results: Of all patients, 56.5% of exhibited changes in allergen sensitization patterns. The allergens to which all age groups were sensitive were most commonly mites, with the exception of patients aged 40–59 years (grass pollens). Although the general allergen sensitization rate in those 60-79 years of age was much lower than those of other age groups, sensitization to tree, grass, and weed pollens remained very high, while sensitization to molds, animal danders, cockroaches, house dust, and mites disappeared. All patients with newly developed asthma became sensitized to new allergens. The ‘newly developed sensitization’ pattern was most common in those aged 2-12 years but the number of allergens fluctuated maximally in those aged 20-39 years. ‘New sensitization’ was found most frequently in those aged 20-39 years, followed by those aged 2-12 years. In the former age group, ‘sensitization to more allergens’ was dominant. Grass pollen was the most common new allergen and also the most common desensitized allergen. In some patients, sensitization patterns changed within less than 1 month after the first test.

Conclusions: IgE sensitization to aeroallergens can change in subjects with allergies. If rhinitis symptoms or treatment efficacy changes, repeat IgE sensitization testing is needed to document changes in allergen sensitization patterns.
Innovative Immunotherapy for attenuating nasal symptoms of allergic rhinitis
- Via mucosal route with transgenic rice seeds containing hypoallergenic Cryj1 and Cryj2 T cell epitopes

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To update, mucosal site such as GI tract or nasopharyngeal mucosa has become the focus of investigations on local immune response, in order to use it clinically in vaccination therapy against microbial infections and or in desensitization therapy for type I allergy or autoimmune disease. Sublingual immunotherapy requires much more amount of allergen than subcutaneous immunotherapy, but it has several benefits in comparison with subcutaneous immunotherapy. Sublingual immunotherapy is pain-free and more safety than subcutaneous immunotherapy because mast cell does exist very least in sublingual mucosal tissue. Another benefit is that patients can carry out the immunotherapy procedure by themselves at home after the amount of allergen reach to maintenance dose, so they don’t have to come to outpatient clinic so often.

we successfully developed murine allergic rhinitis model with cedar pollen antigen and demonstrated that sublingual administration and oral feeding of transgenic rice seeds containing hypoallergenic whole T cell epitopes of Cry j I and Cry j II of Japanese cedar pollen before systemic sensitization downregulated nasal symptom. Feeding mice with rice seed containing CTB-fused T-cell epitopes(3 crypts) suppressed allergen-specific IgE responses and pollen-induced clinical symptoms at 50-fold lower doses of T-cell epitopes than required when using control seed. Sublingual immunotherapy actually induced regulatory function of CD4+CD25+FoxP3+ T Cells of CervicalLymph Node in this murine Allergic Rhinitis Model, when we used OVA and cedar pollen as antigens for mucosal route of immunotherapy. These data may bring us the Innovative Immunotherapy for attenuating nasal symptoms of patients with seasonal or perennial allergic rhinitis in the nearest future.

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RA-ANA-36
RHINOLOGY & ALLERGY – Allergic and Non-Allergic Rhinitis

Juxtasellar & Sellar lesions: Endonasal Endoscopic Approach
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Background: Tumors of sellar region are common primary brain tumors. Reportedly, the safer extended endonasal trans-sphenoidal resection achieved the best outcomes. Objectives: We aimed at identifying the most common pathologies affecting juxta-sellar/sellar regions, their presenting manifestations and the most common indications for specific surgical approach in Egyptian patients. Patients and Methods: This is a prospective case series study conducted in the Department of Otorhinolaryngology, Cairo University Hospital, in the period between January 2012 and December 2014. The study included 33 consecutively admitted patients who underwent purely endonasal endoscopic resection of sellar and juxtasellar lesions. Results and Conclusion: The most common sellar and juxtasellar lesions were pituitary adenomas (66.6%) followed by chronic invasive fungal rhinosinusitis (9.1%). The most common type of pituitary adenoma was non-functioning adenoma (30.3%) followed by prolactinomas (15.2%). Headache was the most common presenting symptom (69.7%) followed by visual symptoms (60.6%). The most common endocrinopathies were acromegaly and amenorrhea/galactorrhea syndrome (each 12.1%) followed by Cushing’s syndrome (6.1%). The most common indications for surgery through the transsphenoidal approach were visual affection (60.6%) and endocrinopathies (36.4%). The study achieved short operation time (105 ± 15 minutes) and high symptom and radiological improvement rates. Postoperatively, headache was the most common symptom to improve followed by the visual symptoms (100% and 85%, respectively). Endocrinopathies were improved in 75% of affected cases. Total resection was achieved in 78.8% of cases. Shorter hospital stay (1.3 ± 1.7 days) and lower complication rate were also achieved (from 3 to 6.1%). Deterioration of consciousness level, meningitis and visual deterioration were not recognized in any of the cases enrolled.
Long term results of endonasal dacrocystorhinostomy without stent

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Epiphora due to nasolacrimal duct obstruction is a well known condition. Endonasal Dacrocystorhinotomoy (DCR) is an effective and safe method of treatment. In a previous study the author showed the endonasal DCR without stent yielded higher success rate compared to the stented group.

In this study we analyse the long term success rate of endonasal DCR without stent.

Total of 110 patients (200 eyes) with post saccal block were operated between January 2006 and March 2009. Mean age was 75.7 years (age range 45-89 years). Predominantly female patients with 10:1 female to male ratio. The surgery was carried out by the same senior surgeon with the same technique.

Patients were assessed 2 weeks post operatively to clean the nasal cavity and the rhinostomy opening, using nano endoscope. Resolution of the symptoms were assessed 6 months after surgery in the out patients clinic and the rhinostomy opening was evaluated by rigid naso endoscopy.

The outcome of the success were recorded annually for 5 years on the telephone consultation.

Successful outcome is taken as complete resolution of symptoms or good improvement with minimal disability. Patients who were contactable, those developed recurrence of symptoms were reassessed and offered revision surgery if necessary.

The success rate was 93% in 6 months, 90% in 12 months, 85% in 24 months, 83% in 36 months. In 48 months and 60 months the success rate was 82% and 80% respectively.

As far as we know this the first study looked at the 5 year success rate of endonasal DCR without stent. The study showed there is a gradual decline in the success rate for the first 3 years. Afterwards the rate remained almost the same.
**MICROBIAL LANDSCAPE OF THE NASAL MUCOSA IN PATIENTS WITH HORMONAL RHINITIS**

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**Aim**

The aim was to study the flora of the nasal cavity in patients with rhinitis in the background of thyroid dysfunction

**Method**

The study included patients with thyroid dysfunction (n = 60) and 30 patients with allergic rhinitis (AR). The growth of microorganisms was observed on solid nutrient medium. Identification and antimicrobial resistance were carried out on a semi-automatic analyzer «AutoScan4 System».

**Results**

Bacteriological investigation of microflora was determined at 94.2 ±3.3% surveyed with hormonal rhinitis and everyone was presented monoflora. In 89% of patients with AR was microbial associations. The most common representative of the microflora in patients with hormonal rhinitis was Staphylococcus epidermidis (57.7 ± 6.8%; p≤0.01), and among patients with AR - Staphylococcus aureus (63.7 ± 5.8%; p≤0.001). Microbiocenosis indicators showed an increase in the proportion of family Enterobacteriacea (23.6 ± 6.9%) in patients with AR compared with surveyed with hormonal rhinitis – 1.92 ± 1.9% (p<0.05). The presence of 30.7% patients with thyroid disorders clinically significant microbial contamination (S. epidermidis, aureus, intermedius, Klebsiella pneumoniae) may be indicative of their potential role in the development of the pathological process in the nasal cavity and/or worsening symptoms of rhinitis.

**Conclusion**

It is believed that the particular microbial contamination of the nasal cavity at hormonal rhinitis adversely affect the physiological mechanisms of protection from the nose. This creates real conditions for the launch of the mechanism of infective inflammation of the nasal mucosa and affect the severity of chronic inflammation in the nasal cavity in patients with thyroid dysfunction.
Minimally Invasive Application of Botulinum Toxin A in Patients with Rhinitis

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Background: Botulinum toxin A has been investigated in the treatment of rhinitis by injection into the nasal cavity for therapy-resistant rhinitis. The aim of this study is to evaluate the effectiveness of a novel minimally invasive topical application of intranasal botulinum toxin A in the subjective relief in the symptoms of rhinitis and quality of life.

Design: A prospective cohort study design

Methods: 39 patients with rhinitis were studied from January 2016 to September 2016. A minimally invasive application of botulinum toxin A was investigated by applying ribbon gauze soaked with botulinum toxin A, 25 units in each nostril for 30 minutes. Visual Analog Scale (VAS) of symptoms scores (nasal congestion, rhinorrhea, post nasal drip, sneezing) and quality of life measured by Rhinoconjunctivitis Quality of Life Questionnaire Standard (RQLQ-S) were collected. The patients were followed up at weeks 1, 4, 8 and 12.

Results: VAS symptoms showed decrease of symptoms scores of nasal congestion, rhinorrhea, post nasal drip and sneezing. RQLQ-S showed clinically meaningful overall improvement in quality of life. In the separate domains of RQLQ-S, the domains of daily activities and nasal symptoms showed statistically significant changes.

Conclusion: In patients with therapy-resistant rhinitis, a novel minimally invasive application of topical intranasal botulinum toxin A with ribbon gauze can achieve long lasting improvement in symptoms and improvement in overall quality of life and daily activities.
Minimally Invasive Maxillary Sinus Approach

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Endoscopic endonasal interventions are widely used nowadays. The development of Functional Endoscopic Sinus Surgery significantly improved ways of treatment of paranasal sinus abnormalities. Maxillary sinus opening is one of the most common surgical procedures. External via anterior maxillary wall, lateral and via tooth line approaches are mostly using in stomatological and oncological practices. For rhinological situations endonasal sinus intervention is more preferable. Microscopes and endoscopes can be used endonasaly, intervention can be performed trans middle meatus or rarely via inferior meatus with artificial window formation.

Purpose: To analyze the effectiveness of the treatment of patients with various forms of pathology in the maxillary sinuses by intranasal endoscopic access to the sinuses through inferior nasal meatus.

Methods and materials: During the year 2015 336 patients were examined at the ENT department of the I.P. Pavlov 1st St. Petersburg State Medical University. The proportion of men and women accounted for 149 (44%) and 187 (56%). Mean age was 44 years old. 505 cases of the maxillary sinuses opening. Unilateral antrostomy was carried out in 228 cases (68%), bilateral – in 108 (42%) cases.

Surgical intervention was performed under general or local anaesthesia. After the inferior turbinate medialization and before the antrostomy Hasner's valve identification was carried out by means of rigid endoscopes 0 and 30 degrees.

The next step included antrostomy with raspatory through the lateral wall of the nasal cavity from the site of inferior turbinate attachment to the nasal floor within 1-1,5 cm, the produced flap drawn back and medially. The pathologic mass was then under the endoscopic control. At the end of surgical procedure osteo mucosal flap can be returned back to close gap of temporary approach and, if necessary mucosa can be fixed by sutures. Nasal packing is not indicated in most cases.

Results: The prevalent pathology is chronic rhinosinusitis with nasal polyposis and cystics. In case of any pathologic processes in the alveola area the preferable acces appears to be the inferior nasal meatus. Postoperative endoscopic view of the inferior nasal meatus in 2 month after surgery shows slight scar changes. The architecture of the sinus is reserved. Postoperative period and care is easy, surgery can be performed in the office.

Conclusion: Our experience shows the advantages of the abovementioned approach as one of minimally traumatic methods of maxillary sinus surgery.
Myiasis of the paranasal sinuses, about a case.

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Myiasis of the paranasal sinuses, about a case.

Proposal: case report and systematic literature review

Materials and methods: This video-poster describes a case of myiasis in a young soldier from a tropical climate zone, who was referred to our institution: Central Military Hospital of Bogotá-Colombia. Bibliographical research was also carried out using the words "nasal myiasis", "nasosinusal myiasis", "Dermatobia hominis", "cutaneus myiasis".

Results: Despite being a rare disease, there are still patients suffering from this entity, evidenced in the bibliographic search, where multiple reports of patients with this pathology are found, mainly in developing countries.

The mainstay of treatment is the eradication of insects from the cavities they inhabit. Use of the endoscope for identification is essential along with the use of antiparasitics and antibiotics to prevent secondary infections. Hygiene measures play a key role in this entity. However, there are no clinical practice guidelines in the literature that establish a standard treatment for nasosinusal miiasis.

Conclusion: Myiasis is a common disease in developing countries. However, its presentation in the nasal cavity and invasion of the paranasal sinuses is very rare and can occur in patients susceptible to infection by these insects. It is for this reason that the case draws attention and carries a review in the literature for its handling and reporting. With the video poster we want to report a case and its successful treatment with Endoscopic surgery and antiparasitics, carried out at the Central Military Hospital of Bogotá, Colombia.
Nasal cytology as a diagnostic tool for local allergic rhinitis

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Background: Nasal allergen provocation test (NAPT) is a gold standard for diagnosis of local allergic rhinitis (LAR) but it is still not widely conducted because of its high cost and time consuming. Eosinophilis is known as an important inflammatory marker in allergic rhinitis. Nonallergic rhinitis with eosinophilia syndrome (NARES) is characterized by chronic rhinitis with nasal eosinophilia in the absence of allergy demonstrated by skin prick test and/or serum specific IgE. We hypothesized that the nasal eosinophilia can use as a screening tool of LAR.

Methods: Forty-eight patients with nonallergic rhinitis (NAR) who having perennial rhinitis with negative skin prick test (SPT) were recruited. All patients underwent nasal scrapping and then the nasal smear for eosinophils were performed with Wright-Giemsa method. The NAPT was done for detecting local allergic rhinitis. Three allergen extracts (mixed mites, mixed cockroaches and Bermuda grass) were used for nasal challenges. The changes of nasal symptoms combined with the changes of minimal cross-sectional area of acoustic rhinometry were used for defining the positivity of NAPT. Sensitivity, specificity, positive predictive value and negative predictive value of nasal eosinophilia to detect LAR were calculated.

Results: The local allergic rhinitis was shown in 41.6% of nonallergic patients. There was 58 % of NAR with nasal eosinophilia. The sensitivity of nasal eosinophilia was 80% (95%CI 56.34% to 94.27%), the specificity was 57.14% (95%CI 37.18% to 75.54%), positive predictive value was 57.14% and negative predictive value was 80%. The major allergen of LAR is mixed mites.

Conclusion: Local allergic rhinitis is an entity of nonallergic rhinitis and it has high prevalence. The presence of eosinophils on nasal cytology is a good screening tool for the diagnosis of the local allergic rhinitis, however the specificity is low. Therefore, the nasal allergen provocation test is necessary for confirming diagnosis of LAR.
Nasal polyposis in the laryngectomy patients


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Nasal polyposis (NP) is a chronic inflammatory process of the nasal cavity and paranasal sinuses and arise from the mucosa around the middle meatus and usually cause nasal obstruction. Although the exact mechanism of nasal polyposis is unknown some are taught the reason as nasal physiology, anatomy and aerodynamic factors. A patient with laryngectomy uses tracheostomy instead of nasal airway for breathing. As the air do not pass from nasal cavity this may cause some physiological, cytological and histological changes in nasal cavity and mucosa. This phenomenon has been reported very rarely and this is the second report in the literature. Although the lower respiratory tract infections have been shown increased, there is no evidence for increased nasal cavity pathologies for laryngectomy patients. Here we reported two total laryngectomy cases diagnosed with nasal polyposis. Both two patients had total laryngectomy 15 and 36 years ago and did not have a predisposing factor for nasal polyposis. Both patients had been treated with endoscopic sinuse surgery and were symptom free. Histopathological analysis confirmed a diagnosis of inflammatuar nasal polyps. In this report we wanted to discuss the suspicious aetiological factors of nasal polyposis. We wanted to emphasize the importance of nasal examination in laryngectomy patients even they do not use nasal airway.
NAVIGATE II: A Randomized Double-Blind Trial of OPN-375, a Fluticasone Exhalation Delivery System (FLU-EDS) for Treatment of Chronic Rhinosinusitis with Nasal Polyps (Nasal Polyposis)


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Background: The FLU-EDS uses a new intranasal technology capable of significantly greater posterior/superior deposition than standard nasal sprays, particularly to the osteomeatal complex where sinus ostia drain and polyposis typically originate.

Methods: Randomized, 24 week (16 double-blind + 8 open-label), placebo-controlled study. Subjects (N=323, mean age=46, 87% prior intranasal steroids, 54% prior surgery) with CRSwNP and moderate-severe congestion were randomized to FLU-EDS doses of 93, 186, or 372µg bid or placebo EDS. All subjects received 372µg bid during the 8-week extension. Change in congestion scores (0-3) at 4 weeks and in bilateral polyp grade (0-6) at 16 weeks were co-primary endpoints.

Results: Changes in both co-primary endpoints (congestion and polyp grade) were significantly superior to placebo for each dose of FLU-EDS (p<0.001 vs placebo, all comparisons). Polyp reduction increased further through Week 24 (p<0.006 all comparisons vs placebo+372µg). After 24 weeks, polyps were eliminated in at least one nasal cavity in ~25-30% of subjects on FLU-EDS vs 8.7% in the placebo+372µg group (p<0.014, all comparisons). SinoNasal Outcome Test (SNOT-22) improvement was superior in all FLU-EDS groups versus placebo (p<0.001), as were improvements in symptoms of rhinorrhea, facial pain/pressure, sense of smell, global impression of change and multiple measures of function and quality of life (p<0.05, all comparisons). The incidence of adverse events was similar to reports with traditional intranasal steroids.

Conclusions: FLU-EDS produced clinically and statistically significant improvement on multiple objective and subjective measures, and in patient-perceived outcomes demonstrating the advantages of targeted deposition from the intranasal exhalation delivery system.
Neutrophil Lymphocyte ratio: A predictor of disease severity in Nasal Polyposis and AFRS?

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Objective / Hypothesis: To evaluate Neutrophil Lymphocyte ratio (NLR) as a predictor of disease severity in Nasal Polyposis (NP) and Allergic Fungal Rhino sinusitis (AFRS).

Methods: A case control study that included 100 subjects (30 controls and 35 cases of NP and 35 of AFRS) who presented with nasal complaints. Disease severity was graded based on Lund Mackay CT and endoscopic scoring. Patients were given preoperative oral steroids for two weeks. The pretreatment neutrophil lymphocyte ratios were calculated from the differential leucocyte counts and compared with the diseases severity and postoperative values.

Result: The mean age in our study was 30 ± 11 years with a male to female ratio of 1.6:1. Disease severity graded on Lund Mackay CT and endoscopic score in controls was 0.7 and 0.1 respectively. The CT severity score in patients with NP was 12.9 and changed to 1.2 (p < 0.01). In AFRS the pretreatment CT score changed from 15.1 to 0.75 (p < 0.01). The Endoscopic severity score in NP pretreatment was 2.8, which decreased to 0.03 post treatment. In AFRS this Endoscopic severity changed from 3.4 to 0.1 (p < 0.01). Pretreatment NLR in controls was 1.66 ± 0.33 and was taken as reference level for the study. Patients with NP had a mean pretreatment NLR of 2.03 ± 0.28, which reduced to 1.68 ± 0.43 post treatment (p < 0.01). NLR in AFRS changed from 2.15 ± 0.62 to 1.78 ± 0.36 post treatment (p < 0.01). Seven patients of AFRS had evidence of bony erosion with intracranial or intra-orbital disease. They had a significantly higher mean NLR of 2.4 ± 0.4 (p < 0.01). NLR showed a linear variation with disease severity (p > 0.05).

Conclusion: NLR correlates to the disease severity and showed a linear correlation with the extent of the disease (p > 0.05). Persistently higher NLR in AFRS even after treatment suggests the need for long-term anti-inflammatory treatment. Bony erosion in AFRS might be due to long standing chronic inflammation and not due to invasiveness. NLR is a reliable independent risk factor of disease persistence and recurrences after treatment in NP and AFRS. NLR can be used as a cost effective novel biomarker in remote areas to predict recurrences and keep track of treatment response.

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New Exhalation Delivery Systems (EDS) Enhance Topical Steroid Delivery In Chronic Rhinosinusitis With Nasal Polyps

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Purpose: Nasal polyps typically originate in the middle or superior meatus. Natural properties of nasal anatomy and aerodynamics seriously limit the ability of conventional nasal sprays to effectively deliver medication to superior/posterior nasal regions. Administering topical steroid (fluticasone) using a promising new delivery mechanism, an Exhalation Delivery System (EDS), has been found to produce significant polyp reduction, even elimination, in chronic rhinosinusitis with nasal polyps (CRSwNP) suggesting this limitation can be overcome.

Methods: Devices utilizing the EDS delivery mechanism dynamically seals the soft palate, expand nasal passages, and propel medication superiorly/posteriorly beyond the nasal valve. Nasal geometry in CRSwNP-patients was assessed using CT and acoustic rhinometry. Deposition patterns using EDS devices were assessed endoscopically after colored dye delivery and by gamma-scintigraphy in five CRSwNP patients. Comparisons of EDS and traditional spray delivery were also made using dye and color-changing gel in anatomically correct casts (CT-validated).

Results: In patients, the presence, location and degree of polyp obstruction was documented by CT, AR and endoscopy. Endoscopic and scintigraphic images after delivery of colored dye and radiolabeled saline, respectively, demonstrate deep and extensive medication deposition on the polyp surfaces and regions in CRSwNP patients using an EDS. Photos of deposition patterns in anatomically correct casts visually illustrate that the liquid EDS delivers considerably more medication to the middle and superior meatuses than conventional nasal spray.

Conclusions: EDS delivery reaches the polyp surfaces in CRSwNP patients and cast studies show improved deposition in regions of the nasal cavity (middle and upper meatus) where sinuses drain and polyps originate.
Non-adherence to sublingual immunotherapy in allergic rhinitis: a real-life analysis

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Purpose: To ensure an adequate duration of treatment and sustain the long-lasting beneficial effects of allergen specific sublingual immunotherapy (SLIT), the causes leading to premature discontinuation of SLIT in allergic rhinitis was investigated and analyzed, the corresponding countermeasures for the following SLIT course will be provide.

Methods: A retrospective analysis of data from 142 patients with allergic rhinitis starting SLIT during December 2009 to February 2015 was performed. Patients who discontinued SLIT during the first year treatment were contacted and the reasons of quitting treatment were recorded and analyzed.

Results: 76 out of 142 (53.52%) patients with allergic rhinitis terminated immunotherapy during the first year treatment. Among the 76 patients, the following reasons were cited for non-adherence to immunotherapy: lost to follow up because of the telephone number changing (25%), patient-perceived ineffectiveness (24%), the long course of treatment (18%), symptoms improvement (13%), the side effects (4%), lack of confidence on the treatments (4%), other reasons (12%).

Conclusion: Percentage of premature termination in the first year of sublingual specific immunotherapy to allergic rhinitis patients was comparatively high. Among the various factors, lost to follow up, patient-perceived ineffectiveness and the long course were the main impact factors. According to these reasons, the corresponding countermeasures will be performed including detailed patients information recording, timely stage following-up, effective patient education. Besides, the systemic patient managements should be improved.
Novel Exhalation Nasal Delivery Systems (EDS) May Produce Beneficial Activity Independent of Delivered Drug in Inflammatory Nasal Diseases and Migraine via Exhaled CO2 and Mucosal pH

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BACKGROUND: Nasal delivery of CO2 (alone) has shown benefits in migraine and allergic rhinitis. An hypothesized action is via reduction in mucosal pH, which in turn desensitizes trigeminal nerves, reduces CGRP-release and mast cell degranulation. We investigated whether CO2 in the exhaled air, essential to nasal drug delivery with Exhalation Delivery Systems, can produce pH changes similar to exogenous CO2.

METHODS: Disposable 1.6mm Versaflex pH catheters (SynMed, UK), Digitrapper pH-Z System pH sensors, AccuView software (Sierra Scientific Instruments, USA) were used. The pH-sensor was inserted 4-5 cm into the middle part of the nose in a healthy male during use of empty powder and liquid EDS. Measured pH changes and calculated CO2 exposure were compared to published studies with concentrated exogenous CO2 delivery.

RESULTS: Exhalation delivery systems produced reduction in pH (0.2-0.3 pH units) similar to 15% and 45% CO2 delivered passively in 3 second pulses. Calculated CO2 exposure was: 1) passive cannula delivery (Shusterman 2003)=5 l/min/15%x3sec=37.5 ml CO2 (12.5ml/sec), 2) Exhalation delivery=15-30 l/min/5%x3sec=37.5-75 ml CO2 (12.5-25ml/sec), 3) Migraine (Spierings 2008) and Allergic Rhinitis (Casale 2008) 100% CO2 (10ml/sec) treatment trials.

CONCLUSION: Exhalation delivery systems are estimated to produce similar mucosal pH changes and CO2 exposure (ml/sec) to that achieved with exogenous CO2 in successful treatment trials in nasal inflammatory disease (allergic rhinitis) and migraine. The mechanism of action and aerodynamics of exhalation delivery, including exhaled CO2 and associated mechanisms like pressure, vibration and Nitric Oxide removal, may contribute, additively or synergistically, to clinical response in migraine and chronic rhinosinusitis.
ON SOME DIFFERENCES IN PROTEOLYTIC INDICES OF NASAL POLYPS' TISSUES WITH AND SINE ALLERGY


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Proteolytic indices of nasal polyps tissues of patients with chronic polypous rhinosinusitis with allergy (CPRSwA) were compared with ones of patients sine allergy (CPRSsA).

State of the problem:

Widespread of allergic and non-allergic forms of polypous rhinosinusitis encourages to the study of differences in properties of the tissues at both forms of disease. In this regard, the indices of proteolysis reflect the both passage of metabolic processes, and they differ depending on the presence or absence of allergy. On the other hand, differences in proteolytic processes can be directly related to the formation of an unbalanced immune response.

Objective: Trypsin-, thrombin-, kallikrein, and plasmin-like activities of nasal polyps tissues.

Materials and Methods: 7 patients with CPRSwA and 21 patients with CPRSsA were tested by indices proteolysis of nasal polyps tissues.

Results: Comparison of the indices of the studied groups of patients shows a reliable and significant decrease of trypsin-, thrombin-, and plasmin-like activities in the case of CPRSwA versus CPRSsA. In contrast, differences in the kallikrein-like activity were negligible.

Conclusions: The results show significant differences in key indicators of proteolysis in polyp tissues at CPRSwA. It may cause the formation of various forms of structurally damaged proteins and, as a consequence, lead to the formation of an unbalanced immune response.

Key words: polypous rhinosinusitis with allergy, polypous rhinosinusitis sine allergy, proteolysis.
Oncologic outcomes of endoscopic resection of sinonasal cancers (with and without craniotomy) in a comprehensive cancer center

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We perform a prospective review of patients with sinonasal cancers treated consecutively with endoscopic endonasal surgery in a tertiary care academic cancer center (Gustave Roussy Cancer Center, Grand Paris, France) between 2012 and 2016.

Of a total of 68 patients, 62 (91.1%) underwent an exclusively endoscopic approach. Endoscopic transnasal craniectomy was performed in 15 cases (21.6%). Five patients (7.3%) underwent a combined cranioendoscopic approach (transcribriform approach associated with a subfrontal craniotomy). Endoscopic nasopharyngectomy was performed in eleven cases (16.1%).

Of the 68 patients, 54 (79.4%) presented with previously untreated disease, 6 (8.8%) with persistent disease that had been partially resected, and 8 (11.7%) with recurrent disease after prior treatment.

The most common site of tumor origin was the ethmoid sinus (61.7%) followed by the nasal cavity (31.9%). Tumors extended to skull base in 72.3% with bone invasion in 25.5% of cases. An intracranial involvement was observed in 20% of the patients.

The most common histologic subtypes were ITAC (34.1%), mucosal melanoma (24.1%), olfactory neuroblastoma (17%) and sarcomas (12.2%).

The primary T stage was T1-T2 9,5% and T3-T4 90,5% (with T4a 31.4% and T4b 22,6%).

Neo-adjuvant chemotherapy was performed in 23,3 % of cases. 87.8% of patients received post-operative radiation therapy by IMRT.

The overall surgical complication rate was 11,6 % for the whole group. No postoperative cerebrospinal fluid leakage occurred. Microscopically negative margins were reported in 80% of patients.

With a mean follow-up of 30 months, 2 patients (4.2%) experienced local recurrence. Regional and distant failure occurred in 1 and 2 cases, respectively. The 2-year disease-free survival rate was 91.7%. The 2-year disease-specific survival rate was 95.7%.

Our results suggest that, in well-selected patients, endoscopic resection of sinonasal cancers followed by radiotherapy results in acceptable oncologic outcomes.
Purpose: to examine the possibilities of an electromagnetic navigation in the surgery of tumors of the paranasal sinuses and skull base.

Materials, methods and results:

From February 2015 to September 2016, we conducted 8 operations using electromagnetic surgical navigation system for ENT Digi Poiteur, Collin. The basic advantages of the system are the simplicity of setup, accurate 3D-image, the ability to work without creating any special conditions.

5 out of 8 patients under observation (4 male and 1 female), aged 50 to 69, had the verified diagnosis of the paranasal sinuses inverted papilloma with the spreading of the process to the skull base and partial destruction of bony structures. One of the most interesting cases was the patient with the recurrence of the inverted papilloma for the 4th time. In one of the cases the anterior skull base and the dura mater were damaged by the tumor. The tumor was completely removed with the involved part of the dura mater. The skull base was reconstructed using the displaced vascularized pedicle flap. The patient was followed over a year and neither cerebrospinal fluid leak, no tumor recurrence were observed.

In two other cases the navigation was used to remove frontoethmoidal osteoma spreading to the area of the orbit, skull base, including the anterior and posterior ethmoidal arteries. These patients had a partial block of the sinuses ostium and the development of secondary inflammation in the frontal sinus and the ethmoidal cells. The tumors were successfully removed without invasion into the cranial cavity. The patients were under observation over a year, with no evidence of cerebrospinal fluid leaks, visual disturbances or recurrence of the tumor.

Another interesting case of the 52 years old female with bilateral congenital giant dacryocystocele extending to ethmoidal cells and nasal cavity. The patient underwent the successful surgery with the use of navigation. The broad dacryocystorhinostomy was performed. The passage of lacrimal pathways and the movement of the eyeballs were restored, the eye muscles were not injured. The side vision was gradually improved without diplopia. Observation during 1 year 7 months showed no evidence of deterioration.

Conclusions:

Using the navigation technique to facilitate surgical access and search the anatomical landmarks in patients with complicated cases of extensive disseminating pathological process into the skull base, neurovascular structures and orbit, with multiple surgeries in the past, reduces the risk of the life-threatening complications.
PECULIARITIES OF DIAGNOSIS IN CHRONIC NASAL BREATHING DISORDERS

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PECULIARITIES OF DIAGNOSIS IN CHRONIC NASAL BREATHING DISORDERS


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Recurrent or permanent difficulty in nasal breathing triggers the development of various abnormalities and alterations of the lateral wall of the nasal cavity (concha bullosa, bulla ethmoidalis, uncinate process abnormalities). Prolonged nasal breathing difficulty affects the condition of the lower airways through nasopulmonary reflexes causing an increase in pulmonary resistance, which in turn leads to structural changes of the nasal cavity and upper respiratory tract.

The need for nasal breathing forces the patient to use decongestants, which contribute to generalized vascular spasm, as the nasal cavity is an essential reflexogenic zone.

The patient becomes aware of impaired nasal breathing only in the forced mode, in physical exert, when the nose does not pass the required amount oxygen during one breath. This leads to a transition to mouth breathing. Rhinomanometry is currently the main method of nasal breathing diagnosis which is used to determine the pressure drop and the corresponding flow of air through the nasal cavity.

The studies performed in the clinic of Kharkiv National Medical University with administration of rear active rhinomanometry in forced breathing at the initial stage of the inspiratory cycle showed a directly proportional relationship between the pressure drop and air flow rate, which is characteristic of laminar flow, followed by a transition to pronounced turbulent flow regime.

It is of interest to further study the air flow patterns in the nasal cavity over time during forced breathing, providing a maximum supply of oxygen to the lungs. The later (at a higher air flow rate) the transition to the turbulent regime, the more possible it is to achieve greater air flow rate with nasal breathing. The relatively rapid transition to the apparent turbulent regime in patients with chronic obstruction of nasal breathing leads to a rather slow increase in the air flow rate and even when approaching the normal indices, due to strong tension of the respiratory muscles, it causes excessive fatigue and, as a consequence, transition to non-physiological mouth breathing. Thus, in surgical correction of severe chronic nasal breathing disorders it is necessary to take into account the patient’s lifestyle.
Objective: the objective of this study was to describe the clinical manifestations, the intra-operative findings of a series of 8 cases of post-traumatic mucoceles, and to discuss the surgical techniques applied for those cases.

Paranasal sinus mucoceles are epithelium-lined, mucus-containing sacs that are resulted from the obstruction of the sinus ostium. The causes of paranasal sinus mucoceles are previous surgery, inflammation, or fracture. Among them, Post-traumatic paranasal sinus mucocele remains the most difficult one to deal with due to bony anatomical distortion. We report a series of 8 cases including frontal, frontal-ethmodal and ethmoidal-cristagali post-traumatic mucoceles. The most common symptom is proptosis that appeared late after previous head trauma. All cases were operated endoscopically at ENT Hospital of Ho Chi Minh city – Vietnam. The bone fractures, the anatomical distortion and the protrusion of orbital fat made it difficult to drain the mucocele and to create a large opening afterwards. Septated mucoceles were found in 3 cases and were drained completely. Image guided navigation system was used in all operations which was very useful to identify critical surgical landmarks and to localize deep and hard-to-reach mucoceles. No surgical complications were noted. The surgical techniques and the results will be discussed.
Preservation of Natural Frontal Sinus Outflow with the "umbrella" subdural stent

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Preservation of Natural Frontal Sinus Outflow with the "umbrella" subdural stent

Introduction: Contemporary endonasal sinus surgery has given rise to distinct extended procedures focusing on the frontal sinus. However, surgical results sometimes are flawed, with reactive scarring leading to a relapse of insufficiency of drainage and ventilation. The frontal sinus remains one of the most complexes sinonasal regions to operate, representing a challenge for even the most experienced surgeons. Recently, stents created to prevent that two raw surfaces come into contact, seem to improve this decision. We present a new device, our "umbrella" subdural stent placed in the outflow tract of the frontal sinus to solve its chronic diseases. We have developed an innovative stenting system that preserves the merits of frontal sinus stents and provides in addition the precise administration of pharmaceutical active agents through the polymer.

Material and methods: Retrospective review of the medical and surgical outcomes of patients implanted with the "umbrella" subdural sinus stents placed during four years were revised.

Results: During the 4-year study period, 15 stents were implanted in the frontal sinus. Each patient had a single stent placed, except two who were placed double. At the time of surgery, the average age was 45 years. In eleven patients were placed the stent by endoscopic approach alone, the rest was a mixed approach. The mean length of stenting was 18.4 months (median 16.4, range 3 to 33). Four patient had the stent removed because of infection, granuloma, pain and local edema. The remaining patients remain asymptomatic with patent stents and no granulation tissue seen on nasal endoscopy.

Conclusion: In our group, placing this new type of stent in the frontal sinus is associated with significant improvements in the control of chronic relapsing disease. There are two properties of the design of this stent that make it ideal, firstly, it is self-retaining, eliminating the need for fixation sutures and secondly, the stent has a considerable available length. Maintaining the nasofrontal duct (NFD) stent for long periods of time can cause unwanted consequences, such as foreign body reaction, requiring the withdrawal, so patients should be followed regularly to prevent complications.
CORRELATION BETWEEN ALLERGIC RHINOSINUSITIS AND BRONCIAL ASTHMA IN PATIENTS ATTENDING OUR ENT DEPARTMENT

Authors: Dr. P. S. N. Murthy, DLO, MS, FACS, FICS

Context: Allergic rhinitis and asthma are both chronic heterogeneous disorders, with an overlapping epidemiology of prevalence, health care costs and social costs in quality of life. Both are inflammatory disorders with a similar pathophysiology.

Problem: Rhinitis occurs in more than three fourth of the patients suffering with allergic asthma. It is also noted that adults with a family history of asthma or rhinitis have a three to four fold risk for developing asthma and two- to six fold for developing rhinitis versus control.

Assessment of Problem: Release of mediators, postnasal drip, mouth breathing secondary to nasal obstruction stand as factors leading to allergic asthma.

Study Design/Instrument: The study made a correlation between allergic Rhino Sinusitis and bronchial asthma. A sample of 50 (25+25; allergic Rhino Sinusitis and bronchial asthma) were taken. After selecting the patients, those with Allergic Rhino Sinusitis were evaluated for Bronchial Asthma.

Outcome Measures: Patients with bronchial asthma were evaluated for Allergic Rhino Sinusitis through a series of case study, questionnaire, and confirmation studies by spirometry.

Results: In patients with allergic rhinitis (n=25): Patients showing only allergic rhino sinusitis 76% (19). Patients showing both allergic rhino sinusitis and bronchial asthma accounted to 24% (6). Among these 24% (6) allergic rhino sinusitis always led to bronchial asthma in 33%. In the rest 66.6% allergic rhino sinusitis did not always lead to bronchial asthma.

In patients with Bronchial asthma (n=25): 92% of the patients gave a history of allergic rhinitis preceding asthma attack. Remaining 8% showed bronchial asthma on too high emotional stimulus.

Conclusions: In 92% patients having allergic bronchial asthma, there is a preceding history of allergic rhinitis. In 24% of patients with allergic rhinitis there is occult bronchial asthma.

Future Implications: In patients showing both allergic rhinitis and bronchial asthma, if allergic rhinitis is properly treated progression to bronchial asthma might be stopped or at least a reduction in severity can be achieved in that way the morbidity due to bronchial asthma can be reduced.
Retinoids Activate the Production of Tissue Plasminogen Activator in Human Epithelial Cells


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Rationale: Recent data from our laboratory suggested nasal polyps (NP) in chronic rhinosinusitis which is characterized by type 2 related inflammation is associated with fibrin deposition. This is likely to be caused by potent decrease of tissue plasminogen activator (t-PA) in polyp tissue. The aims of present study were to investigate how t-PA gene expression was altered by various stimulants, and to study whether t-PA was stored and/or released by normal human bronchial epithelial (NHBE) cells. Furthermore, we explored whether retinoic acid which is necessary to maintain epithelial function might be involved in polyp pathophysiology.

Methods: NHBE was stimulated by cytokines (IL-1β, IL-4, IL-6, IL-13, IL-17, IFN-γ, TNF-α), Toll-like receptor agonists (LPS, poly I:C), growth factors (TGF-β, EGF, VEGF, FGF-basic), hormones (dexamethasone, retinoic acid (RA), vitamin D3, estrogen), histone deacetylase inhibitors (butyrate, trichostatin A), cyclic AMP inducer (forskolin), protein kinase C activator (PMA) and statins (symbastatin, fluvastatin) for 24hrs. The expression of t-PA mRNA was analyzed by real-time PCR. The production of t-PA protein from supernatant and cell lysate was analyzed by ELISA. Concentration of t-PA and RA in nasal tissue was measured by ELISA.

Results: IL-13 (100ng/ml) significantly reduced t-PA mRNA expression by 40%, while RA (1μM) induced 8 times higher than control (p < 0.05 respectively). Approximately 80% of t-PA produced was released into supernatant consistently. RA restored t-PA production on IL-13 suppression. Furthermore, the levels of RA in polyps were significantly lower compared with uncinate tissue. Significant correlation was found between t-PA and RA in nasal tissue. The levels of RA, t-PA and d-dimer were lower in polyps with aspirin exacerbated respiratory disease (AERD) patients.

Conclusion: T-PA protein is synthesized and released by NHBE. The amount of released t-PA is higher than in cell lysate which suggests epithelial cell plays a role in constitutive production of t-PA. Type 2 cytokine and RA have potent relevance to alter t-PA production in NHBE. RA might be associated with basic secretion of t-PA in nasal tissue and severity of CRS. Administration of retinoids to the patients with CRSwNP might be therapeutic agent to control nasal polyps.
RA-ANA-57

RHINOLOGY & ALLERGY – Allergic and Non-Allergic Rhinitis

Risk Factors of Early Adverse Events and Their Impact on Treatment Outcome in Sublingual Immunotherapy for Allergic Rhinitis. Jae-Cheul Ahn1, Sang Yeon Lee2, Sue Jean Mun3, Jae Hyun Lim2, Jeong-Whun Kim2, Doo Hee Han4, Dong-Young Kim4, Chul Hee Lee


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Background: Most of adverse events of sublingual immunotherapy (SLIT) are local reactions. They appear at the beginning of SLIT and could resolve within a few days or weeks. However, there was no generally accepted system for them and no proven predisposing factors for them. This study aimed to find the prevalence and risk factors for early adverse events (EAE) during house dust mite (HDM) SLIT and to investigate the influence of adverse events on treatment outcome of SLIT.

Methods: As a retrospective cohort study, the study included 173 patients with allergy rhinitis sensitized to HDM who treated HDM SLIT for at least 6 months from 2010 through 2012. The baseline demographic and clinical information was collected before SLIT. Total nasal symptoms score (TNSS) was asked before and during the SLIT. Rescue medication score (RMS) was calculated by the statement of World Allergy Organization taskforce. The EAE were defined as adverse events occurring within the first two weeks of the SLIT. They classified into three groups (local EAE [L-EAE], early aggravation of nasal symptoms [EA-NS], and systemic EAE [S-EAE]).

Results: Six-month TNSS and RMS were improved significantly from the baseline. EAE occurred in 101 (58.4%) patients: 45 (26.0%), 81 (46.8%), and 31 (17.9%) patients of L-EAE, EA-NS, S-EAE, respectively. Familial rhinitis and atopic dermatitis are risk factors for EAE (OR = 2.038, 95% CI 1.007 – 4.124, P = 0.048 and 2.418, 1.075 – 5.439, 0.033). Seasonal rhinitis and atopic dermatitis are risk factors for EA-NS (2.126, 1.054 – 4.288, 0.035 and 2.315, 1.096 – 4.890, 0.028). Familial rhinitis and age over 20 are risk factors for S-EAE (2.614, 1.075 – 6.357, 0.034 and 3.596, 1.377 – 9.390, 0.009). For treatment outcome, there was no different in improvement of TNSS and RMS between EAE group and no adverse event group.

Conclusion: EAE were common in HDM SLIT and did not impair clinical improvement in subjective symptoms and objective reduction of rescue medication. Although most of EAE was spontaneously resolved, physicians should carefully concern the patients with familial history, atopic dermatitis, seasonal symptoms, and age over 20.
Gut microbiota and the host have a symbiotic relationship, whereas altered gut microbiota has been associated with immune-mediated diseases, including allergic airway diseases. The first colonizers are derived from the mother before and during delivery and there is emerging evidence of an early-life critical window, when the effects of gut microbial dysbiosis are most influential in immune development at the mucosal surfaces. Here we sought to further clarify the pathophysiology of allergic airway diseases by determining whether perinatal antibiotic treatment has altered gut microbiota and regulates susceptibility to a TH2 model of allergic asthma. Allergic asthma was induced BALB/c wild-type mice treated perinatally with ampicillin, vancomycin, and metronidazole in drinking water. Disease severity was assessed by measuring lung inflammation, pathology, cytokine response, and serum antibodies. Microbial community analyses were performed on stool samples via Next Generation Sequencing. We found that perinatal triple antibiotics treatment profoundly altered the gut microbial composition and were not observed to develop phenotype of allergic asthma. Perinatal antigen exposure of mice elicited a splenomegaly that was induced by neutrophils in spleen. Interestingly, we showed a decreased in dendritic cells of lung which reside in asthmatic neonatal group. Our findings will inform the development of novel approaches to investigate the relationship lung-gut axis based on modulating the composition of the gut microbiota.
Safety and efficacy of betamethasone nasal irrigation – a preliminary report on a novel formulation

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Purpose:
Corticosteroids form a mainstay of therapy for chronic rhinosinusitis with and without polyps. These have traditionally been administered intranasally via metered dose sprays, but therapeutic delivery has been found to be suboptimal, especially in the post-operative setting. Recently, a variety of alternative delivery modalities have been explored, including nasal steroid irrigations constituted by adding corticosteroids into a saline rinse. The most commonly used and studied preparation is the budesonide ampoule originally used for nebulization treatment in asthma. Due to the cost and unavailability of this medication in our institution, we proposed compounding a cheaper alternative from the corticosteroids available from our pharmacy. Betamethasone valerate solution was found to be the cheapest option which was miscible in saline solution and maintained stability. In this pilot study, we describe preliminary safety and efficacy data of this solution.

Materials and methods:
A retrospective chart review of 33 patients who had been prescribed our betamethasone nasal irrigation solution was performed. Adverse events and other subjective patient feedback were reviewed. Secondary outcome measures included patients’ symptom severity, sinonasal endoscopic findings, and SNOT-20 scores. Patients were followed up for 6 months to a year.

Results:
Of the 33 patients, one elderly patient dropped out of the study as she found the preparation of the solution too troublesome (n = 32). Only one patient (3.1%) experienced an adverse effect (scalp itch), which may not have been directly related to the treatment. Two patients (6.3%) found the smell of the solution unacceptable. 27 patients (84.3%) experienced an improvement in symptoms and endoscopic findings. Of these, 4 patients (12.5%) were de-escalated back to nasal sprays as they were clinically much better.

Conclusion:
Our novel betamethasone nasal irrigation solution is safe to use in patients and shows promising efficacy data, although more detailed study needs to be performed with longer follow-up to obtain more safety and efficacy data.
seromucous otitis AND nasal polyposis : to explain the association


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Introduction :

L'association entre l'otiteséromuqueuse( OSM) et la polyposie nasosinusienne ( PNS) est peu décrite dans la littérature, bien que la présence d’une OSM est considérée comme un facteur de sévérité de la maladie inflammatoire.

L'objectif de notre travail est d'étudier la fréquence de l'OSM au sein d'une population ayant une PNS et d'analyser les caractéristiques épidémio-cliniques des patients avec OSM.

Matériels et méthodes :

Etude prospective intéressant 25 malades opérés pour PNS dans notre service durant une période de 3 ans ( Janvier 2012 - Décembre 2014). Tous les patients ont eu en préopératoire un examen otologique complété par une audiométrie tonale avec impédancemétrie. Le diagnostic d'otite séromuqueuse était posé sur les données cliniques et audiométriques.

Résultats :

Notre série comportait 9 hommes et 16 femmes. L'âge moyen était de 44 ans avec des extrêmes allant de 17 à 58 ans. 8 patients étaient asthmatiques et deux avaient une maladie de Widal. Le délai moyen d’évolution de la maladie avant la chirurgie était de 5.6 ans (1 – 25 ans). A l’examen, 8 patients avaient une PNS bilatérale classé stade IV, 14 avaient un stade III et 3 avaient un stade II. Parmi les 25 malades, 40% avaient une otite séromuqueuse. Dans cette sous population, 4 étaient asthmatiques et un avait la maladie de Widal. Une hypoacousie a été rapportée dans 3 cas. La PNS était classée stade IV dans 4 cas et stade III dans 6 cas. L’OSM était unilatérale dans 7 cas et bilatérale dans 3 cas. Tous les patients de l’étude ont eu un traitement chirurgical à type de polypectomie dans 5 cas et d’éthmoidectomie bilatérale fonctionnelle dans 20 cas. En postopératoire, Une corticothérapie locale inhalée au long court a été indiquée chez tous patients associée à un traitement antibiotique à base de macrolide pendant 2 à 3 mois dans 11 cas. 6 patients ont présenté une récidive de leur maladie dont 4 avaient une OSM associée.

Conclusion : La fréquence de l’OSM chez les patients présentant une PNS est nettement plus élevé que celle observé dans la population générale. Un suivi otologique régulier est nécessaire chez ces patients afin de dépister une OSM associée et de la traiter précocement.
Surgeons spend most of their professional life acquiring new surgical skills and learning new surgical procedures. On the way of building up an endoscopic sinus surgeon, some may get confused; what should we do first on our way to professionalism. This suggested seven-block pyramid model is just our own limited personal experience to help other junior physicians to arrange their priorities while being on their way in endoscopic sinus surgery.

Keywords: author’s first paper, endoscopic sinus surgery, learning curve

1- Place yourself at the feet of the greats: Trainees should carefully observe their professors in important but unnoticed aspects, such as their demeanor, comments, appearance, punctuality, composure, acceptance of responsibility, and interaction with team members and patients.

2- Read: There are two kinds of physicians: those who read and those who do not. Read textbooks because they cover the basics, and 90% of people do not know what is in them. Articles are for later. Remember Darwin’s theory of medical education: ‘It cannot be that rare if you are seeing it’.

3- Watch and ask: Try to attend live surgeries, especially of the experts, as much as you can. In addition, try to read about every case before going to the operative theater, especially rare ones. Compare what you have read with what the patient has. Ask about anything that does not match or you do not understand.

4- Surgical simulation: A novice surgeon must master the required skills of camera navigation, demonstrate familiarity with instruments, develop good hand–eye coordination, and exhibit bimanual dexterity. We believe that an exhaustive private anatomy study, attending many live surgeries, and subsequently an endoscopic sinus dissection course, and at last beginning step by step surgery under complete supervision will help you to overcome this obstacle.

5- Learning curve: Endoscopic sinus surgery has a long learning curve that should deal with issues of endoscopic anatomy, instrumentation, two-dimensional visualization, team dynamics, and dealing with complications. Do not rush; working under complete supervision, in a step by step manner, is one of the most trusted methods to reach the top of the ladder.

6- Documentation: Document all what you see and all the procedures that you do. Remember that very rare case reports come from very simply appearing cases.

7- Presentation: Presentation of your data, or ideas, in a journal or a conference represents a mandatory cornerstone in your career. An author’s first paper is often the most difficult to write.
Severity of nasal obstruction associated with postural change measured using acoustic rhinometry and its association with allergic rhinitis

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Background

Acoustic rhinometry is validated in quantifying nasal obstruction, which is associated with postural change from seated to supine positions. It can evaluate severity of nasal obstruction in patients with allergic rhinitis (AR).

Aim

Our study aims to utilize acoustic rhinometry to correlate nasal obstruction with postural change, and determine if postural changes increase the severity of nasal obstruction in AR patients.

Methods

51 adult volunteers (mean age 25.4 years, 39.2% male, 60.8% female) underwent acoustic rhinometry at the Department of Otolaryngology, National University Hospital. A pre-test questionnaire and skin prick test identified 12 participants with AR (not actively treated). Acoustic rhinometry measured minimum nasal cross-sectional area(MCA), nasal volume(NV), and cross sectional area(CSA). CSA reference points included the anterior end(3cm), midpoint(4cm), and posterior end(5cm) of the inferior turbinate.

All measurements were repeated 3 times when seated(0 min), 15 and 30 minutes after lying supine.

Results

In the cohort’s left(L) and right(R) nasal cavities, there were consistent decreases of mean MCA, CSA and NV with postural change. Mean MCA decreased from 0.531(L) and 0.569 cm²(R) at 0 minute, to 0.417, 0.417cm²(L) and 0.445, 0.439cm²(R) at time 15 and 30 minutes respectively. Mean NV decreased from 4.53(L) and 4.98 cm³ at 0 minute, to 3.88, 3.89cm³(L) and 4.13, 4.00cm³(R) at 15 and 30 minutes respectively.

At 15 and 30 minutes, CSA at 3cm decreased from 0.914 to 0.751 and 0.729cm²(L), and from 1.04 to 0.840 and 0.789cm²(R).

At 4cm, CSA decreased from 1.17 to 0.951 and 0.941cm²(L), and from 1.33 to 1.04 and 0.973cm²(R).

At 5cm, CSA decreased from 1.62 to 1.28 and 1.23cm²(L), and from 1.78 to 1.36 and 1.31cm²(R).

The percentage of total reduction in mean MCA at 15 minutes was 100%(L) and 95.2%(R). NV reduced by 83.6%(L) and 86.8%(R) at 15 minutes.

For CSA measured at 3cm, 4cm and 5cm, the percentage of total reduction was 88.1%(L) and 79.7%(R), 95.4%(L) and 81.3%(R), and 87.1%(L) and 89.4%(R) respectively.
After 30 minutes, AR subjects experienced NV reduction by 22.4%(L) and 27.1%(R), compared to 11.8%(L) and 17.5%(R) in healthy subjects.

Differences in 30 minute CSA reduction at 3cm [31.9% vs 16.8%(L), 32.6% vs 21.6%(R)], at 4cm [31.0% vs 16.6%(L), 35.4% vs 24.4%(R)], and at 5cm [30.3% vs 22.4%(L), 33.3% vs 24.3%(R)], were measured in AR and healthy subjects respectively.

Conclusion

Postural change increases nasal obstruction, mostly occurring within 15 minutes of lying supine. Subjects with AR experienced increased severity of nasal obstruction.
Sinonasal change after Allergen Challenge in Mice Deficient in CC Chemokine Receptor-2
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To evaluate the change of sinonasal cavities and airway after allergen challenge, mutant mice deficient in CCR2 and intact mice were sensitized with intraperitoneal ovalbumin(OVA) with alunon, days 0 and 7, and challenged by inhalation with nebulization of either OVA or saline. Airway hypereactivity, measured by the methacholine provoked increase in enhanced pause, was significantly increased in OVA challenged CCR2 mutant mice, compared with comparably challenged CCR2 mice. OVA challenged mutants were also found to have enhanced bronchoalveolar lavage fluid eosinophilia, peribronchiolar cellular cuffing, and Ig subclass switching, with increase in OVA specific IgG1 and IgE. In addition, RNase protection assay revealed increased whole lung expression of IL-13 in OVA challenged mutants. Unexpectedly, serum monocyte chemotactic protein-1 levels were 8-fold higher in mutants than in intact mice sensitized to OVA, but OVA challenge had no additional effect on circulating monocyte chemotactic protein-1 in either genotype. Ag stimulation of lymphocytes isolated from OVA sensitized mutants revealed a significant increase in IL-5 production, which defer from OVA-stimulated lymphocytes from sensitized intact mice. Especially maxillary sinuse in OVA challenged mice showed mucus filled in both groups. These experiments demonstrate an enhanced response in airway reactivity and sinus, lung inflammation in mutants mice compared with sensitized and challenged intact mice. These observations suggest that CC chemokine and their receptors are involved in immunomodulation in allergy.
Sinonasal Respiratory Epithelial Adenomatous Hamartoma (REAH): our experience about 81 cases.

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Introduction: REAH was first described in 1995 by Wening and Heffner. In 2014, according to Jankowski and al., only 394 cases were published. There are 2 forms of REAH: associated or not with nasal polyposis (NP). We questioned on its frequency, clinical presentation and treatment of REAH in our center.

Methods: This is a retrospective monocentric study – leading to diagnosis of REAH condition in the Universitary Hospital of Montpellier (France), from 2010 to 2016, based on pathological finding of REAH. We analyzed age at diagnosis, sex ratio, duration and types of symptoms, location of REAH, complication of surgery and results on sense of smell.

Results: 81 cases of REAH were exclusively treated with endoscopic surgical procedures. 30 females and 51 males were included, aged 16 to 84 years (average 56 years). Symptoms leading to diagnosis was hypo- or anosmia (n=48; 59,3%), nasal obstruction (n=45; 55,6%), pseudo-tumorous syndrome (n=13; 16%). REAH was associated with NP in 55 patients (67,9%), with an average length of NP of 12,8 years. REAH was associated with NP and cystic fibrosis in 2 patients (2,5%). Anatomical location of REAH was mainly in the olfactory cleft (n=49; 60,5%), in ethmoid lateral mass (n=5; 6,2%), sphenoidal sinus (n=5; 6,2%), nasal septum, maxillary sinus and frontal sinus (respectively n=3; 3,7%), other or undetermined location (n=5; 6,2%). Patients presenting pre-operative hypo- or anosmia fully recovered the sense of smell in 35,4%; partially recover in 18,8%, transitory recover in 12,5% and 16,7% had no gain of smell. Complications of endonasal surgery were per operative (n=15; 18%) or post-operative (n=1) nose bleeding needing bilateral nasal packing, and 1 cerebral fluid leak.

Discussion: Etiopathogenesis of REAH is misunderstood. Ozolex and Hunt suggest REAH is benign tumor rather than true hamartoma. Our study is according to literature regarding sex ratio, age at diagnosis and associated anosmia. We found 2 cases of REAH associated with cystic fibrosis that is not yet described in the literature, and 20 cases of extra olfactory cleft REAH associated with pseudo-tumorous presentation. Surgical procedures on REAH induce more bleeding than in isolated NP. Major risks linked to olfactory cleft surgery are cerebral fluid leak or olfactory nerves lesions that we have to balance with benign etiology of REAH. Surgical principle is to resect REAH while respecting the olfactory mucosa to avoid complications. Thereby, surgical shaver could be used to avoid complication and get better results on olfaction.
Surgical therapy of sinunasal carcinoma: a retrospective study of five years experience

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Objectives: To describe surgical management of sinonasal squamous cell carcinoma and the reconstructions at the Otolaryngology and Head Neck Surgery Department at the university hospital Bonn and to compare with the literature.

Methods: We performed a historic cohort of patients with sinonasal cancer, who underwent surgical treatment between 2009 and 2014 at our department. In all patients the malignant tumour was resected with curative intention and the reconstruction performed.

Results: A total of 11 patients diagnosed with nasal tumors underwent surgical intervention to resection of malignant nasal tumour, followed up by reconstruction. The mean follow up was 26.4 ±3.7 months. Patients were aged 67 ±10.6 years, and most were males (n=8). The most prevalent histopathological diagnosis was squamous cell carcinoma (45%), and 70% of the primary tumors had their origin in the maxillary sinus. The reconstruction procedure was performed by radial forearm flap in four patients and latissimus dorsi flap in seven patients.

Conclusion: Extensive sinunasal cancer resection and reconstruction with latissimus dorsi flap and forearm flap showed good results in accordance with the literature. Although the number of patients with this rare disease was small, this technique seems to be a reliable procedure. These results should estalimate more prospective larger studies to confirm our findings and to establish standardized therapeutic approaches.
Surgical treatment of chronic rhinitis: which technique is superior?

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INTRODUCTION Nasal obstruction is one of the commonest complaints in rhinologists’ practice, which can be caused by many reasons, including isolated or concomitant inferior turbinates hypertrophy, which in turn may be due to bony or soft tissue involvement.

PURPOSE OF THE STUDY To compare the effectiveness of Microdebrider-Assisted Submucosal Inferior Turbinate Reduction (MASTR), mechanical submucosal reduction and radiofrequency ablation.

MATERIALS AND METHODS 200 patients (127 male, 73 female, mean age 49±5.9 years) were included in the study with isolated or concomitant inferior turbinates hypertrophy. 98 patients have underwent MASTR, 42 - mechanical submucosal reduction, 60 – radiofrequency ablation. Patients were assessed with visual analog scale (0 – no nasal obstruction, 10 – complete nasal obstruction) before, seven days, one and 12 month after the surgery. All patients have undergone endoscopy as a part of post-operative follow up.

RESULTS The mean score before the surgery was 7,2±1,7 in all three groups. Seven days after the highest score was in mechanical submucosal reduction group (7,5±2,6), in radiofrequency 6,1±1,7, in MASTR group - 3,5±1,8. 1 month post-op average score in MASTR group was 2,4±0,8, in mechanical group 3,4±1,1, in radiofrequency group 2,9±0,4. One year postoperative scores were the best in MASTR group (1,9±1,0), in mechanicas it was 2,9±0,9, in radiofrequency 2,5±3,2.

In the early post-operative period, the biggest amount of crusts was observed on 7-10 days postop in MASTR group. On 14th days postop crusts were at the same quantity in all three groups, they disappeared in 90% of patients in 1 month and totally disappeared in all patients in 2 month.

CONCLUSION The MASTR technique seems to be the most promising for surgical treatment regarding post-op results and complications, including crust formation.
The additional effects of decongestant when combined with intranasal corticosteroid for allergic rhinitis: systematic review and meta-analysis

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Background

Combination therapy is utilized when patients with allergic rhinitis (AR) fail to monotherapy. The long duration of the use of decongestant causes rhinitis medicamentosa. However this effect may be diminished by intranasal corticosteroid (INCS). Although not evident, decongestant and INCS are commonly combined in order to enhance the access of INCS. This study aims to investigate the effects of decongestant plus INCS for AR.

Methods

Randomized controlled trials studying the effects of decongestant plus INCS versus INCS for AR were included. Data were pooled for meta-analysis. The outcomes were patients report outcomes and the risk of rhinitis medicamentosa.

Results

Six studies met the inclusion criteria. Oral decongestant plus INCS has never been accessed by any study. Topical decongestant plus INCS was not different from INCS on total nasal symptom score (mean difference -0.68; 95% confidence interval (CI) -2.09 to 0.40, p = 0.18), nasal obstruction score (mean difference -0.17; 95% confidence interval (CI) -0.47 to 0.12, p = 0.24) and rhinorrhea score (mean difference -0.12; 95% confidence interval (CI) -0.47 to 0.23, p = 0.50). Rhinitis medicamentosa was not found. Acoustic rhinometry (mean difference -0.04; 95% confidence interval (CI) -0.68 to 0.76, p = 0.91) and nasal peak inspiratory flow (mean difference 0.08; 95% confidence interval (CI) -0.16 to 0.32, p = 0.52) were similar between groups.

Conclusion

Topical decongestant bring no additional effects to INCS on total nasal symptom score, nasal obstruction score and rhinorrhea score for AR patients. The combination therapy does not bring rhinitis medicamentosa.
The additional effects of Leukotriene receptor antagonists when combined with Antihistamines for allergic rhinitis: systematic review and meta-analysis

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Background

Combination therapy is utilized when patients with allergic rhinitis (AR) fail to monotherapy. Although not evident, antihistamines (AH) and Leukotriene receptor antagonists (LTRA) are commonly combined because the control of nasal obstruction by AH is limited. LTRA may add benefits in AR patients with asthma and/or with nasal obstruction. This study aims to investigate the effects of LTRA plus AH for AR.

Methods

Randomized controlled trials studying the effects of LTRA plus AH versus AH for AR were included. Data were pooled for meta-analysis. The outcomes were patients' report outcomes and adverse events.

Results

Twelve studies (2204 patients) met the inclusion criteria. LTRA plus AH was not different from AH on composite nasal symptom score (mean difference 0.00 ; 95% confidence interval (CI) -0.15 to 0.15 , p = 0.97) , nasal obstruction score (mean difference -0.09 ; 95% confidence interval (CI) -0.26 to 0.08 , p = 0.29) and rhinorrhea score (mean difference -0.08 ; 95% confidence interval (CI) -0.29 to 0.14 , p = 0.49) . Adverse events were similar between groups (Risk ratio 1.12 ; 95% confidence interval (CI) 0.46 to 2.73 , p = 0.81)

Conclusion

LTRA bring no additional effects to AH on composite nasal symptom score , nasal obstruction score and rhinorrhea score for AR patients. The additional of LTRA to AH brings no adverse events.
The clinico-pathological features of tumor necrosis factor inhibitor-associated sinusitis.

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Objective: Tumor necrosis factor (TNF) targeted therapies are effective treatment modalities for chronic inflammatory diseases such as rheumatoid arthritis (RA). In RA, proinflammatory cytokines including TNF-alpha, chemokines, and growth factors are expressed in diseased joints, and TNF-alpha plays a central role in regulating these molecules. However, opportunistic infections have become a major safety concern in patients receiving TNF inhibitors, and physicians who utilize these agents must understand the increased risk of infection. In the field of otorhinolaryngology, there have been recent reports of sinusitis caused by TNF inhibitors (TNF inhibitor-associated sinusitis). Therefore, this study aimed to describe the clinicopathological features of TNF inhibitor-associated sinusitis.

Methods: Between November 2010 and October 2015, we encountered 7 patients with chronic sinusitis who were treated with TNF inhibitors for either rheumatoid arthritis (RA) or Crohn’s disease (CD). All the patients underwent endoscopic sinus surgery (ESS). The clinical findings, operative findings, postoperative course, and pathological findings were reviewed.

Results: All 7 patients noticed nasal symptoms several months after starting treatment with TNF inhibitors. Their symptoms did not improve with conservative management, so they underwent ESS. Sinus computed tomography revealed involvement of mainly the maxillary sinus. One patient required repeat unilateral ESS for snichea formation. Pathologic examination of the nasal mucosa showed inflammatory cell infiltration, mostly lymphocytes but not eosinophils. Interestingly, macrophage infiltration was significantly suppressed in the subepithelial layer. Overall, the postoperative course of the patients was favorable.

Conclusions: The incidence of TNF inhibitor-associated sinusitis will increase with the increasing use of TNF inhibitors. The clinicopathological features of this condition seem to differ from conventional chronic sinusitis. It is important to recognize this condition and treat it appropriately.
The meaning of the nasal nitrogen oxide in the diagnosis and curing of the perennial allergic rhinitis

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Introduction

The allergic rhinitis is the most common illness in 10% of the world population. This illness tends to increase the incidence which raises the need of making the approach in diagnosing and therapy more modern and up to date.

Goal

The aim of this study was to apply the nasal nitric oxide in diagnosis and evaluating the therapeutic effects of perennial allergic rhinitis.

Materials and methods

Forty patients with perennial allergic rhinitis, allergic to dermatophagoides and forty healthy volunteers were studied. Twenty patients received fluticason propionate aqueous nasal spray during 12 weeks in a total dose 400 micrograms/day, while the other twenty patients administered budesonide aqueous nasal spray during 12 weeks and a total dose 400 micrograms/day.

The nasal nitric oxide concentration was measured by chemiluminescence nitric oxide gas analyzer. Nasal nitric oxide measurements were realized at the beginning of the study, 15min.after nasal allergen challenge with dermatofagoides extract and during the treatment with fluticason propionate and budesonide.(after 2 nd, 4th, 8th,12th week).

Results:

The concentration of nasal nitric oxide is significantly higher in patients with perennial allergic rhinitis, due to increased expression of the inducible nitric oxide synthase in nasal mucosa compared to normal subjects. The nasal corticosteroid therapy significantly decrease the symptoms score(nasal obstruction, rhinorhoea,itching,sneezing),improve the local findings(secretion, edema of nasal mucosa), increase the minimal cross sectional area and nasal volume and decrease the level of nasal nitric oxide . Comparative statistical analysis of the symptom score shows that fluticason propionate is more effective than budesonide. The patients that administered fluticason propionate have lower symptoms score.

Conclusion:

Nasal NO measurements are simple and noninvasive and may be a useful means of assessing nasal inflammation and the response to anti-inflammatory treatment such as glucocorticoids.
RA-ANA-73
RHINOLOGY & ALLERGY – Allergic and Non-Allergic Rhinitis

THE ONE AIRWAY CONCEPT: THE QUALITY OF CARE, ACADEMIC AND FINANCIAL BENEFITS OF A MULTIDISCIPLINARY CLINIC


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Introduction

A multidisciplinary One Airway Clinic (OAC) approach combining respiratory assessment with an otolaryngology review has facilitated the combined assessment of patients presenting with airway inflammatory conditions. A One Airway Service is an ideal way of treating patients with upper and lower airway symptoms.

Aim

To demonstrate how The OAC, as a specialist multidisciplinary setting, can benefit patient care, patient pathways, financially cost effective, and opens numerous audit and research opportunities

Method

A specialist-combined once-monthly clinic for patients with problems relating to both upper and lower airways at Wrightington, Wigan & Leigh NHS Foundation Trust was implemented more than 5 years ago. A variety of conditions, managed by specialties including ENT surgeons, Respiratory physicians and occasionally Rheumatologists and Immunologists in the clinic, ranging from chronic cough symptoms to rare systemic inflammatory disorders such as Eosinophilic Granulomatosis with Polyangiitis or Allergic Granulomatosis. A case series to demonstrate the innovative treatments and clinical trial medications affecting both upper and lower airways was performed and assessed using Quality of life Impact (QALY) studies. A financial assessment based on tariffs has also been modelled.

Results

Novel therapies including IL5, anti-IgE, antifungals & aspirin desensitization were used to gain symptomatic control and the decision to trial these therapies has been successful in previously recalcitrant cases. Patients also benefit from a seamless pathway involving a single appointment with full battery of diagnostic investigations, confirmation of diagnosis and immediate commencement of all necessary treatments including surgical and medical treatment at optimal time. Specialty clinics gain higher tariff compared to routine clinic visits while reducing overall costs to health economy & improving the patient journey. Such clinics attract external referrals from other secondary care providers seeking expert medical management and serves as a model for holistic care. Multidisciplinary clinics reduce the number of overall follow-up appointments required. The latter has a knock-on effect in reducing waiting list times and assistance in attaining NHS care pathway targets while addressing quality improvement aims.

Conclusion
We have had a positive experience in setting up a One Airway Service. This has brought benefit to patient care, increased patient satisfaction and improved patient experience. Using our financial model, this specialised multidisciplinary approach has been profitable and cost effective to our Department and the Trust while maximising the use of scarce healthcare resources. It serves as a unique selling point and has shown to provide great training and research opportunities for the benefit of patients.
The relation of antrochoanal polyp recurrence with sinusitis


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Objective: The present study was performed to investigate association of paranasal sinus pathologies and ethiopathogenesis of ACP and to determine whether the sinus obliteration affects the treatment.

Methods: The present study was a retrospective medical chart review of all subjects who were diagnosed and surgically treated for ACP. Determination of the presence of extensive opacity of the sinuses in patients and scoring were performed by analyzing the preoperative paranasal sinus tomography. The Lund–MacKay (LMK) system was used for disease extension. Patients were followed up for an average of 25 months (range, 12 to 47 months) after surgery.

Results: After evaluation of preoperative CT findings sinus opacity were found in 41 patients (73.2%). Of the 56 patients 10 (71.4%) patients CT revealed sinus opacity only for the same side with ACP. Other 31 patients had bilateral sinus opacity. The average preoperative LMK score for 56 patients was determined to be 8.5 ± 4.01. Recurrence occurred in 8 of 56 patients undergoing FESS (14.2%). The total mean preoperative LMK score of recurrence (+) patients was significantly higher than that of recurrence (−) patients (P = 0.048).

Conclusion: Extensive bilateral sinus obliteration increased the recurrence rates. Therefore, evaluate both sinuses opacity ACP patients and if there is pathology treatment and follow-up must be more careful.
The relationship between nasal smear for eosinophils and the inflammatory and allergic nasal pathology

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Purpose of the study

This study was conducted in a private hospital setting. Nasal smears were taken from 56 patients with a clinical history of nasal allergy or sinusitis. Its purpose was to see the correlation between the nasal smears for eosinophils and the inflammatory and allergic nasal pathology. Patients that had inflammatory pathologies and were under treatment were excluded from the study. Also patients that had documented nasal allergies or were in treatment with anti-allergic drugs were excluded from the study.

Materials and methods used:

We investigated 56 patients that came to our practice with clinical signs and symptoms that suggested nasal allergy or inflammation with nasal smears, skin prick test, nasal exudate and we had ct scans done to the ones we suspected with sinusitis and polyposis.

Results:

53% of the patients had positive tests for allergy; 13% had high eosinophils in the nasal smear without any current pathology, 10 % had nasal polyposis, 9% had sinusitis and 3% had polyposis with associated sinusitis.

Conclusion:

The eosinophils in nasal smear seems to be a fairly specific test for the diagnosis of allergic rhinitis but it does not seem to have a grate value in other nasal pathologies.
THE ROLE OF GRANULOCYTE-MACROPHAGE COLONY-STIMULATING FACTOR IN PATHOGENESIS OF CHRONIC NON-ALLERGIC RHINITIS

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Purpose. Granulocyte-macrophage colony-stimulating factor (GM-CSF) is a strong proinflammatory cytokine that takes part in allergic nasal inflammation as an eosinophil colony-stimulating factor. However, the role of GM-CSF in non-allergic rhinitis has not been fully explored. The aim of this investigation was to assess the concentration of GM-CSF in nasal secretions in patients with non-allergic rhinitis with eosinophilia syndrome (NARES) in comparison to patients with perennial allergic rhinitis (PAR) and healthy subjects, and to assess the relationship with the degree of eosinophilic inflammation and clinical characteristics of the patients.

Methods. Fourteen patients with diagnosis of NARES, 14 PAR patients, and 14 healthy subjects were included in this cross-sectional study. All patients underwent symptom score assessment, nasal endoscopy, allergy testing, and cytological evaluation. The concentration of GM-CSF in nasal secretions of all participants was measured by enzyme-linked immunosorbent assay (ELISA).

Results. We found significantly higher levels of GM-CSF in patients with NARES than in the control group (p=0.035). The percent of eosinophils in nasal mucosa was higher in NARES patients in comparison to patients with PAR (p<0.001) and control patients (p<0.0001). We found positive correlations between GM-CSF levels and eosinophil counts only in NARES patients.

Conclusion. The concentrations of GM-CSF in nasal secretions correlate well with eosinophil counts in the nasal mucosa of NARES patients. These facts idicate a possible role of GM-CSF as a favorable marker for assessment of nasal disease severity and the degree of chronic eosinophilic inflammation in the nasal mucosa.
Unilateral Amaurosis: a complication of ethmoid mucocele

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INTRODUCTION: Mucoceles are pseudocystic slow-growing processes that arise within the paranasal sinuses. Frequently, mucoceles are only diagnosed when symptoms arise due to the progressive compression of the surrounding structures, like the optic nerves or intracranial structures. Location in the posterior ethmoid is infrequent, accounting less than 20% of all paranasal mucoceles. The surgical treatment and the mucocele prognosis depend on the time of evolution.

CASE REPORT: A 15-year-old boy was referred to our hospital with unilateral loss of vision, in the left eye accomplished with ipsilateral nasal obstruction and mucoid rhinorrhea, in about four months. Physical examination revealed left malar area deformity, with proptosis and pain on palpation. An ophthalmologic evaluation showed left amaurosis, although keeping pupillary reflexes and extraocular motility. Computed tomography of the paranasal sinuses showed an expansible lesion into the left posterior ethmoid bone that remodel lamina papyracea suggestive of ethmoidal mucocele. He underwent mucocele marsupialization through nasal endoscopy; however, at six-month follow-up, the patient maintain irreversible left amaurosis. This was attributed to the atrophy of the optician nerve secondary to the evolution of the own mucocele.

CONCLUSION: The authors report a serious ophthalmologic complication of mucocele, warning about the importance of an early diagnosis in order to allow prompt surgical management and preserve visual function.
USING AUTOGRAFTS IN NASAL VALVE RECONSTRUCTION

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ABSTRACT

USING AUTOGRAFTS IN NASAL VALVE RECONSTRUCTION

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Objectives: To evaluate the efficiency of nasal valve reconstruction by using autografts in nasal obstructive patients.

Method: 42 cases of Internal nasal valve obstruction who have had surgical correction with autografts at ENT hospital from 7/2010 to 4/2016. Types of grafts were used: Spreader graft (SG), Butterfly graft (BG), Alar batten graft (ABG), Columellar strut graft (CS). Main outcome measures: CSAmin by Acoustic Rhinometry, internal nasal valve angle in CT scan and NOSE self-evaluation by patients.

Results:

We are using Columellar strut graft in the majority of cases (97.62%), combined with Spreader Graft (78.57%) when there are problem of internal nasal valve collapse, with Alar Batten Graft (23.81%) when there are lateral nasal wall collapse, and rarely using Butterfly graft (4.76%).

Evaluation of surgical correction by NOSE proved that patients feel no more nose obstruction after surgery, by measuring CSAmin before and 1-6 months after surgery proved the efficiency of the technique, CSAmin measured 6 months after surgery improved significantly than that after 1 month and measuring nasal valve angle in CT scan before and after surgery proved the long-term result of the method.

Conclusion: In cases with permanent nasal obstruction caused by nasal valve problems, nasal valve reconstruction by using autografts, specially Columellar strut graft combined with Spreader Graft, is the safe, effective method that improves the quality of nose breathing for patients.

Keywords: Internal nasal valve reconstruction, CSAmin, nasal valve angle, NOSE.

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VALUE OF AUTOFLUORESCENCE IN THE DIAGNOSIS OF FUNGAL INFECTIONS OF PARANASAL SINUSES

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The purpose of the study: To assess the value of fungal autofluorescence as rapid diagnostic approach to case of fungal rhinosinusitis.

Materials and methods: Prospective study of 30 clinically and radiologically suspected cases of fungal rhinosinusitis was carried out for eighteen months in tertiary care teaching hospital in North India. The Study was done by histopathological (Hematoxylin and Eosin and special stains), microbiological examination (KOH and/or culture) and autofluorescence technique (under Nikon fluorescent microscope at wavelength of 334-365nm using dichroic mirror filters 40-455). Results were compared with histopathological and microbiological examination.

Results: Fungal rhinosinusitis (FRS) was observed in 24(80%) cases on histopathology, special stains and autofluorescence. KOH mount and/or culture revealed positive results in all 30 cases. There was highly significant statistical concordance of results of fungal rhinosinusitis cases observed on histopathological examination, special stains, autofluorescence and microbiological examination (p<0.001). The sensitivity and specificity of the diagnosis by autofluorescence was 83.3% and 100% respectively.

Conclusion: Present study indicates that fungal autofluorescence is beneficial in rapid diagnosis and screening of fungal rhinosinusitis cases. There is significant correlation of results of autofluorescence when compared with histopathology, special stains, KOH mount and/or culture.
A multicenter, randomized, controlled trial comparing Respimer® mineral-rich solution vs normal saline after sinus surgery


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Purpose of the study:
Numerous methods of nasal irrigations are suggested in the literature. To date, few data are available concerning the impact of the solution. A recent in vitro study showed that a mineral-rich solution close to seawater composition was better than normal saline in improving ciliary beat frequency and epithelial wound repair speed. The purpose of our trial is to provide further evidences on the role of nasal wash composition among patients in post-operative critical situation.

Materials and methods:
This is a prospective, multicenter, randomized, controlled trial including patients suffering from cortico-resistant nasal polyposis. Each patient underwent a bilateral and radical endoscopic ethmoidectomy. Nasal irrigation efficacy was compared between Respimer® mineral-rich solution vs normal saline during the postoperative period. Symptoms were assessed with RhinoQoL and NOSE questionnaires, endoscopic features with the Lund-Kennedy (LK) Score at baseline and 7, 14, 21 and 28 days after surgery.

Results:
These preliminary results were obtained with 125 patients included upon 200 planned: 62 in Respimer® group (R) and 63 in normal saline group (NS). Both groups were comparable at baseline.

The mean number of nasal wash was 3.9±0.9/day showing a good compliance.

Improvement in RhinoQOL scores was observed 14 days after surgery in both groups, with a median of 31.0 vs 25.0 for frequency, 27.5 vs 30.0 for bothersomeness, and -22.0 vs -25.0 for impact scores, respectively in R and NS groups. RhinoQOL score continuously improved at 21 and 28 days, in line with NOSE score evolution.

In patients with most impaired scores at baseline, improvement seems better in R vs NS group for the frequency and impact scores (34.5 vs 25.0; -33.0 vs -28.0 respectively).

Endoscopic score improved throughout the study in both groups. At day 7, higher proportion of patients within the R group was found without crusts compared to NS group (19.6% vs 3.4% right nostril; 14.3% vs 6.8% left nostril). At day 14, crusting evolution was less obstructive and severe in R vs NS group (8.9% vs 25% right nostril; 14.3% vs 28.3% left nostril). Secretions
were also lighter and thinner in R vs NS group (60.7% vs 36.7% right nostril; 57.1% vs 41.7% left nostril).

Conclusion:

Our preliminary results suggest better efficacy of mineral-rich solution for nasal irrigation in post-operative period with high level of compliance.
**Allergic fungal rhinosinusitis: Report of 5 cases**


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**Objective:**

The goal of this study was to analyze the clinical characteristics of allergic fungal sinusitis (AFS) and to discuss the therapeutic modalities proposed in the management of this pathology.

**Population and Methods:**

We report the cases of 5 patients attending the department of Otolaryngology–Head and Neck Surgery at La Rabta Hospital in Tunisia, over a period from 2001 to 2015. Were included in the study group, patients with clinical, radiological features and histological findings of AFS.

**Results:**

The patients’ age ranged from 8 to 71 years, with a mean age of 35.7 years. The male-female ratio was 4/1. All patients were followed for sinonasal polyposis resistant to medical treatment. Elevated total serum immunoglobulin E level was reported in all cases. The sinus CT scan showed multiple sinus involvement in all cases and an intra orbital and endocranial extension in one case. All patients underwent endoscopic surgery; polypectomy and clearance of all affected sinuses were performed. Medical treatment involved the use of systemic and local corticosteroids and antihistamines. Systemic antifungal drug was prescribed to one patient who presented intraorbital and endocranial extension. Histopathology showed the presence of eosinophilic sinus mucosal inflammation, allergic mucin and scattered hyphal elements within the allergic mucin. Mycological investigation allowed the identification of Aspergillus fumigatus in 4 cases and Aspergillus flavus in one case. The clinical and radiological evolution was favorable without recurrence with a follow-up of 18 months.

**Conclusion:**

A set of clinical, radiological, histopathological, immunoallergological and mycological criteria is necessary for precise AFS diagnosis. The treatment is based on endoscopic surgery associated with corticosteroid.
Introduction and Objectives: Endoscopic Sinus Surgery is currently the surgical procedure chosen in cases of sinonasal polyposis refractory to medical treatment. The aim of this study is to show our experience in managing such patients operated by endoscopic sinus surgery.

Method: A retrospective study of 246 patients with chronic rhinosinusitis and nasal polyps who were operated by endoscopic surgery. We studied the characteristics of the population, symptoms, grade of affection, complications and recurrences.

Results: The most frequent comorbidity is asthma (34.6%) and its relationship with Samter’s triad (16.3%). Grades 2 and 3 of polyposis prevail according to the Lildholdt staging by nasofibroscopy coinciding with the radiological preoperative staging. The microdebrider does not involve shortening of the surgical time but it decreases complications. Reducing the average stay with the use of absorbable hemostatic agents and effectiveness in controlling hemostasis is statistically significant. We describe 23.2% of complications, only one (0.4%) is a major complication being the rest minor complications and among them the synechiae the most frequent one (16.3%).

Conclusion: Endoscopic sinus surgery is a minimally invasive and secure technique. Absorbable hemostatic agents are an effective alternative method to get a complete and stable hemostasis reducing the average hospital stay. The synechiae continue being the most frequent complications and the fact that many patients recurred but without complications speaks in favour of a natural evolution of the disease and not of the technique influence.
Analysis of sinonasal anatomical variations associated with maxillary sinus fungal balls.

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OBJECTIVE: The pathogenesis of maxillary sinus fungal balls (MSFB) development remains unclear, but it has been suggested that poor sinus ventilation is associated with disease development; such a ventilation is influenced by anatomical variation of the paranasal sinuses. Thus, we sought to determine whether sinonasal anatomical variations were associated with MSFB development.

METHODS: Thirty-one patients with MSFB and 28 gender-matched control patients were included in the present study. The presence or absence of Haller cells and a concha bullosa were scored, and the angle of septal deviation and the minimal and maximal lengths of the infundibulum were measured on preoperative computed tomography images.

RESULTS: In the MSFB group, both a concha bullosa (61.3% vs. 28.6%, p=0.006) and Haller cells (41.9% vs. 30.4%) were present at higher frequencies than in the control group, although the between-group difference in Haller cell occurrence was not statistically significant (p=0.348). In addition, MSFB patients had a significantly lower mean infundibular width (3.23 ± 0.69mm vs. 3.99 ± 1.17mm, p<0.001) and a longer infundibular length (9.71 ± 1.43mm vs. 8.23 ± 1.72mm, p<0.001) than controls.

CONCLUSIONS: Sinonasal anatomical variations, especially the presence of a concha bullosa, and/or a narrow and long infundibulum, may play roles in the development of MSFBs.
Assessment of olfactory receptor OR1G1 gene polymorphism in patients with chronic rhinosinusitis.


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Chronic rhinosinusitis (CRS) is one of the most common health complaints affecting 14% of the world’s population. Patients with CRS demonstrate a lower quality of life. Availability of effective therapies is limited and the underlying cause and mechanism of CRS remains unknown.

There is intimate connection between CRS and olfactory dysfunction. Olfactory impairment appears to be one of the principal diagnostic criteria for CRS with or without nasal polyps (CRSwNP, CRSsNP), what underlies its importance. This observation prompted us to consider the olfactory dysfunction as the result of chronic inflammatory changes or the primary risk factor for the CRS. We hypotized that genetic differences in sense of smell can be a risk factor for CRS development. There is growing evidence suggesting that variations and polymorphism among olfactory receptors (ORs) genes are correlated with different diseases like multiple sclerosis or diabetes. The single nucleotide polymorphisms (SNPs) in OR1G1 gene may contribute to individual differences in susceptibility CRS.

Aim: The purpose of this preliminary study was the evaluation of the OR1G1 polymorphisms among polish population.

Material and methods: The study contained 28 CRS polish patients undergoing functional endoscopic sinus surgery (FESS) and 13 normal controls (NC). Peripheral blood samples collected from CRS patients and NC were used to DNA isolation and genotyped for OR1G1. Subsequently, sinus mucosa samples obtained during surgery were used to RNA isolation. Patients were genotyped for OR1G1 using Sanger method.

Results: Our results showed a lack of SNPs in OR1G1 gene among the CRS patients and NC. However, the quantitative analysis of OR1G1 gene expressions showed significant increase in OR1G1 transcript in patients suffering from CRS.

Conclusions: Our observations showed lack of SNPs in OR1G1 gene in a polish population, but significantly higher level of the OR1G1 gene transcripts suggests the role of OR1G1 receptors in the CRS pathogenesis. This finding will be the subject our further studies.
**Assessment of PLUNC, PACAP and KRT8 gene potentials as biomarkers of chronic rhinosinusitis with nasal polyposis**


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Purpose of the study: The aim of this study was to examine the possible use of PRDX2, ADCYAP (also known as PACAP), PLUNC, Keratin 8 (KRT8) and SOD genes as biomarkers for the postoperative follow up of patients with chronic rhinosinusitis and nasal polyposis (CRSwNP).

Materials and Methods: 59 patients with persistent CRSwNP undergoing functional endoscopic sinus surgery (FESS) and 40 patients undergoing nasal septoplasty because of deviated nasal septum (control group) were included in this study. Patients were checked for the presence of allergy and bacterial colonization, and all positive patients from the control group were excluded from the study. Tissue samples of nasal polyps (NP), bulla ethmoidalis (BE) and middle nasal concha (MNC) from CRSwNP patients and lower nasal concha (LNC) from the control group were collected during the surgery and processed for qRT-PCR analysis. After 6 months, CRSwNP patients were admitted for control MNC sample collection.

Results: In the MNC of CRSwNP patients, ADCYAP gene was significantly down-regulated (2.98x; p=0.0001) whereas the PLUNC gene was significantly up-regulated (3.63x; p=0.03) relatively to the control group. Similar and significant effects were also observed in the NP and BE tissue samples. This effect was reversed in MNC samples 6 months after the treatment, with addition of significant up-regulation of KRT8 gene (1.51x; p=0.001) when compared to MNC samples collected at the time of inclusion. Allergy was present in 13.6% and the bacterial colonization of the ethmoid sinus in 78.8% of the CRSwNP patients. Additional analysis revealed that changes of ADCYAP gene expression were significant in patients with bacterial colonization, and not in the group of patients whose sinus swab remained sterile.

Conclusion: Our results suggest that ADCYAP, PACAP and KRT8 genes can be used as biomarkers for the follow-up of CRSwNP patients. ADCYAP gene is more reliable for the follow up of patients with bacterial colonization, whereas PLUNC gene seems to be a good biomarker for patients with sterile sinus swab. KRT8 gene has a potential for the follow-up of patients with bacterial colonization and allergy.
Balloon Sinuplasty in the treatment of Chronic Rhinosinusitis: Apollo Bangalore Experience

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Abstract

Objective:
To study the efficacy of Balloon Sinuplasty (BSP) in management of Chronic Rhinosinusitis (CRS) based on SNOT 22 (Sino Nasal Outcome Test) analysis.

Patients and Methods:
Balloon Sinuplasty is the latest tool in the armamentarium of an ENT surgeon helping him to deal with patients with CRS not responding to Maximal Medical Therapy (MMT) without damaging the nasal and sinus mucosa. In our prospective study a total of 194 individuals underwent BSP at our institution between 2010 and 2016. These patients were objectively evaluated using Diagnostic Nasal Endoscopy (DNE) and Computed Tomography (CT) of Paranasal sinuses. These patients were also evaluated symptomatically throughout the study period, using a standardized questionnaire the SNOT-22 scoring system. The evaluations were at 1 week, 1 month, 6 months, 1 year and 2 years post surgery compared with their preoperative scores. For all patients, mean symptom scores were established at each of their visits, based on the rating of their symptomatology on a 6 point scale, as postulated by Piccirillo et al. in the SNOT-22 protocol. Means of their worst or top 5 symptoms were also calculated and followed post-surgery.

Results:
The structured patient questionnaire regarding the change in sinusitis symptoms, as compared with those before the balloon dilatation procedure revealed a significant improvement at follow-up. The SNOT-22 mean symptom score recorded a dramatic 82% improvement in all the patients who underwent balloon dilatation of their sinuses, within the first postoperative week and progressed to 91% symptom relief, by the end of 6 months follow up. The overall symptomatic improvement in their top 5 symptoms was even better and was recorded at 94.2% at the end of 6 months.

Conclusion:
BSP in carefully selected patients gives satisfying results in terms of symptom improvement. Most of the patients in our study group provided an overall positive feedback, describing their balloon sinuplasty surgery as a gratifying experience, providing marked relief from their symptoms with minimal discomfort. The improvement in symptoms achieved at 6 months was sustained in the long term follow up.

Key words: Balloon Sinuplasty, SNOT 22, Chronic Rhinosinusitis

BIOCHEMICAL, CELLULAR, AND CLINICAL INDICES FOR EVALUATION OF TREATMENT’S EFFICACY AT POLYPOUS RHINOSINUSITIS WITH ALLERGY


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The group of biochemical, cellular, and clinical indices of patients with chronic polypous rhinosinusitis with allergy (CPRwA) were tested before and after of combined treatment as possible additional criterion of cure efficacy.

State of the problem:

Widespread of polypous rhinosinusitis, its complications and frequency of relapse explain the actuality of detailed study of various biochemical, cellular, and clinical alterations at this disease. Allergy seems to be valuable in the development of stable chronic inflammation of mucosa with the following polyposis.

Objective: Functional activities of nasal mucosa and blood erythrocytes, the contents and activities of components of haemostatic system.

Materials and Methods: 20 patients with CPRwA and 24 healthy donors were tested by indices of nasal mucosa’s state, the content, clotting time and the levels of fibrinogen, protein’s glycation, trypsin- and thrombine-like activities in blood plasma. Aggregation and sorptive capacities of erythrocytes.

Results: In patients with CPRwA increased levels of trypsin- and thrombin-like activities, fibrinogen’s and glycated proteins’ levels, thrombin time’s acceleration were noted. Erythrocytes’ aggregation level was increased while its speed decreased. On 1.5 month after combined treatment the tested indices led to norm or declined to norm.

Conclusions: The possible usage of the tested indices as auxiliary criterion for CPRwA treatment’s efficacy is discussed.

Key words: polypous rhinosinusitis with allergy, nasal mucosa, proteolysis, fibrinogen, thrombine clotting time, glycation, aggregation of erythrocytes.
Blood and mucosal eosinophils immune profile modulation in nasal polyposis with associated asthma


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Chronic rhinosinusitis with nasal polyps (CRSwNP) is frequently associated with asthma, which leads to a more severe clinical and radiological expression of the disease as well as more frequent corticosteroids resistance. Mucosal eosinophil (EO) infiltrate has been found to correlate with asthma and disease severity but not necessarily in every patient. Other multifactorial immune processes are required to determine disease endotypes and response to treatment.

Purpose of the study: to evaluate EO immunomodulation in terms of migration and survival in accordance with inflammatory proteins' profiles and asthmatic status in CRSwNP.

Materials and methods used: ninety-three patients (47 asthmatics) with CRSwNP were included. Each patient was staged clinically according to symptom severity and polyp size. Nasal secretions were collected to establish a cytokine profile. EOs were purified from blood samples and nasal polyps to delineate specific immunophenotypes by flow cytometry and determine in vitro EO survival in relation with asthmatic status.

Results: CRSwNP in asthmatic patients was characterized by eosinophilia and a high level of interleukin-5 (IL-5) in nasal secretions. Although EOs exhibited activation profiles after mucosal migration, we showed a relative down-expression of IL-5 receptor alpha (IL-5Ralpha) on nasal EOs in asthmatic patients. EO culture with both IL-5 and interleukin-9 (IL-9), known to be overexpressed during asthma within the bronchial mucosa, showed and anti-apoptotic effect in asthmatic patients through IL-5Ralpha modulation.

Conclusion: we assume that mucosal eosinophilia is induced by EO nasal trapping through adhesion receptors modulation. In asthmatic patients, the EO inflammatory level is much more enhanced by anti-apoptotic synergistic action of Th2 cytokines on IL-5Ralpha expression. Here, we showed for the first time that IL-9 was involved in EO homeostasis in CRSwNP and could explain the low benefit of anti-IL-5 therapy for some asthmatic patients with nasal polyposis.
Case report on frontal sinus mucocele resulting in bone defects

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Purpose of the article

To present a clinical case of 37 years old woman with frontal sinus mucocele resulting in bone defects and discuss possible treatment options.

Case report

37 years old woman applied to clinic of aesthetic medicine to get consultation about blepharoplasty possibilities. Patient complained on a mild bilateral upper ptosis, more significant on the left side. She also complained on recurrent nasal blockage, excessive nasal discharge, facial pain and pressure on her left side supraorbitally. Computed tomography (CT) for paranasal sinuses has been ordinated. CT scan showed chronic rhinosinusitis of the left side, mucous content in maxillary sinus, unusual anatomy of frontal sinus with accessory frontal cell with a restricted mucous structure in it. Moreover, three bone defects in the anterior wall of the frontal sinus were detected and a bone defect in inferior wall of the sinus. The patient was redirected to otorhinolaringologist. Objectively, on nasal examination the patient had narrowed nasal passages with hyperemated and swelled mucosa. Magnetic resonance imaging (MRI) scan has been done to define the localization and extension of the mucocele to other cranial cavities. On T2W images hyperintense structure in a frontal sinus has been detected. According to investigation results, surgical approach was indicated for mucocele treatment.

Discussion

It has been decided to perform operation in two approaches: external for frontal sinus mucocele and endoscopic for maxillary sinus and ethmoidal cells. External approach with osteoplastic flap and bitemporal coronal incision has been chosen, because of laterally localized mucocele, the bony defect, risk of complication development and a good cosmetic result in comparison with Lynch-Hawarth approach, where the incision is made below the medial end of eyebrow. In this particular case cosmetic effect had significant importance, because of the patients’ young age.

To avoid development of complications sinus mucosa has been removed, bone defects have been covered by Micromash material and temporal fascia, sinus has been obliterated by autologous fat tissues to avoid relapse. Postoperatively patient received two-week antibacterial therapy course with Ciprofloxacin 500 mg. orally twice a day. On control visit two weeks after operation the patient had no complaints. Objective investigation and CT results of 6-month control after operation will be presented.

Conclusion

High accuracy in surgery and careful follow-up is indicated in such cases because of the possible relapse and complication risk.
Case Report: Migraine-like Headache Induced By Isolated Frontal Allergic Fungal Sinusitis

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PURPOSE

The purpose of this case study is to highlight the presentation of chronic allergic frontal sinusitis in the frontal sinus with persistent migraine-like symptoms only, despite the controversy surrounding the issue of whether or not chronic sinus pathology can produce persistent headache.

METHODS

The methods used in this study include highlighting the various diagnostic modalities used to uncover the cause of our patient’s persistent headache, the diagnosis that was eventually reached, the treatment modality offered to the patient, and the status of the patient’s symptoms after treatment. Moreover, an extensive literature review was conducted to evaluate whether other studies have reached similar conclusions to ours.

RESULTS

After undergoing various diagnostic studies to evaluate the cause of the patient’s persistent headache, the only pathology identified was chronic allergic fungal sinusitis in the frontal sinus as proven by Computerized Tomography (CT), fungal culture, allergy testing, and histopathology. The patient underwent endoscopic sinus surgery which resulted in a complete resolution of the patient’s persistent headache with postoperative follow up for two years. A similar case of isolated sphenoid fungal ball or mycetoma that presented purely with persistent headache in the absence of nasal symptoms was found in the literature review.

CONCLUSION

In the absence of any other pathology accounting for the patient’s persistent headache, and due to the fact that the patient’s symptoms resolved completely after endoscopic sinus surgery; we conclude that in the absence of nasal symptoms chronic allergic fungal sinusitis, and possibly other chronic sinus pathologies, can present with persistent headache that could be misdiagnosed as migraine or other headache etiologies.

Other studies highlighted in our study also support this conclusion.
Case Report: Migraine-like Headache Induced By Isolated Frontal Allergic Fungal Sinusitis

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*Author

PURPOSE

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Other studies highlighted in our study also support this conclusion.
Cholesteatoma of the sinonasal tract: does it exist?

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Paranasal sinuses are normally lined by respiratory mucosa which is pseudostratified ciliated columnar epithelium. Cholesteatoma of paranasal sinus is a condition where respiratory mucosa is either partially or totally replaced by hyperkeratotic squamous epithelium which leads to formation of lamellar sheet of keratin and this condition is known as cholesteatoma, primary epidermoid tumor, keratoma, epidermoid cyst and keratocyst, Rhinitis Caseosa.

Cholesteatoma is generally pathology of the middle ear, yet it can exceptionally occur in the paranasal sinuses. Hartman and Stankiewicz (1991) in their review of literature of cases of paranasal sinus cholesteatoma found only 20 cases and since then, only one case has been reported by Borlingegowda Viswanatha et al (2007). A review of the literature in English reported less than 30 cases (Hansen, et al. 2007). The diagnosis needs the rhinologist to be aware of its possibility as differential diagnosis. The treatment is essentially the same in the cholesteatoma of the temporal bone: Removal of the all matrix & keratin, which requires wide exposure.

The purpose of this study is to direct the attention of Rhinologists to this pathology to be put in the differential diagnosis of sinonasal lesions.

Materials and methods: seven cases of sinonasal cholesteatoma has been diagnosed and treated endoscopically with the youngest age is 25 years, and the oldest is 45 years. All the patients were males with one female patient.

Results: the surgical outcome is excellent, no case required a revision surgery in spite of the residual epithelium left around a permanent tooth root in of the cases.

Conclusion: Endoscopic removal is the state of art management of sinonasal cholesteatoma. We describe our experience in endoscopic management of 7 cases of such cases.

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Chronic Cough and Chronic Rhino Sinusitis

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Chronic Cough and Chronic Rhino Sinusitis

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Abstract

Objective: Chronic cough is always a challenge problem. The purpose of this study is to realize clearly the reasons of that symptom and finding the best resolution for diagnosis and treatment of root disease. Study: Retrospective review. Materials/Method: The author has offered a subjective judgment of classification of the reason of chronic cough according to as group’s followings: First group of reason is non-specific infectious diseases of airways, allergy and Gastro Esophageal Reflux Disease [GERD]. Second group includes tuberculosis, tumors, and immunodeficiency disorders on the respiratory tract; this was not mentioned here. In our study the chronic cough in Chronic Rhino Sinusitis [CRS] will be researched. A collection of 434 patients of CRS, management at the Thuy Tran Otolaryngology Clinic, from June of 2011 to November 2015, ages from 8-67 years old was conducted. By the Thuy Tran Technique [TTT] of endoscopic irrigation cleaning nasal passage finding how Chronic Cough happened on the patient of CRS, how TTT has used for diagnosis and active treatment of the root disease of chronic cough. Sinus X-rays and fungi test have done on all of patients. Results: 1/ The TTT is useful and safe method for diagnosis and active treatment of the root disease of chronic cough. 2/ Symptom of chronic cough occurred very often in the patients of CRS: 220 cough/ 434 CRS cases = 50%, 71 GERD cases developed per 220 cases of cough = 32, 3%. 4/The Mini Functional Endoscopic Sinus Surgery [FESS] has combined on 166 cases/220 patients = 70%. 5/ Results of treatment were excellent on all of patients, the health quickly improved, following up after treatment 12 months. Discussion/Conclusion: 1/ CRS is the first most common cause of chronic cough; infectious stickily liquid runs down to the throat wall, larynx, become the stimulation of cough reflex with 50% of cough happened per CRS, 100% Cough happened with CRS; GERD is second cause. 2/ TTT is the best resolution controlling of the infectious situation of nasal passage for the diagnosis of cough reason and radical treating it, brings the new airway for the patients 3/ Limited used antibiotic. 4/ Tonsillitis was gone without tonsillectomy. Keywords: Chronic cough, Chronic Rhino Sinusitis [CRS], Gastro Esophageal Reflux Disease [GERD], Thuy Tran Technique [TTT], Functional Endoscopic Sinus Surgery [FESS].
Chronic maxillary sinusitis after orthognathic surgery: CASE REPORT

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The objective of the present study is to present a case report of a patient with chronic maxillary sinusitis after iatrogenic orthognathic surgery and its treatment through surgical intervention to clean the maxillary sinus.

Case Report: E.B.F., 58 years old, male, with a history of recurrent sinusopathy 2 years ago. In the anamnesis, the patient reported having undergone orthognathic surgery 12 years ago, and dental implant 7 years ago. Rhinoscopy showed hypertrophy of the inferior turbinates, left septal deviation, right nasal floor bulging. In oroscopy, dental implants were seen in the right upper quadrant and showed a hardened mass in the right malar region, 5 centimeters, fixed and painless. Laryngoscopy without abnormalities.

The patient underwent tomography of the paranasal sinuses, which evidenced right maxillary sinusitis with erosion of the anterior wall of the maxilla. Septoplasty, bilateral inferior and middle turbinectomy and Caldwell-Luc right maxillary sinulectomy were indicated.

In the intraoperative period, hardened fibrous mass and purulent bleeding cyst were visualized. After resection, erosion in the anterior wall with osteointegrated plates and screws in the maxillary sinus was evidenced and removed.

The material was referred to the anatomopathological and was compatible with ruptured simple cyst, without signs of malignancy.

A diagnosis of chronic sinusitis performed after orthognathic surgery was made.

Discussion: Dental infections are the cause of 5% to 10% of maxillary sinusitis, especially caries, periodontal disease, odontogenic and iatrogenic cysts (non-surgical endodontic treatments, exodontia, implant placement, maxillary sinus elevation, endodontic surgery, orthognathic surgery and pre-prosthetic surgery). In the present case, the cause was iatrogenic due to orthognathic surgery with the introduction of osteointegrated plaques and screws in the right maxillary sinus.

Diagnosis of odontogenic sinusitis involves detailed anamnesis, a complete physical examination and specific imaging tests.

Conclusion:

Failure in the treatment of chronic sinusitis has been increasingly frequent due to an imprecise diagnosis. Careful medical history, well-performed physical examination, and specific radiological examinations are needed to a precise diagnosis.
Odontogenic sinusitis is often first treated as a rhinosinusitis. However, until the correct diagnosis is obtained, the disease will recur frequently.
Chronic maxillary sinusitis after orthognathic surgery: Case report.

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Purpose of the study: The objective of the present study is to present a case report of a patient with chronic maxillary sinusitis after iatrogenic orthognathic surgery and its treatment through surgical intervention to clean the maxillary sinus.

Materials and methods (Case Report): E.B.F., 58 years old, male, with a history of recurrent sinusopathy 2 years ago. In the anamnesis, the patient reported having undergone orthognathic surgery 12 years ago, and dental implant 7 years ago. Rhinoscopy showed hypertrophy of the inferior turbinates, left septal deviation, right nasal floor bulging. In oroscopy, dental implants were seen in the right upper quadrant and showed a hardened mass in the right malar region, 5 centimeters, fixed and painless. Laryngoscopy without abnormalities. The patient underwent tomography of the paranasal sinuses, which evidenced right maxillary sinusopathy with erosion of the anterior wall of the maxilla. Septoplasty, bilateral inferior and middle turbinectomy and Caldwell-Luc right maxillary sinusectomy were indicated. In the intraoperative period, hardened fibrous mass and purulent bleeding cyst were visualized. After resection, erosion in the anterior wall with osteointegrated plates and screws in the maxillary sinus was evidenced and removed. The material was referred to the anatomopathological and was compatible with ruptured simple cyst, without signs of malignancy. A diagnosis of chronic sinusitis performed after orthognathic surgery was made.

Results: Dental infections are the cause of 5% to 10% of maxillary sinusitis, especially caries, periodontal disease, odontogenic and iatrogenic cysts (non-surgical endodontic treatments, exodontia, implant placement, maxillary sinus elevation, endodontic surgery, orthognathic surgery and pre-prosthetic surgery). In the present case, the cause was iatrogenic due to orthognathic surgery with the introduction of osteointegrated plaques and screws in the right maxillary sinus. Diagnosis of odontogenic sinusitis involves detailed anamnesis, a complete physical examination and specific imaging tests. Conclusion: Failure in the treatment of chronic sinusitis has been increasingly frequent due to an imprecise diagnosis. Careful medical history, well-performed physical examination, and specific radiological examinations are needed to a precise diagnosis. Odontogenic sinusitis is often first treated as a rhinosinusitis. However, until the correct diagnosis is obtained, the disease will recur frequently.
Chronic Rhinosinusitis Associated with Erectile Dysfunction: A Population-Based Study

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Abstract:

Purpose of the study: Few studies have investigated the relationship between chronic rhinosinusitis (CRS) and erectile dysfunction (ED). This case-control study aimed to investigate the association between CRS and the risk of ED in a large national sample.

Materials and methods used: Tapping Taiwan’s National Health Insurance Research Database, we identified people 30 years or older with a new primary diagnosis of CRS between 1996 and 2007. The cases were compared with sex- and age-matched controls. We identified 14 039 cases and recruited 140 387 matched controls. Both groups were followed up in the same database until the end of 2007 for instances of ED.

Results: Of those with CRS, 294 (2.1%) developed ED during a mean (SD) follow-up of 3.20 (2.33) years, while 1 661 (1.2%) of the matched controls developed ED, mean follow up 2.97 (2.39) years. Cox regression analyses were performed adjusting for sex, age, insurance premium, residence, hypertension, hyperlipidemia, diabetes, obesity, coronary heart disease, chronic kidney disease, chronic obstructive pulmonary disease, asthma, allergic rhinitis,
arrhythmia, ischemic stroke, intracerebral hemorrhage, and medications. CRS was revealed to be an independent predictor of ED in the fully adjusted model (HR = 1.51; 95% CI = 1.33–1.73; P < 0.0001).

Conclusion: Patients with CRS are at an increased risk for ED. This observation supports the assumption of the underlying vascular mechanism regarding the development of CRS. Thus, clinicians managing CRS patients should be aware of the potential of the development of ED.
Chronic Rhinosinusitis with nasal polyps (CRSwNP) – Endotyping and surgery in an ENT practice

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Chronic Rhinosinusitis with nasal polyps (CRSwNP) is a severely disabling disease, characterized by disease recurrence after surgery and comorbid asthma.

We here examined 34 male and female patients with CRSwNP at an average age of 48 years at inclusion, monitored for an average of 21 months (11-62 months), in an ENT practice with sinus surgery activity. All patients underwent a “reboot” surgery with complete removal of all mucosal tissues from the maxillary, the ethmoidal and the sphenoidal sinuses down to the peristome; the frontal sinuses were approached through the natural access, polyps were removed and the sinuses were irrigated. No patient underwent a Draf-3 approach. 10 patients suffered from comorbid asthma, 3 from AERD and 1 from COPD. 15 patients had prior surgery/ies; 30 patients remained without recurrence over an average observation period of 20.8 months; 4 patients developed recurrences, of which one patient has undergone re-operation within the observation period.

In order to endotype the mucosal disease in those patients, we furthermore evaluated absolute blood eosinophil numbers, serum total IgE and specific IgE antibodies to inhalant allergens; we furthermore measured the cytokines IL-5, IL-17 as well as total IgE and S. aureus enterotoxin (SE)-specific IgE in polyp tissue. Serum total IgE was clearly elevated with an average 149kU/l, absolute eosinophil numbers were 505/microliter in this group. In the tissue, total IgE was clearly elevated with 444kU/L, IL-5 was measurable in 27 subjects with an average of 95pg/ml.

We here show that the CRSwNP patients undergoing surgery in an ENT practice do show a moderate to severe Type-2 (eosinophilic) disease, and need to be treated accordingly. The associations between mediators and asthma as well as recurrence after surgery and the predictive value of these biomarkers will be discussed.
INTRODUCTION: Chronic rhinosinusitis is ubiquitous. It is more prevalent in the urban areas particularly because of environmental pollution and our city of joy is no exception. In this study, an attempt has been made to evaluate the current status of CRS in Kolkata.

METHOD: This multicentric study accumulates data from various medical colleges and private hospitals of Kolkata regarding CRS patients who were managed surgically in the last one year.

RESULTS: A total of 126 patients were selected. 60 patients were male and 66 were female, age range being 19 to 57. 80 patients presented with CRS with nasal polyposis, 46 being CRSsNP. A large group of patients (40) suffered from AFRS. 18 patients had other forms of fungal rhinosinusitis than AFRS, including one case who suffered acute invasive fungal rhinosinusitis. Out of 40 AFRS cases, 38 presented with nasal polyposis, 36 had allergic mucin and 25 patients had associated allergic asthma. On CT scan, bony remodeling was seen in 31 AFRS cases, while bone erosion was rare (4 cases). Calcification and heterogeneity was common too (35 cases). Average serum IgE was 1998 in AFRS cases, while it was only 120.8 in other fungal rhinosinusitis. Aspergillus flavus was found to be most commonly isolated organism. The commonest associated problem was DNS (65 cases) followed by concha bullosa and inferior turbinate hypertrophy.

CONCLUSION: CRS is a burden among the Kolkata dwellers and its early diagnosis and combined modality treatment (conservative and surgical) is the key to curb this curse.
Clinical features and treatment outcomes of dental implant-related rhinosinusitis

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Objectives: As dental implant-related paranasal sinusitis has different pathophysiology and clinical features from primarily rhinogenic paranasal sinusitis, the standard treatment protocol for dental implant-related paranasal sinusitis has not yet been established. The aim of this study was to analyze the clinical characteristics and treatment results of dental implant-related paranasal sinusitis. Material and methods: We conducted a prospective single-center study of 19 patients who were treated for odontogenic sinusitis developing in relation to dental implant for three consecutive years. The age of the patients ranged from 33 to 78 years, with the mean age of 54.5 years. Foul odor and postnasal dripping were the two most common complaints. All patients underwent nasal endoscopic examination and paranasal sinus CT before treatment, and initial conservative treatment for 1 week. Patients unresponsive to medical treatment underwent endoscopic sinus surgery (ESS). All patients were classified into the conservative and surgical groups for analysis and followed up for 2 years after initial diagnosis.

Results: Four patients (21%) were successfully treated conservatively, while 15 patients (79%) underwent surgical treatment. One of these 15 patients required revision surgery. After 2 years, all patients were successfully treated, so there were no more clinical signs of recurrent sinusitis in any patients. The survival rate of implants was 100%. Compared to those of the conservative group, symptom duration, the Lund–MacKay CT score, status of the ostiomeatal unit (OMU), and the condition of the maxillary sinus floor were significantly more severe in the surgical group. Conclusion: In our study, the majority of patients who once developed paranasal sinusitis associated with dental implants required surgical treatment. Findings of paranasal sinus CT may be important in determining treatment option.
CLINICAL MARKERS FOR INTRACTABLE EOSINOPHILIC CHRONIC RHINOSINUSITIS.

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[Background]

Chronic rhinosinusitis (CRS) is a common disease in Japan. Recently a new subtype of CRS has been increasing in Japan. CRS of this subtype shows less response to standard treatment [endoscopic sinus surgery (ESS) and macrolide therapy] and a higher tendency of recurrence. This subtype is classified by as eosinophilic CRS (ECRS), because strong eosinophil infiltration is found in nasal polyps.

[Material and Methods]

We analyzed 1716 cases that were treated with ESS and without systemic/topical corticosteroid. RNA expression of nasal polyps were analyzed by a next generation sequencer.

[Results]

Refractory CRS required at least \( \geq 70 \) eosinophils per high power field (HPF) in nasal polyp. We established Japanese Epidemiological Survey of Refractory Eosinophilic Chronic Rhinosinusitis (JESREC) scoring system for the diagnosis of ECRS. JESREC scoring system consisted of disease sides, presence of NP, blood eosinophilia, and ethmoid sinuses dominant shadow of computed tomography (CT) scan. The factors significantly associated with recurrence of disease were blood eosinophilia, ethmoid sinuses disease by CT scan, bronchial asthma, aspirin intolerance and non-steroidal anti-inflammatory drugs intolerance. CRSwNP was classified into non-ECRS, mild ECRS, moderate ECRS and severe ECRS according to the algorithm. This classification for CRS was significantly correlated with prognosis after ESS.

We found high expression of two molecules in nasal polyps of ECRS, compared to those of non-ECRS. The expression level of nasal polyp and serum level of periostin were strongly associated with prognosis after ESS. Nasal polyps were liable to recurrence in ECRS patients with high level of serum periostin.

[Discussion and Conclusion]

This classification for CRS by JESREC scoring system and the algorithm may give useful information to clinicians in the treatment of CRS before ESS. Periostin is a good clinical marker for prognosis of nasal polyps in CRS.
Comparative study of ethmoid bone osteitis and tissue eosinophilia in different types of Chronic Rhinosinusitis

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Background:

In the field of rhinology, the majority of studies focus on mucosal immunology of the nose without giving attention to the underlying bones. Recent evidence indicates that the inflammation of chronic rhinosinusitis (CRS) is beyond the mucous membrane and involves the underlying bone of the paranasal sinuses as well. In the current study we tried to assess the presence of osteitis in ethmoid bone and tissue eosinophilia in nasal mucosa of patients with chronic rhinosinusitis.

Patient and Method:

A total of 85 patients (37 females and 48 males) who underwent surgery in our university hospital contributed to this study by providing bone samples from the ethmoid bone. They were divided into four groups: group I are Allergic Fungal Sinusitis (AFS) patients; group II are Chronic Rhinosinusitis patients without nasal polyp (CRSsNP); group III are Chronic Rhinosinusitis patients with nasal polyp (CRSwNP) and group IV are patients who underwent septoplasty as control group. Histological evaluation for osteitis (periosteal thickening and remodeling, osteoblastic and osteoclastic activity, and osteomyelitis and bone destruction) that was graded from 0 to IV, where grade 0 is normal histology and grade IV is frank osteomyelitis and bone destruction.

Results:

Descriptive histology of the ethmoid bone analysis demonstrated osteitis of different grades in patients suffering from CRS: AFS patients; grade I (13.3%), grade II (46.7%), grade III (33.3%) and grade IV (6.7%). CRSsNP patients; grade 0 (10%), grade I (30%), grade II (40%), grade III (16.7%) and grade IV (3.3%). CRSwNP patients; grade 0 (10%), grade I (50%), grade II (20%), grade III (20%) and Control patients(DNS); grade 0 (70%), grade I (30%).

Conclusion:

Herein, we show evidence of osteitis in CRS and confirm the presence of a higher grade osteitis in the AFS patients. This sinus bone remodeling may contribute to the chronicity of the disease and carries special consideration in the treatment of CRS.

Keywords: allergic rhinitis; sinusitis; ethmoid osteitis; periosteal thickening; osteoclasts; osteoblasts
Comparison between prognostic factors of endoscopic sinus surgery in eosinophilic and non-eosinophilic nasal polyps

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Purpose: Chronic rhinosinusitis with nasal polyps (CRSwNP) is subclassified into eosinophilic and non-eosinophilic types. Tissue eosinophilia is known to be associated with the prognosis of CRSwNP. The aim of this study is to compare the post-operative results of endoscopic sinus surgery and prognostic factors between eosinophilic and non-eosinophilic NPs.

Materials and Methods: A total 105 subjects (50 patients with eosinophilic NP, 55 patients with non-eosinophilic NP) were enrolled in this study. Preoperative CT scan, allergy skin test, SNOT-20, and olfactory function test (OFT) were performed. After more than 6 months post-endoscopic sinus surgery (ESS), endoscopic finding score, SNOT-20, and OFT were checked.

Results: 54.1% of eosinophilic NPs and 40.9% of non-eosinophilic NPs had allergies. 64.9% patients with eosinophilic NP were anosmic, and 29.5% with non-eosinophilic NP were anosmic. Patients with eosinophilic NP more commonly had bilateral disease than those with non-eosinophilic NP. However, preoperative CT scores were not different between the groups.

Post-operative endoscopic finding score was much better in non-eosinophilic NP and OFT score was much improved in eosinophilic NPs. When compared the concomitant disease and general condition, asthma and smoking seems to be important prognostic factors in both NP groups.

Conclusion: Although the subjective and objective results of ESS were different between eosinophilic and non-eosinophilic NPs, control of concomitant disease and smoking seems to be an important factor in improving the results of ESS.
PURPOSE OF THE STUDY

The management of paranasal sinuses complications of cystic fibrosis (CF) is a challenge for the otorhinolaryngologist caring for CF. The sinuses system represents a P. aeruginosa reservoir affecting lower airways system. Early diagnosis and follow-up of the ENT complications of CF, such as mucoceles and polyposis, are important in order to treat them. Currently maxillo-facial CT is the most used radiological exam for the follow-up of CF patients with sinonasal complications; however radiation exposure in these patients is a well known issue. Cone-beam CT scan (CBCT) is currently used in maxillo-facial surgery, especially developed for 3D reconstruction with a lower radiation exposure. In order to reduce radiation damage without losing clinical information, an experimental protocol, featuring cone beam CT (CBCT), is currently in progress in our center for the ENT follow-up of CF patients.

MATERIAL AND METHODS

Between May and October 2015, 12 patients attending our ENT CF clinic were evaluated for paranasal sinuses complications with CBCT. 6 were males, 6 females; mean age 15.75; range 6-30. The radiological results were described qualitatively and quantitatively using the Lund-Mackay score.

RESULTS

CBCT-guided Lund-Mackay score: mean result 16.25; range 6-24. The most relevant radiological findings were: sinonasal polyposis, medialization of maxillary sinuses walls, mucocele and bone resorption. Mean effective dose was 174.2 µSv.

CONCLUSION

Our results confirm the effectiveness of CBCT in detection of the most common paranasal sinuses complication of CF compared to standard maxillo-facial CT, that, however, remains the gold standard if major complications are suspected (eg, orbital, skull base erosion) and is unreplaceable for pre-surgical planning. CBCT was demonstrated to combine low irradiation with good image resolution of the maxillo-facial district in CF patients. In our opinion it represents the optimum technique to permit a much stricter radiological follow-up of the CF patients attending the ENT.

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Contrasting the Sinonasal Microbiome of Chronic Rhinosinusitis Subjects with and without Nasal Polyposis

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Background: The role of microbiota in genesis or perpetuation of sinonasal inflammation needs to be further understood. Although early studies have demonstrated reduction in bacterial diversity in chronic rhinosinusitis (CRS) patients, these lack adequate sample sizes to compare microbiota characteristics based on CRS subtyping. Middle meatus (MM) inflammation has been commonly accepted to be present in most CRS patients. In contrast, the inferior meatus (IM) is considered relatively uninvolved. We believe that by targeted microbiome sampling of the sinonasal cavity (IM versus MM) in CRS subtypes, the role of microbiota in disease pathogenesis and perpetuation can be further elucidated. We therefore compared the microbiota of the MM and IM in CRS subjects, further dividing them into those with nasal polyposis (CRSwNP) and those without nasal polyposis (CRSsNP).

Methods: Subjects were recruited prospectively in the Rhinology office at Mayo Clinic, Phoenix, Arizona. Using standard American Academy of Otolaryngology-Head & Neck Surgery criteria, they were divided into CRSsNP, CRSwNP and non-CRS sub groups. Endoscopically guided swab-samples were obtained from the MM and IM bilaterally in a sterile fashion. The sinonasal bacterial microbiota were characterized by sequencing the V3-V4 region of the 16S rRNA gene on the Illumina MiSeq.

Results: Sinonasal microbiome analyses were conducted in 65 subjects, of which 46 had CRS (25 CRSwNP and 21 CRSsNP). Similar to other studies, variability between subjects was high, but intra-subject variability was low (p=0.001, nonparametric t-test). Intra-subject bacterial diversity was significantly reduced in MM of CRSsNP subjects compared to IM-samples (p=0.022, nonparametric t-test). CRSsNP MM-samples exhibited reduced diversity compared to CRSwNP and non-CRS samples (p<0.05; nonparametric t-test). In addition, CRSsNP samples were enriched in Streptococcus, Haemophilus and Fusobacterium spp. whereas CRSwNP patients were enriched in Staphylococcus, Alloiococcus, and Corynebacterium spp.

Conclusions: This study contrasted the sinonasal microbiome profile of CRSwNP with CRSsNP subjects in one of the largest cohorts of CRS and non-CRS subjects. CRSsNP MM samples demonstrated decreased microbiome diversity and anaerobic enrichment in contrast to non-CRS and CRSwNP subjects. In addition, MM-samples of CRSsNP patients also had reduced diversity compared to their IM samples. The MM and IM microbiota in CRSwNP and non-CRS subjects were similar. These novel finding suggest that local pathogenetic factors may be involved in CRSsNP patients, and wider regional or systemic factors exist in health, and could drive changes in CRSwNP.

Note: Parts of this study were presented at the American Rhinology Society Meeting, 2016
Correlation between intranasal anatomical variations and polypoid rhinosinusitis

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Purpose of the study. Despite the relatively high incidence of intranasal anatomical variations in patients with polypoid rhinosinusitis, those changes are not always considered to be undoubted causes of sinonasal disease. Thus, aim of this study was to estimate frequency and character of nasal anatomical variations in incidence of polypoid rhinosinusitis.

Materials and methods used. A total of 110 patients were randomly selected for CT examination (82 were with disease and 28 were disease free). Each CT scan in axial and coronal projections was double reviewed and the most frequent changes of intranasal structures were registered, such as nasal septum deviation; concha bullosa; paradoxical middle turbinate, double middle turbinate; enlarged agger nasi cell, ethmoidal bulla; uncinate process variations; Haller cells, Onodi cell, concha bullosa of superior turbinate.

Results. The most frequent radiological findings in group with polyposis and control group were enlarged agger nasi cell (75.6±4.7% and 57.1±9.3%; p>0.05), nasal septum deviation (65.8±5.2% and 35.7±9.0%; p<0.05), enlarged ethmoidal bulla (40.2±5.4% and 21.4±7.7%; p<0.05), concha bullosa (15.9±4.0% and 25.0±8.2%; p<0.05), and double middle turbinate (2.4±1.7% and 3.5±3.5%; p>0.05).

Conclusion. Generally anatomical variations were more common in patients with polypoid rhinosinusitis. However, those differences were not statistically significant, except for nasal septum deviation and enlarged ethmoidal bulla. Presence of former were more frequent in patients with polyposis.
Nasal polyposis (NP) is a worldwide medical problem and its prevalence is rising. Diagnosis of NP depends on:


B- Radiologic evaluation: Numerous CT-based staging systems. But the most widely accepted is the Lund-Mackay system, proposed in 1993.

C- Endoscopic evaluation: A 5-point poly grading scheme (Meltzer et al., 2006).

Purpose of the study: To assess the correlation between preoperative endoscopic, radiological, and operative findings in NP.

Materials and Methods: Thirty Patients with sinonasal polyposis - not responding to a full course of medical treatment - underwent pre-operative endoscopic assessment using Meltzer staging system (Meltzer et al., 2006), radiologic evaluation using Lund-Mackay staging system (1993) and operative evaluation during FESS (A- Endoscopic assessment using Meltzer staging system during operation). B- Specific correlation with finding of each sinus alone (polyp, fungal mud, mucous and normal).

Results:

1- General correlation: There was a highly significant positive correlation between the CT and the preoperative endoscopic findings with the operative findings. Also, there was a highly significant positive correlation between the CT findings and the preoperative endoscopic findings.

2- Correlation between results in individual sinuses

The most common pathology found within the maxillary sinus was the polyps (45%), followed by the discharge (25%), fungal mud (15%) and 15% was found to have a normal sinus.

The most common pathology found within the anterior ethmoid sinus was the polyps (50%), followed by the fungal mud (30%), (5%) of the cases had discharge and 15% was found to have a normal sinus. The most common pathology found within the posterior ethmoid sinus was the polyps (65%), fungal mud (20%) then (15%) of was found to have a normal sinus. The frontal sinus was found normal in (40%), with (30%) of the cases showed polyps, 15% showed discharge followed by 15% fungal mud. The sphenoid sinus was found normal in 35%, with 30% of the cases contained polyps, 15% showed discharge followed by fungal mud in 20%.

Conclusion: No single procedure can be sufficient in accurately diagnosing NP, and both the preoperative CT and the preoperative endoscopic examination are complementary to each other. Staging systems are important to evaluate the efficacy of different methods and different centers for management of NP.

M YOUSSEF MSch
Cytology smears from the nose in patients with chronic rhinosinusitis

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We have studied cytomorphological indicators of the nasal mucosa of patients with chronic inflammatory diseases of the paranasal sinuses. In total 120 people were surveyed of which 110 had a variety of chronic inflammatory diseases of the paranasal sinuses, and 10 healthy people in the control group. The study used the method of smears from the nasal mucosa. Swabs were taken with a cotton cotton swab moistened with sterile saline. Smears are usually taken in the lower and middle turbinates. Circular movements without pressure applied to smears on glass slides degreased. Smears were dried, fixed and stained according to Romanovsky-Gimza. Microscopy was performed under immersion at a magnification (eyepiece 7, the lens 90). Count the number of cells. In nazotsitogrammah determined by the number of neutrophils, cylindrical and flat epithelium, lymphocytes and eosinophils. Calculated as a percentage share of each type of cell. Destruction of cells we arbitrarily divided into five degrees.

The study was conducted cytomorphological indicators of the nasal mucosa of patients with chronic inflammatory diseases of the paranasal sinuses. In nazotsitogrammah determined by the number of neutrophils, cylindrical and flat epithelium, lymphocytes and eosinophils. Calculated as a percentage share of each type of cell. Destruction of cells we arbitrarily divided into five degrees. Results of the study smears from the nasal cavity were presented as follows: the purulent sinusitis polypous present cellular structure is interpreted as inflammation of the mucosa and metaplasia. When polypous sinusitis in particular in combination with asthma smears characterized as inflammation and metaplasia with allergy.

CONCLUSION: This study shows that when polyposis combined with intolerance of aspirin smears found eosinophils, only inflammation and metaplasia. Pyo-polypoid process in which are found in the main strokes are interpreted as inflammation, is the most favorable treatment. A eosinophils found in smears polyposis when combined with bronchial asthma. These findings are not pathognomonic in determining the diagnosis, but these studies allow to objectively evaluate the degree of radicalism of surgical treatment and its effect on the mucous membrane of the nasal cavity function. In this connection it should be noted that in patients after radical surgery of the maxillary sinus in smears-dominated reprints metaplasia of the mucous membrane of the nasal cavity. It is a manifestation of reaction to aggressive surgery, which persists for a long time.
Rosai-Dorfman is a rare disease identified as sinus histiocytosis, benign proliferation of histiocytes, generally accompanied with massive cervical lymphadenopathy (LAP). Its clinical presentation is varying widely with unknown etiology. The affected individuals are generally pediatric and adolescent age groups with non-tender bilateral multiple LAP. Fever, leukocytosis, increased sedimentation rate and hypergammaglobulinemia are the other frequent clinical and laboratory findings, and these findings could mimic a malignant disease in blood and/or lymph node origins.

A fifteen years old female patient was applied to our clinic with complaints of nasal obstruction, open-mouth sleeping and snoring. Bilateral diffuse nasal polypoid mass that were derived from nasal septum, and an enlarged adenoid vegetation were diagnosed with examination by flexible fiberoptic nasopharyngoscope. Preoperatively, our clinic requested a consultation from pediatric endocrinology clinic for regulation of glucose metabolism due to Type-1 insulin-dependent diabetes mellitus (IDDM). Because, the patient had had the diagnosis of IDDM for more than 2 years. In operation, bilaterally multiple nasal punch biopsies were taken from forementioned nasal polypoid mass derived from nasal septum to gain a definite diagnosis. Histopathologic examination revealed Rosai-Dorfman disease.

In this paper, we present an unusual diagnosis in a pediatric patient who underwent surgery due to nasal polypoid mass in our clinic. The importance of this disease is the possibility of misdiagnosis as a nasal polyps, malignancy initially, and the importance of our case is unusual initial presentation having diffuse nasal polypoid mass. The definite diagnosis of the disease is histopathologic.
Difficult Nasal Polyposis: Evolving treatment and Remedies

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Chronic sinusitis with nasal polyposis (CRSwNP) is a common disorder associated with different underlying disease processes, including aspirin sensitive asthma, atopic conditions such as allergic fungal sinusitis, and cystic fibrosis. CRSwNP has a significant detrimental impact on quality of life. Although surgery and anti-inflammatories are mainstays in management, there are no universally accepted standards partly due to underlying disease heterogeneity. Patients may develop complications from both CRSwNP and its associated therapies making this affliction difficult to treat effectively.

In this presentation/speech the latest theories on disease pathogenesis will be outlined as well as rational medical and surgical strategies for the management of severe polyposis will be promoted.

Surgical treatments, including nasal polypectomy alone or in combination with endoscopic sinus surgery, rarely result in long term control of nasal polyposis and are typically combined with medical treatment. While oral steroids are often successful in controlling nasal polyposis, the deleterious side effects and potential complications have led us to seek additional therapeutics designed to both complement and decrease reliance on excessive steroid administration. The benefits of medications including steroid irrigations, macrocodes, anti-leukotriens and other future therapies as well as surgical methods designed to enhance delivery of topical therapeutics will be discussed.
Dupilumab Significantly Improves Sinus Disease in Patients With Chronic Rhinosinusitis With Nasal Polyposis Demonstrated by CT Scan Assessment

Purpose

Patients with chronic rhinosinusitis with nasal polyposis (CRSwNP) experience significant nasal and paranasal sinus inflammation. In a phase 2a study (ClinicalTrials.gov: NCT01920893), dupilumab, a fully human anti-interleukin (IL)-4-receptor-alpha monoclonal antibody that inhibits IL-4 and IL-13 signaling, significantly improved endoscopic, clinical, and patient-reported outcomes (PROs) in patients with CRSwNP refractory to intranasal corticosteroids. We report the effect of dupilumab on sinus opacification using standard and modified Lund-Mackay (LMK) measures.

Materials and Methods

Sixty adults with CRSwNP were assigned (1:1) to 16 weeks of weekly subcutaneous dupilumab 300 mg (including one 600 mg loading dose) or placebo added to background daily mometasone furoate nasal spray (MFNS). In addition to nasal polyp score and PROs, sinus computed tomography (CT) scans were performed at baseline and Week 16. Sinus opacification was assessed using standard LMK scoring, based on points for degree of opacification (0 = normal, 1 = partial opacification, 2 = total opacification) in each sinus (maxillary, anterior, posterior ethmoid, sphenoid, frontal). The scores for the different sinuses plus the score for the bilateral osteomeatal complex (OMC) (0 = not occluded, 2 = occluded) are summed to give a bilaterally total LMK score that ranges from 0 (complete lucency of all sinuses) to 24 (complete opacity of all sinuses). The Zinreich modified LMK scoring (post hoc analysis) was also assessed; each sinus was assigned a 0–5 score based on percentage of opacification from mucosal thickening (0 = 0%, 1 = 1–25%, 2 = 26–50%, 3 = 51–75%, 4 = 76–99%, and 5 = 100%), and the OMC was given a score of 0 to 2 (depending on whether it is completely patent, partially obstructed, or completely obstructed), with a maximum opacification score of 54.

Results

Mean ± SD baseline standard LMK scores were similar in the placebo (18.73 ± 5.52) and dupilumab (18.62 ± 5.00) groups; Zinreich modified LMK scores were 39.73 ± 12.26 and 38.48 ± 11.27, respectively. At Week 16, significant (P < 0.0001) improvements with dupilumab versus placebo were observed in both standard LMK (LS mean [LSM] difference −8.84; 95% CI −11.07, −6.61) and Zinreich modified LMK scores (LSM difference −17.76; 95% CI −22.34, −13.18). Injection-site reaction, headache, and nasopharyngitis were most frequently reported adverse events with dupilumab.

Conclusion

In patients with CRSwNP on daily MFNS background therapy, dupilumab significantly improved sinus disease after 16 weeks of treatment, as demonstrated by CT scan assessments.
Objective:

Aspirin Exacerbated Respiratory Disease (AERD) - the triad of chronic rhinosinusitis with nasal polyposis, asthma and intolerance to aspirin - is a challenging disease to treat. Our objective was to assess if low salicylate diet would result in symptomatic improvement and decrease in inflammatory markers.

Study Design:

Study design included randomization to either a high or low salicylate diet for the first week, followed by cross-over to the other arm. Patients were asked to record their dietary salicylate for each week of the study. SNOT-22 questionnaire was filled out at baseline, end of week one and end of week two. Urine was collected and urinary creatinine, leukotrienes and salicylate levels were measured at the time of recruitment, end of week one and end of week two.

Results:

Total of seven patients were recruited. Patients reported improved symptoms on low salicylate diet on the SNOT-22 scales for the following symptoms (all p < 0.05): “need to blow nose”, “sneezing”, “thick nasal discharge”, “ear fullness”, “facial pain/pressure”, “wake up tired”, “reduced productivity”, and “nasal blockage”. There was no statistical difference observed between urinary leukotrienes levels between the two diets.

Conclusion: Patients with AERD should be counseled on low salicylate diet to provide symptomatic relief. No difference was observed in urinary leukotriene levels.
Efficacy of Chitodex-Budesonide-Mupirocin Gel as an anti-staphylococcus aureus biofilm agent in vivo

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INTRODUCTION: Efficient delivery of anti-inflammatory and anti-biofilm treatments for patients with recalcitrant chronic rhinosinusitis (CRS) continues to be a challenge. Current management options lack sufficient contact time with the sinus mucosa for the active agents to exert their full effect. This study aims to assess the efficacy of Chitodex gel, combined with an anti-inflammatory agent Budesonide and an antibiofilm agent Mupirocin (CD-BM) for treatment of S. aureus biofilms in vivo.

METHODS: Using a sheep sinusitis model, 15 sheep were divided into three groups of 7 days treatments, 5 sheep (n=10 sinuses) per treatment, (1) twice daily saline flush (NT), (2) Chitodex gel (CD) with twice daily saline flush, and (3) CD-BM with twice daily saline flush. The anti-inflammatory effect was graded histologically by a blinded independent pathologist. The anti-biofilm effect was assessed comparing the biofilm biomass across all groups using LIVE/DEAD BacLight stain and confocal scanning laser microscopy.

RESULTS: Histopathological analysis showed no significant differences between the different groups in the degree of inflammation, epithelial thickness, goblet cell hyperplasia, oedema and fibrosis. COMSTAT2 assessment of biofilm biomass showed a significant reduction in CD-BM treated sheep compared to NT controls (p < 0.05, one-way ANOVA, Kruskal-Wallis test).

CONCLUSION: Results indicate that CD-BM is effective against S. aureus biofilms in a sheep sinusitis model and could represent a viable treatment option in the clinical setting for recalcitrant CRS.
Purpose of Study

Chronic rhinosinusitis (CRS) is of varied etiology. Anatomic and physiological variations play significant roles in its aetio-pathogenesis. Use of nasal Endoscopes and Computerised Tomographic scans have improved both the diagnostic and therapeutic management of CRS. Most centres in sub-Saharan Africa rely on less detailed methods in clinical evaluation without the use of endoscopes and Computerised Tomographic scans which have been proven to be indispensable tools in CRS management.

Objectives: To assess the diagnostic accuracy of predisposing nasal factors of CRS in adult Nigerians using the endoscope and to correlate these findings with Computerised Tomographic scan findings.

Materials and Methods: The study was a prospective hospital-based study. Patients with CRS were recruited consecutively from the Ear Nose and Throat (ENT) department and the general outpatient unit of Usman Danfodiyo University Teaching Hospital (UDUTH), Sokoto. Controls consisting of individuals without CRS symptoms were matched in a 1:1 ratio. Nasal endoscopy was done for all participants following the standard passes. CT scan of the Paranasal Sinuses (5mm cuts) was done for patients and findings of Nasal Anatomical Variations were compared to those seen on Nasal endoscopy. Statistical analysis was done using Statistical Products and Service Solutions version 20.

Results: A total of 132 patients, with an equal number of controls were recruited. Patients age ranged between 18 to 68 (mean of 31.9) years, with male to female ratio of 1.1:1, with that of controls ranging 18 to 59 (mean of 30.6) years, and a male to female ratio of 1.2:1. Nasal septal deviation/spur was the most common nasal anatomical variation, in 57 (43.2%) patients, followed by concha bullosa, in 24 (18.2%) patients, large bulla ethmoidalis, in 23 (17.4%) patients, and paradoxically curved middle turbinate, in 14 (10.6%) patients. CRS was significantly associated with nasal septal deviation (P=0.01), concha bullosa (P=0.001), and paradoxically curved middle concha (P=0.001). There was no significant association between CRS and large bulla ethmoidalis air cells (P=1.0). The sensitivity and specificity of nasal endoscopy in identifying the nasal anatomical variations were 84.6% and 66.7% respectively, and the positive and negative predictive values were 91.7% and 50.0% respectively.

Conclusion: In this study, 43.2% of the study population had nasal septal deviation, 18.2% had concha bullosa, and 10.6% had paradoxically curved middle turbinate which predispose to CRS. Nasal endoscopy has high sensitivity, specificity and positive predictive values in assessing the nasal anatomical variations compared to CT scan.
Endoscopic aproach to lateral frontal sinus mucocele with intraorbital extension: A case report

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*Author

Purpose of the study:

The purpose of this e-poster is to report the case of a patient with severe and long term chronic rhinosinusitis with nasal polyposis who developed a lateral frontal sinus mucocele with intraorbital extension and the possibility of endoscopic surgery for this kind of lesions, even in the cases of lateral afection of frontal sinus.

Material and Methods:

We report the case of a 53 years old patient with bilateral grade III nasal polypisis in the Lildholdlt classification. Long term followed up by his ENT ,who a year ago, after different medical treatments propose a FESS to this patient, who finally refused it. In repeated times he went to emergencies because of inespecific oftalmologic symtoms, but after 3 consecutive days consulting he came to the emergency service with a ptosis and proptosis of the left eye acompanied of frontal cefalea. In this time ENT review previos CT scans in whc apear a disruption in left frontal sinus floor in its lateral aspect, and a soft tissue density round lesion with intraorbital extension which was not described by de radiologist previously. After medical treatment for the acute procce the patien underwent FESS with the realisation of bilateral uncinectomy, maxillary antrostomy, anterior and posterior ethmoidectomy, sphenoidotomy, and frontal sinus Draf III. For the acces to the lateral frontal sinus mucocele it requires the partially resection of sueperior and medial bonny wall of the left orbita.

Results:

After the surgery the patien was tottally recover from his eye suffering, disappearing the ptosis and the proptosis. In the actual moment after a month from the FESS there is no evidence of polyposis recurrence and oftalmologial symtoms.

Conclusión:

FESS as elective procedure for frontal sinus mucoceles even when they affect the lateral aspec of the sinus.

The possibility of oftalmologic manifestations as first sing of a mucocele with intraorbital extension develope in patiens with severe nasal polyposis.

Authors:

Luis Antonio Pascua Gómez1, Francisco Valcárcel Martín2, Irene Álvarez Garcia2, Jose Santiago Bañuelos Saiz2, Eduardo Petreñas Tamayo2, Jose Antonio Municio Martín 3

(1) MIR Servicio ORL del H.U. Cruces
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Purpose of the course:

- To demonstrate the three dimensional radiological anatomy of the frontal recess area and the encroachment upon the nasofrontal drainage pathway by the various groups of frontal recess cells.
- A stepwise approach for frontal sinusotomy with special emphasis to the frontal beak as a fixed anatomical landmark will be demonstrated. Indications of Drill out Draf procedures will be discussed.
- To understand the value of meticulous postoperative care in maintaining the long-term patency of frontal sinusotomy. The various reasons of failure of endoscopic frontal sinusotomy and how to avoid them will be clarified.

Surgical approach to the frontal recess is the most challenging step during endoscopic sinus surgery. This is attributed to the complexity of the three dimensional anatomy of the frontal recess, the encroachment by various groups of frontal recess cells, the narrow confines of the recess relative to instrumentation and the acute angle required to gain intraoperative access. The key to successful frontal sinusotomy requires a meticulous stepwise approach. Thorough evaluation of the frontal recess anatomy using a high resolution, multiplanar CT scan images is the initial step. Special attention should be given to the sagittal images which correspond to the direction of intraoperative dissection.

Uncapping of the agger nasi cell is a commonly described procedure to gain a wide access to the frontal sinus ostium. This is an oversimplification of a complex situation where encroachment of the various groups of frontal recess cells will actually complicate the surgical access. Widening of the access to the frontal recess through resection of the anterior wall of the agger nasi cell with extension above the insertion of the middle turbinate will improve visualization within the frontal recess. This widened approach will help to identify the frontal beak (spina nasalis interna). The clear distinction between the white dense bone of the frontal beak and the bluish tinge of the posteriorly located frontal recess cells can be clearly identified. Following the frontal beak will provide a safe access to the frontal sinus ostium with minimal manipulation in the proximity of the orbit and skull base.
Endoscopic Surgery of the Frontal Sinus

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*Author

Objective: To describe the frontal sinus anatomy and endoscopic surgical techniques to optimize outcomes for chronic frontal sinusitis.

Purpose: Endoscopic sinus surgery is highly effective and safe for patients with chronic rhinosinusitis. The frontal sinus is one of the most challenging surgical areas of the paranasal sinuses as the approaches to these sinuses require angled endoscopic visualization and curved instrumentation as well as delicate dissection along the skull base and orbit. Risks to skull base and orbital injury are pertinent considerations when addressing the frontal sinuses. The purpose of this instructional course is to provide strategies that optimize outcomes after endoscopic frontal sinus surgery. The content of the course includes discussions of the standard frontal sinus anatomy and variants, indications for endoscopic frontal sinus surgery, helpful mucosal-sparing operative techniques to the frontal sinus, and advanced surgical techniques available for complex frontal sinusitis. Types of endoscopic frontal sinusotomies from Draff I to III are described with indications for each approach. Reasons for closure of frontal sinusotomies and potential pitfalls and risks of the surgical techniques are also discussed.

Instructors are Thomas S. Higgins, Jr., MD, MSPH and Joseph Han, MD, two rhinologists from the United States who have tertiary level sinus and skull base clinical practices and research programs.
Endoscopic Techniques to Frontal Sinusotomies with Removal of Kuhn Type 3 Frontal Cells

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*Author

Purpose of the Study: To evaluate outcomes and techniques of performing endoscopic frontal surgery in the setting of obstructive Kuhn type 3 frontal cells during endoscopic sinus surgery.

Materials and Methods: A review of prospectively collected data was performed of consecutive patients who underwent endoscopic frontal sinus surgery with removal of obstructive Kuhn type 3 frontal cells between January 2012 and October 2016. Data collected and analyzed included demographics, CT imaging characteristics, findings at surgery, surgical techniques, use of frontal sinus stents, preoperative and postoperative SNOT-22 quality of life scores, primary versus revision surgery, and size of intraoperative and postoperative frontal sinusotomy, and complications were collected.

Results: Thirty-three (32) subjects (37 Kuhn type 3 frontal cells) underwent successful endoscopic frontal sinusotomies with removal of Kuhn type 3 frontal cells using mucosally-sparing techniques. The mean age of the subjects was 50.1 years old. The surgeries included 13 revision surgeries and 9 surgeries for chronic sinusitis with polyposis Twenty-nine (29) procedures included Draf 2A or 2B frontal sinusotomies, and four subjects underwent Draf 3 surgeries. Thirty-six of 37 sides had endoscopically-confirmed persistent postoperative patency with a mean follow-up of 15.8 months. One side in the Draf 3 group had closure. None of the patients required revision surgery. No cases of CSF leak, epistaxis requiring packing or cauterization, or orbital injury occurred. No subject required an open surgical procedure.

Conclusion: This study describes a single surgeon experience with safe and effective endoscopic frontal sinusotomy techniques to manage removal of Kuhn type 3 frontal cells.
Eosinophilic chronic rhinosinusitis: From Research to Practice

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*Author

Purpose of the course

1. Recognize patients with eosinophilic chronic rhinosinusitis in clinical practice
2. Implement research knowledge in medical and surgical management of eosinophilic chronic rhinosinusitis

Abstract

Inflammatory patterns of chronic rhinosinusitis may vary. Recently, a shift over 12 years in the same geographical area from predominantly neutrophilic to eosinophilic chronic rhinosinusitis (ECRS) with an increase in various inflammatory markers including IgE has been reported. ECRS is part of a broader adult onset inflammatory airway disease and has several comorbidities. The association between ECRS and lower airway disease (especially asthma) and Staphylococcus aureus and its superantigens has been extensively studied. Patients with ECRS have greater disease severity and higher recurrent rate. Tissue eosinophilia and evidence of eosinophil activation is closely associated with remodeling features of ECRS, associated mucosal damage and clinical symptoms. To date, there is no consensus on diagnostic criteria, optimal therapy nor its assessment. The comprehensive management should be reconsidered. In contrast to traditional functional endoscopic sinus surgery with postoperative intranasal steroid spray and antibiotics that poorly controls this T-helper2 inflammation, aggressive topical corticosteroid irrigation after wide surgery provides more effective long term control. Surgery and device have an influence on effective drug penetration and enhance the effects of corticosteroid. Sinus surgery should be to create access for topical therapies rather than altering a fundamental concept of relieving ostiomeatal obstruction. Topical steroids directly delivered into paranasal sinuses bring favorable outcomes. When ECRS is managed as an inflammatory condition with effectively delivered pharmaceutical solutions, treatment is greatly optimized compared to traditional regimes.

Instructors’ names, nationality and presented topics

1. Pongsakorn Tantilipikorn
   Thai
   Presented topic ‘Understanding ECRS: From the past to the future’

2. Kornkiat Snidvongs
   Thai
   Presented topic ‘Management of ECRS: Medical and surgical approach’
Evaluation of C-590T Promoter of IL-4 Gene Polymorphisms in Patients with Sinonasal Polyposis

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Purpose: Despite different studies about the role of cytokines in development of nasal polyps, there are only few studies about the interleukin-4 and the role of this cytokine is not yet clearly known. Hence in this study, the genetic polymorphism in interleukin-4 which is not down-regulated by anti-inflammatory therapeutics was assessed in nasal polyposis patients in comparison with control group.

Material & Method: In this cross-sectional comparative study, 152 consecutive subjects attending to a tertiary health care center in 2015 including 76 nasal polyposis patients and 76 control subjects were enrolled. Five milliliters blood sampling was done by single trained subject in sterile conditions and it was stored in EDTA-containing vials and froze in –20 Celsius to extract DNA with real-time PCR. DNA was extracted by chloroform phenol method and the Tag man real time was used for genotyping of C-590 promoter location in patients and subjects by special probes using the Step one real time PCR (ABI Company). The genotypes were compared across the groups. Chi-Square and Independent-Sample-T tests were used and were considered statistically significant at P values less than 0.05.

Result: There were no statistically significant differences (P = 0.404) between genotype in patients in two groups. The age and gender were not significantly related to the genotype in subjects in two groups (P > 0.05). Totally it may be concluded that genetic polymorphism in interleukin-4 gene location in 590 promoter locus is not related to nasal polyposis.

Conclusion: Further studies should be carried out to attain more definite results and decrease the controversies about the role of inflammatory cytokines in pathogenesis of nasal polyposis

Keywords: Genetic polymorphism, Interleukin-4, Nasal polyposis
Experiences with Allergic Fungal Rhino Sinusitis. (AFRS)

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INTRODUCTION:
AFRS involves allergic responses to fungal antigens present in sinunasal cavities of young atopic individuals presenting with nasal polyposis, presence of allergic mucin and fungal hyphae with absence of mucosal or vascular invasion in histology. Treatment includes surgical extirpation of disease with adjuvant treatment including topical/systemic steroids, antifungals and immunotherapy. Experiences regarding presentation, diagnosis and management of AFS are presented.

MATERIALS AND METHODS:
Five studies conducted at our north Indian tertiary care institution (January 2008 to December 2014) includes

1. Characterisation of disease in paediatric patients. (case-control)(50 consecutive patients;12 paediatric and 38-adult).1
3. Quality-of-life (QOL) parameters in fungal rhinosinusitis patients which included a major proportion of 106/125(84.8%) AFRS cases.(case-control)(125 cases of FRS & 50 controls)3
4. Preoperative Itraconazole in AFRS.(RCT)(cases-25,controls-25).4
5. Preoperative vs. post-operative Itraconazole therapy in AFRS.(RCT).(Preop-25,postop-25,control-50)5

Parameters:
- SNOT (Sinunasal outcome test) scores.
- Lund Mackay(LM) CT scores,
- Kupferberg’s nasal endoscopic (NE) grades and
- Quality of life (QOL) parameters:
  - WHO-QOL-BREF,
  - DAS-II (Disability assessment scale) and
  - PGI N-2 Questionnaire distress scores

Institutional protocol includes diagnostic workup, surgery and post-surgical adjuvant treatments of oral steroids single course in tapering doses and nasal saline irrigations. Interventions in RCTs (study 4 and 5) included Itraconazole therapy prior to surgery vs. placebo (study 4) and prior and after surgery (study 5).
RESULT:

1. Paediatric population had less mean duration of symptoms, extensive disease as shown by multisinus involvement, proptosis, telecanthus, higher IgE levels and LM scores and early recurrences.

2. “AFRS with granuloma” showed higher rates of telecanthus, diplopia, proptosis, facial pain and erosion of lamina papyraceae and skull base.

3. FRS and AFRS are associated with worse QOL, increased disability and distress compared to controls.

4. Preoperative Itraconazole administration improves LM scores, SNOT scores and NE grades decreasing disease load and making surgery easier.

5. Itraconazole either in preoperative/post-operative period improves the disease parameters than steroids alone, preoperative administration showed significantly better results.

CONCLUSION:

AFRS is severe in children, affects QOL of patients, granulomas in histology can be used as a marker for prognosis, Itraconazole as a second adjunct along with routine post-operative steroid therapy produces significant improvement in disease parameters, more so when administered preoperatively.

Bibliography.


The achievements of modern medicine, such as computer and magnetic - resonance imaging and endoscopy, a little clarify our views in relation to the origin of choanal polyps material of this study consisted of 12 patients with choanal polyps, received by the ENT department in the period 1999-2006. Among them were 7 women and 5 men aged from 24 to 73 years (mean age - 40.6 years). Dominated by young persons (6 patients younger than 36 years). Two patients previously performed Caldwell-Luc operation, three - polipotomii, and one of the two patients, and the rest were sent to surgery for the first time. One patient polyloid sinusitis combined with bronchial asthma was diagnosed in 3 curvature of the nasal septum, even on-stand at the patient along with the deformation of the partition identified multiple B nehii in the nasal cavity after previous polipotomy.

All patients before surgery were performed computer or magnetic resonance imaging and endoscopic examination of the nasal cavity. All surgical material sent for histological examination.

In our studies, we found that larger, longer and therefore which developed polyps were less active inflammatory response. Moreover, inflammatory changes were noted in the limited space of the polyp subepithelial zone. The rest of the space was dominated by edema and fibrosis. The stroma of the polyps was edematous, with the formation of cavities filled tissue transudate. Such cavities are formed probably due to discontinuity divergences and reticular fibers and have no walls. Along with these cavities, we also found the expanded lymphatic vessels lined with endothelium. Both of these signs point to the lack of lymph circulation in a polyp and suggests that tissue swelling in choanal polyps is due not only to inflammation but also lymphostasis. In large choanal polyps lymphostasis effects are more pronounced, as well as hardening of the stroma, developing the type of endomorphic sclerosis.

After the treatment, we did not observe cases of choanal polyp recurrence. In some cases, the advancing normalization of mucosal relief, but the majority of patients with controlled trial remained significant thickening and polypous changes mucosa of the maxillary sinus, does not manifest itself clinically.
Frontal sinus revision rate after nasal polyposis surgery including middle turbinectomy and Draf 1 procedure: a long term analysis

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Purpose of the study: To determine the frontal sinus revision rate after nasal polyposis (NP) surgery including middle turbinectomy and Draf 1 procedure, to search for predictive factors and to analyse surgical management.

Materials and Methods: Longitudinal analysis of 153 patients who consecutively underwent bilateral sphenoethmoidectomy with middle turbinectomy and Draf 1 procedure for NP with a mean follow-up of 11 years. Decision of revision surgery was made in case of medically refractory chronic frontal sinusitis and/or frontal mucocele. Univariate and multivariate analysis incorporating clinical and radiological variables were performed.

Results: The frontal sinus revision rate was 6.5% (10/153). The mean delay between the initial procedure and revision surgery was 3 years, 10 months. Osteitis around the frontal sinus outflow tract was a clear risk factor of revision surgery (p=0.003). Asthma and aspirin intolerance did not increase the risk, as well as frontal sinus ostium diameter or residual frontoethmoid cells. Among revised patients, 60% required multiple procedures and 70% required extended frontal sinusotomy (from Draf 2a to Draf 3).

Conclusion: Our long-term study reports that NP surgery including middle turbinectomy and Draf 1 procedure is associated with a low frontal sinus revision rate (6.5%), even in patients with Samter’s triad. As mucosal stripping can lead to osteitis, primary NP surgery must preserve the frontal sinus outflow tract mucosa. In order to avoid multiple revision surgeries, first frontal sinus revision surgery requires extended frontal sinusotomy.
FUNCTIONAL CHANGES IN NASAL MUCOSA OF PATIENTS WITH CHRONIC POLYPOID RHinosinusitis

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One of the most difficult forms and key problems in modern clinical otorhinolaryngology is the chronic polypoid rhinosinusitis (CPRS), both in terms of clinical course, and in terms of treatment, is a chronic polypoid rhinosinusitis (CPRS). One of the Aim of this study was to investigate the functional characteristics of the nasal mucosa in patients with CPRS.

Materials. We studied 150 patients who were hospitalized in the ENT department of the 3-rd clinic of Tashkent Medical Academy from 2009 to 2013, diagnosed with "CPRS". All patients underwent functional studies of the nasal mucosa.

Results. In patient with chronic “eosinophilic” polypoid rhinosinusitis the functional studies of nasal mucosa shown, that rate of the transport function of the mucociliary system of nasal cavity by using saccharine test was 29-54 min. In patient’s transport function of mucociliary system was 36,3±0,86. In the study of the pH value of nasal secretions using a special test paper figures of hydrogen ion concentration were 7,4±0,01. In determining the absorptive function of the nasal mucosa by introducing turunda gauze moistened with a solution of 1% atropine with the definition of pupil reaction time was 89,9±6,6 min. Cotton ball, weighting 21,7 mlgr to determine the excretory function of the nasal mucosa, after the sample was 58,4±0,8 mlgr. And patients with “neutrophilic” polypoid rhinosinusitis the functional studies of nasal mucosa shown, that transport function of mucociliary system was 37,5±0,74. pH value of nasal secretions were 7,3±0,01 and the pupil reaction time was 80,3±4,0 min. Cotton ball weighting to determine the excretory function of the nasal mucosa, after the sample was 55,7±0,8 mlgr. In study of nasal function of control group transport function of mucociliary system was 11,5±1,4, pH value of nasal secretions were 7,0±0,01, the pupil reaction time 68,2±0,6 min. Cotton ball weighting was 41,25±0,085 mlgr.

Our data reveal a violation of the transport function of the nasal mucosa, changes in hydrogen ion concentration (pH) of the nasal mucosa, reduced absorptive function of the nasal mucosa, and increase in the secretory function of the nasal mucosa.

Conclusion. From the above it follows that the conduct functional studies is informative importance in determining the status of the nasal mucosa and contributes to the proper choice of tactics of treatment of patients with CPRS.
Genetic analysis of cystic fibrosis patients with chronic rhinosinusitis: Are there genes associated with nasal polyps formation?


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Purpose of study: Manifestations of upper airways in cystic fibrosis include rhinitis and chronic rhinosinusitis, with or without nasal polyps, whose incidence varies from 6 to 48%. Nasosinusal impairment importance lies in fact of possibility of pulmonary diseases exacerbation, since it would serve as a bacterial reservoir. Facing frequency of nasal polyposis and its importance in disease evolution, we aim to study genetic profile of fibrocystic patients with polyposis and to compare them to patients without this involvement.

Materials and methods used: A prospective study was done with 232 patients from the Cystic Fibrosis ambulatory of a tertiary hospital. Subjects were submitted to blood genetic test and, also, to perform flexible nasofibroscopy for nasal evaluation. All of them were analyzed for 125 genes associated with the inflammatory process, considering 256 variants. Patients were divided into 2 groups after nasal examination, with or without polyposis. Chi-square test was performed to compare findings.

Results: From 232 patients with CF 36 presented with nasal polyps during the nasofibroscopy examination. There was an association with 12 polymorphisms in ten different genes, with higher odds ratio for the polymorphism rs1876828 * TT in CRHR1 gene (OR = 11.81; 95% CI = 1.151 to 121.2) and the lowest polymorphism rs2284033 * GG in the IL12RB gene (OR = 0.141; 95% CI = 0.006 to 0.875).

Conclusion: Genetic analysis of patients with cystic fibrosis demonstrated some genes more associated with nasal polyps formation. This result may be a step towards elucidating development of polyps and making possible new diagnostic and therapeutic methods in the future.
Histopathological Variants of Chronic Polypoid Rhinosinusitis and Clinical Outcomes

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Histopathological Variants of Chronic Polypoid Rhinosinusitis and Clinical Outcomes

SOHEILA NIKAKHLAGH, MARZIEH MOHAGHEGH, NASTARAN RANJBARI, PAYAM FATHIZADE, NADER SAKI

Purpose: Chronic rhinosinusitis with polyps is a clinical condition that has been poorly understood and difficult to treat. Its features are the inflammation of nasal and paranasal mucosa with polyp. The aim of this study was to determine variant histopathology in these patients and its outcome based on postoperative symptoms and endoscopic findings.

Material & Method: Ninety three patients with chronic polypoid sinusitis with no previous history of sinus surgery and any other diseases underwent endoscopic surgery. Histological samples of polyp were analyzed. The samples were classified into 4 groups based on the Hellquist classification: Allergic (A), chronic inflammatory (B), seromucinous (C), and polyp with atypical stroma (D). Patients were followed by clinical symptoms and endoscopic assessments for 12 months. Age, smoking behavior, family history, allergy, asthma, and sensitivity to Aspirin were assessed. In addition, histological types of polyps were investigated and recurrent polyps were determined.

Results: The group A had highest frequency 71% (66 cases), followed by the group B 20.4% (19 cases) and C 8.4% (8 cases). Twenty percent of patients (27 cases from the group A) had recurrent polyp. Recurrence had a significant relation with type of pathology and history of asthma and allergy. Recurrence in the group A was statistically significant (P value=0.0036) compared with the two other groups.

Conclusion: This study showed that allergic polyp was the most frequent polyp and recurrent in patients with chronic polypoid rhinosinusitis. In addition, there is a relation between type of pathology and history of asthma and allergy with recurrence after surgery.

Key words: Chronic polypoid rhinosinusitis, Histopathology, Clinical outcome
Chronic polypoid rhinosinusitis (CPRS) is one of the most pressing problems of otorhinolaryngology, not only because of its prevalence, recurrent nature of the course, but also a significant breach of the quality of life of patients suffering from this disease.

The purpose of the research was to determine the immunohistochemical features of polyps of various types of CPRS.

Materials and methods of the study were 79 patients with CPRS who were treated at the ENT department of 3 clinic of Tashkent Medical Academy. All patients underwent surgical operation corresponding to prevalence of the polypoid process. Material underwent postoperative histopathological and immunohistochemical investigations. Based on the morphological study data polyps were divided into 2 groups: 48 “eosinophilic” polyps and 31 “neutrophil” polyps.

The results of research. In the stroma of “eosinophilic” polyps on painting by silver marked edema, common in several vacuoles. Reticular fibers are destroyed and degraded, there is swelling of the vascular endothelium. In “neutrophil” polyps reticular fibers are tightly interconnected. The stroma “neutrophil” polyps have a high expression of VEGF in comparison with marker “eosinophilic” polyps. High expression of VEGF in the stroma of “neutrophil” polyps caused by lack of oxygen and blood vessels. The epithelium of the “neutrophil” polyps have a high expression of Ki-67 antigen, a marker of cell proliferation, indicating that the active division. Expression of Vimentin notes in both forms of nasal polyps, but high expression characteristic of “eosinophilic” polyps. The stroma of the polyps observed accumulation of plasma cells, creating a ring is the “growth zone”, a large number of which indicates poor prognosis of the disease. In both forms of polyps observed low expression of CD68, which could mean lower macrophages part in the formation of nasal polyps. In “eosinophilic” polyps have a high expression of CD45, which promotes stimulation of T and B lymphocytes, acting on stromal cells as a necrotizing factor. In “neutrophil” polyps is less pronounced. CD45 markers accumulate around the vascular endothelium like ring, suggesting a poor prognosis of the disease course. The expression of CD34 was more pronounced in “eosinophilic” polyps, which means a well-developed vascular system. In connection with the above, the study found that in various forms of polyps observed the peculiar features of the structure and the clinical course.

Conclusion: The stroma of polyps is different in various form of CPRS that involves different tactics of management of patients with this pathology.
Impact of chronic rhinosinusitis on long-term quality of life: Assessment of unoperated patients after 04 years.

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Introduction: Chronic Rhinosinusitis has a huge impact on the quality of life (QOL) of sufferers. Surgery has good results, but the best method of treatment is still under debate and knowledge of how this disease behaves in the long term could help predict better outcomes.

Objective: To assess the quality of life of patients 04 years after receiving non-surgical treatment for CRS.

Material and Method: Retrospective longitudinal study with application of the SNOT-22 instrument submitted twice via email to the subjects between 2011 and 2012, and between June and August 2016. Results: Data were collected on both occasions from 45 patients; 18 men (40%) and 27 women aged 39.6 ± 13. The average QOL score varied from 57.6 to 40.7 (p = .000). Dizziness was the only symptom that did not show a significant reduction.

Discussion: The impact of CRS on QOL dropped significantly after 04 years. Regardless, the score was still high compared to non-sufferers. Some of the factors that can lead to this result are calm periods, inter-crisis periods, and the reduced impact of a chronic disease over time.

Conclusion: This study can help predict the impact of CRS over time and better adjust expectations with non-surgical treatment.

Marambaia, PP1; Lima, MG2; Macário, H3; Gomes, AM4; Gomes, LM5; Marambaia, MP6; Marambaia, O7.

1 - Doctorate degree student in Medicine from EBMSP; Master of Medicine from EBMS
2 - PhD in Epidemiology from the UFBA; Professor of graduate studies at EBMS
3 - Second-year resident in Otolaryngology INOOA
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5 - Master’s degree student in Otolaryngology from Unifesp (Sao Paulo-SP)
6 - Second-year resident in Otolaryngology at the Santa Casa de São Paulo
7 - Head of the Otorhinolaryngology Service at INOOA.
Infarcted nasal polyps masquerading as sinonasal malignancy: a report of five cases

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*Author

We describe five cases of infarcted nasal polyps. The patients ranged in age from 22 to 56, 3 male and 2 female. In each case, clinical findings included a unilateral mass with associated mucopus coming from the middle meatus. There was unilateral expansion of the maxillary sinus suspicious of an underlying mucocele, atypical infection or tumour. Radiological imaging strongly supported the diagnosis of a possible neoplastic process with bony erosion and herniation of soft tissue at the maxillary ostium. MRI shows mixed enhancement and CT showed none. In all five cases, the histological analysis revealed only inflammatory infarcted nasal polyps, also known as angiomatous or angioectatic polyps.

The aim is to discuss this unusual entity with this unique case series and to highlight the apparent contradiction between the radiological and histological findings.

All five patients were treated with surgical resection. One recurred at nine months and required a Caldwell Luc procedure to achieve clearance. The other four patients did well and were discharged following a year’s follow-up. The authors feel this is a little known entity that Rhinologists should be aware of when treating unilateral polyps and this case series reinforces the need for a histological diagnosis before definitive treatment is undertaken.
Is there a role for Photodynamic Therapy in Chronic Rhinosinusitis?


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Purpose of the study

There has been a great deal of excitement around the use of near infrared laser illumination (NILI) in treating chronic wounds. NILI is able to promote tissue repair and negatively affect bacterial growth. Chronic rhinosinusitis (CRS) develops after the formation of biofilms in the nasal cavity, in the era of multi-drug resistant bacteria it is worthwhile exploring alternative antimicrobial therapies. We wanted to assess the effect of photodynamic therapy on patients with chronic rhinosinusitis through a review of the literature.

Materials and Methods

A MedLine and TripDatabase search was conducted using the follow terms: “photodynamic” OR “phototherapy” or “photo” and “sinusitis”. A total of 36 papers were initially identified, after exclusions 10 full papers were included.

Results

There a number of in vitro and in vivo models which have been created to evaluate the efficacy of photodynamic therapy in CRS. These include murine and human anatomical models. The results are promising showing an ability to treat drug resistant Pseudomonas and Staphylococcus aures species. Early adopters of this treatment have demonstrated minimal adverse side effects and a moderate improvement in patient reported outcomes.

Conclusions

There appears to be a clinical role for photodynamic therapy in recalcitrant CRS. Overall photodynamic therapy has shown subjective and objective improvements in the management of CRS. This treatment is safe and reproducible, and in some patients can limit CRS exacerbations and the need for steroid and antibiotic treatment. Further randomised controlled trials are needed to identify a clear clinical role, but the future appears bright.
Isolate sphenoid sinus disease (ISSD) account for 1-3% of all sinus inflammatory pathology. Non specific symptoms make it difficult to diagnose this pathology earlier. Therefore patients are often observed by different specialists. Clinical manifestations consists of a headache, that is usually described as transient, intermittent, deep seated, localized or throbbing character and aggravated with standing, walking, bending or coughing; ocular symptoms includ diplopia due to VI nerve palsy, blurred vision and progressive vision loss; postnasal drip and chronic cough. Nasal bleeds can be main symptom in some cases of sphenoid sinusitis due to juvenile nasopharyngeal angiofibroma (JNA).

Purpose of study:
- to assess the frequency of occurrence of isolated sphenoiditis among the entire pathology of the paranasal sinusites in our Department;
- to determine the methods of diagnostic of sphenoiditis;
- to study the pathology which is identified in the sphenoid sinus;
- to evaluate the results of endoscopic endonasal approach as a method of treatment.

Materials and Methods: A retrospective analysis of the patients who were treated in ENT Department with a diagnosis of Isolated sphenoiditis from 2010 to 2016 was conducted. History, symptoms, endoscopic examination of the nasal cavity and CT examinations were analysed. The opening of the sphenoid sinus in all cases was carried out through the endoscopic transnasal approach under general anesthesia. All removed tumors of the sphenoid sinus were sent for histological examination to confirm the diagnosis.

Results: More than 2000 FESS were completed during the period from 2010 to 2016. Sphenoid sinus was opened in 19 cases. Fungal ball was detected as the most common pathology in the sinus cavity. CT scan is the method of choice in the diagnostics of disease and planning of surgical approach.

Conclusions: Isolate sphenoid sinus disease is rare pathology. Because of vague symptoms this pathology can be missed. Physicians should recommend complete rhinological workup for the patients with intractable headache. 3D CT is important diagnostic method of differentiation between vascular pathology and intracranial tumours growing into sphenoid sinus.
Chronic polypoid rhinosinusitis (CPRS) today remains one of the most important problems in otorhinolaryngology, which has great medical and social significance, as evidenced by the high incidence, a tendency to increase, a high level of loading for the disease and the need for medical, rehabilitation, social and other activities for quite a considerable period of life of patients.

The aim of study was to study the performance of IgE in serum of patients with chronic "eosinophilic" polypous rhinosinusitis.

Material and methods. 150 patients were examined with CPRS who were treated at the ENT department of the 3-rd clinic of Tashkent Medical Academy from 2009 to 2013. Diagnosis CPRS exhibited by history, objective status, the state of ENT, endoscopy, X-ray and computerized tomography. 142 patients underwent surgery appropriate dissemination polypoid process, 8 patients refused surgery and received conservative treatment. Morphologic study of nasal polyps of 86 patients revealed eosinophilic infiltration of the stroma of the mucosa, 56 patients - neutrophilic infiltration of the stroma of the mucosa. Immunological study was conducted at the Institute of Immunology and Allergology Uzbek Academy of Sciences.

Results and discussion. Immunological study of patients with "eosinophilic" polypoid rhinosinusitis showed that patients with "eosinophilic" polyps level of IgE in serum was elevated and consists 386,7±277,4 IU/ml. Patients with "neutrophils" polyps level of IgE was within the normal range - 18,9±11,4 IU/ml.

Conclusions. From the above it follows that the serum IgE levels rise to high levels in eosinophilic infiltration, but it remains within the normal neutrophil infiltration in the stroma of the nasal mucosa in chronic polypoid rhinosinusitis.
The problem of chronic polypoid rhinosinusitis (CPRS) today remains one of the most important in otolaryngology, so CPRS has a great medical and social significance, as evidenced by the high incidence, a tendency to increase, a high level of loading for the disease and the need for medical rehabilitation, social and other activities for quite a considerable period of life of patients.

Purpose: performance study of IL-2, IL-4 and IL-8 in serum and nasal lavage fluid of patients with chronic "neutrophilic" polypoid rhinosinusitis.

Material and methods. 50 patients were examined with CPRS who were treated at the ENT department of the 3-rd clinic of Tashkent Medical Academy from 2011 to 2013. Diagnosis CPRS exhibited by history, objective status, the state of ENT, endoscopy, X-ray and computerized tomography. Patients with concomitant asthma and specific diseases were not included at the study. All patients underwent surgical intervention is appropriate dissemination of polypoid process. Morphologic study of 34 patients with nasal polyps revealed eosinophilic infiltration of the stroma of the mucosa in 16 patients - neutrophilic infiltration of the stroma of the mucosa. 16 patients with «neutrophilic» nasal polyp have immunological research conducted to determine the level of the cytokine IL-2, IL-4, IL-8 in the blood serum and nasal secretions. On immunological research directed frozen serum, which was sampled from the cubital vein of patients followed freezing. Frozen nasal lavage, which was going to washing the nasal cavity of patients with saline followed by freezing it, heading for immunological research. Immunological study was conducted at the Institute of Immunology and Allergology of Academy of Sciences of Republic of Uzbekistan.

Results and discussion. Immunological study showed that in 16 patients with "neutrophilic" polyps has been detected an increase of IL-2 in serum (16,8±7,5 pg/ml) and nasal lavage (10,3±1,1 pg/ml), IL-8 increase in serum (11,6±2,8 pg/ml) and nasal lavage (6,7±0,6 pg/ml). IL-4 in the serum (6,6±0,8 pg/ml) and nasal lavage (10,4±2,6 pg/ml) remained normal. In patients with chronic "neutrophilic" polypoid rhinosinusitis in serum and nasal lavage fluid is increased IL-2, IL-8, which indicates the presence of inflammation with immune disorders.

Conclusion. Based on data from our study shows that the choice of treatment strategy in patients with "neutrophilic" polypoid rhinosinusitis otorhinolaryngologist must take into account the data of the immunological studies of cytokines IL-2, IL-4 and IL-8, which in the future can reduce relapse rates.
Local IgE Production and Mast cell Infiltration in Eosinophilic Rhinosinusitis

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Purpose: Chronic rhinosinusitis with nasal polyps (CRSwNP) is categorized into two subtypes in Asian population: eosinophilic chronic rhinosinusitis (ECRS), and non-eosinophilic chronic rhinosinusitis (non-ECRS). Pathogenesis of CRSwNP remains poorly understood. The objective of our study was to compare local IgE production and mast cell infiltration between ECRS and non-ECRS.

Materials and Methods: We collected nasal tissue from patients with ECRS, non-ECRS and control non-CRS subjects. Using immunohistochemistry, we examined the numbers and distribution of IgE-positive cells and mast cells. The identity of IgE-positive cells was determined using double-immunofluorescent staining for IgE and cell type-specific molecular markers. To investigate the local class switch recombination to IgE and IgE synthesis in the mucosa, we performed RT-PCR to examine the mRNA expression of Th2 cytokines and class switch-related molecules, including IL-4, IL-5, IL-13, ε germline gene transcripts, IgE mature transcript, IgG mature transcript, and activation-induced cytidine deaminase.

Result: The concentrations of total IgE and number of IgE-positive cells were significantly higher in ECRS polyps compared with control and non-ECRS polyps. IgE-positive cells were predominantly mast cells in ECRS polyps. The number of mast cell-tryptase (MC-T) type mast cells was increased mainly in the epithelium and the glands in ECRS polyps. IL-5 and IL-13 mRNA, and ε germline gene transcripts expression levels were significantly higher in ECRS polyps compared with control and non-ECRS polyps. In contrast, the number of plasma cells and the expression of IgG mature transcripts were increased in non-ECRS polyps compared with ECRS polyps.

Conclusion: Our results suggest a role of local class switching to IgE, production of IgE, and IgE-mediated mast cell activation in the pathogenesis of ECRS. The difference in the IgE- and mast cell-related profiles between ECRS and non-ECRS suggests heterogeneity in the pathogenesis of CRSwNP.
Location Matters; Topographic Gene Expression in Patients with Chronic Rhinosinusitis

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Purpose of the Study: The term ‘rhinosinusitis’ was coined to describe inflammation that affects both the nose and paranasal sinuses. The manifestation of inflammation in the nasal cavity and sinuses, however, is not uniform. For example, polyps rarely arise from the inferior turbinates, medial surface of the superior and middle turbinates, septum, and nasal floor. This study seeks to identify intranasal anatomic differences in gene expression and corresponding common signaling pathways in chronic rhinosinusitis (CRS) to clarify the pathophysiologic concepts of ‘rhinosinusitis.’

Study Design: Prospective study.

Materials and Methods Used: Ethmoid and nasal floor mucosa biopsies were taken from 13 patients with CRS without nasal polyps electing to undergo functional endoscopic sinus surgery. Tissue samples were subjected to cDNA microarray analysis, and rigorous post-hoc analysis was performed to determine the differential gene expression between the two anatomic sites using GeneSifter, Ingenuity Pathway Analysis, and Kyoto Encyclopedia of Genes and Genomes.

Results: We found that 1298 genes with ≥1.5-fold change were differentially expressed between the floor of the nose and anterior ethmoid sinuses. From these genes, 46 had a significant ≥4-fold change (20 upregulated and 26 downregulated). Using pathway analysis, 16 distinct signaling pathways with their associated genes were upregulated in the sinuses compared to 43 pathways that were upregulated in the nasal floor.

Conclusions: The expression of inflammatory cytokines and their signaling pathways in patients with CRS without nasal polyps vary significantly between the ethmoid sinus and the nasal floor. While the nasal cavity and sinuses may both be involved in ‘rhinosinusitis,’ inflammation manifests differently between the two anatomical sites. Because of their distinct inflammatory profiles, nasal cavity tissue is a poor control comparator for and a poor approximation of conditions in the sinuses.
Long Term Health Related Quality of Life (HRQoL) Outcomes of Sinus Surgery

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INTRODUCTION

Chronic Rhinosinusitis (CRS) is a condition causing inflammation of the nose and nasal passages lasting for > 3 months. It remains unclear whether medical or surgical management is more effective in treating CRS, with endoscopic sinus surgery (ESS) currently on the NICE database of treatment uncertainties. Recent studies have shown that quality of life responses for CRS plateau up to 5 years post-operatively, demonstrating the importance of long-term follow-up. Our study aims to assess the long-term outcomes for patients following extended ESS for CRS.

MATERIALS & METHODS omit if case report

All patients undergoing ESS for CRS in 2010 at the James Paget University Hospital were followed-up at 5 years through a posted questionnaire and Sino-Nasal Outcome Test (SNOT-22). 28/46 patients (61%) responded and this information was compared with historic pre-operative SNOT-22 scores.

RESULTS or case report

Mean follow-up time was 61 months. No patients encountered post-operative complications although 2 required revision surgery. Mean pre-operative SNOT-22 score in men was 43.3, SD+/-20.2 and 19.2, SD+/-15.8 post-operatively. Mean pre-operative SNOT-22 score in women was 59.6, SD+/-24.6 and 33.3, SD+/-27.3 post-operatively. A statistically significant reduction in SNOT-22 scores was noted t test (p<0.001) and where applicable 19/26 patients demonstrated a clinically significant reduction in SNOT-22 scores (9 or more points) post-surgery. 61% of patients continued to use medical treatments.

CONCLUSION

Most patients achieved a long-term clinically significant reduction in sinus symptoms through ESS, however, over half still used regular medications. Further trials are necessary to establish best practice for medical and surgical treatments of adults with CRS, with long-term compliance of medical treatment key.
Long-term Results of Medical Imaging findings of Frontal Sinus After Endoscopic Sinus Surgery

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Purpose of the study: The aim of this study was to evaluate long-term results of frontal sinus patency following ESS with or without frontal sinusotomy in CRS by assessing medical imaging findings before and after operation. Objectives: The aim of this study was to evaluate long-term results of frontal sinus patency following ESS with or without frontal sinusotomy in CRS by assessing medical imaging findings before and after operation. Methods: In a retrospective study, 26 patients were analyzed with CRS who underwent ESS by one surgeon at the hospital from June 2009 to December 2012. 26 patients who had undergone head and neck area computed tomography (CT) and magnetic resonance imaging (MRI) scans after ESS due to diverse kinds of symptoms at other departments were selected. Lund-Mackay score (LM score) were compared before and after surgery. Results: Patients who had undergone imaging study after ESS consist of 4 of brain computed tomography (Brain CT), 4 of facial bone computed tomography (Facial bone CT), 1 of neck computed tomography (Neck CT), 2 of positron emission tomography-computed tomography (PET-CT), and 1 of brain magnetic resonance imaging. The LM score of frontal sinus before ESS was 2.72±0.21, and this score was improved to 0.50±0.80 after ESS. When we compared the LM score under the criteria of frontal sinus drainage pathway, both the LM score of the lamina papyracea type (LP type) and the sull base type (SB type) were also improved 1.3±0.15 to 0.3±0.13 and 2.16±0.17 to 0 respectively. The LM score of patients who had undergone frontal sinusotomy was changed from 2.77±0.25 to 0.69±0.26. The LM score of patients who had not undergone frontal sinusotomy was also improved from 2.6±0.4 to 0. Conclusion: Long-term medical imaging findings demonstrates that frontal sinusitis lesions of chronic rhinosinusitis (CRS) were clinically and statistically improved after endoscopic sinus surgery (ESS) regardless of frontal sinusotomy.
Management of Fungal Sinusitis, are we on the right track? 20 years Experience in Bangladesh

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Introduction: Fungal sinusitis is a common variety of sinusitis in Bangladesh. A large number of people are suffering from allergic rhinitis. A common belief amongst general population is that headache is mostly caused by sinusitis. They take treatment by themselves and when it becomes intractable they go to ENT specialists or Neurologists. Many of them come with nasal polyps and symptoms of allergy usually accompanies. Sinusitis are associated with rhinitis. Some of the patients come with recurrent disease. It is a matter of interest and experience how these cases are to be treated in the best way. The current topic tries to find out which is the best way of treatment by the experience of about twenty years.

Purpose of the study: To find out whether we are following the right way of Fungal Sinusitis Treatment

Materials and Methods: This the largest analyzed series based on last 20 years’ experience by study of a large series of 1789 patients with fungal out of 3074 of total sinusitis in last 18 years from 1997 to 2016 and the work was done in four leading tertiary Medical school Hospitals in Bangladesh. The patients were selected from OPD, after clinical and Radiological investigations were done. FESS was done in all cases and diagnosis was confirmed by histopathology. Post operative treatment was given by antifungal nasal wash and only in selected cases oral antifungals were given. Post operative follow up has been tried for all cases. Rate of patients coming for follow up gradually decreases with time.

Results: FESS only is successful in most cases, anti fungal nose wash is practiced where local disease is extensive. In AFS long term anti allergic treatment is essential. We have not tried any immunotherapy.

Conclusion: Fungal sinusitis is a common form of sinusitis in this part of the world. In many cases it is difficult to treat and prevent recurrence. Combined form of treatment is required in many cases. Long term follow up is mandatory.

Key words: Fungal Sinusitis, Treatment experience, 20 years, Bangladesh

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**Measuring the angulation of the uncinate process: a new specific tool for the CT diagnosis of cystic fibrosis?**

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**BACKGROUND**

Computed Tomography (CT) criteria of Cystic Fibrosis (CF) sinonasal lesions combines: sinuses filling, bulging of the maxillary sinus inner wall and hypoplasia of frontal sinuses. In nasofibroscopy, the uncinate process (UP) is deflected inwards, protruding in the nasal cavity. The purpose of the study is to objectify with angles measurements on CT-scan exams the deviation of UP and to compare CF to other chronic rhinosinusitis and witnesses.

**MATERIALS AND METHODS**

We included retrospectively in two university hospitals with a resource and skills center for CF: 30 CF patients, 17 primary ciliary dyskinesia (PCD), 13 chronic rhinosinusitis with polyps (CRSwp) and 30 witnesses. We measured bilaterally: the angles A, B and C on coronal sections perpendicular to the hard palate, and the angles D and E on axial sections parallel to the hard palate. Angle A was formed by the UP and the inner wall of orbit, the others by the UP and the midline. Student's test was used, with the null hypothesis of equal means for each angle between two groups.

**RESULTS**

There was no significant difference between groups Witnesses, PCD and CRSwp for each angle. CF patients had 3 statistically different angles with Witnesses, 5 with CRSwp, and 4 with the PCD. The angle A had an average value of 126 (±16)° in CF patients, 138 (±19)° in Witnesses (p = 0.007), 145 (±15)° in PCD (p = 0.001), and 138 (±14)° in CRSwp (p = 0.001). The angle E had an average value of 35 (±10)° in CF patients, 20 (±6)° in Witnesses (p <0.001), 21 (±4)° in PCD (p <0.001), and 22 (±6)° in CRSwp (p <0.001).

**CONCLUSION**

This work shows that UP’s anatomy is only modified in CF, contrary to the other chronic rhinosinusitis studied. In CF patients, the angle between PU and the inner wall of orbit in coronal sections is closed, and angles between PU and midline are opened. These measures support nasofibroscopic observations and could be a new element in the CT diagnosis of CF sinonasal lesions.
Mixed Th1 / Th17 inflammation in chronic rhinosinusitis with nasal polyps and CD8+ inflammation in chronic rhinosinusitis without nasal polyps – a flow cytometric study

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Purpose of the study

The aim of this study was to identify the T cell subtype of untreated, steroid naive CRSwNP and CRSsNP patients that influences disease control.

Methods

CRS was diagnosed based on symptoms, nasal endoscopy and CT scan. Sinonasal mucosa (uncinate process) or polyp tissue from 31 untreated CRS patients (18 CRSwNP and 13 CRSsNP) were analyzed by histopathology and flow cytometry. Patients were subsequently treated medically and if unsatisfying effect surgically. The average follow up duration was 15,8 ± 4,6 months after tissue sampling. Patients with persistent symptoms on VAS ≥5 despite treatment represented the uncontrolled CRS group.

Results

The CRSwNP group had significantly more CD4+ cells then CRSsNP group (34,05±19,89 vs. 22,04±16,71, p=0.028) and significantly less CD8+ cells then CRSsNP group (56,94±11,76 vs. 67,15±23,22, p=0.002). All uncontrolled CRSwNP patients had tissue eosinophilia. In well-controlled CRSwNP there were significantly more Th17 CD4+CCR6+ cells (13,28±5,96) then in the uncontrolled CRSwNP (7,16±4,89), p=0.046. In the uncontrolled CRSwNP there were significantly more double negative T17 CD4-CD8-CCR6+ cells (12,20; IQR 2,20-9,15) then in the well-controlled CRSwNP group (5,40; IQR 1,65-9,15), p=0,010. In the uncontrolled CRSsNP group there were significantly more cytotoxic CD3+CD8+ cells (79,86±7,86) then in the well-controlled CRSsNP group (52,95±28,17), p= 0,045. In the well-controlled CRSsNP group there were significantly more double negative CD4-CD8- cells (46,93±28,29) then in the uncontrolled CRSsNP group (20,70±7,59), p = 0.019.

Conclusion

By flow cytometry we were able to show the Th17 CD4+CCR6+ cell to predict well-controlled CRSwNP; we could explain that by Th17 cell plasticity, being able to transform into Th1 cell. Double negative T17 CD4-CD8-CCR6+ cell (also capable of IL-17 production) predicted uncontrolled CRS; double negative T17 cells are known to promote immune cell recruitment and tissue immunoglobulin production in autoimmune diseases. In CRSsNP being cytotoxic type of inflammation the Tc CD8+ cell predicted the uncontrolled disease.
MONOCLONAL ANTI-IgE ANTIBODY AS TREATMENT IN PATIENT WITH CHRONIC RHINOSINUSITIS AND SEVERE PERSISTENT ASTHMA. Miranda Fandiño, S; Domínguez Sosa, S; Colina Etala, C; González González, J.

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Chronic rhinosinusitis with or without nasal polyposis is a disease with high prevalence, known to cause great alteration in the quality of life. In addition, chronic rhinosinusitis with nasal polyposis is considered to be a more severe phenotype, especially when associated with asthma, since patients with these conditions frequently do not respond to conventional treatment including topical and systemic corticosteroids or surgery. Hence the importance that are receiving the new therapies for the treatment of this pathology.

Case report

A 43-year-old male, physician, not known allergies, no use of tobacco or other toxic substances and no pets at home.

He presented with 10 years evolution complaints of bilateral nasal blockage, hyposmia and rhinorrhea. Four years before, he made his debut with asthmatic symptoms of a progressive nature, with interruptions of nocturnal rest due to dyspnea and poor tolerance to physical exercise, thus adding a significant deterioration in his quality of life.

Nasal endoscopy revealed a bilateral inferior turbinate hypertrophy, pale-violet mucosa; and grade III nasosinusal polyposis. In pulmonary auscultation, wheezes, both inspiratory and expiratory, stand out.

Among the analytical data stand out repeated hemograms without eosinophilia.

The cationic protein of the eosinophils shows a level of 113ug / L. Two determinations of total IgE above 600 IU / mL are objectified. Both Ig E specific for Dermatophagoides pteronyssynus, and Blomia tropicalis are high. Prick test is positive for house mites, deposit mites and B. tropicalis.

CT scan of sinuses showed inflammatory pansinusitis and mucosal thickening, with predominant involvement in ethmoidal cells.

Using a multidisciplinary treatment, including FESS, B2-adrenergic agonists and inhaled corticosteroids, systemic and nasal corticosteroids, the patient had a satisfactory improvement from the nasal point of view. The pulmonary symptoms restarted after the withdrawal of oral corticoids.

For this motive we offered the patient the use of Omalizumab, which started at 575mg subcutaneous every 2 weeks for 16 weeks.

The patient has remained stable of his nasosinusal symptomatology and improved respiratory. In his last visit the SNOT 22 test showed that cough and decreased smell and taste, are the symptoms with the greatest repercussion for the patient.

Discussion
Omalizumab is a human anti-IgE immunoglobulin with proven effectiveness in patients with severe allergic asthma.

May be a treatment option for those patients with nasosinusal polyposis and asthma who do not respond to conventional treatment, such as patient described.
Purpose of the study: to determine the prevalence of long term mucocele development after functional endoscopic sinus surgery (FESS) for nasal polyposis (NP), to search for statistical relationship with preoperative variables and to analyze the management of this complication.

Materials and methods: In a tertiary referral academic center, retrospective analysis of 153 patients who underwent FESS for NP, with a minimum of 7 years follow-up. Mucocele diagnosis was based on regular clinical examination (twice a year) and radiological evaluation (once every three to four years). Univariate and multivariate statistical analysis were performed.

Results: the postoperative mucocele rate was 13.1% (20 patients). The mean delay between surgery and mucocele diagnosis was 6.25 years. High preoperative Lund-Mackay score (>19) was a risk factor for postoperative mucocele (p=0.04). Asthma and aspirin intolerance did not increase the risk of this complication. Endoscopic marsupialization of mucoceles was successful in 19 patients, with only one recurrent frontal mucocele. One patient required external approaches for two frontal mucoceles.

Conclusion: mucocele risk after FESS for NP is significant, especially if high preoperative Lund-Mackay score (>19) is present. Long-term clinical follow-up is recommended, imaging being prescribed on the basis of symptoms or abnormal findings on clinical examination. Endoscopic marsupialization is very effective, but frontal sinus mucoceles are more likely to recur.
Introduction: Isolated sphenoid sinusitis is a rare condition, accounting for 2% to 3% of patients with paranasal sinusitis. Pituitary abscess is a rare intracranial complication of ISS. Its most frequent etiological factors are paranasal sinusitis, meningitis or pituitary neoplasm. We report the case of a pituitary abscess secondary to an intracranial extension of ISS, which was successfully managed with endoscopic endonasal sinus drainage and intravenous antibiotic therapy.

Case report: A 40-year-old man presented with a 12-day-history of a gradually worsened occipital headache, that became generalized, and with no improvement with common analgesic therapy. He also complained of photophobia, blurred vision and anorexia. He denied sinonasal symptoms such as nasal discharge, postnasal drip or nasal obstruction and there was no history of hyperthermia, vomiting, altered state of consciousness, altered muscle strength or sensitivity. He had no past medical history and was not taking any regular medication. On admission, he was afebrile, hemodynamically stable, without neurologic deficits or meningeal signs. A computed tomography scan was performed at the emergency unit. It revealed filling of the left sphenoid sinus, suggesting inflammatory pathology. The patient was discharged from the hospital treated with sumatriptan and Migretil®. The persistent headache forced the patient to return to the emergency unit six days later. The physical examination remained innocent. The complete blood count showed mild leucocytosis (11.670/μl), neutrophilia (84.5%), and the serum C-reactive protein was slightly increased (61 mg/L). A magnetic resonance imaging was performed and showed important isolated left sphenoidal sinusitis with an associated hypophysitis process extending into the cavernous sinuses and a pituitary abscess. Hormonal evaluation revealed decreased prolactin and testosterone values, a low morning serum cortisol and decreased adrenocorticotropic hormone. The patient was treated successfully with endoscopic transnasal sphenoidotomy and intravenous antibiotics (ceftriaxone in meningeal doses and metronidazole) during 6 weeks.

Discussion/Conclusion: Isolated sphenoid sinusitis is an uncommon entity, with nonspecific clinical presentation. Headache is the most common presenting symptom, followed by visual changes and cranial nerve palsies. In order to prevent important complications, as pituitary abscess, a high index of suspicion, proper endoscopic examination and appropriate radiological imaging are necessary.
PREOPERATIVE VS POSTOPERATIVE ITRACONAZOLE IN ALLergic FUNgal RHINOsinusitis

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BACKGROUND AND PURPOSE:

Antifungals used as adjuvant to surgery in AFRS (Allergic Fungal Rhinosinusitis) have shown varying success in delaying recurrences. Itraconazole has been used both as preoperative and post-operative adjuvant. This study investigates the role of Itraconazole in AFRS and compares its role between preoperative and post-operative administration of the drug.

METHODS:

Design: Randomized prospective study.

Period: Jan 2010 to Dec 2014

Population: 100 histologically proven AFRS patients.

Patients were randomly divided into groups as: Group 1(n=25), received 4 weeks Itraconazole in the preoperative period and operated subsequently, Group 2(n=25), received 4 weeks Itraconazole in the post-operative period, Group 3(n=50), matched patients of AFRS, who didn’t receive Itraconazole. All the groups received oral steroids in tapering doses starting from 1mg/kg for 6 weeks in the postoperative period. Symptomatic (SNOT 20), radiologic (Lund Mackay, LM) scores and endoscopic (Kupferberg’s NE Grades) were noted. Primary post-operative follow up was for 24 weeks with routine CT scans and nasal endoscopies, followed by which all the patients were followed with nasal endoscopies only with CT scans when required.

RESULTS:

Both preoperative and postoperative Itraconazole showed significant improvement in the SNOT, LM and Kupferberg’ grades in the follow up period. Preoperative Itraconazole therapy showed significantly better results compared to postoperative Itraconazole therapy -- measured in SNOT, LM scores and Kupferbergs’ grades-- though the recurrence rates were similar in both groups.

CONCLUSION:

Itraconazole is a better preoperative adjunct in AFRS than postoperative.

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PREVALENCE OF OLFACTORY IMPAIRMENT IN PATIENTS WITH CHRONIC RHINOSINUSITIS USING THRESHOLD, DISCRIMINATION, IDENTIFICATION (TDI SCORE)

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Abstract

PURPOSE OF THE STUDY: To determine the prevalence and risk factors associated with olfactory impairments in patients with chronic rhinosinusitis.

MATERIALS AND METHODS: The study was an hospital-based, cross-sectional study carried out at the out-patients clinics of Family Medicine and Otorhinolaryngolgy, University of Ilorin Teaching Hospital, Ilorin, Kwara, Nigeria. The study included all forms of chronic rhinosinusitis. All subjects and controls completed questionnaire inquiring about sociodemographic data, smoking habits, drug history, history of allergy, history of olfactory impairment and its rating if present, rating of the disease severity and history of comorbid conditions. Subjects rated their olfactory function as "absent", "attenuated" or "normal". They also rated disease/symptom severity as "mild", "moderate" or "severe". Thorough Ear, Nose, Throat and Head and Neck examination was carried out on all subjects and controls. Olfactory testing was done with the "Sniffin' Stick Test Battery" (Burghart, Wedel, Germany). The study was carried out over a period of 6-month.

RESULT: The prevalence of olfactory impairment in patients with chronic rhinosinusitis was 66% compared to controls which was 28%. The prevalence of unreported cases of olfactory impairment among subjects with chronic rhinosinusitis was 34%. There was statistically significant association between age, nasal polyposis and olfactory function in the study participants. The major risk factors identified among the subjects were age and nasal polyposis.

CONCLUSION: The prevalence of olfactory impairment among subjects with chronic rhinosinusitis was relatively high, about 66%. Clinical characteristics such as age and nasal polyps were significantly related to the olfactory performance of the study population. There was strong association between severity of chronic rhinosinusitis and degree of olfactory decline in subjects with chronic rhinosinusitis.

KEY WORDS: Chronic rhinosinusitis, olfactory impairment, risk factors, olfactory testing, Sniffin' Sticks, TDI.

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Author Information and Contributions

Iyanda Nurudeen Olakunle (MBBS) conception, design, patient care, data collection, data analysis, interpretation of data, write-up, revision, approval of the final version for print; Adekunle David Dunmade (MBBS, FMCORL, FWACS) conception, design, patient care, interpretation of data, revision, approval of the final version for print; Habeeb Kayodele Omokanye (MBBS, FMCORL, FWACS) conception, design, data analysis, interpretation of data,
revision; Foluwasayo Emmanuel Ologe (MBBS, FMCORL, FWACS) conception, design, patient care, interpretation of data, write-up, revision, approval of the final version for print.
Radiographic Bone Density of the Ostitomeatal Complex in Recurrent Acute Rhinosinusitis

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Background:
Recurrent acute rhinosinusitis (RARS) can be an elusive diagnosis due to the lack of clinical and radiographic findings in between acute episodes. CT imaging often shows minimal mucosal disease. However, bony changes on CT have never been characterized in these patients.

Methods:
Patients meeting diagnostic criteria for RARS were identified retrospectively from the senior author’s practice. Patients were diagnosed with RARS if they experienced four or more episodes of acute sinusitis within the past year with complete resolution of symptoms in between episodes. At least one episode was confirmed via CT or endoscopy. CT scans showing prior surgery were excluded. The scans for these patients were compared with those from a normal control group. Bone radiodensity of the entire ostitomeatal complex (OMC), including the ethmoid bulla, middle turbinate, and uncinate, was measured in Hounsfield units. Maximum radiodensity was noted for each side.

Results:
A total of sixteen patients meeting inclusion criteria for RARS were compared with sixteen normal patients. The mean Lund-MacKay score was 1.3 in the RARS group and 1.7 in the control group. The maximum radiodensity of the OMC was significantly higher in the RARS group (384.4) when compared to that of the control group (253.0) (95% CI 35.3-227.5, p-value=0.011).

Conclusion:
Patients with RARS had significantly greater radiodensity of the OMC compared to those in the control group despite minimal differences in mucosal disease. Radiodensity measurement of the OMC using Hounsfield units may help to identify patients with this elusive diagnosis.
Removable sinus stent for endoscopic sinus surgery – an animal trial

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Background: The goal of endoscopic sinus surgery is to create good drainage of the paranasal sinuses. Metal stents used to prevent lateralisation of the turbinates are associated with adverse effects.

Objective: The aim of this experimental study was to evaluate the feasibility and safety of a newly developed composite removable stent.

Methods: The composite removable stent was implanted in 9 sheep (18 stents), and examined for stability, ease of removal, and adverse effects. Histologic findings were compared between implantation and non-implantation sites at several time points after stent deployment and removal.

Results: None of the stents migrated or fell out of the nose. After 4 weeks, there was no infection in the nose or around the stents, and there was no damage to the mucosa. Histologic study showed only mild to moderate inflammatory cell infiltration relative to control sites, with no damage to the mucosal epithelium and no necrosis at distant sites. At 2 weeks after stent removal, slight to moderate fibroplasia was noted in the deep nasal tissue, with slight to moderate osteocartilaginous metaplasia and bone remodeling, but no necrotic or inflammatory changes in surrounding tissues. At 4 weeks after stent removal, the middle meatus remained open.

Clinical trials in humans have started and first results will be available soon.

Conclusions: The promising results of the composite removable stent in sheep justify further studies in patients undergoing endoscopic sinus surgery.
**Revision frontal sinus surgery : A clinico-radiological study.**

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The frontal recess and frontal sinus remain the most challenging region of sinus surgery due to the variability and very complex nature of the cellular patterns seen in this region. The key aim of operating in the frontal recess is not only to relieve obstruction of the outflow tract and thereby definitively treat the existing disease from an anatomical perspective, but also, and more importantly, prevention of recurrent disease.

Success in sinus surgery in general occurs in 85 to 95% of patients. About 5 to 15% of patients fail and require revision sinus surgery. Frontal sinus disease is present 48% to 63% of all revision sinus cases, suggesting that frontal sinusitis is a significant factor in overall failures. Revision frontal sinus surgery remains one of the greatest challenges facing the skilled endoscopic surgeon. Primary endoscopic sinus surgery has a long-term success rate greater than 90%; therefore, patients requiring revision frontal sinus surgery represent a subset of patients with advanced or poorly controlled disease.

Aim: The aim of the current study was to detect possible causes of persistent or recurrent frontal sinus disease radiologically and intra-operatively at the frontal recess and/or frontal sinus at the time of the revision surgery.

Methods: The Study was performed on 20 patients who were attending Otorhinolaryngology clinic (at the Main hospital of university of Alexandria) who had a history of previous frontal sinus surgery and still had persistent or recurrent symptoms refractory to medical treatment postoperatively. All patients had a preoperative non contrast multi-planar CT nose and paranasal sinuses with axial, coronal and sagittal reconstruction before the time of the revision surgery. At the time of the revision surgery, intra-operative common causes of frontal recess and/or frontal sinus persistent obstruction were evaluated.

Results: Analysis of CT scans of the patients and intra-operative identifying of factors causing obstruction of the frontal recess and/or frontal sinus were reviewed and evaluated.

At the time of the revision surgery, intra-operative common causes of frontal recess and/or frontal sinus persistent obstruction were evaluated: Persistent polyps, Remnant Agger nasi, Remnant cap of ethmoid bulla, medially displaced superior remnant of the uncinate process, Retained frontal cells, Retained supraorbital ethmoid cells, iatrogenic scarring of the frontal recess and ostium and/or lateralized middle turbinate.

Conclusion: multiple factors were identified as causes of persistent or recurrent
frontal sinus obstruction requiring revision surgery. It can be categorized into patients' factors, disease factors, and surgical factors.
Role of Mitomycin-C to reduce post FESS adhesion and ostial stenosis

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Objective: The aim of this study is to determine adhesion formation rate and antrostomy closure rate after the use of Mitomycin-C in patients underwent FESS

Methods: This was a prospective case control study done in ENT – Head & Neck Surgery department Lyari General Hospital. A total of 15 patients undergoing endoscopic sinus surgery for bilateral chronic rhinosinusitis with sinonasal polypos were included in the study. One nasal cavity of all these patients 0.8 mg/ml of topical Mitomycin-C was applied at the end of surgery for 5 minutes while the other nasal cavity served as control.

Results: There was a male predominance with 10 (60%) males and 7 (40%) females. Age varies from 20 years to 42 years with mean of 29±6.6 years. The most common symptom was nasal obstruction seen in all of the patients followed by decrease sense of smell reported in 14 (93.3%) patients. The mean duration of symptoms was 3 years with minimum of 1 year and maximum of 7 years. In all patients the polyps were present in middle meatus and filling the nasal cavity obscuring the view of nasopharynx. In our study all patients had bilateral nasal polyps out of 17 patients 8(47%) had allergic nasal polyps where as rest of 9(53%) had allergic fungal sinusitis. In follow up visits all patients underwent direct rigid nasal endoscopic examination with 0 and 30 degree endoscope under local anaesthesia fortnightly for one month and then monthly up to three months. The adhesion formation rate in mitomycin-c applied nasal cavities was 11% as compared to 64% of controls. The middle meatal antrostomy closure rate was 41% and 5% in controls and mitomycin-c applied group respectively.

Conclusion:

Application of Mitomycin-C (in concentration 0.8 mg/ml applied over 5 min) has shown reduction in post FESS adhesion formation and middle meatal antrostomy closure.
Staying Safe and Avoiding Complications in Endoscopic Sinus Surgery

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Endoscopic sinus surgery is among the most common procedures performed by otolaryngologists, yet operative complications can be devastating. This Instruction Course will serve as a discussion of both preoperative and intraoperative considerations and recommendations to minimize the risk of injury and equip the practitioner with several handy tools with which to stay safe and avoid surgical complications. The format will include the instructors’ own tips and techniques to stay safe in endoscopic sinus surgery. In addition, the instructors will discuss and review the evidence and knowledge base of the relevant literature, including preoperative planning, hemostasis, anesthesia techniques, intraoperative anatomical landmarks, image guidance, and other important considerations. This instruction course will discuss a systematic approach to the preoperative evaluation and decision-making process for patients undergoing endoscopic sinus surgery. We will discuss a reproducible approach to reviewing preoperative CT scans to ensure that anatomic anomalies and high risk anatomy can be reliably identified. We will identify several intraoperative anatomical landmarks that can be used to identify critical structures and avoid inadvertent orbital or skull base injury. At the conclusion of the instruction course, participants will be equipped with several tips and techniques that may be used to avoid surgical complications during endoscopic sinus surgery.
STUDY THE EFFECTIVENESS OF TREATMENT OF PATIENTS WITH EOSINOPHILIC CPRS DISTRIBUTED BY THE “VAS” SCALE

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Chronic polypoid rhinosinusitis (CPRS) is a chronic inflammatory disease of the mucous membrane of nasal cavity and paranasal sinuses characterized by the formation and growth of recurrent polyps. Nowadays the treatment of CPRS remains an actual problem of the modern rhinology.

The purpose of the study is to investigate the effectiveness of treatment of patients with eosinophilic CPRS distributed by the visual analogue scale (VAS).

Materials and methods. 75 patients (36 women and 39 men) were examined with CPRS who were treated at the ENT department of the 3-rd clinic of Tashkent Medical Academy from 2011 to 2013. We divided all patients into three groups by VAS which the dynamics of clinical symptoms (patient assessment) of disease evaluated by patients on a 10-grade system. The 1st group is slight degree from “0” to “3” grades (24 patients), 2nd group is moderate degree from “4” to “7” grades (26 patients) and 3rd group is severe degree from “8” to “10” grades (25 patients).

Results of the study. In the 1st group of patients with less appeared clinical symptoms we used intranasal corticosteroids (Mometazone furoate) 1 dose in each half of the nose 1 time a day (daily dose 200 mg) for up to 6 months. In the 2nd group of patients have done intranasal functional sinus surgery according to the dissemination of polypoid process. Then, after surgical period used intranasal corticosteroids 1 dose in each half of the nose 2 times a day (daily dose 400 mg) for up to 6 months. In the 3rd group of patients also have done intranasal functional sinus surgery, after surgical procedure they took systemic corticosteroids (dexamethasone 8mg during 10 days), after that used intranasal corticosteroids 1 dose in each half of the nose 2 times a day (daily dose 400 mg) for up to 6 months. The results of the procedure in the 1st group were good in all patients. In the 2nd group of patients only in one condition was satisfactory result, as well as in the 3rd group of patients were 3 conditions with satisfactory result.

Conclusion. Distribution of patients with eosinophilic CPRS by VAS and choosing treatment methods according to the VAS groups ameliorate the effectiveness of the treatment and reduce the relapses of disease.
The term ‘Allergic Fungal Sinusitis’ (AFS) was coined at UT Southwestern Medical Center in 1991 by Manning, et al. They identified multiple fungi involved in cases of ‘Allergic Aspergillus Sinusitis,’ and through the years other investigators from this institution actively promoted the concept that Type 1 and Type 3 hypersensitivity to fungi was responsible for the disease. In addition, allergen-specific immunotherapy was recommended as a treatment approach that reduced the need for steroids and surgery. However, the diagnosis, pathophysiology, and treatment of Allergic Fungal Sinusitis have always been a source of controversy. Our understanding of the disease has changed significantly over the last 25 years. The propensity of the disease to cause dramatic sinus distortion and its aggressive, persistent course stimulated great interest in the disease worldwide while at the same time, technological developments like endoscopy and computed tomography contributed to a revolution in Rhinologic diagnosis and treatment that paralleled our improved understanding of AFS. The ‘allergic’ and ‘fungal’ nature of the disease has never been satisfactorily settled. This presentation will review the history of AFS in the literature, discuss the dogmas that developed surrounding the condition, will re-consider the allergic and fungal pathogenesis of the disease, and conclude with a discussion of contemporary diagnosis and treatment approaches.
The effects of topical vitamin A on mucosal healing and antrostomy stenosis following endoscopic sinus surgery

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BACKGROUND:
Restoration of mucociliary mucosa and prevention of adhesion formation are important for determining the success of endoscopic sinus surgery (ESS). Vitamin A (VA) is proved to enhance mucociliary differentiation of respiratory epithelium. However, whether topical VA can promote sinonasal mucosal healing or reduce adhesion formation after ESS remains unclear.

OBJECTIVE:
To investigate the effect of topical VA on mucosal adhesion formation and antrostomy site patency after ESS.

METHODS:
This is a within-subject control study. We included patients with chronic rhinosinusitis and each patient underwent ESS. Topical VA was applied over the sinonasal wound on one side. Postoperative outcomes were assessed by using the Lund-Kennedy score, and the antrostomy size was measured. In vitro wound healing assay of fibroblasts with or without VA was evaluated. Restoration of ciliated epithelium was examined by using scanning electron microscopy.

RESULTS:
Thirty patients were enrolled in this study. The mean (standard deviation {SD}) scores for scarring/adhesion in the VA-treated side at 3 and 12 months after surgery (0.20 ± 0.40 and 0.23 ± 0.42, respectively) were significantly lower than those in the controls (0.47 ± 0.50 and 0.53 ± 0.62, respectively). The mean (SD) antrostomy size in the VA treated side at 1, 3, and 12 months after surgery (0.85 ± 0.30 cm(2), 0.7 ± 0.30 cm(2), and 0.70 ± 0.27 cm(2), respectively) were significantly larger than those in the controls (0.79 ± 0.26 cm(2), 0.60 ± 0.25 cm(2), and 0.57 ± 0.24 cm(2), respectively). Wound healing assay revealed that VA significantly inhibited the proliferation and migration of fibroblasts. Scanning electron microscopy showed mature ciliated cells in the VA-treated side.

CONCLUSION:
Topical VA is a promising agent for sinonasal wound healing after ESS, since it can promote mucociliary reepithelization, reduce adhesion, and prevent antrostomy stenosis.
The Function of Chromatin Remodeling Complex SWI/SNF in Chronic Rhinosinusitis

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Introduction:

Chronic rhinosinusitis (CRS) is one of the most common chronic human diseases with the estimated prevalence of 11% among European populations. The causes of CRS remain uncertain although presumable etiology and pathophysiology of CRS have long been known. Research in immunology has brought great progress in the molecular knowledge of the inflammatory process over the last twenty years. Nevertheless, the pathomechanisms of CRS remains unclear. We hypothesize that one of the reasons of CRS relates to the SWI/SNF complex. SWI/SNF a human ATP-dependent chromatin remodeling complex and plays important role in several distinct processes such as transcriptions, DNA repair, steroid hormone signaling, cell differentiation and cell adhesion. Moreover, the SWI/SNF complex enables glucocorticoid receptor (GR) to function correctly and is inducted throughout inflammation.

Aims of study:

Assessment of the protein expression level of the SWI/SNF complex subunits (BAF155, BRM and BRG1) in the medial nasal concha tissue from patients with CRS.

Material and methods:

Material from the medial nasal concha tissue will be collected at the Department of the Otorhinolaryngology of the Faculty of Medicine and Dentistry in Warsaw. The study population will consist of 60 patients with CRS (with and without polyps) and 30 patients in control group. The laboratory tests will be performed at Marie Curie Memorial Cancer Center and Institute of Oncology in Warsaw. Immunohistochemical staining will be performed on the 3,5 μm formalin-fixed, paraffin-embedded tissues using the Envision Detection System (DAKO).

Results:

Results of the observation have revealed smaller amount of the SWI/SNF complex in the CRS groups in comparison to the control group.

Conclusions:

The role of SWI/SNF in CRS should be analyzed. The thorough knowledge about the CRS pathophysiology is crucial for clinicians because, in concrete situations, it improves the patient treatment and helps to avoid potential complications.
The long-term outcomes after endoscopic sinus surgery for severe eosinophilic sinusitis


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Purpose of the study: Diagnostic criteria and severity classification of eosinophilic sinusitis has been demonstrated by the JESREC study (Allergy. 2015, 995-1003). Among all eosinophilic sinusitis types, severe eosinophilic sinusitis is refractory and has a high recurrence after endoscopic sinus surgery (ESS). The purpose of our study was to evaluate the long-term outcomes after ESS for severe eosinophilic sinusitis at our hospital.

Materials and methods used: The subjects consisted of 93 consecutive patients with severe eosinophilic sinusitis in whom ESS was performed by only one surgeon (KD) at our department from 2003 to 2013, and retrospective analysis of post-operative findings could be obtained after follow-up for 3 years or more. We divided the subjects into two groups based on whether the post-operative condition was good or poor, and analyzed the differences between the two groups statistically. Revision surgery cases, oral steroid-dependent cases and nasal polyp recurrence cases were separated into the poor outcome group. Conventional ESS was performed using the technique developed by Messerlinger. The affected sinus mucosa, mainly in the ethmoidal sinuses, was removed as fully as possible, and bone was exposed as minimally as possible.

Results: Sixteen of the 93 (17%) study patients underwent revision surgery. Forty-two (45%) and thirty-seven (39%) of the study patients were oral steroid-dependent and exhibited recurrence of nasal polyps, respectively. Fifty-three of the 93 (57%) were judged as having poor outcomes after ESS in conclusion. In the poor outcome group after ESS, average age at operation (46.8 years old) was significantly lower than that (59.9 year old) of the good outcome group. Peripheral eosinophil count and percentage before ESS were significantly higher in the poor outcome group than in the good outcome group. Patients with aspirin hypersensitivity demonstrated a significantly high incidence for poor outcomes after ESS.

Conclusion: According to our data, lower age at ESS, peripheral high eosinophilia and aspirin hypersensitivity were aggravating factors for poor outcome after ESS in severe eosinophilic sinusitis.
Little is known about the molecular changes associated with the pathogenesis of chronic inflammatory diseases of the nose and the paranasal sinuses. The earliest from about bytiyami in these diseases is a violation of proliferation and inhibition of apoptosis in the cells of the nasal mucosa and the paranasal sinuses.

By studying the characteristics of molecular genetic changes in the cells of the mucous membrane, in inflammatory diseases of the nose and the paranasal sinuses had withciency, which is among the first group of patients Ki -67 - positive samples was not detected, Bcl -2 - positive - 87.5%, mtp 53 - positive - 37.5%. Among the patients of the second group of clinical Ki -67 - positive samples occurred in 46.6% patients and n, 53 mth - positive - 13.3%, and Bcl -2 -positive were all investigated samples. In patients of the third group obtained similar results of immunohistochemical studies Ki -67 - positive samples occurred in 42.9% patients and n, 53 mth - positive - 28.6%, and Bcl -2 -positive were all investigated samples. The results indicate that the majority in the nasal mucosa and paranasal sinuses in chronic-inflammatory diseases, there is a decrease in proliferative activity of STI cells, as evidenced by the absence or low expression of the proliferation marker Ki -67, as well as high and the average expression of Bcl -2 - inhibition and apoptosis inducer torus proliferation. Lack of expression of protein and low mtp 53 in 73.6% of patients suggests that their cells have a normal (wild) p53 gene, which carries out its functions "guardian gene". However, 26.4% of patients showed high expression of mutant p53 gene (mtp 53) is evidence of association with the aggressiveness of the disease tech e and h sible in cell transformation. Analysis of the individual characteristics of the patients showed that patients with chronic sinusitis and polyloid polyloid ethmoiditis it is, whether the mucous phenotype Ki -67 negative / weakly positive cells s ny / Bcl -2 strongly and moderately positive / mth 53 strong and the medium and postive, which corresponds to the braking processes of proliferation and inhibition of apoptosis, and tion. As a result, there is a possibility of survival cells with altered genome and substitution of normal cells.
The risk of recurrence of chronic polypoid rhinosinusitis in patients with aspirin-exacerbated respiratory disease based on the immunological status of the organism

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The recurrence rate of chronic polypoid rhinosinusitis after endoscopic surgery on the paranasal sinuses varies from 15% to 25%. According to our earlier data the risk of recurrence of nasal polyposis increases at higher level of interleukin 5 (IL-5) and IL-8. These cytokines are diagnostically important criteria for predicting the risk of recurrence of the disease.

Purpose of the study: to determine the risk of recurrence of chronic polypoid rhinosinusitis in patients with aspirin-exacerbated respiratory (AERD) disease based on the immunological status of the organism.

Materials and methods. The study involved 56 patients with chronic polypoid rhinosinusitis in patients with aspirin-exacerbated respiratory disease. Prior to treatment all patients underwent computed tomography (CT) scan of the paranasal sinuses, testing of blood serum to determine the concentration of interleukins.

Results. According to the CT scan of the paranasal sinuses in patients with AERD disease: I stage – 5.36%, II stage – 10.71%, III stage – 23.21%, prevalence patients with IV stage of chronic polypoid rhinosinusitis – 60.72%.

Elevated levels of IL-5, IL-8 in the serum were not detected in patients with I stage of nasal polyposis. Elevated level of IL-5 was detected in patients with II stage in 71.43% and elevated level of IL-8 in 14.29% of cases. Elevated levels of IL-5 and IL-8 III stage were determined in 80% and 66.67% respectively. In 96.88% at IV stage revealed elevated IL-5 and IL-8.

Revealed a direct correlation (correlation coefficient r = 0.93) between stage of chronic polypoid rhinosinusitis and levels of interleukin (IL-5 + IL-8) in the blood serum. There is a directly proportional relationship between increased levels of IL 5 and IL-8 in serum and stage of nasal polyposis.

Conclusion. The increase of the level of interleukin 5 and 8 in serum indicates a high risk of recurrence of chronic polypoid rhinosinusitis. There is a direct correlation between the prevalence of stage of nasal polyposis by CT scan and the risk of recurrence of nasal polyposis. Patients with III stage and IV stage recurrence of nasal polyposis observed in the 66.67% and 96.88% of cases respectively. Among patients with AERD-disease in 42 patients (75%) revealed the increase of IL-5 and IL-8, indicating a high risk of recurrence of chronic polypoid rhinosinusitis in this group of patients.
The role of transcript variants of PTGS1 gene in the development of chronic rhinosinusitis with nasal polyps

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Chronic rhinosinusitis with nasal polyps (CRSwNP) is a disease with still not enough known etiology and pathogenesis despite the development of genetics and many molecular research. The recurrences of CRSwNP are very likely to occur with a difficult to predict frequency at individual and in spite of the use of advanced surgical techniques and complementary long-term pharmacotherapy. The patomechanism of aspirin hypersensitivity is also not fully known so far, what causes diagnostic difficulties and narrows possibilities of pharmacological intervention. At the same time, CRSwNP is very likely to be observed in this group of patients.

In this research it was attempted to show the relationship between the presence and expression level of each transcript variant of PTGS1 gene and the development of chronic rhinosinusitis with nasal polyps.

The main aims of presented study were: to identify transcript variants of PTGS1 gene; to analyze the expression of known and new transcript variants of PTGS1 gene in the group of patients with CRSwNP and with or without aspirin hypersensitivity comparing to the group of healthy volunteers.

The research was performed in 409 patients: 206 patients with CRSwNP and 203 healthy volunteers in the control group. The known (NM_08059, NM_000962) and new, hypothetically present in people (NM_001271165.1, NM_001271368.1, NM_001271166.1) variants of PTGS1 gene were analyzed.

The coexistence of all researched transcript variants of PTGS1 gene in both study and control groups was found. The statistically significant correlations (p<0.0005) of replacement of COX1.3 variant (NM_001271165.1), which has the largest expression in healthy, by COX1.1 (NM_000962) and COX1.2 (NM_080591) isoforms, with a deflation of COX1.4 (NM_001271368.1) isoform in the group of patients with CRSwNP were shown.

In the research: transcript variants of PTGS1 gene were identified to be present in patients with CRSwNP. The coexistence of known and new transcript variants of PTGS1 gene in patients with CRSwNP with and without aspirin hypersensitivity was proved. COX1.3 (NM_001271165.1), COX1.4 (NM_001271368.1) COX1.5 (NM_001271166.1) transcript variants seem to have protective meaning in development of less severe CRSwNP with and without aspirin hypersensitivity. COX1.1 (NM_000962) and COX1.2 (NM_080591) isoforms are in the higher level of expression in more severe CRSwNP and therefore seem be likely to promote more aggressive disease in patients with and without aspirin hypersensitivity.
The Use of Topical Anaesthetic in Poloxamer-407 Gel for the Treatment of Recalcitrant Atypical Facial Pain

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Background

Poloxomer-407 is a gel-like polymer with unique thermoreversible properties that remains liquid in cool temperature but reverts to a gel at higher temperatures. It can be loaded with topical anaesthetics (bupivacaine, cocaine) and applied to target neuropathic pain sites within the sinuses in patients with chronic headache and atypical facial pain. The advantage to its use is the prolonged contact time with the sinus mucus membrane (2-5 days). This study aims to examine the effectiveness of topical anaesthetic impregnated poloxamer-407 in the treatment of recalcitrant atypical facial pain.

Methods:

A retrospective review of post-functional endoscopic sinus surgery patients with no evidence of sinus inflammation (Lund-Kennedy Score=0) and recalcitrant atypical facial pain was performed. Topical anesthetic impregnated poloxamer-407 was applied to the ipsilateral sphenopalatine ganglion region. Visual analog scores (VAS) for pain (on a scale of 0-10) were obtained pre and post-application. Paired t-test was used to test the difference in VAS pre and post-application.

Results:

Eight patients (7-females, 1-male; mean age=53.6 years) were reviewed. There was a significant reduction in VAS for pain (mean difference=5.75, 95% CI=3.62-7.88, p-value=0.0002). The mean application interval was 10.6 days and duration of relief of >24 hours was seen in 75% of patients. No systemic absorption or adverse events were reported.

Conclusion:

Poloxamer-407 impregnated with topical anaesthetic is an effective treatment option for patients with recalcitrant headache and atypical facial pain. Poloxamer-407 offers the advantages of application under direct visualization in the office setting, longstanding pain control, and reduced need for systemic pain therapy.
INTRODUCTION: Increasing antimicrobial resistance has presented new challenges to the treatment of recalcitrant chronic rhinosinusitis fuelling a continuous search for novel nonantibiotic anti-biofilm agents. This study aims to assess the safety and efficacy of Chitodex gel, combined with novel antibiofilm agents Deferiprone and Gallium Protoporphyrin (CD-DG) as a topical treatment against S. aureus biofilms in vivo. Deferiprone and Gallium Protoporphyrin (DG) exert their antibiofilm effects by targeting the essential iron metabolism pathways of S. aureus.

METHODS: To assess efficacy we used a sheep sinusitis model. 15 sheep were divided into three groups of 7 day treatments, 5 sheep (n=10 sinuses) per treatment; (1) twice daily saline flush (NT), (2) Chitodex gel (CD) with twice daily saline flush, and (3) CD-DG gel with twice daily saline flush. Biofilm biomass across all groups was compared using LIVE/DEAD BacLight stain and confocal scanning laser microscopy. To assess safety, 8 sheep were divided into two groups of 7 day treatments, 4 sheep (n=8 sinuses) per treatment; (1) Chitodex gel (CD) with twice daily saline flush, and (2) CD-DG gel with twice daily saline flush. Tissue morphology was analysed using histology and scanning electron microscopy (SEM).

RESULTS: The safety study showed no cilia denudation on SEM and no change in sinus mucosa histopathology when comparing CD-DG to CD treated sheep. COMSTAT2 assessment of biofilm biomass showed a significant reduction in CD-DG treated sheep compared to NT controls (p < 0.05, One-way ANOVA, Kruskal-Wallis test).

CONCLUSION: The results indicate that CD-DG is safe and effective against S. aureus biofilm in a sheep sinusitis model and could represent a viable treatment option in the clinical setting.
Transcript variants of PTGS2 gene and their meaning in the development of chronic rhinosinusitis with nasal polyps

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In the recent years number of people suffering from chronic rhinosinusitis with nasal polyps (CRSwNP) is increasing. The etiology and pathogenesis of CRSwNP is still unknown despite the development of genetics and many molecular research. CRSwNP is very likely to be observed in patients with aspirin hypersensitivity and when coexisting makes disease more severe.

In this research it was attempted to show the relationship between the presence and expression level of each transcript variant of PTGS2 gene and the development of CRSwNP.

The main aims of presented study were: to identify transcript variants of PTGS2 gene; to analyze the expression of known and new transcript variants of PTGS2 gene in the group of patients with CRSwNP and with or without aspirin hypersensitivity comparing to the group of healthy volunteers.

The research was performed in 409 patients: 206 patients with CRSwNP and 203 healthy volunteers in the control group. The known (NM_000963) and new, hypothetically present in people (AY_151286, BQ_722004) variants of PTGS2 gene were analyzed.

The coexistence of all researched transcript variants of PTGS2 gene in both study and control groups was found. The expression of the most common in control group COX2.1 (NM_000963.3) isoform was reduced, while the expression of COX2.2 (AY_151286) isoform was increased in patients with CRSwNP. The expression of COX2.3 (BQ_722004) in both groups was similar.

In the research: transcript variants of PTGS2 gene were identified to be present in patients with CRSwNP. The coexistence of known and new transcript variants of PTGS2 gene in patients with CRSwNP with and without aspirin hypersensitivity was proved. COX2.1 (NM_000963.3) transcript variant seems to have protective meaning in development of less severe CRSwNP with and without aspirin hypersensitivity. COX2.2 (AY_151286) isoform is in the higher level of expression in more severe CRSwNP and therefore seems be likely to promote more aggressive disease in patients with and without aspirin hypersensitivity.
Using of multiplanar reconstruction computed tomography of paranasal sinuses for evaluation of instruments possibilities and predicting the necessity of additional approaches in middle meatal antrostomy

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Purpose of the study. Enlarging natural maxillary sinus ostium in most cases solves the problem of chronic maxillary sinusitis. But in some cases, there are inaccessible recesses in the maxillary sinus during endoscopic middle meatal antrostomy in spite of a significant number of special curved instruments.

Materials and methods. The study included 431 cases maxillary sinusitis operated in our institutions (from 2013 to 2016). Before surgery computed tomography of paranasal sinuses was performed for all patients. For evaluation of instruments possibilities in middle meatal antrostomy and predicting additional approach to the maxillary sinus we used multiplanar reconstruction in each case. In addition to the standard three planes we used an additional plane, in which the instruments are during surgery. This plane passes through the area of the natural ostium of the maxillary sinus, target site (cyst, polyp, etc.) and the upper edge of the entrance into the nasal cavity in the same side. On additional plane we pictured curve that shape and dimensions was measured to the instrument. If it is impossible to achieve the target area using this simulation endoscopic middle meatal antrostomy, we made decisions about using of additional approach.

Results. In 356 cases, endoscopic middle meatal antrostomy, which included natural ostium allowed in full to reach areas with pathological changes in such modeling, and during operation. In 46 cases for access to anterior part of alveolar recess and palatinal recess, additional approach through the inferior meatus was optimal according to the modeling. In 11 cases, the presence of lesion in prelacrimal recess needed prelacrimal approach. Access through the lateral wall of the alveolar recess was used in 18 cases due to associated pathology of the roots of teeth.

Conclusion:

The use of additional planes of multiplanar reconstruction for modeling location of instruments during endoscopic operations on the maxillary sinuses allows predicting the need for additional access.

Minimally invasive endoscopic endonasal approaches allow achieving almost all parts of the maxillary sinus in its inflammatory diseases.

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Validation of the dialectal version of the rhinosinusitis disability index for the evaluation of chronic rhinosinusitis


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But de la présentation : Évaluer les caractéristiques psychométriques de la version dialectale arabe du rhinosinusitis disability index chez les patients atteints de rhino-sinusite chronique.

Matériel et méthodes : La version originale du RSI a été traduite selon les recommandations de Beatton et al. Les caractéristiques psychométriques ont été étudiées chez un échantillon de patients recruté en consultation d’oto-rhino-laryngologie. La fiabilité interne était évaluée par le coefficient alpha de Cronbach et la validité était vérifiée par la corrélation des scores RSI avec la sévérité perçue de la rhinosinusite. Le score total du RSI varie entre 0 et 64 avec un score élevé correspondant à une qualité de vie altérée.

Résultats : Environ 92 patients ont participé à l’étude, 55,4 % étaient de sexe féminin et la moyenne d’âge était 36,0 ans (ET = 14,1). Le tabagisme était rapporté par 11 % des patients et 17 % étaient des ex-fumeurs. L’état de la rhinosinusite était perçu comme sévère par 47 % des patients. La fiabilité interne de l’index RSI était bonne (α = 0,82), les scores RSI étaient positivement corrélés à la sévérité de la maladie perçue par les patients (r = 0,75, p < 0,001). La moyenne du RSI était de 29,3 (ET = 9,0).

Conclusion : Les résultats montrent que les caractéristiques psychométriques de la version marocaine du RSI étaient satisfaissants, et que le retentissement de la rhinosinusite sur la qualité de vie était modéré.
Molecular and cellular bases for cigarette smoke-induced impairments of olfactory neurogenesis

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Purpose: Exposure to cigarette smoke is a major cause of olfactory dysfunction. However, the underlying mechanisms, by which cigarette smoke interferes olfactory nerve system and impairs the regenerative olfactory receptor neurons (ORNs), remain unclear. In the present study, we investigated whether cigarette smoke induced olfactory epithelial (OE) injury and olfactory dysfunction.

Material and Methods: We developed a mouse model of smoking that involved intranasal administration of a cigarette smoke solution (CSS), and explored the effects of CSS on olfactory populations, olfactory sensitivity, and pro-inflammatory responses using histological analyses, behavioral testing with time, and, quantitative real-time PCR analyses. In addition, we investigated the influence of cigarette smoke on ORN regeneration following methimazole-induced ORN injury.

Results: CSS administration over a period of 24 days reduced the number of mature ORNs in the OE and induced olfactory dysfunction. These changes coincided with a reduction in the number of ORN progenitors and proliferating cells in the basal layer of the OE, and an increase in the expression of mRNA for the inflammatory cytokines IL-1β and IL-6. Moreover, intranasal administration of CSS suppressed the recovery of ORNs and olfaction following ORN injury. Defective ORN recovery was associated with impaired recovery of immature ORNs. In the nasal mucosa, mRNA expression levels of neurotrophic factors and insulin-like growth factor 1 (IGF-1) were increased following OE injury, whereas CSS administration decreased the ORN injury-induced IGF-1 expression. Administration of recombinant human IGF-1 prevented the CSS-induced suppression of ORN recovery following injury.

Conclusion: These results suggest that ORN progenitors are targets of CSS-induced impairment of the OE and CSS exposure eventually overwhelms the regenerative capacity of the epithelium, resulting in reduced numbers of mature ORNs and olfactory dysfunction. In addition, CSS may impair regeneration of ORNs by suppressing the development of immature ORNs, at least partly by reducing IGF-1.
Nasal cycle in smokers

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The purpose was to study the smoking effects on the nasal cycle.

Material and methods. The basis was data of long term nasal breathing monitoring within 24 hours during daytime wakefulness and night sleep with rhinoflowmeter «Rhinocycle» in 20 males aged 18-63 y.o. and 20 females aged 23-59 y.o. 10 males and 10 females were systematically active smokers and 10 males and 10 females were passive smokers. The average number of cigarettes during 24 hours was 14.6 in males and 11.5 in females. Results were presented as fluctuation graphs of relative volumetric flow of the air passing through the nasal cavity for a certain period in the relative units. Nasal cycle was certain as classical (regular) cycle or non-classical (irregular) one. The latter type included overlapping partial fluctuating nasal cycle, fluctuating unilateral and bilateral one.

Results. The decrease in the value of relative volumetric air flow was noted after smoking on the leading side of the nasal cavity; its differences averaged 14.6±0.9 relative units in males and 19.4±1.4 relative units in females. It lasted about 40-60 minutes. Then the indicator began to rise to its original settings. However, there was a sharp reduction in one fluctuation’s duration and its differences averaged 42.9±3.3 minutes in males and 55.1±2.6 minutes in females. All surveyed adults had from 3 to 7 episodes of the absence of relative volumetric air flow fluctuations within 40 minutes from the time of smoking (acyclic graph’s parts of the changes of relative volumetric air flow).

Conclusions. There were similar fluctuations patterns of the relative volumetric nasal air flow recorded in adult majority exposed to active and passive smoking. The inhalation of tobacco smoke reduced significantly the relative volumetric air flow in the leading nasal cavity side. In addition, it made shorter the current fluctuation duration and led to the emergence of acyclic intervals on the recorded oscillations’ graph of the nasal cycle.
NASAL IRRIGATION EXPLAINED WITH THE PHYSICS LAWS AND FLUID DYNAMICS

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ABSTRACT

Nasal rinsing (lavage or irrigation) represents natural methodology for maintaining the health of the upper respiratory routes. It is especially recommended for persons who suffer allergy from inhalation allergens, persons who practice sports and in everyday hygiene of the upper respiratory routes. Regular use of hypertonic sea salt solution acts as a prevention and protection against infections of upper respiratory routes. The sea salt acts as a natural antihistaminic and has mild anti-septic and antibacterial action due to the Calcium and Magnesium ions. In general it reduces the oversensitivity, regenerates mucosa and establishes electrolyte balance in the epithelial cells. Due to that, the channels through which communicate the sinus cavities and the nose are more passable and allows easier drainage and better ventilation of sinus cavities.

The sea salt itself with its natural composition regenerate of the respiratory epithelium, and at the same time the functionality of the epithelium itself is maintained. The lavage is a thousand year old Ayurveda methodology and for it there is a scientific explanation. The mechanism of the action is based on the fundamentals of physics and dynamics of fluids.

The objective of this paper is to show the scientific foundation of the functioning nasal irrigation with sea salt solution, which is based on the link between the pressure and the velocity of the fluid expressed through the Bernoulli equation. According this equation, high pressure which exists around the hypertonic solution, which flows very fast through the nose, forces the secret from the sinus cavities to start to flow and sift it in the current of the liquid.

Key words: Sinus cavities, Lavage, Allergy, Fluid dynamics, Bernoulli equation.
Background: Current studies show that about 1/3 of the adult population smokes worldwide. Some studies from western Europe show that 37% of children live in houses that adults smoke in. Passive smokers have a 25-30% higher risk to develop cardiovascular diseases and a 20-35% higher risk to develop lung cancer. Most studies investigate effects smoking has on the lungs ignoring harmful effects it has on the oropharyngeal and laryngeal mucosa, although the nose and the larynx are most exposed. Also many people that develop an ENT pathology work in polluted areas and a chronic alcohol users.

Purpose of the study: This study tries to associate the usual hygienic and dietetic factors (smoking, alcohol consumption, work pollution, food type) and the ENT pathology.

Material and Method: We evaluate a number of 130 aging patients with different ENT pathology with a questionnaire that contained a series of questions about their lifestyle and statistical analyzed the data.

Results: The study revealed important correlations between statistical data and ENT pathology. 92% of the patients were/are smokers, 87% work/used to work in polluted environment (will be detailed in the full paper) and 88% were/are alcohol users.

Conclusion: Hygienic and dietetic factors are very important in the development of ENT pathology. Also, this pathology appears at a younger age in patients that don’t have a healthy lifestyle.
A rare case of nasal septal perforation revealed a syphilitic erosive pansinusitis

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Purpose of the study:

Nasal septal perforations are fairly frequent with an incidence of about 0.9%. Common causes are trauma (iatrogenic occasionally nose picking), malignancy, inflammations and infections such as syphilis.

We aim to study nasal septal perforation secondary to syphilis infection.

Material and methods:

It’s a retrospective study of a 52-years-old, immunocompetent female patient who was treated in our department; clinical and biological presentation were described, also therapeutic management.

Results:

A 52-years-old Tunisian woman was referred to our emergency complaining of severe headache, nausea, unilateral nasal obstruction, crusting and anosmia.

Anterior rhinoscopy revealed friable mucosal oedema, crusting in both nasal cavities and a perforation measuring about 10 × 15 mm in the cartilaginous part of the nasal septum. The edges of the perforation were granular in appearance and a pus outlet from the two middle meatus.

The initial attitude was to put the patient under symptomatic treatment (antibiotherapy, nasal decongestant and local corticosteroids). A Cerebral and sino-nasal CT was performed, revealed a mucosal pan-sinus thickening, significant bone erosion with destruction of the nasal septum and lysis of the inter-nasal sinus walls, demineralization of the left papery plate and the walls of the ethmoidal cells. A bit of tissue biopsy was taken and sent for histopathological examination. A syphilitic serology (VDRL and TPHA) was performed. All concluding with a syphilis disease. The patient was referred to the infectious disease department for treatment.

Conclusion:

The clinical presentation of the perforations of the nasal septum is not specific. They are often asymptomatic and fortuitous discoveries. The syphilitic origin remained very rare. Diagnosis is based on the histological identification.

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Background: Invasive fungal sinusitis is usually associated with poor prognosis, but no clear guidelines have been established for surgical treatment. Here, we report the development and application of the endoscopic orbit-sinus combined approach (EOSCA), a novel surgical technique to approach the nasal cavity and orbit concurrently, in patients with invasive fungal sinusitis with orbital infiltration.

Methods: Two patients with invasive fungal sinusitis infiltrating the orbit underwent EOSCA. Transnasal endoscopy was performed for maximum debulking of tissues infiltrated by fungi in the nasal cavity and orbit, before making an incision into the palpebral conjunctiva. An endoscope was then inserted into the orbit through the incision in the palpebral conjunctiva to remove adipose tissue and muscles that had been infiltrated by fungi from the orbital regions where the transnasal approach was difficult or impossible. Another surgeon assisted the procedure by operating an endoscope concurrently via the nasal cavity (4-hands technique).

Results: We were able to remove lesions safely and with precision, preserving visual acuity and a functional eyeball in both cases. Currently, the patients are alive with no postoperative complications, recurrence, or disfigurement.

Conclusion: This novel method shows promise as a safe and reliable surgical procedure for patients with invasive fungal sinusitis infiltrating into the orbit, with no postoperative complications, recurrence, or disfigurement.
Bacterial Microbiology in Recurrent Acute Rhinosinusitis

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Purpose: Information is absent regarding microbiology in recurrent acute rhinosinusitis (RARS). We reviewed the endoscopic culture data to demonstrate the distribution of bacterial isolates in RARS, compare the bacteriology to that of chronic rhinosinusitis, and assess the clinical significance of each bacterial strains in RARS.

Methods: The study was carried out as a retrospective review of medical records. Using a text-based search algorithm, we collected a list of 289 patients with RARS with a minimum 4 annual acute episodes. Seventy-six cultured strains from 42 RARS patients were grouped in the medical group or the postoperative group. Corresponding data from a control of 118 chronic rhinosinusitis cultures were also grouped accordingly. Bacterial culture results as well as various clinical variables were collected and analyzed.

Results: A total of 76 bacterial isolates were obtained from endoscopic culture of RARS patients. The distribution of culture isolates more resembled that of CRS(chronic rhinosinusitis) rather than ARS(acute bacterial rhinosinusitis), but with some distinctive features. Staphylococcus aureus, coagulase-negative staphylococci, and Pseudomonas aeruginosa were the most commonly isolated strains in RARS. Cultures from unoperated RARS cases were significantly less likely to yield gram-negative bacilli compared to the postoperative RARS group and also to the CRS groups. Pseudomonas aeruginosa was associated with more severe clinical features.

Conclusion: A distinct pattern of microbiology is found in RARS, which warrants clinical attention.
Background: The antibiotics represent the most important therapeutic arsenal in the fight against pathogen microorganisms. Even in the beginning of their use, there was registered bacterial resistance, a phenomenon that became an alarming subject in the last decades.

Objective: The aim of the study was to determine the etiologic bacterial agent of chronic rhinosinusitis in children and their resistance to antibiotics in our republic.

Methods: We performed bacteriological examination of 110 children with chronic and recurrent rhinosinusitis obtained from meatus nasalis media or sinus maxilaris.

Results: The presence of microbiologic agent was determined in 85 cases (86.6%). In 36 cases flora was polymorphic and in 49 – monomorphic. The most frequently we determined Staf. aureus, (40 cases), 22 monoflora, in 18 cases poliflora), Str. pneumoniae, Str. pyogenes, Haemophilus influenzae was determined in 15%, 15% și 14%. Neisseria spp. și Enterobacter ssp. was determined in 6 and 4% respectively. Moraxella catharralis was determined in 8%. Enterobacter ssp. was determined in 5 cases and in 4 cases in association with other bacteria. The resistance to antibiotic was different: Staf. aureus was very sensitive to cefalosporins of all generation and macrolides (85 and 70%). Haemophilus influenzae was very sensitive to cefalosporins of III and IV generation (92.5%). Staf. aureus, Neisseria ssp. was very resistant to penicilline grup, amoxicillin (83.3%). Streptococcus pneumoniae was very resistant to amoxicillin grup (93.3%) and sensitive to cefalosporins (100%). Moraxella catharralis was sensitive to amoxicillin grup. The majority of bacterial agents was sensitive to fluorochinolones (99.7%).

Conclusion: Because of the fact that the resistance to antibiotics is an increasing phenomenon, data about antibiotic resistance is a permanent necessity in any part of the world.
Bilateral blindness secondary to massive sphenoid mycetoma

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Purpose of the study

Blindness due to optic nerve compression secondary to sphenoid sinus mycetoma is an exceptionally rare and devastating complication. We report an unusual case of bilateral optic nerve compression and blindness secondary to massive sphenoid mycetoma.

Materials and methods used

A 28 year old female presented with progressive bilateral visual loss over a period of three months, with associated mid facial pain and headaches. Ophthalmology review demonstrated markedly decreased visual acuity bilaterally. CT and MRI demonstrated the presence of a massive sphenoid mycetoma, with compression of both optic nerves, erosion of the skull base in the region of the sphenoid and clivus, with dehiscence of the brain stem, carotids and optic nerves. The patient underwent emergent endoscopic sinus surgery with drainage of the mycetoma and decompression of the orbits, optic nerves, brain stem and pituitary.

Results:

There was an uncomplicated recovery with significant, albeit partial recovery of vision. The vision continues to improve.

Conclusion

Ophthalmic complications associated with mycetoma are rare. In an immunocompetent patient, bilateral blindness is exceedingly rare. Optic neuropathy is thought to arise from the mechanical compression of the expanding fungal mass as well as by the potent eosinophilic immunologic reaction. Prompt imaging, corticosteroids and surgical decompression can prevent irreversible blindness.
Cavernous sinus thrombosis secondary to aspergillus granuloma: A case report and review of the literature


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Object: to present a case of cavernous sinus thrombosis with ipsilateral internal carotid artery thrombosis secondary to a non-invasive sphenoid aspergillosis in an immunocompetent host.

Cavernous sinus thrombosis is a rare but serious complication of sphenoid aspergillosis. The rarity of this pathology makes its diagnostic very difficult on a clinical, biological and radiological sense. Because of their deep location, they could be responsible for serious complications such as pituitary invasion and internal carotid artery thrombosis. These complications are usually in connection with an invasive sphenoid aspergillosis occurring in immunocompromised host. The authors present a case of cavernous sinus thrombosis with ipsilateral internal carotid artery thrombosis secondary to a non-invasive sphenoid aspergillosis in an immunocompetent host. The patient has benefited from rhinologic endoscopic surgery, associated with antifungal treatment, without antibiotic and antithrombotic treatment.

Results: One year after surgery, the patient is still asymptomatic without recurrence. Diagnostic and therapeutic modalities are detailed with figures and several management of this pathology are compared.

Conclusion: Surgery is essential in a diagnostic and therapeutic sense. There is no evidence of the interest of adjuvant therapies such as antibiotic and anticoagulation. Concerning the antifungal treatment, the attitude towards a non-invasive sphenoid aspergillosis in an immunocompetent host is unclear.
Characterization of CT-Hyperdensities in Fungus Ball of maxillary and sphenoid sinuses

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Background: CT-Scan hyperdensities are described in more than 60% of all paranasal sinuses fungus ball (FB). Two types of hypersensitivities (HD) could be distinguished according to their densities: calcium-like and metal-like. Our aim was to describe the prevalence, densities and relation to dental factors of the hyperdensities observed in sphenoid and maxillary sinuses FB.

Methods: This retrospective study included the patients operated in a tertiary referral center for unilateral maxillary or sphenoid FB diagnosed by histology or mycology. The pre-operative CT-scans were analyzed by three independent observers (2 ENT, 1 radiologist).

Results: Sixty-four patients have been included in this study. There were 45 maxillary FB and 19 sphenoid FB. Sixty-three FB showed HD. Metal-like HD were observed in 28 maxillary FB but not in sphenoid FB. Isolated calcium-like HD occurred in 17 maxillary FB and in 18 sphenoid FB (p=0.019). Calcium-like HD had significate lower densities than metal-like HD (694±50 UH versus 4149±343 UH respectively, p<0.0001). Calcium-like HD were associated to metal-like HD in 18 maxillary FB. Among maxillary FB the prevalence of endodontic treatment was significantly greater on the FB side than the healthy side (p=0.02). The maxillary FB population was divided in 28 patients with metal-like HD and 17 without metal-like HD. Within the metal-like HD group the prevalence of endodontic treatment on the FB side was significantly greater than in the group without metal-like HD (p=0.01).

Conclusions: This study highlights the existence of two different HD inside FB of the paranasal sinuses. Metal-type HD were specific of maxillary location and seem associated to endodontic treatments. They may consist of endodontic material extrusion, promoting fungal growth. However some maxillary FB and all sphenoid FB did not present metal-like HD, suggesting another physiopathology.
Chronic invasive fungal sinusitis in immunocompetent persons- is it rare?
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Introduction-
Invasive Fungal sinusitis has long been considered to be associated with immunosuppressed patients.

However Chronic invasive granulomatous fungal sinusitis is being increasingly reported in immunocompetent persons.

Purpose of the study- In this study we present the epidemiology, clinical presentation, radiological presentation, microbiological profile and management of 40 patients with chronic granulomatous invasive fungal sinusitis.

Comparison regarding the efficacy and side effects profile of amphotericin B with Itraconazole in the management of chronic granulomatous invasive fungal sinusitis has also been done.

Materials and methods- the study was conducted in a tertiary care institute in India over one and a half year period. Patients of chronic granulomatous invasive fungal sinusitis after being diagnosed underwent surgical intervention by either endoscopic or external methods. they were then randomly divided into itraconazole and amphotericin B groups.

Their response was measured symptomatically, endoscopically and radiologically.

Results & conclusion- chronic granulomatous invasive fungal sinusitis is being increasingly seen in immunocompetent people. It requires surgical treatment with antifungal chemotherapy and regular follow up. Both amphotericin B and Itraconazole are comparable in efficacy as regards the management of chronic granulomatous invasive fungal sinusitis. However the cost of therapy and side–effect profile of amphotericin B is greater.
Early detection protocol for acute invasive fungal rhinosinusitis: case report and systematic review

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Purpose of the study: Invasive fungal rhinosinusitis is a nosologic entity with increasing prevalence. This tendency is mainly due to a larger number of immunosuppressed patients. Despite the progress in medical and surgical treatment, mortality rate is still high in acute invasive fungal rhinosinusitis, ranging from 20 to 80%. The authors present a multidisciplinary protocol for a precocious intervention in immunosuppressed patients with suspected acute invasive fungal rhinosinusitis.

Material and Methods:

• Case report - We report a case of a patient, 47 years old, behind corticotherapy. The early diagnosis and the aggressive medical and surgical treatments weren’t enough to avoid the death of the patient.

• Systematic review - The articles analyzed in this review were identified through a systematic survey, conducted in PubMed. We selected 21 articles published between September 1993 and December 2016. Were included articles that could be analyzed for host factors that predispose to Acute Invasive Fungal Rhinosinusitis, and for the early signs and symptoms that lead to suspicion of disease. For the diagnosis and treatment were used “guidelines” and international consensus.

Results: Acute invasive fungal rhinosinusitis is suspected when the immunocompromised patient develops fever and localization of symptoms to the nose or paranasal sinus area, such as orbital swelling, facial pain, or nasal congestion. Almost half of all patients may come to medical attention with orbital findings such as ophthalmoplegia, proptosis, and visual loss. Nasal endoscopy may show necrosis of the nasal mucosa, indicative of mucormycosis, and in rare situations, actual fungal sporulation may be apparent. Invasive mucormycosis is most common in patients in diabetic ketoacidosis, and the earliest symptom of invasive disease is often anesthesia of the nose, followed by rapid development of ischemic darkened mucosa. If the diagnosis of FRS is suspected, a sinus computed tomography (CT) scan should be obtained. Changes seen on sinus CT or plain radiographs usually are indistinguishable from other causes of rhinosinusitis, although in advanced disease, CT may show bony erosion or soft tissue invasion. Rapid diagnosis of invasive FRS in the immunocompromised patient using immediate fungal stains, culture, and biopsy if possible is critical to rapid implementation of therapy. The treatment of invasive FRS is reversal of the source of immunocompromise, appropriate antifungal therapy, and directed surgery.

Conclusions: The authors present a protocol for identification and treatment of patients with acute invasive fungal rhinosinusitis.

Keywords: early detection, acute invasive fungal rhinosinusitis, protocol.
EMERGENCY SURGICAL DRAINAGE IN THE MANAGEMENT OF COMPLICATED SINUSITES: PLACE OF ENDOSCOPIC SINUS SURGERY (ESS)

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1- Purpose of this study

The loco-regional complications of sinusitis are mainly oculo-orbital and/or cranio-encephalic. Most often, they occur suddenly life threatening and/or engaging the functional prognosis. The objective of this study is to present our indications of surgical treatment and to specify the place of endoscopic sinus surgery (ESS).

2- Materials and methods

Retrospective study carried out over 5 years, from January 2011 to December 2015, concerning patients with complicated sinusitis and having surgical endoscopic drainage. The parameters studied were age, sex, admission time, type of complication, time between admission and surgery, indication of surgical drainage, surgical approach and prognostic features.

3- Results

Ten (10) patients were included, 2 adults, 8 children and young adults. The average age was 19 years. The average admission time was 15 days, and 6 days for surgery. The indications for drainage were the following: 4 cases of pansinusitis with retroseptal cellulitis, subdural empyema and osteitis of the frontal bone, 3 cases of ethmoido-frontal sinusitis rapidly bilateralized with frontal osteitis and subdural suppurative collection. The other 3 indications were in 2 cases, the pansinusitis without bilateral extensive preseptal cellulitis not responding to the medical treatment and in the last case, meningitis complicating pansinusitis. Endoscopic endonasal approach was exclusive in 4 cases, associated with an external approach in 6 cases (threfination of the frontal sinus). Neurochirurgical drainage was only performed in 2 cases. All patients received broad-spectrum antibiotic therapy. The duration of hospitalization, extended by the medical treatment of cranio-encephalic complications, was on average 15 days, shortened to 7 days in the case of an exclusive endoscopic procedure. With a follow-up of 8 months, all the patients have evolved well and we have no cases of morbidity or mortality.

4- Conclusion

The endoscopic endonasal approach can improve the management of complicated sinusitis with more precision, less morbidity and mortality, despite the delay in management.
Background and Objectives: Fungal sinusitis has been known as a relatively uncommon sinonasal disease. However, recently increase of the older population, a wasting disease and malignancy and abuse of antibiotics and steroid make fungal infectious disease, like fungal sinusitis, increased. This study aimed to analyze the changes in etiologies and clinical characteristics of operated fungal sinusitis from 2005 to 2015. Subjects and Methods: Two hundred and ninety eight cases with fungal sinusitis from 2005 to 2015 were reviewed to analyze the etiologies and clinical characteristics retrospectively. Results: The proportions of fungal sinus disease to total operated sinus disease were increased from 2005 to 2015. The fungal ball was the most common type of fungal sinusitis (99.64%, 273/298), followed by allergic fungal sinusitis, acute invasive fungal sinusitis, and chronic invasive fungal sinusitis. The maxillary sinuses were most commonly involved, followed by sphenoid sinuses. From 2005 to 2015, the mean age of fungal sinusitis patients showed increasing trend. The proportions of patients with hypertension, allergic rhinitis, and septal deviation were significantly increased for 11 years. The direction of nasal septal deviation had no statistically significant relation with fungal sinusitis from 2005 to 2015. Conclusion: This comparison study of fungal sinusitis from 2005 to 2015 showed that the proportion of fungal sinusitis, patients’ age and patients with underlying disease were increased.
IATROGENIC FOREIGN BODIES OF THE MAXILLARY SINUS AND ODONTOGENIC SINUSITIS

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Iatrogenic maxillary foreign bodies represent a pathology continuously growing in the E.N.T practice. Although, in most of the cases the pathology isn't life threatening, several complications can occur if the patient doesn't receive the appropriate treatment. The penetration of the foreign bodies into the maxillary sinus during therapeutic maneuvers on the superior dental arch is due to the particular anatomy of this region, local infectious conditions, general diseases with bone involvement and lack of experience of the dentist.

Depending on the volume of the maxillary sinus, on the length of the dental roots and the height of the alveolar process, some of the lateral superior teeth come in close vicinity with the sinus floor (canine or first premolars teeth). The bony tissue that separates the roots from the sinus cavity is about 0.5 - 4.5 mm and sometimes at this level can appear small recesses between dental roots.

Iatrogenic foreign bodies that penetrate into the maxillary sinus (amalgam, dental burr, Kerr needles, tooth fragments, dental implants etc.) will produce an inflammatory syndrome which, left untreated, can lead to severe complications related to sinus infections. Acute sinusitis of dental origin are serious infections that require appropriate treatment in order to avoid complications. Chronic sinusitis are particular forms of rhinosinusitis usually polymicrobial and antibiotic resistant. A lot of fungus balls are of dental origin and all of them require surgical treatment. Endoscopic procedures are nowadays used.

Due to this long term evolution small nuclei on which salts can precipitate and form anthroliths, cysts or fungal sinusitis caused by Aspergillus spp can occur.

A series of 124 patients referred to our department in the last 3 years, for this kind of pathology is presented. The type of the foreign body, the particular conditions and the related complications are emphasized in order to propose a clear diagnostic and treatment algorithm for this conditions. Some medico-legal aspects of such cases will be discussed. Also foreign bodies in the nose and sinuses due to surgical otolaryngologic procedures (6 cases in our lot of patients) and 2 cases of psychiatric patients with self aggression are presented.

In conclusion, various types of foreign bodies can appear in the maxillary sinus leading to infectious conditions that require a prompt intervention and raise a lot of medico-legal aspects.
Analysis of modern literature data shows a tendency to increase the clinical relevance of invasive fungal infections.

Purpose of the study: Improving the diagnosis and comprehensive treatment of invasive mycotic lesions of ENT organs.

Materials and methods used: Clinical and mycological examination of 496 inpatients and outpatients referred with suspected fungal infections of ENT organs. We used a range of methods of research: clinical, endoscopic, radiological, immunological, cultural mycological study of pathological biosubstrate from ENT organs, and pathological examination.

Results: Studies have shown that the frequency of isolation of fungi in mycosis of otolaryngology organs was 38,0 ± 3,5%. Isolates include the genera Aspergillus (53,4 ± 5,8%), Penicillium (37,0 ± 5,6%) and Mucor (9,6 ± 3,4%). Comparison of mycological and microscopic studies have shown that they coincide in 71.8% of cases. Microscopic method proved to be more informative (P <0.05), suggesting to 49,5 ± 3,6% cases of mycotic nature of the disease, while the frequency of isolation of mold fungi with mycological method was 38,0 ± 3,5% cases.

Treatment of patients with chronic sinusitis were complex and included endoscopic correction of intranasal structures, with revision of affected sinuses without assigning system of antifungal drugs for non-invasive forms of fungal infections of the paranasal sinuses (sinus mycetoma and eosinophilic fungal sinusitis) and the combination of the radical surgical treatment of paranasal sinuses with the appointment of systemic antymycotic therapy in invasive forms of fungal rhinosinusitis (acute fulminant and chronic granulomatous). Over the past 7 years, we have 6 cases of mucormycosis, of which two deaths (patients with combined invasive form of mycotic lesions of the upper and lower respiratory tract infections - pulmonary aspergillosis), the second patient refused treatment mucormycosis with amphotericin B due to the difficult tolerability.

Conclusion: At present, the invasive forms of mycotic lesions of ENT organs, in practice, the preparation of caspofungin group - Cancidas showed a favorable safety profile, tolerability and efficacy. Thus, the need for an early start of a specific antifungal therapy for invasive forms of fungal infections of ENT organs with medication Cancidas rinotserebralnyh prevents the development of complications.
Management of invasive type of fungal infection in paranasal sinuses

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Purpose and Materials: Invasive aspergillosis in paranasal sinuses is not a common disease, in comparison with non-invasive type aspergillosis in paranasal sinuses. This disease entity usually coincides with the immunocompromised hosts such as immunodeficiency patients, the aged patient, and patients with diabetes mellitus. Clinical outcome of these patients is not satisfactory. The prognosis varies in each case, depending on effects of multidisciplinary treatments such as medication of anti-fungal agents and/or surgical intervention. We have recently experienced 10 different cases of paranasal sinus aspergillosis invading to the orbit and skull base. Therefore, clinicopathological feature of this disease entity and clinical course are introduced herein. Results: To summarize case presentation, we have experienced 10 cases of invasive aspergillosis in paranasal sinuses, extending to the orbit and skull base. It was shown that CT scan and MRI was useful to assess the bony destruction and intracranial or intraorbital extension, respectively. The serum level of beta-D-glucan and CRP were helpful for the diagnosis and monitoring of disease activity before and after treatments. However, in 4 patients out of 10 cases, various treatments including surgical intervention were not enough to rescue the patients and they passed away for a short period of time, because of intracranial complication. Conclusion: Invasive aspergillosis in paranasal sinuses can be often a fatal disease, so that an earliest diagnosis is warranted for aiming a better prognosis. Therefore, clinical course in each patient should be exactly considered, by employing CT scan and MRI with monitoring beta-D-glucan or CRP in sera. In immunocompromised hosts, such as an aged person, diabetes mellitus, or leukemia/lymphoma patients, a desirable radical surgical intervention is not always permitted, because of poor general condition. Taking these into consideration, very much careful attention should be paid for patient’s prognosis, even though the minimally invasive surgical removal of fungal lesion under ESS can be considered to be advantageous as well as a pharmaceutical treatment with antifungal agents such as liposomal AMB(empiric therapy) or voriconazole (target therapy).

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NASOSINUSAL TUBERCULOSIS : A CASE REPORT


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OBJECTIVES

Nasal tuberculosis is a distinctly rare disease. Initial symptoms of tuberculosis involving the nasal cavity and paranasal sinuses are nonspecific, making early diagnosis difficult. The maxillary and ethmoidal sinuses are the most affected. Diagnosis is based on the histological identification and its treatment is medical. In this report, we present a 35-year-old Tunisian woman presented with nasosinusal tuberculosis. The etiology, natural course, diagnosis and management of this disease are discussed, with a brief review of the literature.

METHODS

A retrospectively review of a 35-year-old woman was treated for Tuberculosis of the nasosinusal cavity. Our patient underwent biopsy and the diagnosis confirmed by pathological examination.

RESULTS

A 35-year-old Tunisian woman presented with a six-month history of bilateral nasal obstruction, purulent rhinorrhea and olfactory disorders (cacosmia/ ethyposmia). Her general practitioner had prescribed a course of broad spectrum antibiotics and antihistamine therapy for nonspecific rhinitis, but it did not relieve her symptoms. The patient’s general condition and systemic examination was normal. Rhinological examination showed a congestive nasal mucosa, an anterior and posterior purulent rhinorrhea, with pus outlet from the middle left meatus. Stomatological examination found poor oral health. Sino-nasal CT was performed, revealed a soft tissue density in her left maxillary with submucosal calcifications.

The diagnosis of fungal chronic left maxillary sinusitis of dental origin was strongly suspected. The patient had a median left meatotomy. In peroperative, an inflammatory mucosa was found, with purulent secretions, without individualization of aspergillar truffle. A bacteriological sampling was carried out, negative income. A biopsy of the left maxillary sinus mucosa was performed. Biopsy analysis revealed a caseating granulomatous lesion made up of epithelioid cells, lymphocytes, and a few giant cells. Findings of chest x-ray were normal. The patient was administered Anti Tuberculous Therapy. She underwent regular follow-up including comprehensive systemic and otolaryngological examination with nasal endoscopy, and presently she remains disease-free at 9 months of follow up.

CONCLUSION

Primary nasal tuberculosis is a rare finding. However, the symptoms of nasal tuberculosis can mimic those of malignancy, and a biopsy must always be taken. In an endemic country like ours, it must be evoked. Its prognosis is favorable under complete and well observed treatment.
Odontogenic sinusitis and sinonasal complications of dental treatment: a tertiary centre experience on 425 patients

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Introduction: Odontogenic sinusitis, a condition once believed to be on the verge of extinction, is becoming more and more prevalent. The relevant number of implantological and preimplantological complications performed on a daily basis by oral surgeons surely play a determinant role in this prevalence increase. The authors published in 2013 a comprehensive classification and treatment protocol shifting the perspective from odontogenic sinusitis to sinonasal complications of dental treatment. This change of perspective is not merely a lexical choice: virtually omnipresent prior dental treatments, whether classic, preimplantological or implantological should be considered the prime mover in this kind of conditions.

In this study we present a clinical and surgical review on 425 patients treated for dental related sinonasal complications since 2002.

Material and methods: Medical records of 425 consecutive patients treated since 2002 at a single tertiary institution for sinonasal complications of dental disease or treatment and not responding to medical treatment were reviewed. All patients included underwent surgical treatment with endoscopic sinus surgery coupled, where required, with an intraoral approach performed by an oral surgeon or a maxillofacial surgeon. All patients included were followed-up for at least one year after surgery. Epidemiological and clinical data were collected and reviewed.

Results: 419 out of 425 patients were successfully healed after the first surgical procedure and showed no sign of sinusitis relapse during the follow-up. No changes over the

Conclusions: Odontogenic focuses and the eventuality of a sinonasal complications of dental disease or treatment should always be taken into account when evaluating a patient with chronic sinusitis. These conditions showed a constant presence over the study period without any significant change in the population.
Orbital cellulitis complicating nasal tuberculosis: a case report

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Introduction:
Tuberculosis continues to be a major public health problem. This disease has varying presenting features. We here present a case of nasal tuberculosis with orbital cellulitis.

Materiel and méthodes: A 47 years old with diabetes.

Results: B.Z, a 47 years old female, came to our outpatient department with orbital cellulitis, and gradual loss of vision in the last 15 days.

On physical examination we found an exophtalmia of the left eye.

Nasal endoscopy revealed pansinusitis.

We did ethmoidectomy and biopsy to this patient.

The histopathology revealed that the mass contained granulomas with caseous necrosis.

Introduction: La tuberculose est une maladie infectieuse spécifique causée par bacille de Koch, elle constitue toujours un problème de santé publique, la localisation nasosinusienne reste rare et peut emprunter les caractéristiques d’une lésion maligne. Son diagnostic est essentiellement histopathologique et son traitement, médical.

Materiels et méthodes: Patiente de 47 ans diabétique.

Resultats: Patiente B.Z âgée de 47 ans antécédent de diabète inaugurale concomitante à une cellulite orbitaire, l’examen retrouve une exophtalmie et œdème palpebral de l’œil gauche, suite à une pansinusite, examen ophtalmologique retrouve une ophtalmoplagié totale.

Une ethmoidectomie a été effectuée chez elle retrouvant une muqueuse polypose et sécrétion purulente, résultat histopathologique en faveur de tuberculose caseo-folliculaire.
Introduction and Objective: Orbital cellulitis is defined as an infection, usually of pediatric patients, involving the ocular muscles and the fatty tissue of the orbit, posterior to the orbital septum.

The aim of this review is to present a multidisciplinary protocol for the management of patients with pediatric orbital cellulitis.

Material and Method: A review of the literature published in PubMed and in UpToDate up to November 2016 was performed, including general aspects of orbital cellulitis, differential diagnosis, medical treatment, indications for surgical treatment, and follow up. A discussion of the scientific evidence found was held between Otorhinolaryngology, Ophthalmology, and Pediatric Departments.

Results: The diagnostic criteria that differentiate orbital from pre-septal cellulitis are the presence of pain with eye movement, proptosis, ophthalmoplegia with diplopia, visual impairment and chemosis. Empiric therapy recommendation for orbital cellulitis is vancomycin and ceftriaxone, corticosteroids and nasal irrigations. There are special considerations for suspected anaerobes infection, intracranial invasion and beta-lactam allergy. The indications for surgery were established as a child >9 years, no improvement after 24-48 hours of medical treatment, visual impairment or pupillary changes, frontal sinus disease, odontogenic infection, evidence of an orbital abscess. Surgical treatment should include ethmoid sinus opening along with the rest of affected sinuses ±orbital decompression. A close follow-up for at least 6 months is essential for a good outcome.

Conclusions: Orbital cellulitis is usually a complication of ethmoid rhinosinusitis. It should be identified early in order to make timely treatment avoiding further complications. A correct management of these patients will be better achieved following a multidisciplinary protocol with an algorithm for diagnosis, treatment and follow-up.
orbital complications of sinusitis in paediatrics

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Purpose of the study: Proper management of orbital complications of sinusitis in patients below the age of 12 years

Material & Methods use: 54 children below the age of 12 years presenting with orbital complications of sinusitis i.e. orbital oedema, orbital cellulitis or proptosis. All patients were subjected to otolaryngological and ophthalmological examination, nasal endoscopy examination when possible and C.T. scanning of the paranasal sinus. According to visual acuity and ophthalmoplegia patients were divided into pre-septal group and post-septal group. All patients received I.V. Antibiotics, nasal decongestant and steroids to relieve oedema. Surgery was done in case of failure of medical treatment or in the case of vision affection.

Results: The age ranged from 70 days to 11.5 years with the mean age of 8.5 years. They were 36 males and 18 females. The pre-septal group were 45 patients while the post-septal group included 9 patients suffering from ophthalmoplegia and/or vision affection. 39 patients did not need to surgical intervention and improved on medical treatment. 15 patients (9 post-septal plus 6 pre-septal) required endoscopic surgical intervention. The surgery done was endoscopic limited resection of the Lamina Papyreica without the need of a full ethmoidectomy and allowing the pus to be evacuated, a technique discibed by the Author in 2010. All patients improved after surgery and no patient required a revision surgery. Follow up after 2 weeks, 3 months and 6 months showed no recurrence of the condition nor any residual affection of vision in all patients.

Conclusion: Cooperation between the Ophthalmologist and Otorhinolaryngologist is needed to reach the right diagnosis of orbital complications in children. C.T. scan of the paranasal sinus is essential to confirm the diagnosis. Medical treatment is effective in a large percentage of the patients (66%). Endoscopic limited resection of the Lamina Papyreica is an effective technique which carries less risk of injuring vital structures and was used to treat all 15 patients who underwent surgery. Follow up after 6 months period showed no recurrence nor visual weakness in any of the 54 patients.
**Paranasal sinuses aspergilloma**


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**Introduction:**

Aspergillosis of the nose and paranasal sinuses is being recognised more and more, and it has been found that four forms of the infection occur each of which has its own distinct histopathological features. Paranasal sinuses aspergilloma or fungus balls is benign saprophytic infections. In aspergilloma (fungus ball of Aspergilli) is present in a sinus, usually the maxillary antrum. The treatment is surgical removal endoscopically.

**Purpose of the study:**

To report the epidemiological, the clinical, and the therapeutic characteristics of the patients suffering from aspergilloma of paranasal sinuses.

**Materials and the methods used:**

This was a retrospective study including all patients diagnosed with aspergilloma of paranasal sinuses that received surgery. It included 16 patients treated in Rabta Hospital ENT Department.

**Results:**

The mean age of our patients was 52.6 years, the extremes of age was 22 years and 78 years. The sex ratio was 0.25 (3 men/12 women). A dental etiology was present in 13 cases. Three of our patients were diabetics. An associated allergic rhinitis was noted in only one case. A history of a prolonged corticosteroid therapy was present in only one patient.

For all the cases, the clinical presentation was that of an unilateral chronic maxillary sinusitis resistant to medical treatment. The clinical examination with nasal endoscopy showed an inflammatory mucosa in 3 cases, pus on the middle meatus in 6 cases, an obstructive deviation of the nasal septum in one case. Computed Tomography (CT scan) of the sinuses was practiced in all cases. It showed an image of intra sinus calcification of the maxillary sinus in 14 cases. The mycological study and the anatomopathological examination confirmed the diagnosis. An endoscopic approach was performed in 15 cases: A middle meatotomy was performed in 13 cases, a bi meatotomy in one case, and a sphenoidotomy in a case of isolated involvement of the sphenoid sinus. The cadwell luc approach was carried out in one case.

The mean follow-up of our patients was 13 months. The progression was favorable in all cases, without any recurrence.

**Conclusion:**

The aspergilloma of the paranasal sinuses is the most frequent form of chronic fungal sinusitis, accounting about 57% of them. It is a saprophytic forms of aspergillosis of the nose and paranasal sinuses. The diagnosis is suspected on clinical and radiological findings, and confirmed by the anatomopathological examination. Their treatment is exclusively surgical.
Planktonic and biofilm antimicrobial profile in patients with acute exacerbation of chronic rhinosinusitis


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Objectives: To evaluate the microbiological profile of patients with acute exacerbation of chronic rhinosinusitis (AECRS), mainly to determine the sensitivity levels of planktonic and biofilm forms to some antibiotics commonly used for these patients. Materials and Methods: Patients with AECRS (n = 32) were submitted to middle meatus swabs guided by nasal endoscopy. These samples were cultured in aerobic conditions using the VITEK® assay for bacterial identification. Bacterial growth was further explored for minimal inhibitory concentration (MIC) by E-test®; in vitro ability to form biofilm, minimal inhibitory concentration of biofilm (MICB), and minimal eradication concentration of biofilm (MECB) were tested by the modified Calgary biofilm device. MICB and MECB were determined for amoxicillin, amoxicillin-clavulanate, clarithromycin, and levofloxacin from 1 to 512 µg/mL. Results: 78% of patients (25/32) with AECRS presented bacterial growth, with predominance of Staphylococcus aureus in 53% of patients (17 of 32). Gram-negative bacteria were present in 18% of samples, mainly represented by enterobacteria and P. aeruginosa. Planktonic bacteria showed low sensitivity to amoxicillin (39%), and high sensitivity to amoxicillin-clavulanate (82%) and levofloxacin (96%). Notably, all samples tested were sensitive to gentamicin. There was a high prevalence of biofilm-forming bacteria among positive cultures (76%), with high values of CIMB and CEMB for amoxicillin, amoxicillin-clavulanate, and clarithromycin. Only levofloxacin presented low MIC, MIBC and MECB values.

Conclusions: We conclude that AECRS patients present high resistance bacteria to antibiotics, both planktonic and biofilm forms. These findings might be related to the refractory responses to antibiotic therapy observed in these patients.

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Post Operative Meningitis in endonasal skull base surgery (EES) is not associated with sinusitis or concurrent sinusotomy: a 7 year retrospective and prospective study

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The purpose was to determine if preoperative sinusitis, either radiographic or culture-positive operative sinusitis is a risk factor in the development of postoperative meningitis in endonasal skull base surgery. 650 cases were reviewed from October 2009 until November 2016 and classified into procedures without preoperative radiographic evidence of sinusitis or with sinusitis either radiographic evidence (no sinusotomy or culture negative) or culture positive sinusitis from sinusotomy. The cases were analyzed by the Kelly grading system to evaluate the presence of intraoperative cerebrospinal fluid leaks (high risk) or post operative CSF leaks. 512 (79%) demonstrated no evidence of sinusitis and 138 (21%) demonstrated acute or chronic sinusitis on preoperative imaging including 53 patients with culture positive operative sinusitis (8%). Intraoperative CSF leaks occurred with radiographic evidence of sinusitis in 45 cases (7%) and sinus culture positive procedures in 22 cases (3%). Six (6/650) patients suffered from postoperative meningitis with an incidence of 0.9%. No patients with postoperative meningitis had either radiographic or culture-positive sinusitis. This data suggests that the presence of sinusitis in endonasal skull base procedures does not predispose patients to postoperative meningitis. Risk factors were identified including complexity and duration of the procedure, methodology of antimicrobial prophylaxis and reoperation.
Purpose: The aim of this study is to discuss the diagnostic and therapeutic approach of rhinocerebral mucormycosis.

Methods: We report a retrospective study including 9 patients diagnosed with rhinocerebral mucormycosis, between 1997 and 2016.

Results: The study included 6 men and 3 women. The average age was 52 years. Patient medical history found that 7 of them had unbalanced diabetes, 2 patients underwent chemotherapy for leukemia recently and one patient was treated for colorectal cancer and was taking steroid therapy for 20 years. They all presented over an average period of 16 days with headache, rhinorrhea and eye swelling. Five of them had cranial nerve affection. Necrotic lesions were found upon physical examination, in the nasal fossa in 8 cases and on the palate in 1 case. All patients had a CT scan that revealed signs of fungal sinusitis with orbit extension in 8 cases (intracranial extension in one case) and cavernous sinus thrombosis in one case. Confirmation of the diagnosis was obtained with histopathological examination in 4 cases and fungal culture in 5 cases. All patients underwent large surgical debridement and received a systemic and local antifungal therapy (Amphotericin B) along with correcting their underlying conditions (insulin).

Disease progression was fatal for 4 patients. Mean follow up period is 14 months.

Conclusion: Rhinocerebral mucormycosis is a rare and aggressive fungal infection that carries a high mortality rate. Early diagnosis and correction of underlying factors is fundamental. Imaging studies and nasal endoscopy should be performed in patients with predisposing factors. Treatment is wide surgical debridement in combination with systemic antifungal therapy.
Superior turbinate attachment: a possible factor favouring sphenoiditis

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Superior turbinate attachment: a possible factor favouring sphenoiditis

Introduction: Anatomy of superior turbinate, its morphology and anatomical relationship with sphenoid sinus has raised only very few published works. Due to its close relationship with sphenoid sinus ostium, we hypothesize that a conflict of the superior turbinate with the drainage path of the sphenoid sinus could favour isolated sphenoiditis.

Methods: As a first step, we reviewed 50 high-resolution CT-scanner (HRCT) from patients with non-diseased sinuses in order to define the morphology and the attachment of their superior turbinate on the anterior wall of the sphenoid sinus. In the next step, we retrospectively reviewed 183 cases of sphenoidotomy out of which 7 have been extracted to strictly follow our inclusion criteria: focused bacterial disease without fungi, confirmed after surgery to have a purely bacterial aetiology.

Results: Isolated bacterial sphenoiditis is relatively rare. There are three constants attachments of superior turbinate: skull base superiorly, middle turbinate anteriorly, and anterior wall of sphenoid sinus posteriorly. We found three morphological types of attachments of superior turbinate on the anterior wall of sphenoid sinus for which we propose a classification in three types. Out of 50 HRCT studied (100 sides): 42% type I, 53% type II (most common), 5% type III were retrieved. Among our diseased patients, we have found that the majority of isolated bacterial sphenoiditis have superior turbinate morphology of type 3 (4/7), possibly explaining the occurrence of a strictly isolated sphenoiditis.

Conclusion: Based on an analysis of 100 HRCT, superior turbinate can be systematized in 3 types in the purpose to better define its relationship with the drainage path of sphenoid sinus. Our patient serial has not strong statistical power at that time and should be extended by more cases in the future.
Surgical treatment in patients with orbital complications of acute rhinosinusitis - a referral service experience


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Abstract

Objectives: To evaluate the frequency for surgical indication to treat orbital complications from acute rhinosinusitis, according to each diagnosis, in a referral service. Methods: A retrospective study of patients followed at Clinics Hospital of Ribeirao Preto Medical School, University of Sao Paulo, from 1995 to 2014, with the diagnosis of orbital complications of acute rhinosinusitis. All the clinical data and the CT scans were reviewed. Results: The clinical charts of 121 patients were analyzed. Out of these, 23 were excluded, either because the infection was only at the eyelid (19), history of previous trauma (2), or because of an associated frontal mucocele (2). Three kinds of orbital complications were observed: orbital cellulitis (42.85%), sub-periosteal abscess (39.80%) and orbital abscess (17.35%). All the patients were immediately hospitalized and received IV antibiotics. The patients with orbital abscess underwent a multidisciplinary surgical approach, including at least the ENT and ophthalmologist. Among the patients with the diagnosis of orbital cellulitis, only 9.5% needed surgical intervention to improve symptoms. This number increased to 51.85% when the diagnosis of the sub-periosteal abscess was initially performed. Age did not influence the frequency of surgical indication among patients with sub-periosteal abscess, and 50% of patients under 14 years underwent this procedure. Discussion: Orbital complications of acute rhinosinusitis are associated with potential deadly outcomes if not adequately treated. The new protocols agree regarding management for orbital cellulitis and orbital abscess, but there is still some discussion about which would be the best approach for patients with a sub-periosteal abscess. In general, surgery in these patients is indicated when visual loss or unfavorable outcome is present. Conclusion: About 50% of our patients with sub-periosteal abscess did not need surgery for improvement, regardless of age. Our results reinforce the importance of indicating surgery for patients with sub-periosteal abscess only if they present visual loss or poor outcome.
THE FREQUENCY OF INFLAMMATORY DISEASES OF THE NOSE AND PARANASAL SINUSES IN PATIENTS WITH MYOCARDITIS

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In recent years there has been a high incidence of myocarditis in many countries around the world. Thus, according to some foreign researchers, myocarditis makes up 20-30% of all noncoronary heart disease. In acute myocardial involvement of viral infections in the pathological process takes place in 10% of cases. One of the causes of myocarditis can be considered inflammatory diseases of the nose and paranasal sinuses.

The purpose of the study was to investigate the prevalence of inflammatory diseases of the nose and paranasal sinuses in patients with myocarditis.

Materials consisted of 40 patients who received hospital treatment in the Republican Specialized Center of Cardiology. All patients were subjected to a comprehensive study, including an ENT examination, rhinoendoscopy, X-rays of the paranasal sinuses.

Results of the study. Out of the 40 patients with myocarditis 18 patients complained a difficulty in nasal breathing, nasal discharge, headache. Results of rhinoendoscopy showed, that in 7 patients diagnosed acute rhinosinusitis, in 5 - the curvature of the nasal septum, in 3 - chronic rhinosinusitis, in 2 - allergic rhinitis, in 1 - atrophic rhinitis. Also, when X-ray study of the paranasal sinuses of patients with myocarditis revealed that 5 patients found a two-sided dimming of the paranasal sinuses, and in 2 patients - one-sided.

Conclusions: Early diagnosis and treatment of inflammatory diseases of the nose and paranasal sinuses can prevent the development of infectious myocarditis.
The microbiome and principles of antibiotic treatment in acute bacterial and chronic rhinosinusitis

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Purpose of the study: Acute bacterial rhinosinusitis (ABRS) and chronic rhinosinusitis (CRS) are common conditions and represent an important health problem worldwide. In our country, we encountered a series of problems concerning the diagnosis and the antibiotic treatment. The microbiologic diagnosis is frequently overlooked or vitiated by the sampling method. Regarding medical treatment, a serious problem is the continuous growth of antibiotic resistance.

We wanted to identify the microbiome in ABRS and CRS – if there are significant differences compared with the known data, to certify that middle meatus sampling is an accurate choice for microbiological diagnosis and to identify current issues in antibiotic treatment in rhinosinusitis.

Materials and methods used: A prospective study on adult patients with microbiologically confirmed ABRS and CRS was performed.

Sampling was made from middle meatus (MM) under endoscopic control in all the patients and also from the affected sinus by sinusoscopy or intraoperative in selected patients.

In the laboratory were Gram stained for microscopic examination and also analyzed for aerobic and anaerobic cultures.

Antimicrobial susceptibility testing was performed with phenotypic methods - the minimum inhibitory concentration (MIC) determination according EUCAST.

Results: In ABRS certain changes were identified, a lower percentage of the “classic trio” in favour of other germs, different species of streptococci or anaerobic bacteria.

Regarding the CRS microbiome, Staphylococcus aureus is still the most frequent infectious agent involved. Other bacteria isolated in patients with CRS are Streptococcus pneumonia, Haemophilus influenza, Moraxella catarrhalis, other Streptococcus spp. and Gram-negative bacteria such as Pseudomonas aeruginosa, Klebsiella spp., Enterobacter spp.

When speaking about antibiotic treatment, an alarming resistance rate was detected in amoxicillin-clavulanat case and a relatively low level, but in a continuous growing compared to previous years in macrolides case.

Conclusion: Study results emphasize a series of changes in bacteriologic spectrum in ABRS, but similar results with other studies in what concerns CRS.

Another important conclusion is related to high rates of antibiotic resistance in our country with important medical and economic implications.

Concerning sampling from the middle meatus, the sensitivity and specificity overcome 90%.
The purpose of our study is to identify the main problems encountered in ABRS and CRS diagnosis and antibiotic treatment and to try to elaborate a tailored treatment guide according to the new changes.
Several therapeutic strategies are currently in use for recalcitrant sinus infections. Extended-release antibiotic preparations improve patient compliance and reduce frequent administration by maintaining constant plasma drug concentrations over a prolonged period of time. Many drugs used for treating sinusitis are administered as nasal sprays/irrigation in an attempt to provide highly concentrated local delivery to the site of infection. More recently, nasal packing materials soaked with topical drugs have been utilized as a therapeutic strategy, although studies have shown release to be uncontrolled and inconsistent, thus providing erratic outcomes. Drug-eluting implants with prolonged mucosal contact duration and sustained drug release could provide a suitable therapeutic alternative to eliminate issues with patient compliance and erratic drug delivery, while offering the necessary conditions to combat recalcitrant bacterial biofilms. We recently developed a ciprofloxacin-coated stent from biodegradable poly-L/L-lactic acid (PLLA) that has high therapeutic potential for local antibiotic delivery in the sinuses. Ciprofloxacin was chosen as a model drug for incorporation into the stent because of its broad-spectrum activity and potent elimination of P. aeruginosa. The objectives of this course are to review the current topical drug delivery methods into the sinus cavity and to share our research data on antibiotic coated sinus stent in a preclinical model.

Instructor: Do-Yeon Cho MD, Assistant Professor, Department of Otolaryngology Head & Neck Surgery, University of Alabama at Birmingham, USA

Presented Topics: Topical drug delivery, Drug eluting stents, Biofilm, microOCT, Rabbit model of Sinusitis
**Tuberculosis of paranasal sinuses – rare case report**


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**Introduction**

Tuberculosis of the paranasal sinuses is a very rare condition. Our center would like to present a rare clinical case of tuberculosis, with the primary location of infection being the paranasal sinuses.

**Case description**

74 year old female patient presented with troubled nasal breathing, green-yellow mucous nasal discharge and pain in the forehead area. Anterior rhinoscopy revealed polypoid masses on both sides of the nasal cavity. Head CT scan displayed mucoperiosteal thickening of bilateral maxillary, partial thickening of the ethmoid, frontal sinuses and lamina papyracea erosion on the right. Bilateral FESS was performed and white cholesteatoma-like masses were removed from paranasal sinuses.

On the 1st post-operative day, the patient suffered from swelling of the right eye – antibacterial treatment was initiated. On the 10th post-operative day she came back to the Emergency Department with increased swelling and pain of the right eye area. Head CT scan showed infiltration of right periorbital soft tissues, a defect of the right lamina papyracea. On the 14th post-operative day histopathology results of surgical samples came back – tuberculous sinusitis was confirmed.

Standard first stage antituberculous drug therapy was prescribed according to the scheme – 2HRZE. Systemic antituberculous drug therapy led to improvement of the patient’s status – inflammatory markers decreased, swelling of the right eye started to diminish.

**Discussion**

With our rare case report we would like to focus your attention to unsuccessful treatment of infections with antibiotics. It is necessary to consider a diagnosis of tuberculosis when standard conservative treatment of infections is not effective.
Unusual complications of Acute Frontal Rhinosinusitis: two case reports

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Purpose of the Study: Acute frontal rhinosinusitis is defined as an acute bacterial infection of the frontal sinus and spread of infection to structures surrounding this sinus are very uncommon, but carry with them significant morbidity and mortality. These structures include the eye, nearby blood vessels, the brain, the bone, and overlying skin.

Materials and Methods: We report two unusual cases of complications of frontal rhinosinusitis. In one of them, a frontoethmoidal osteoma gave rise to a rhinosinusitis with orbital complications, while in the other case, the infection extended to the underlying bone and through the skull causing osteomyelitis and focal meningitis with an abscess.

Results/Cases presentation:

Case 1: A 40-year-old male patient, with a 1-year history of right-sided frontal pain, presented with a 3-week right ocular pain and eyelid swelling with erythema. There was no history of trauma, nasal surgery, or paranasal sinus infection. Computed tomography (CT) of the paranasal sinuses revealed a swelling of the eyelid and adjacent preseptal soft tissues with deeper orbital structures not involved and an extremely dense lesion located in the right frontoethmoidal region, extended to the orbita without invading it. These findings strongly suggested a periorbital cellulitis in a patient with an osteoma. After controlling the infection, the patient was submitted to an external osteoplastic approach with excision of the lesion.

Case 2: A 18-year-old man presented with frontal tumefaction with 1 month of evolution and slow growing, in association with fever and severe headache. Fluctuant swelling of the frontal region was noticed. CT demonstrated an anterior table defect of the frontal sinus bilaterally and a left subgaleal abscess and right epidural empyema with focal meningitis, plus bony destruction of the frontal sinus, indicating osteomyelitis. The patient was submitted to endoscopic sinus surgery, through a Draf type IIa frontal sinusotomy and received treatment with intravenous antibiotics.

Both patients were free of infection at follow-up, without complications.

Conclusion:

Complications of frontal rhinosinusitis are uncommon, but require immediate attention and aggressive treatment in order to avoid morbidity and mortality. In these cases, our patients were properly treated with good outcomes, avoiding potentially more dangerous complications.
Value of septo-turbinal flap in the frontal sinus drill-out type IIb according to Draf

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Objective: Draf IIb aims at widening the frontal sinus drainage in a minimally invasive fashion. However, this technique is associated with a high stenosis rate. Hence, local nasal flaps have been recently introduced or designed to speed up mucosal healing and prevent scarring.

Study design: The objective of this study was to present the septo-turbinal flap (STF), its use in Draf IIb, and to examine postoperative outcomes of this procedure.

Methods: From an initial pool of 48 patients with frontal sinus disease to be treated with a Draf IIb, we prospectively selected 46 (95.84%) patients submitted to Draf IIb with STF in two Institutions, from November 2010 to November 2014. We excluded 2 cases (4.16%) where a flap could not be performed for anatomic restrictions. We present the STF technique and describe demographic data, indication for surgery and surgery type.

Results: Indications for surgery included 24 (52.17%) mucoceles or mucopyoceles, 12 (26.1%) chronic rhinosinusitis, 4 (8.7%) osteomas, 2 (4.35%) meningoencephaloceles and 4 (8.7%) inverted papillomas. Difficult anatomic conditions were encountered in half of patients. Restenosis of the frontal sinus drainage pathway occurred in 1 (2.17%) patient. Far-seated frontal mucoceles recurred in 2 cases (4.35%) with frontal drainage pathway remaining patent. Rescue treatment comprised a Draf III in 2 cases and 1 frontal sinus obliteration. Outcome was favorable for 43 (93.5%) patients.

Conclusion: The use of STF was associated with a high rate of success for Draf IIb.
«Khasanov’s symptom-complex»: diagnostics and treatment

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Combination of the following symptoms - congenital nasal septum deformation, high arched palate, reducing the horizontal and vertical dimensions of the nasal cavity, narrowing of the maxillary arch and crowding of the teeth of the upper jaw called as «Khasanov’s symptom-complex», which was approved at the IV National Congress of Otorhinolaryngologists of Uzbekistan in 2015.

The purpose of this research was the implementation of methods of diagnose and treatment of «Khasanov’s symptom-complex» to practice of rhinosurgions and ortodontists.

Methodology: To diagnose «Khasanov’s symptom-complex», along with endoscopy of the nose and the functional tests required teleroentgenography (TRG) of the teeth of the maxillary complex to identify the linear and angular parameters and consultation of the orthodontist. For the treatment of «Khasanov’s symptom-complex» to the patients under 12 years of age should be performed operation «septoplasty with crestotomy, laminotomy and vomerotomy», after 12 years of age - «septoplasty with crestosuturotomy, laminotomy and vomerotomy without resection elastic cartilage of the nasal septum, which has a characteristics of straightening by itself.

Results: after orthodontic hardware of the bite correction in a result of mutual tactic of conducting patients in the long term by otorhinolaryngological and orthodontic treatment, in 98% of cases there were stable positive results obtained within the first 4-6 months after surgery. At the same time, the traditional treatment of wearing of orthodontic devices for correction the bite usually lasted more than 2 years, and relapses were observed in 40% after their removal.

Conclusion: Thus, integration tactics of treatment of patients with «Khasanov’s symptom-complex» reduces mechanical strength and facilitates of the orthodontic disclosing of the median palatal suture, which creates favorable conditions for the restoration of a correct bite.
A RARE COMPLICATION OF MICRO- DEBRIDER ASSISTED ADENOIDECTOMY

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Title:
A RARE COMPLICATION OF MICRO- DEBRIDER ASSISTED ADENOIDECTOMY

Purpose of the video:
Adenoidectomy is one of the most common surgeries performed in children today. The microdebrider is an important tool in performing adenoidectomy, and has now become an alternative method of adenoidectomy along with the nasal endoscope. Although a very useful tool for adenoidectomy, microdebrider assisted adenoidectomy has its own complications. These include injury to the soft palate, uvula, eustachian tube and persistent bleeding. We present a case of pneumocephalus and CSF leak following the use of microdebrider for adenoidectomy.

Materials and methods:
The patient presented to us with a history of adenoidectomy done at an outside hospital, with persistent bleeding and headache. He developed a CSF rhinorrhea as a complication to this procedure, with CECT showing extensive pneumocephalus. Intra-operatively, a defect of about 1x1cm was noted at the junction of cranio-cervical angle. Defect was closed in 3 layers using septal cartilage, fascia lata and surgicel with use of tissel.

Result: Postoperatively no CSF leak was noted and repeat CT showed resolution of pneumocephalus. Headache symptomatically improved.

Conclusion:
CSF leak and pneumocephalus as a complication of adenoidectomy is very rare, and to the best of our knowledge has not been reported in literature. The use of powered instruments like debrider in adenoidectomy surgeries, although very useful and more reliable for completed removal, has to be used with caution. The possible complications have to be kept in mind while performing this surgery.

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Acquired nasopharyngeal stenosis: a clinical case and review of the literature

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Purpose of the study: to present a clinical case of acquired nasopharyngeal stenosis (NPS) following adenotonsillectomy and a review of the literature.

Materials and Methods: review of the literature and presentation of a clinical case.

Results: NPS is an extremely rare condition and is defined as a partial or complete obstruction of nasopharynx due to scar tissue formation. Most current cases are understood to be secondary to surgery or carcinoma.

Patients often present with mouth breathing, snoring, rhinorrhea, hyponasality, dysphagia, otalgia, otitis media and anosmia. Upon examination, nasal mucosa may be pale and swollen. Airflow through the nostrils may be reduced or absent. Aberrant fibrous tissue on the soft palate and tonsil pillars may be visible. A flexible nasoendoscopy and a CT scan are mandatory to diagnose and evaluate the stenosis extent and to plan the surgical approach.

Reviewing the literature, we can find many suggested surgical approaches including a combination of skin flaps, local mucosal flaps, stents, skin grafts, laser and cytostatics. Most references are based on small samples and there is no published data with longer than 12 months of follow-up. There are no comparative studies.

Herein we present a clinical case of a 9 year old girl. She came to our ENT department in 2015, a tertiary referral centre, with complaints of non-seasonal nasal obstruction and snoring. She underwent curettage adenoidectomy and extracapsular bipolar dissection tonsillectomy at the age of 6 with no complications, except for post operatory self-limited haemorrhage on day six. Examination revealed pale and swollen inferior turbinates and serous rhinorrhea, as well as aberrant scarring in the oropharynx. After a 6 month trial of topical corticoids without symptomatic improvement, a flexible nasoendoscopy and a CT scan were done, confirming the suspicion of a NPS. In the present case, section of the retropalatine adhesion was made entering the stenosed area through bilateral lateral mucosal incisions. The free mucosal flaps were sutured, leaving a small raw posterior pharyngeal surface. After 3 months of follow-up the child remains with full nasal breathing and no other complaints.

Conclusion: NPS often recurs and the best treatment is still preventive. When performing adenotonsillectomy, one must spare posterior pillars, avoid to over-curettage the adenoids and use judiciously the electrocauterization.
1. Purpose of the study

This pilot study intends to assess and analyze patient outcomes following ‘airwayplasty’ procedure. The authors also hope to share their experience and results with the audience.

2. Materials and methods used

28 patients undergoing airwayplasty were prospectively asked to complete the Sino-NasalOutcome Test (SNOT-22) pre-operatively and 3-6 months post-operatively. Results were compared to The National Comparative Audit of Surgery for Nasal Polyposis and Chronic Rhinosinusitis 2003 (National Audit).

3. Results

A 58% reduction was seen in nasal obstruction/congestion, 40-50% reduction in need to blow nose, runny nose, lack of good night sleep and waking up tired. A 30-39.9% reduction was seen in thick nose secretion, day time tiredness, low performance or concentration in daytime activities and feeling frustrated/restless/irritable, difficult to feel smell, difficulty sleeping and waking up in the night. A 20-29.9% reduction was seen in sneezing, cough, post-nasal discharge, ear fullness, and embarrassment.

Overall, there was a reduction of 46 points (41.9%) in SNOT-22 post-operatively (3-6 months) \(p<0.001\) in comparison to 16 points in the National Audit.

4. Conclusion

Airwayplasty improves the whole anatomical sino-nasal unit and appears to be an effective method to obtain good functional results for patients suffering from nasal obstruction. As a pilot study, longer-term data (12 months post-operatively) is needed to further evaluate the effects of this technique.

Authors

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Bilateral inverted papilloma of the frontal sinuse

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Inverted papilloma is an epithelial benign tumor of the nasal cavity and paranasal sinuses. Although inverted papilloma is a benign disease it is locally aggressive, and have a high rate of recurrence and malignancy potential. The lateral nasal wall and middle meatus are the most common sites for this to arise but they can develop from any part of the nose and paranasal sinuses. Unilateral nasal obstruction is the most common symptom of disease but it can rarely be seen bilaterally. Bilateral inverted papilloma involving both sides of the nasal cavity and frontal sinuses is extremely rare. In recent years endoscopic surgery became very popular and successful for treatment neoplasms of paranasal sinuses and nasal cavity. In this article we present a 44-year-old male patient with a pinkish mass that filled both nasal cavities. Detailed evaluation of the patient revealed bilateral frontal sinus inverted papilloma which was extending to the nasal cavity and obstructing the middle meatal units. The patient was treated successfully by Modified Lothrop (Draf III) technic and he was symptom free from 18 months. In this case we wanted to draw attention of the readers for the etiology of nasal obstruction with bilateral inverted papilloma of the frontal sinus. The clinicians should take this entity into consideration when evaluating the patients with nasal obstruction.
INTRODUCTION

Congenital nasal pyriform aperture stenosis (CNPAS) is a rare (1/5000) and an unusual cause of upper airway obstruction in newborns.

Early diagnosis and management is essential for this potentially life-threatening condition.

The aim of our work is to study the epidemiological, clinical and therapeutic features of congenital nasal pyriform aperture stenosis.

MATERIALS AND METHODS

It is a retrospective study of a case of congenital nasal pyriform aperture stenosis, in the Charles Nicolle Hospital of Tunisia in 2014.

RESULTS

It was a female neonate delivered by C-section at 40 weeks and 3 days of amenorrhea for fetal distress. She was referred by her pediatrician for noisy mouth respiration and cyanosis every time feeding was attempted.

On initial evaluation, anterior rhinoscopy showed bilateral yellow nasal flow and an extremely swollen mucosa. Neither a pediatric nasal fiberoptic endoscope nor a lubricated nasal tube could pass through the nares. The child was not in acute distress with saturation of 98% in room air.

CT scan revealed a pyriform aperture stenosis with solitary median maxillary central incisor and no other associated abnormalities.

Medical treatment with nasal saline and decongestants was performed with a satisfactory nasal airway permeability and a favorable outcome at follow-up.

CONCLUSION

The Diagnosis of CNPAS should be made as early as possible for an optimal management. The upper airway obstruction and swallowing disorders may have lethal consequences. The treatment depends on the severity of symptoms and pyriform aperture width. Both medical and surgical management offer a good long-term prognosis.
INTRODUCTION

Septoplasty and Turbinate reduction surgery are both used to treat nasal airway obstruction. Septal surgery is commonly performed for obstruction secondary to structural deformities, while turbinate surgery is normally indicated in turbinate hypertrophy. There are many different techniques for turbinate surgery but little evidence or consensus as to which is most effective. We aimed to review practices of Septoplasty and adjunctive turbinate reduction surgery across two hospital sites to better understand the surgical choices made and assess for cross-site differences.

MATERIALS & METHODS

Multi-site data was collected from Guy’s Hospital and the James Paget University Hospital (JPUH) for patients undergoing a Septoplasty for obstructive nasal symptoms. Through the theatre coding system suitable patients were identified and their operation notes and clinic letters were reviewed.

RESULTS

185 cases at Guys and 41 cases at JPUH were identified (totaling 226). Adjunctive turbinate surgery was performed in 77% of patients at Guys, 92.7% at JPUH and 77% overall. When performed by a Rhinologist, 63.8% of patients had adjunctive turbinate surgery compared to 86.4% in non-Rhinologists. The methods of turbinate surgery used were Turbinoplasty (32.3%), Out-fracture (19.9%), Coblation reduction (12.4%) Submucosal diathermy (11.1%), Resection and trimming (1.3%). The operating surgeon was strongly associated with the decision to perform turbinate surgery (p<0.001) and also the technique used (ANOVA p=0.0001).

CONCLUSION

Septal and turbinate surgeries are often performed concurrently for nasal obstruction and the type of turbinate reduction was strongly associated with the operating surgeon. More evidence is required to assess the role of adjunctive turbinate surgery of it’s effectiveness.
Purpose of the study

Septoplasty has been identified as suitable for day surgery, but is not commonly performed as such. Guidelines for day surgery stipulate that the unexpected re-admission rate should be 2–3%; however previous studies have not attained this target. The purpose of this study was to ascertain the surgical and patient factors associated with re-admission following day-case septoplasty.

Materials and methods used

A retrospective case-notes analysis of day-case septoplasties between 1 January 2010 and 31 December 2012 was undertaken. Data on patient demographics, surgeon grade and operative technique were examined using a univariate analysis model.

Results

A total of 256 septoplasties were performed. 23 patients were admitted, overwhelmingly due to bleeding in the immediate post-operative period, giving an overall admission rate of 9.0% within the first 24 h. Factors associated with re-admission included the use of intranasal splints (relative risk (RR) 5.34, p < 0.001), the performance of additional operative procedures (RR 4.96, p < 0.001) and surgery on patients with co-morbidities (RR 3.37, p = 0.002). There was no correlation between unexpected admission and patient gender, age, surgeon grade, performance of revision surgery and operative factors including nasal preparation with cocaine, local anaesthetic infiltration, type of incision, number of mucoperichondrial flaps raised, extensive bony dissection, performance of a turbinate procedure, quilting, closure of incision and post-operative packing.

Conclusion

Day-case septoplasty in patients with co-morbidities and where additional surgical procedures are performed may be associated with unexpected overnight admission. Thus, safe and efficient day-case septoplasty may not be suitable as a universal default pathway but one where case selection is key.
Does the effect of inferior turbinate outfracture persist? Geun Jeon Kim, Sung Won Kim, Dong Chang Lee (Department of Otolaryngology, Daejeon St. Mary’s Hospital, College of Medicine, The Catholic University of Korea)

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To resolve nasal obstruction in inferior turbinate hypertrophy, inferior turbinate outfracture is performed widely alone or combined with other procedures. There are conflicting reports on the effect of inferior turbinate outfracture. This study evaluated the persistence of morphological changes after inferior turbinate outfracture.

This retrospective study enrolled 55 patients who underwent inferior turbinate outfracture without septal surgery to approach the sphenoid sinus for brain tumor removal. Coronal paranasal sinus computed tomography images obtained preoperatively and 6 months postoperatively were compared. We measured the shortest distance from the median line to the medial border of the conchal bone (S-T) and the shortest distance from the medial border of the conchal bone to the lateral nasal line (T-W). We also gauged the projection angle of the conchal bone and constitutional thickness of the inferior turbinate.

After inferior turbinate outfracture, S-T increased and T-W decreased. The projection angle decreased significantly by 6 months postoperatively. After outfracture, the thickness of the medial mucosa had increased significantly, while the thickness of the conchal bone had decreased significantly (p < 0.05).

The effect of inferior turbinate outfracture is preserved for at least 6 months. Moreover, compensatory hypertrophy of the medial mucosa develops in the inferior turbinate after outfracture. Therefore, outfracture with medial submucosal volume reduction would be recommended as the proper procedure for treating inferior turbinate hypertrophy.
Empty Nose Syndrome and Hyperventilation Syndrome

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Abstract

Patients with empty nose syndrome (ENS) after previous turbinate surgery often complain about breathing problems. We hypothesized that, in ENS, respiratory symptoms especially dyspnea could be explained by the hyperventilation syndrome (HVS).

Methods: Observational prospective study including subjects consecutively referred to our center for ENS during 1 year. Measurement of Nijmegen score, hyperventilation test (HPVT), an arterial blood gas, lung and cardiac test were performed. HVS was defined by delayed return of the end-tidal partial pressure of carbon dioxide in the expired gas (EpCO2) to baseline during HVPT, and negatives other tests. According to the results of the HPVT, mean values of EpCO2 and clinical data were compared between patients with HVS (HVS group) and patients without HVS (non HVS group) using a nonparametric Mann-Whitney test. A specific respiratory rehabilitation was proposed for all patients with HVS. SNOT 16 was evaluated before and after 8 courses of rehabilitation.

Results: Twenty-two out of all 29 patients referred for ENS underwent a complete workup and were considered the study population. An HVS was diagnosed in 17 out 22 patients (77.3%). EpCO2 after 5 minutes of recovery was significantly lower in the HVS group vs non HVS group (23.8 vs 25; p<0.01). Only 5 patients had a respiratory rehabilitation with a significantly decreased of SNOT 16 (27.6 ± 4.1 vs 20.4 ± 2.3 after, p=0.02).

Conclusion: HVS is frequent in patients with ENS and pathophysiological links can be discussed.
Endoscopic septal perforation repair

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Objective.

The management of septal perforations is a challenge for the surgeon. A wide variety of surgical techniques have been described, with different approaches. There is no scientific evidence to support a particular approach. The objective of this review is to present a practical guide on the technique of choice for each case of septal perforation.

Discussion.

Inspection of the nasal mucosa, the size of the perforation, the location and especially the osteo-cartilaginous support, are the pillars of a successful surgery. For the sliding or rotating flaps of the mucosa of the septum it is essential to know in advance if it is possible the elevation of the mucopericondrio or mucoperiosteo of the septum, otherwise the use of these flaps would not be indicated. The flaps of the lateral wall or nasal floor are the alternative. The pericranial flap may be indicated in total or near total perforations.

Conclusion.

The remnant of the nasal septum and the state of osteo-cartilaginous support are the determining factors in the management of septal perforations. Each case should be evaluated individually and the approach is chosen according to the size and location of the perforation, mucosal quality, personal history, previous surgery and the experience of the surgeon.
IATROGENIC SEPTAL PERFORATION: IS IT STILL ACCEPTABLE IN THE ENDOSCOPIC ERA?

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Purpose of the study: To evaluate the different situations during septal surgery that might potentially result in iatrogenic septal perforation and how improved visualization offered by the endoscope prevents such an outcome.

Materials and Methods: Endoscopic assisted septoplasty was performed in all procedures. Controlled elevation of the stretched mucosal flaps overlying septal spurs was possible under endoscopic guidance with minimal mucosal lacerations. Similarly, elevation of the mucosal flap overlying a markedly deviated maxillary crest with clear visualization of the lower edge of the dislocated septal cartilage was performed. The key point was an initial securing of an intact contralateral flap to avoid any bilateral mucosal tears that increase the risk of subsequent perforation.

Results: One hundred and thirty two endoscopic septoplasty procedures were reviewed. Septal spur was identified in 73 patients (55%). The role of the sphenoidal process of the quadrangular cartilage in augmenting the angulation of the spur was clearly demonstrated. Marked deviation of the maxillary crest with dislocation of the quadrangular cartilage was reported in 43 patients (32.5%). Endoscopic visualization allowed complete exposure of the deviated portion with no significant loss of the mucosal integrity. Unilateral linear mucosal tears were reported in 37 cases (28%) and were either approximated or repaired under endoscopic guidance.

Conclusion: Even when combined with more traditional technique, use of the endoscope allows for improved visualization of the posterior and anterior septum. The improved visualization provided by the endoscope allows for atraumatic elevation of mucosal flaps with a much lower risk of tearing than seen in traditional septoplasty.
Intraturbinal versus extraturbinal microdebrider-assisted inferior turbinoplasty; preliminary results

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Aim: To compare the intraturbinal use of the microdebrider with the extraturbinal one for inferior turbinate reduction based on subjective and objective parameters

Methods:

Forty patients with nasal obstruction due to bilateral hypertrophied inferior turbinates were included in this study. History taking, clinical assessment and CT scan of the paranasal sinuses were done for all patients. All patients underwent microdebrider-assisted inferior turbinoplasty, the microdebrider was used intraturbinally on one side of the nose and extraturbinally on the other side in alternate manner. The patients were blinded to the technique used.

Results: Ten patients were lost for follow up. The operative time and operative blood loss were less in the extraturbinal group (p<0.05). At 1 month post operatively, the nasal obstruction VAS score showed significant improvement on the intraturbinal sides only (p<0.05), at 3 and 6 months post operatively, the VAS score showed significant improvement on both sides with no difference between the 2 groups (p value=0.064 and 0.728 respectively). Nasal endoscopy revealed grade 2 turbinates in 30% and grade 3 in the remaining 70% of the intraturbinal group with almost similar findings in the extraturbinal group. At 6 months post operatively, significant improvement of the turbinate size was detected on both sides. The NMCC showed significant improvement on the intraturbinal sides at 1 month with significant worsening on the extraturbinal sides. At 3 months, both sides showed significant improvement of the NMCC. No complications were reported in either group.

Conclusions: Extraturbinal microdebrider-assisted inferior turbinoplasty is as effective and safe as the intraturbinal one with shorter operative time and less blood loss with similar morbidity, so the extraturbinal microdebrider-assisted inferior turbinoplasty could be a good option for all cases of inferior turbinate hypertrophy reserving the intraturbinal technique for patients with possible delay of mucosal regeneration e.g diabetics and old age and patients not accepting the relative delay of improvement of their symptoms.

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Konhobulosis, One of the Main Anatomic Features of Sinus ParaNasal Examination in CBCT

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Aim:

To elicit the total number of patients with konhobulosis

Materials and Methods:

One of the reasons of the nasal breathing obstruction and nasal complications and Sinus Para nasal is konhobulosis

- Investigation was carried out on the Planmeca Promax 3D Mid machine.
- Total number of patients under observation per year - 514, namely: male – 257, female – 257. The patients have been divided into age groups.

337 (65, 5%) patients have been diagnosed with konhobulosis; 159 (31, 1%) patients with unilateral pathology (80 (15, 6 %) patients with right sided pathology and 79(15, 4) patients with left sided pathology, that is 50% of all) and 178 (34, 6%) with bilateral pathology.

Results:

Our results show that this pathology is more common in women in the age group from 18 to 45 years, the bilateral process.

Conclusions:

According to the results of our study konhobulosis is a relatively frequent pathology which leads to deformation of the nasal septum (especially if it is a unilateral process, develops to large dimensions), violation of the ventilation and drainage function of the nose and Para nasal sinuses, and to other pathological conditions. According to our data the bilateral process is more common and its early diagnosis conduces to timely diagnosing, treatment and prevention of post-operative complications.

Key words: konhobulosis, Paranasal sinuses
Objective: To compare the safety and efficacy of microdebrider assisted partial inferior turbinectomy with the conventional surgical turbinectomy in patients with inferior turbinate hypertrophy.

Study design: Prospective randomized trial

Setting: Private Hospital (Saudi German Hospital)

Subjects and Methods: Sixty patients with nasal obstruction and bilateral hypertrophied inferior turbinates that was refractory to medical treatment were included. History taking, clinical assessment and CT scan of the paranasal sinuses were done for all patients. The patients were randomly assigned to receive microdebrider partial turbinectomy (n = 30) or conventional surgical turbinectomy (n = 30).

Main outcome measures: operative time, blood loss, subjective improvement of the patients symptoms and post operative complications

Results: The 2 groups were comparable in age and sex. The operative time and operative blood loss were less in the microdebrider group (P<0.05). There was no difference in the incidence of post operative complications between the 2 groups.

Conclusions: Partial turbinectomy with the microdebrider is as effective and safe as the conventional surgical turbinectomy with shorter operative time and minimal blood loss, so we recommend the routine use of microdebriders for all partial turbinectomy procedures

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Objective: To determine the efficacy of a new surgical procedure to correct symptoms of nasal obstruction secondary to internal nasal valve narrowing.

Institution: Scientific and Practical Center of Otolaryngology of the Republic of Belarus, Minsk, Belarus.

Design: Consecutive case series.

Patients: Patients with symptoms of nasal obstruction for at least 1 year including those with previous rhinological surgeries.

Intervention: Surgical correction of nasal valve stenosis by fibrocartilaginous resection and imbrication at the caudal upper lateral cartilage.

Main Outcome Measure: Evaluation of nasal breathing using rhinomanometry, rhinoresistometry, acoustic rhinometry, and long-term rhinoflowmetry before and after the treatment.

Results: A total of 17 patients underwent surgery, and the procedure was bilateral in 15 of the 17 patients. Thirteen patients noted subjective improvement in airflow on both sides, with the remaining patient noting improvement on one side and no change in the opposite side. Mean follow-up was 6.4 months (range, 5-14 months). The mean nasal surface area at the nasal valve before surgery was 0.43 cm$^2$ (range, 0.31-0.54 cm$^2$) and after surgery was 0.58 cm$^2$ (range, 0.49-0.67 cm$^2$) according to the acoustic rhinometry. This correlates with a mean increase in the nasal valve surface area of 34% when surgery was performed. The mean extent of nasal obstruction at 250 ml/s flow velocity before the surgery was 0.48 (range, 0.34-0.7). The mean extent of nasal obstruction at 250 ml/s flow velocity before the surgery was 0.21 (range, 0.16-0.36). No complications were reported, and no patients complained about postoperative nasal appearance.

Conclusions: Surgery was shown to increase nasal valve surface area. Surgery method appears to be a safe, effective, and relatively noninvasive technique to repair internal nasal valve dysfunction.

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NASAL PERMEABILITY IN CHILDREN WITH CHRONIC AND RECURRENT RHINOSINUSITIS

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*Author

Background: The review of the current literature demonstrates the controversial data related to the importance of the acoustic rhinometry (AR) in the diagnosis of the nasal obstruction, especially in paediatric group.

Objective: The aim of the study was to determine the efficiency of AR in evaluation of nasal permeability in children with chronic and recurrent rhinosinusitis, subject to the surgical treatment.

Methods: The work is based on 289 children with recurrent and chronic rhinosinusitis (3-15 years old, 188 boys and 101 girls). In the patients of the group I (84 children) the standard endoscopic sinus surgery was performed. In the patients of the group II (205 children) the minimally invasive endoscopic sinus surgery in our modification (includes partial resection of processus uncinatus and limited ablation of all anatomical structures of ostiomeatal complex) was performed. The idea of our method is focused on keeping of the lateral portion of the lateral part of processus uncinate. The incision is applied vertically. Beside this, we have more largely practiced the surgical methods of correction of the nasal turbinates, in order to enlarge of the meatus nasalis media.

By means of AR, we have estimated the volume of the nasal cavity V (0-5 cm) and the Minimal Cross-sectional area (MCA) before the treatment, on the 7th day, in a 1, 6, and 24 month after surgical treatment. Control group: 60 healthy children.

Results: In children with rhinosinusitis before decongestion V is decreased, compared to the one of healthy children (group I, II: 2,89±0,260 cm3; healthy children – 3,77±0,301 cm3). Also, we are attesting a decrease of the MCA (group I, II: MCA1:0,277±0,026; MCA2:0,430±0,063; healthy children: MCA1:0,431±0,019; MCA2:0,519±0,052). On the 7th day, we are attesting an increase of V and MCA values in both groups, with a more significant increase in patients of group II. In 6 and 24 month after the treatment, in patients of the study groups, the investigational indices approached, by their value, the results
NASAL PERMEABILITY IN CHILDREN WITH CHRONIC AND RECURRENT RHINOSINUSITIS


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Conclusion: The AR results can be used for the evaluation of the efficiency of the treatment utilized at its various steps.
Background: Among the different operations for septoplasty, the extracorporeal septoplasty technique basically consists in the removal of all the nasal septum, the correction of bone and cartilage deformities, and their replacement with a particular suture technique to correct the markedly deviated nasal septum especially in the internal nasal valve area. The drawbacks of this surgery technique are as follows: swelling of the mucosa in the valve area and restenosis, the development of saddle nose and septal hematoma. The aim of this study is to describe our results with a modified suture technique of the extracorporeal septoplasty (ECS), taking into account the operative time and functional results.

Patients and Methods: A retrospective chart review of 133 adult patients treated with extracorporeal septoplasty from January 2011 to December 2013 was performed in a primary care centre in Imola city, Italy. Preoperative and postoperative evaluations were done using rhinomanometry and acoustic rhinometry. Statistical Analysis was performed with commercially available software (IBM SPSS Statistics for Windows, Version 21.0. Armonk, NY: IBM Corp.)

Results: We followed up a total of 133 cases in our centre. Three patients (2.25%) had to be reoperated on due to impaired nasal patency. A statistically significant improvement was evident after surgery based on the rhinomanometric and acoustic rhinometric outcomes.

Conclusions: Nasal valve stabilization in extracorporeal septoplasty is a successful surgical technique for anterior deviations of the septum, with an optimal surgery time and a reproducible surgical technique.
Prevalence and Analysis of Concha Bullosa Among Patients Undergoing Functional Reconstructive Nasal Surgeries

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Purpose of the study:

Functional reconstructive nasal surgeries, such as septoplasty and septorhinoplasty, are considered as common surgical procedures done by rhinologists. Prevalence of concha bullosa varies between studies and account for 14-53%. Association between concha bullosa with deviated nasal septum and sinuses mucosal disease is controversial. No previous study compared the clinical examination with the radiological study in evaluating concha bullosa.

Materials and Methods:

A cross sectional study was conducted at King Fahd Hospital of the University – Khobar, Saudi Arabia aiming to get the prevalence of concha bullosa among patients underwent septoplasty and functional septorhinoplasty as the only procedure done or as part of other nasal surgeries such as Functional Endoscopic Sinus Surgery (FESS) during the period from January 1st, 2009 until December 31st, 2013. The main outcome was presence of concha bullosa. Comparisons were done with other variables.

Results:

192 cases fulfilled the inclusion criteria. 115/192 (59.9%) patients had concha bullosa at least in one side. Of these 115 patients, 60 (52.2%) had a unilateral concha bullosa while 55 (47.8%) had bilateral concha bullosa. Of the patients with bilateral concha bullosa, 34 (61.8%) had a dominant (larger) concha bullosa while 21 (38.2%) had bilaterally equal ones. Only 17/192 (8.9%) of the charts had a documented large middle turbinate. This was true positive in 11/17 subjects and false positive in 6/17 subjects. 175/192 (91.1%) of the charts had no documented large middle turbinate. This was true negative in 71/175 subjects and false negative in 104/175 subjects. We found a strong association between a unilateral or a dominant side concha bullosa and an anterior septal deviation to the ipsilateral side (P-value <0.001). As well, a strong association was identified between a unilateral or a dominant side concha bullosa and a posterior septal deviation to the contralateral side (P-value <0.001). Our study showed there is no statistically significant relation between the presence of concha bullosa and ipsilateral sinuses pathology or mucosal disease.

Conclusions:

Concha bullosa appear to be more common in patients undergoing septoplasty and functional septorhinoplasty. Careful preoperative assessment includes clinical examination with or without Computed Tomography (CT) scan sinuses. Severely deviated nasal septum that affects the proper nasal examination may necessitate for a CT scan sinuses. Prospective studies are recommended to accurately determine the ability of clinical examination in detecting concha bullosa.
Radiofrequency for the treatment of chronic nasal obstruction

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Purpose of study: To assess the safety and efficacy of radiofrequency for the treatment of chronic nasal obstruction caused by inferior turbinate hypertrophy.

Materials and methods: A prospective non-randomized clinical study: 124 patients (2013-2015) with chronic nasal obstruction refractory to medical treatment, who underwent radiofrequency turbinate surgery in local anesthesia, were enrolled in the study. The preoperative, intraoperative and postoperative examination of patients was carried out endoscopically. The postoperative examination was performed on the 1st and 7th day, then after 1 month and 3rd month. The follow-up ranged from 12-24 months. We used an analogical visual scale (VAS) to monitor nasal obstruction, rhinorrhea, pain and the patient satisfaction.

Results: None of the patients suffered any major complications; 1 patient presented bleeding after 1 week of the intervention; no post operative pain or other complications were reported (infection, adhesion or allergic reaction). The VAS score of subjective complaints (nasal obstruction and rhinorrhea) decreased postoperatively. The score of satisfaction increased and most patients agreed to repeat the procedure if necessary. 7 patients need a second intervention after one year.

Conclusion: The bipolar radiofrequency ablation of the inferior turbinates is a safe and effective tool for the treatment of chronic nasal obstruction with minimal altering of the nasal mucosa and minimum discomfort to the patient.
Rapid Rhino versus Merocel nasal pack in septal surgery

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*Author

Objective : To compare Rapid Rhino and Merocel for nasal packing after septoplasty in terms of patient’s tolerance (with the pack in place and during removal) and postoperative complications.

Material and Methods : Thirty patients (18-40 years old) scheduled for septoplasty were enrolled in this study. At the end of the surgery, one nasal cavity was packed with Rapid Rhino and the other one was packed with Merocel pack. The Patients were asked to record pain levels on both sides with the packs in situ and during their removal on the next day on a visual analogue score. After pack removal, bleeding was compared on both sides.

Results: The mean pain score with the Rapid Rhino pack in situ (4.17 ± 1.78) was less than that of Merocel (4.73 ± 2.05). However, this difference did not achieve statistical significance ( P value = 0.314). The mean pain score of removal of the Rapid Rhino (4.13 ± 1.76) was significantly less that of Merocel (6.90 ± 1.67). Bleeding after pack removal was significantly less from the Rapid Rhino sides compared to the Merocel ones.

Conclusions: Rapid Rhino is less painful, causes less bleeding compared to Merocel nasal pack with no side effects, so its use as a nasal pack after septal surgery is recommended.

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Introduction

Although the FESS is a common procedure to treat sinonasal pathology, there are no data available of intranasal measurements in Mexican population. The objective of the study is to determine the distance from the nasal spine to the cranial base in an adult Mexican group using CT in order to have a reference for the Mexican population and compare our results with the literature.

Material and Methods

This is a retrospective, transversal study that evaluates nose and sinus CT scans of the radiology department of Angeles Lomas hospital in Mexico City from March to August 2013. We evaluate the following distances: from the nasal spine to the sella turca (S-ST), sphenoidal rostrum (S-SR), left fovea ethmoidalis (S-LFE).

Results

223 maxillary CT scans were included and evaluated. 116 were female and 107 male. 140 were Hispanics and 83 were Caucasian, the median age was 36 years old. The mean distances (mm) in men were S-ST 79.44, S-SR 55.43, S-LFE 61.94. In women S-ST 73.97, S-SR 55.9, S-LFE 58.91 with a p<0.001. The Result of the median + IC 97% in men and women respectively: S-ST: 79.8+1.48, 74+ 0.91; S-SR: 59.5+ 1.5, 55.8 + 0.93; S-LFE: 61.7 + 1.49, 59 + 1.04 all with a p<0.01. When we compare the measurements according to ethnic group Mexicans vs foreigner we only have a significant difference in the following measures: Men (X+SD) S-ST: Mexicans 78.4+ 4.21 vs Foreigner 81.1+4.88 p< 0.003. In Women (X+SD) S-ST Mexicans 73.4+ 3.35 vs Foreigner 81.1+ 4.88 p<0.003.

Discusión

Our results suggest that the measurements are different between men and women, a fact to keep in mind at surgery time. Furthermore there are racial differences. Also our results are different from those reported in the literature by Mosher, Dixon and Cassiano.

Conclusion

Our results show important differences among those available in the literature, and the data obtained can create percentile tables for a studied population by nationality and gender. This can contribute to make more safer the endoscopic sinus surgery.
Results of the Endoscopic Sandwich Graft Repair in Large Nasal Septum Perforations

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Purpose of the Study

Nasal septal perforation is one of the most difficult problems to solve in Otorhinolaryngology practise. There are many surgical techniques for the closure of the septal perforation have been reported. Some of these techniques are not practical, not suitable for the large perforations and success rate is not achievable by others. We want to give the results of the sandwich graft technique used for the large perforations in which the costal cartilage is wrapped with anterior rectus abdominus fascia and placed between the mucosal flaps and sutured to the edge of the perforation under the endoscopic view.

Materials and Methods

The patients undergoing nasal septal perforation repair with a ‘Sandwich’ graft from June 2014 to January 2016 were collected. The results of the patients having large perforations those with the longest diameter ≥ 20 mm were retrospectively reviewed. ‘Sandwich’ graft is composed of obliquely split 7th costal cartilage and the surrounding anterior fascia of the rectus abdominus muscle, which is taken during grafting of the costal cartilage. The graft is sutured to the mucosal edges of the perforation with an aid of endoscopic assistance on both sides. Doyle nasal airway silicone splint is put to nasal cavities and left there for the 3 weeks. Hospital data, including surgical reports, preoperative and postoperative nasal symptom surveys and endoscopic examination recordings were recruited and analyzed.

Results

We have operated 24 patients having nasal septal perforation from June 2014 to January 2016. There were 8 patients, 7 male and 1 female, having perforation equal or greater than 20 mm anterior-posterior diameter. Average age of the patients was 41.75 years (range, 22-68 years) with a mean follow-up of 14.75 months. At the last follow-up, 6 perforations (75%) were observed to be totally closed. Incomplete closure was observed in 1 case. Graft failure was observed in 1 patient while the perforation size did not change. Most commonly seen initial symptom was nasal obstruction. After surgery, 6 patients were asymptomatic, 2 patients showed persistence of crusting. We did not encounter any postoperative complications.

Conclusion

This study demonstrated us that even large nasal septal perforations can be repaired, if a contact can be ensured between mucosal edge and the graft.
Revision choanal atresia repair

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Revision choanal atresia repair

Choanal atresia is the most common indication for early surgical intervention involving the nose.

Unilateral choanal atresia is usually benign, diagnosis and treatment are not emergent. Bilateral atresia may be fatal because newborn infants are usually obligate nasal breathers. Therefore, early management is mandatory.

Both nasal endoscopy and CT provide a precise diagnosis. However, CT has the advantage of being safe and non-invasive, and it can show the type and exact placement of the atresia plate. Multiple surgical techniques to the repair of choanal atresia have been reported in the literature. These include transnasal dilatation, drill out, curettage, laser, and transpalatal approaches. Transnasal endoscopic method is the most widely accepted repair technique. The rate of restenosis varies in the literature from 9% to 36%, with an average of four to six reoperations per patient. The prevention of restenosis has been the main concerns of choanoplasty. In the current work we describe a successful revision endoscopic technique to permanently open the choanae without stenting. Removal of granulation tissue, adhesion and near total endoscopic removal of the bony septum provide long-term nasal patency for revision choanal atresia stenosis repairs. This technique does not require stenting, thus avoiding its associated complications of granulation tissue formation, excoriation or erosion of the nares, premature extrusion, dislodgement, stent blockage, and infection.
Revision septoplasty. What went wrong the first time?

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Purpose of the study:

Identify patients whom underwent revision septoplasty and to analyze their sources of persistent nasal obstruction, what has been missed in the primary surgery and how it can be prevented.

Materials and Methods:

Patients who underwent septoplasty at our institution between 2006 and 2016 were reviewed. Data is collected on demographics, time interval between primary and secondary surgery, comorbidities, history of trauma, anatomic site of obstruction, concomitant turbinate pathology, surgical approach, adjunctive procedures and missing procedures during primary surgery.

Results:

47 patients met inclusion criteria whom have underwent revision septoplasty.

We have found that the most common reason for persistent nasal obstruction and need for revision surgery was: unaddressed bony septum deviation (35%), slipped caudal septum from nasal spine (87%), enlarged inferior turbinates (57%), concha bullosa (33%), external bony pyramid deviation (63%) and narrow nasal valve (7%).

Conclusion:

Patients undergoing septoplasty surgery should be fully analyzed for other concomitant cause of the obstruction, such as hypertrophied turbinate, external bony vault deviation, narrow nasal valve and concha bullosa. Deviated bony septum must be addressed during surgery and not neglected. Caudal septum must be secured to nasal spine or collumela to avoid a slip off and hence narrowing of nasal airway.

Following the above points will help in avoiding revision surgery and provide a better quality of life for the patient.
Rhinolith, not so rare condition

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Rhinolith is located in the nasal cavity

Incidence: 1 in every 10 000 otolaryngeal outpatients

Etiology: exogenous if the nidus is foreign material (beads, paper, buttons) and endogenous if the encrustation occurs around normal or abnormal body tissue (teeth, mucous, bone, blood clot)

Symptoms are nasal obstruction, fetid odour, facial pain, purulent nasal discharge, epistaxis, headache, hyposmia, crusting, septal or perforation of palatum, facial swelling, sinusitis

Diagnosis is made with anterior rinoscopy, endoscopy of the nose and CT.

Therapy is surgical removal

We present two case report of rhinolith.

26 years old male with facial pain, nasal obstruction and purulent nasal discharge, diagnosed and treated as allergic rhinitis and rhinosinusitis for 4 months, and 80 years old male with nasal obstruction, facial pain and foul smelling nasal discharge and occasional mild epistaxis within 2 years.

Previously treated in primary health care with diagnose acute purulent sinusitis.

Microbiological testing found: Proteus mirabilis, Morganella morgani, and they get antibiotic therapy. One of them even went for nasal endoscopy (found only swelling mucosa) and treated with nasal corticosteroids.

Both came in our hospital with radiography of sinuses

Both patients in our hospital were diagnosed with rigid endoscopy and remove rinolith under local anesthesia.

In one case we perform CT scen. Both rhinoliths were sent to histopathological examination

One of them was complicated with aspergillus ball, so the patient was treated with antifungal therapy and the other one was with no complications.

Rhinoliths are not so rare condition and should be recognized on time so possible complications can be avoided and cost of treatment were lower.
ROLE OF ALPHA-TOCOPHEROL ACETATE IN MUCOSAL RESTORATION AFTER SINONASAL SURGERY


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Purpose of the study

Nasal airway obstruction is one of the most frequent complaints revealed to otolaryngologists by patients. Inferior turbinate hypertrophy and nasal septum deviation are the most common causes of nasal obstruction. Correct postoperative treatment of patients subjected to sinonasal surgery has a primary importance to ensure the success of the surgical treatment, in order to prevent complications and to guarantee a quick mucosal healing. We investigated the activity of alpha-tocopherol acetate in the postoperative treatment in patients undergoing sinonasal surgery for evaluating its action in mucosal restoration and any reduction in crusting and secretions.

Materials and methods used

We enrolled 44 patients (25M e 19F) aged between 65 and 76 years old, waiting to be subjected to sinonasal surgery, such as septoplasty, inferior turbinoplasty or functional endoscopic sinonasal surgery (FESS). Two groups were created, randomly assigned: group A (study group) including 21 patients treated with hypertonic saline solution associated with alpha-tocopherol acetate (Filme nasale spray) after surgery, and group B including 23 patients (control group) treated with hypertonic saline solution and Gomenol oil after surgery. Follow-up was performed at 7-15 days, and 1-3 months after surgery. Clinical evaluation has provided nasal endoscopy (rigid endoscope, angle views 0°, 30° and 45° degrees), Nasal Symptom Score Questionnaire (NSSQ) and Rhinoscopy Sum Score (RSS).

Results

Nasal endoscopy, using the RSS, allowed us to observe a faster healing process in the group A, with less formation of crusts and secretions and poor deposition of fibrin, that is fundamental to prevent complications such as bleeding, excessive crusting, synechia formation or infections. NSSQ confirmed the results of Nasal Endoscopy (RSS), showing less symptomatology referred by patients and a better recovery in group A after one month of therapy. At the end of the follow-up (third month) was possible to demonstrate less recurrence of complications in the study group compared to control group.

Conclusion

Many scientific studies documented the functions of alpha-tocopherol acetate, its anti-inflammatory, antioxidant skills are widely demonstrated. This preliminary trial has shown the effectiveness of alpha-tocopherol acetate topic treatment in improving and speeding up the process of restoring the sinonasal mucosa, compared to other topical medications. Further trials including adequate samples of patients would be helpful to confirm these preliminary findings.
Septal perforation: Experience of 4 years in Hospital Clínico Universidad de Chile


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Introduction: Septal perforation is a communication between the two nostrils through the nasal septum. Causes are diverse, with the most common being idiopathic, traumatic-iatrogenic, inflammatory diseases, foreign bodies and use of inhalants like cocaine.

Its clinical manifestations are epistaxis, pain, nasal obstruction, crusting, nasal wheezing, although they can also be asymptomatic. The diagnosis is made through physical examination complemented with nasal endoscopy.

The treatment depends on the etiology and clinical manifestations, being it possible to be medical or surgical, the latter with different surgical techniques.

Purpose of the study: To describe the etiology, clinical presentation and treatment of patients with septal perforation treated at the Hospital Clínico Universidad de Chile (HCUCH) between the years 2013 and 2016.

Materials and methods: A descriptive retrospective study was performed in HCUCH between 2013 and 2016.

Results: 52 patients diagnosed with septal perforation were included, 52% women. The average age was 45 years. 35% were post-surgical, 27% idiopathic, 15% by inhalation of cocaine, 10% post-traumatic, 8% rheumatologic, and 6% other causes. The main symptom was nasal obstruction (52%), followed by rhinorrhea (33%), malodorous crusts (31%), epistaxis (19%), 17% asymptomatic. The average size of the perforation was 14.6 mm, mainly anterior. Surgical repair was performed in 5 patients. We performed a closed endoscopic-assisted technique interposing cartilage graft with 100% success rate.

Conclusions: Septal perforations are due to different causes, highlighting in our series the high percentage of perforations secondary to cocaine use, which has relevant treatment implications. Clinical manifestations are similar to international series, being nasal obstruction and crusts the most common. There are multiple closing techniques, both open and closed. In our hospital we perform mainly closed technique assisted by endoscope with interposition of cartilage graft. We emphasize the high success rate of postoperative closure in our patients.
Introduction: The nasal septum deviation is one of the leading causes of chronic nasal obstruction. Septoplasty is often proposed based on the patient’s complaints and the physical examination, both subjective. Rhinometry allows complementary objective evaluation of these criteria, and measurable data can be compared pre and postoperatively.

Purpose of the study: We intend to compare SNOT-22 questionnaire results against rhinometry and CT data in patients proposed to septoplasty, in order to analyse how patient subjective evaluation (by SNOT 22) correlates with rhinometry and CT data.

Materials and methods: Patients proposed to septoplasty will answer the SNOT-22 questionnaire adapted to the portuguese language and perform rhinometric evaluation the day before surgery. Preoperative CT data will be used when available and compared with rhinometry results. The same procedure will be agended 3 months after surgery.

Results: We expect to find positive correlation between patient complaints and rhinometry and CT data.

Conclusions: The use of protocols for certain procedures is the first step to monitor surgical performance and facilitate data collection for future scientific studies. The implementation of this protocol will allow comparison of patients complaints relative to nasal obstruction against objective data, and find if patient’s opinion after surgery is concordant with rhinometry results.
Septoplasty with or without Minimal nasal valve repair

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Background:- Nasal obstruction is a highly prevalent problem in that can negatively affect quality of life. One of the common causes of nasal obstruction is a deviated septum. In the presence of such nasal obstruction, nasal Septoplasty and Minimal Nasal Valve Surgery procedures can improve the nasal airway and nasal scale score.

Objective: To compare the effectiveness of combination of Septoplasty with minimal nasal valve surgery with that of the Septoplasty alone in the treatment of nasal obstruction and improving the nasal scale score.

Design& Setting:- Prospective non blinded comparison study in Tertiary referral hospital.

Patients and methods:- This is a comparative prospective study conducted at Teaching Hospital and private hospital from the Nov 2014 to the June 2016. The study included 60 patients suffering from nasal obstruction for more than 6 months. The patients were selected for the type of surgery randomly. Following routine clinical assessment and routine rigid nasal endoscopy of the nose and valve area to exclude other pathologies, assessment of nasal obstruction 1 week before surgery was done according to Nasal Obstruction Symptoms Evaluation (NOSE) scale. The patients were informed about the details of the selected procedure to achieve the ethical point of view and verbal consents and agreement were taken from all the patients about the type of surgery. The patients were divided into two groups according to the type of surgery: Group A: Septoplasty with minimal nasal valve repair Group B: Septoplasty alone

Results Significant improvement in the treatment of nasal obstruction was achieved in group A with mean Nasal scores of [14.43] preoperatively and [4.20] 3 months postoperatively. No significant difference in the nasal score in early post operative time in both groups. P value found significant in both group regarding the improvement in the airway breathing and overcoming the nasal obstructions in mean of nasal score in both groups A and B in two main period, there was no significant difference between the two gropes regarding local nasal pain by VAS, P value were non significant. P value were non significant regarding the bleeding in both groups A and B after removal of the silastic intranasal spliny after one week. Table 4, P value were non significant regarding the difference in both groups in Crustation

conclusions both groups in this study has good outcome in treating nasal obstruction. And nasal scale with the superiority of the group one in long term after 3 months.
Surgical prevention of the internal nasal valve collapse

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Objective: To determine the efficacy of prevention of internal nasal valve collapse using new minimally invasive surgical procedure

Institution: Scientific and Practical Center of Otolaryngology of the Republic of Belarus.

Design: Consecutive case series.

Patients: Patients with the stenosis of the internal nasal valve and pathological nasal valve collapse according to the rhinoresistometry.

Intervention: Strengthening of the internal nasal valve using the resected fibrocartilaginous part of the upper lateral cartilage.

Main Outcome Measure: Evaluation of nasal breathing using rhinomanometry, rhinoresistometry, acoustic rhinometry, and long-term rhinoflowmetry before and after the treatment.

Results: A total of 14 patients underwent surgery. Eleven patients noted subjective improvement in airflow on operated side and no signs of nasal valve collapse during normal breathing, with the remaining 2 patients noting improvement of airflow with remaining signs of internal nasal valve collapse and 1 patient had no signs of internal nasal valve collapse but no improvement in breathing. Mean follow-up was 2.4 months (range, 1-4 months). The mean nasal surface area at the nasal valve before surgery was 0.42 cm² (range, 0.34-0.51 cm²) and after surgery was 0.56 cm² (range, 0.40-0.61 cm²) according to the acoustic rhinometry. Before operation all patients had pathological internal nasal valve collapse according to the rhinoresistometry (R > 25% while the flow velocity <250 ml/s). The mean extent of nasal obstruction at 250 ml/s flow velocity before the surgery was 0.62 (range, 0.47-0.78). After the surgery according to the rhinoresistometry 12 patients showed great improvement with no signs of pathological internal nasal valve collapse and extent of nasal obstruction at 250 ml/s flow velocity after the surgery – 0.25 (range, 0.20-0.34), but in 1 case mean nasal surface area at the nasal valve had no significant changes (from 0.36 to 0.40). No complications were reported, and no patients complained about postoperative nasal appearance.

Conclusions: Surgery was shown to strengthen the internal nasal valve by removing pathological internal nasal valve collapse.
The management of the maxillary sinuse’s cyst before dental implantation

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Reference: The cysts of maxillary sinuses are found up to 10% of the general population by CT investigation. Dental implantation is widespread, effective and safe method of teeth row defect replacing. Preservation the conditions for dental implantation and subantral bone augmentation (SBA) should be considered in sinus surgery if it does not reduce its effectiveness. An important factor in ensuring the effectiveness SBA is safe mucoperiost, which mobilized in the area of sinus surgery for the cyst cure. The analyses of our experience of management cyst of maxillary sinuses cure is present.

Objective and Methods: The data of cone beam CT and ENT clinical investigation of 164 patients before dental implantation were conclude. The indication for ENT specialist consultation was finding the changing in sinuses on CT. The optimal management tactic were established and used in clinic.

Results: The cysts of maxillary sinuses were established in 69 (42,1%) cases. The ESS was prescribed for 45 (65,2%) patients with the maxillary sinuses cyst. The indication to endoscopic sinus surgery was expanded by cases cyst localization above or close to dental implantation area.

Conclusion: In management of the maxillary sinus cyst before dental implantation it is necessary consider localization and size of the cyst, evaluate possibility of ostio-meatal block as result of postimplantation cyst dislocation and reactive mucoperiostitis.

The localization of the maxillary sinus cyst above the implantation area or less then 10,0 mm from it is the indication for surgical cyst removing.
The Role of imaging in the pre-operative assessment of patients with nasal obstruction and septal deviation

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ABSTRACT

Introduction: Nasal obstruction is a common complaint of multiple etiology. The pre-operative course of patients presenting with nasal obstruction and deviated septum does not typically include imaging. The benefits of performing CT in the pre-operative setting are not entirely established.

Objective: to assess the contribution of CT in the pre-operative assessment of patients presenting with nasal obstruction and septal deviation.

Methods: a retrospective cohort study in patients undergoing evaluation in a tertiary academic medical center (TASMC) in the last decade. Data on demographics, presenting symptoms, imaging and operative course was gathered. CT scans and clinical data were reassessed by a second surgeon, blinded to the patients clinical course

Results: 843 patients underwent endoscopic sinus procedures in TASMC between the years 2006-2015. 162 (19.2%) patients presented with isolated nasal obstruction without imaging performed earlier to initial intake. Of those, 40 (57.14%) patients underwent CT scan in their pre-operative assessment. 86.4% (n=34) of these required a modification of their initial pre-operative planning, due to the radiological findings such as concha bullosa or findings typical of chronic sinusitis.

An independent assessment by 2 different rhinologist found in 58% of cases CT findings induced surgical modification. In 30% of cases CT findings lead to change in the operative plan involving other anatomical sites rather classical SMR Conchotomy (Pv=0.049).

Conclusions: In this series, 86.4% of patients who underwent pre-operative imaging for nasal obstruction, necessitate a change in the initial pre-operative planning, based on physical examination alone.
Aging and olfactory dysfunction in primary medical care

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Introduction

Olfactory dysfunction is caused by several disease. In japan, sinusitis, allergic rhinitis and common cold are mainly diseases caused olfactory dysfunction. However, aging is also important factor of olfactory dysfunction. Old people have several symptoms cause hindrance to live. Visual disorder and hearing loss are more important than olfactory dysfunction. Therefore, it is expected that olfactory dysfunction by the aging is not reflected in statistics. In this study, we investigated olfactory dysfunction the aging in primary medical care.

Materials and methods

23 patients over 60 years old having olfactory dysfunction consulted our otorhinolaryngology clinic from September 2013 to August 2016 were surveyed. Venous olfactometry, Open Essence and T&T olfactometry were used for the evaluation. Furthermore, dizziness and tinnitus patients and olfactory dysfunction patients were compared using head CT and MRI.

Results

In our otorhinolaryngology clinic, sinusitis was main disease caused olfactory dysfunction. However, aging was also mainly reason of olfactory dysfunction. Patients over 60 years old had statistically worse result than patients under 60 years old. Furthermore, brain atrophy were appeared using head CT and MRI. Brain atrophy of olfactory dysfunction patient was more obvious than dizziness and tinnitus patients.

Conclusion

In this study, the aging was statistically reflected as mainly diseases caused olfactory dysfunction in primary medical care. It was realized that olfactory dysfunction is earlier symptom of Alzheimer disease and Parkinson disease. Results of head CT and MRI suggested that olfactory dysfunction by the aging is also related dementia except Alzheimer disease and Parkinson disease.
Benefit of topical steroid applied with a squirt system: a novel method in maintaining olfactory improvements of steroid-responsive anosmia

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Purpose: Some patients suffering from olfactory dysfunction respond well to corticosteroids. However, to maintain these improvements is challenging, as continuous oral steroid can result in numerous adverse effects. Furthermore, topical steroid applied with an intranasal spray lacks effectiveness owing to anatomical limitation. Therefore, the aim of this study was to evaluate the maintenance effect of twice-daily topical steroid treatment using a squirt system.

Methods: Twenty-two patients with a history of olfactory abnormalities lasting for more than 3 months and an increase in odor threshold, discrimination and identification (TDI) scores in Sniffin' Sticks tests by more than six points after 1-week of oral steroid treatment were enrolled. All of the patients used a squirt system to apply topical steroid and were followed up at 1, 3, and 6 months. An 18-gauge intravenous indwelling cannula mounted on a 1-ml syringe was used as a squirting device.

Results: Nineteen, 16 and 10 patients were followed-up at 1, 3, and 6 months after treatment, respectively. The mean visual analogue scale scores after 1, 3 and 6 months of steroid squirt therapy were 5.42, 5.81 and 5.90, respectively. All of the patients had significant improvements compared to pretreatment. The mean improvements in TDI scores were 9.80 (p<0.001), 11.58 (p=0.001), and 13.87 (p=0.005) after 1, 3, and 6 months of treatment, respectively. Improvements in the three subscales of Sniffin' Sticks test were also maintained. The self-rated and objective olfactory function scores were maintained by steroid squirt therapy without significant decline even in the patients who were followed up for 6 months. None of the patients reported any adverse drug events during treatment period.

Conclusion: Twice-daily topical steroid therapy using a squirt system is beneficial in maintaining improvements in olfactory dysfunction having been achieved by oral steroid. The squirting device is easy to use, readily available, and low-cost to the patients.


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Olfactory deficit is a common (often prodromal) symptom of neurodegenerative, neurologic, or psychiatric disorders. As such, olfaction could have great potential as an early biomarker of disease, for example using neuroimaging to investigate the breakdown of structural connectivity profile of the primary olfactory networks. We investigated the suitability for this purpose in two existing neuroimaging maps of olfactory networks.

We found problems with both existing neuroimaging maps in terms of their structural connectivity to known secondary olfactory networks. Based on findings, we were able to merge the existing maps to a new template map of olfactory networks with connections to all key secondary olfactory networks.

We introduce a new method that combines diffusion tensor imaging with probabilistic tractography and pattern recognition techniques. This method can obtain comprehensive and reliable fingerprints of the structural connectivity underlying the neural processing of olfactory stimuli in normosmic adults. Combining the novel proposed method for structural fingerprinting with the template map of olfactory networks has great potential to be used for future neuroimaging investigations of olfactory function in disease. This offers great potential for differentiating peripheral and central causes of anosmia. With time, the proposed method may even come to serve as structural biomarker for early detection of disease.
Chemosensory sensitivity is not static: effects of coffee on gustatory and olfactory sensitivity

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Chemosensory sensitivity has great variation between individuals in both health and disease. This inter subject variability complicates the creation of a universally hedonic meal, and it complicates diagnosing disorders of the gustatory and olfactory systems. In order to ensure more accurate testing, this has resulted in strict guidelines for testing chemosensory function; a common rule is the avoidance of food and beverages one hour before chemosensory testing. However, this rule of thumb does not have a solid scientific foundation, as the effects of foods on subsequent chemosensory sensitivity have not been thoroughly tested. The aim of the current study was to test if recent coffee consumption would affect subsequent gustatory and olfactory sensitivity.

By applying a battery of olfactory and gustatory tests before and after coffee stimuli, we investigated subsequent changes in chemosensory sensitivity. This revealed a significantly altered sensitivity for several different tastant stimuli, but not for olfactory stimuli a few minutes after drinking coffee. We have shown that certain foods can alter the subsequent perception of taste, which may be interesting from a gastronomy perspective. However, olfactory sensitivity tested by olfactory threshold detection was unaffected by the recent consumption of coffee. This questions the importance of avoiding food and beverages one hour before olfactory testing.
EVALUATION OF THE EFFECT OF SEPTOPLASTY ON THE VOMERONASAL ORGAN FUNCTION

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Introduction. There is an additional olfactory system in the anterior part of the nasal septum - the Vomeronasal organ (VNO) involved in the perception of pheromones. The data of literature is mentioned that patients after septoplasty complaint on violation of erectile function. The aim of the study was to evaluate olfactory function and screening of sexual function in patients after septoplasty.

Materials and methods: 23 patients were included in study group (12 men and 11 women, mean age =34.4), which were performed septoplasty 3-16 months ago. A control group consisted of 14 people (8 men and 6 women, mean age =27.07), with the nasal septum deviation without rhinosurgery in anamnesis. All patients were underwent with nasal endoscopy, Sniffin’Sticks test (SST), expanded version, 10-point visual analog scale (VAS) level of smell and questionnaires: Male Sexual Formula, Sexual Formula for Women, international Index of Erectile Function - 5 (IIEF-5).

Results. The level of smell at VAS before and after septoplasty was 6.03 and 6.86, respectively, in the control group - 7.5. The General index of olfaction after surgery for SST was 30.41±5.02, in control group – 30.92±4.28, (N ≥30), indicating the normal function of smell after surgery. Endoscopic examination of the nasal cavity in the main group: 12 patients discovered VNO on the one side, 8 on both sides and 3 patients had no VNO. In the control group: the VNO on the one side was detected in 7 people, 2 to two and 5 not found. The level of sexual formula = 29.25±4.97 (N ≥27), control group = 29.6±7.4, level IIEF-5 = 23.1±2.12 (N ≥ 21), control group = 23.5±1.7. The correlation coefficient between the presence of VNO and level of sexual formulas (M/F)=0,161, the relationship is weak; control group = 0.254, weak feedback. Revealed a direct reasonable correlation between smell and sexual expression (correlation coefficient = 0.316), the control group 0.453, moderate direct relationship. The dependence of the characteristics were statistically insignificant (p>0.05), probably due to the small sample.
Conclusion. The sense of smell after septoplasty was preserved in all patients. VNO was detected in the majority of patients undergoing septoplasty but correlation between its presence and level of sexual formulas was not found. Moderate relationship between level of smell and level of sexual formulas was discovered; further study is required for more statistically reliable data.
Olfactory function in patients with atrophic rhinitis

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Problem of chronic atrophic rhinitis for residents of East Siberia is actual and caused by climatic geographical factors and also harmful industrial influence. Patients with secondary atrophic rhinitis were studied, those who live in Krasnoyarsk and have complaints not only at nasal obstruction, epistaxis, crusting, but also notice smell disorder affecting poorly at the quality of life. The aim of this study is to assess chemosensory function in patients suffering from atrophic rhinitis using psychophysical testings. A group of patients was extensively studied. All the patients had a clinical evaluation using questionnaire, visual analogue scale and Sniffin’ Sticks test. Based on anamnestic research methods (questionnaire, visual analogue scale), we concluded that the patients with atrophic rhinitis can have all quantitative changes of smell: hyperosmia, hyposmia, anosmia. In respect that evaluation of Sniffin’ Stickstest’s results has only 3 variants of quantitative smell’s changes (normal sense of smell, hyposmia, anosmia) we concluded that all patients with hyposmia during Sniffin sticks test got 30,5 – 48 points – it is normal sense of smell. Hyperosmia is caused of increase in the volume of the nasal passages and decrease the volume of the nasal turbinate that leads to quick odorants arrival to cells peripheral segment of olfactory analyzer. A type of qualitative smell’s change by atrophic rhinitis depends on duration of atrophic process, etiology factors, and organism condition at all.

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Les troubles de l’olfaction restent un sujet d’actualité puisque le prix Nobel de 2004 a été décerné à deux scientifiques américains sur leur découverte de la plus grande famille de gènes connue à ce jour.

A eux seuls, chez l’homme, cette famille de gène représente 3% de notre patrimoine génétique le second, après le système immunitaire.

L’homme possède 10 millions de récepteurs comparé à 1 milliard chez le chien.

Depuis la dernière décennie; l’intérêt à l’étude de l’olfaction a connu un grand essor grâce à l’accumulation de données innombrables émanant de toutes les disciplines qui s’intéressent à cette question dans le seul but d’aboutir à un diagnostic précis et à un traitement.

Ces progrès ont permis également de mieux comprendre les bases biologiques de l’odorat mais également les différentes causes de dysosmie.

Odorat sert à déterminer saveur aliments mais c’est aussi un système d’alerte précoce. Les troubles de l’odorat sont fréquents. Ils altèrent la qualité de vie, l’activité sociale et entraîne un amaigrissement voire une dépression. L’Olfaction correspond au contact des molécules odorantes avec le neuroépithélium olfactif.

La physiologie de l’odorat comporte 4 phases : aéroportage (transport des molécules odorantes vers la fente olfactive), événements péri-récepteurs (traversée du mucus nasal), la transduction (la transformation du message chimique en message biologique) et le passage dans les centres olfactifs.

La classification des troubles de l’odorat est contestable sur un plan physiopathologique, mais présente un intérêt majeur pratique car permet de différencier les troubles de transmissions des troubles de perception le plus souvent.

Les principales étiologies ;
- Dans 90% des cas :
  - Pathologies rhinosinusienne chronique 15 à 68 %
  - Post rhinite aigüe 18 à 26 %
  - Traumatisme Crânien 2 à 18 %
  - Vieillissement 10 à 20 %
  - Dans 10% des cas :
    - Alzheimer
    - Parkinson
    - Dysthroidies.....
**Smell Impairment Among Adults Aged 40 or More Years: Results from the U.S. National Health and Nutrition Examination Survey, 2011-2014**


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**Purpose:** To estimate prevalence and risk factors for smell impairment in the United States based on a nationally-representative adult sample.

**Materials and Methods:** The National Health and Nutrition Examination Survey (NHANES) is a continuous, cross-sectional health survey that uses a complex multistage sampling design to produce nationally-representative estimates from questionnaire and examination data. Study participants (n=7,413; NHANES 2011-2014, 40+ years) completed home interviews that included questions about perceived smell alterations, including: (a) problems with the sense of smell during the past year, (b) decline in smell function since age 25, or (c) experiencing “phantom” odors (phantosmia). Of these, 4,808 adults completed an 8-odor identification task as a part of the structured 15-minute chemosensory (taste and smell) exam protocol.

**Results:** The prevalence of measured smell impairment (hyposmia or severe hyposmia/anosmia) was 13.5% (19.7 million U.S. adults 40+ years). The prevalence of any self-reported smell problem was 22.4% (29.9 million), which included problems during the past year, 7.9%; smell loss since age 25, 15.8%; or phantosmia, 6.9%. The strongest risk factor was age: 46.1% aged 80+ years had smell impairment compared to only 6.9% for subjects 40-49 years old. Of those reporting problems with their sense of smell, 48% stated the problem is “always present”, the other 52% said it “comes and goes.” If respondents with diminished “retro-nasal” olfactory function (food flavors reported tasting less good as compared to age 25) are included, then 33.3% (35.5 million) reported smell and/or food flavor problems. Although women were more likely to report perceived smell impairment, odor identification exams showed men were more often unable to identify at least 6 of 8 odors correctly (odds ratio [OR]=1.8, 95% confidence interval [CI]: 1.2-2.6). In multivariable analyses, non-Hispanic black or Asian race/ethnicity and lower education or income were associated with increased risk of measured olfactory dysfunction. Significant clinical associations were persistent dry mouth, asthma, cancer, hypertension, and history of stroke. Only 17.2% with reported smell impairment had ever discussed their problem with healthcare providers. Among adults age 70+ years, misidentification rates for warning odors were 20.3% for smoke and 31.3% for natural gas.

**Conclusion:** Olfactory dysfunction is very common among older adults. Many age-related diseases/conditions result in even higher prevalence of smell impairment. This represents a major public health concern since many individuals, especially geriatric adults, are unable to recognize the odor of spoiled food or dangerous smoke or natural gas odors.
Long term-effects of cigarette smoking on oral mucosa and taste acuity

Abstract

Objectives: to investigate the quantitative impact on taste sensitivity and the time course of functional and anatomic taste recovery after stopping smoking.

Materials and Methods: Prospective case-control study of 24 adult smokers (9 female, 15 male; age: 51.2 range: 25 years.) comparing taste acuity measured by electrogustometric (EGM) thresholds from various parts of the tongue and evaluation of shape and vascularisation of fungiform papillae (fPap) through contact endoscopy (CE) before and after quitting smoking for a period of 4-6 months.

Results: After quitting smoking, EGM thresholds decreased progressively. Though the EGM-Thresholds of smokers tend to reach those of non smokers, the CE-Findings show that the shape and vascularisation of fPap exhibit a rather slow improvement. An important step in the functional development of sensory systems is the differentiation and maturation of the sensory epithelium. In addition to the development of the primary sensory cells, maturation of the mammalian taste system involves many steps that lead to functionally important structures in the taste epithelium.

Conclusion: Chronic exposure to cigarette smoke alters morphometric features of taste buds in fungiform papillae more permanently than functional measures suggest, supporting the notion that cigarette smoking can have profound anatomic effects on the peripheral taste organs.

Key-world: taste, fPap, Contact Endoscopy, Electrogustometry, Smoking
“PUSH-PULL TECHNIQUE” FOR THE MANAGEMENT OF SELECTED SUPEROMEDIAL INTRAORBITAL LESIONS: FIRST CLINICAL APPLICATION

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Purpose of the study. While laterally located intraorbital lesions (IOLs) are traditionally managed through lateral orbitotomy or superior eyelid (SE) approaches, medial IOLs are more easily accessed through the transnasal route or other external approaches. However, certain lesions with supero-medial location may determine a technical challenge. We present a minimally-invasive technique that was designed to address selected supero-medial IOLs.

Materials and methods used. A 45-year-old woman was referred to the Otorhinolaryngology Department of Pisa, Italy, for the incidental finding of a left asymptomatic IOL, anteriorly located in the supero-medial intraconal space, between superior rectus and superior oblique muscles. The imaging suggested a diagnosis of hemangioma. The lesion was initially submitted to a wait and scan strategy, however it progressively increased in size and the patient started complaining of left proptosis and visual impairment in the left lateral gaze. We performed the resection of the lesion combining the classical transnasal route with an endoscopic-assisted SE approach. After completing middle turbinate resection and sphenoethmoidectomy, we removed the lamina papyracea and opened the periorbita in order to obtain transnasal exposition of the lesion. We proceeded with the external dissection through a SE route. Hence, while pulling the lesion transnasally through a superior window, we pushed it from the outside in a medial endonasal direction, in order to complete the dissection and resection of the lesion. We called this approach “push-pull technique”. Results. We achieved complete resection of the lesion, as confirmed on the postoperative MRI. We did not observe any intraoperative or postoperative complication. The patient could be discharged 3 days after surgery. At the last follow-up, performed 6 months postoperatively, the patient was satisfied and completely recovered. Conclusion. The “push-pull” technique is a safe procedure which might be considered a valid alternative to address selected supero-medial IOLs. However, it should be attempted only by experienced teams able to convert the procedure in a more conventional route and able to face major complications.
A case of congenital dacryocystocele: endonasal endoscopic approach


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Introduction: Congenital incompetence of the nasolacrimal drainage system is relatively common. Dacryocystocele formation is an infrequent variant of such congenital nasolacrimal duct obstruction. The differential diagnosis of medial canthal swellings centered on the lacrimal sac includes malformations, diverticula, dermoid cysts, inflammatory processes, infections, encephaloceles, primary epithelial tumors, and mucoceles, as well as extrinsic tumors impinging on the sac. Regardless of the type of treatment selected, studies have shown that the problem of eyes with dacryocystocele is that they have a greater tendency to develop dacryocystitis or cellulitis than do eyes with congenital nasolacrimal duct obstruction.

Patient: A newborn presented with a deeply bluish cystic mass below the medial canthus, diagnosed as dacryocystocele and received early surgery and endoscopic marsupialization intranasal.

Discussion: A dacryocystocele is an infrequent severe variant of congenital nasolacrimal duct obstruction, occurring in 0.1% of such infants. Congenital dacryocystocele is an infrequent circumstance in which cystic swelling of the lacrimal sac accompanies obstruction of the lacrimal drainage system. It is important to differentiate dacryocystoceles from other conditions. Encephaloceles, nasal gliomas, hemangiomas, dermoids, sebaceous cysts, and mucoceles can also present similarly lesions and must be considered in the differential diagnosis.

Conclusion: The diagnosis of dacryocystocele in the newborn that is done in conjunction with the ophthalmologist must have a high index of suspicion, referral in the early neonatal period can aid in timely intervention before complications such as infection occur.
A new concept using holding chamber for nasal drug delivery

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Topical nasal treatment is performed mainly with nasal sprays or even with nasal nebulizers. Nasal sprays are easy to use but limited in terms of region of interest targeting. Nebulizers offer the advantage to allow a better dispersion of the aerosol and improve time-retention of the drug into nasal cavities, but require long time of inhalation (5-10 min). This study proposed to test a new concept of drug delivery system using a pMDI connected to a nasal holding chamber in order to improve nasal delivery.

Beclometasone administration was performed in an in vitro nasal cast. The nasal cast was humidified and ventilated. Drug administration was carried out using a sonic nebulizer (800 µg/2 mL) and a pMDI/Nasal Chamber (250 µg/10 puffs). The deposition of beclometasone in the nasal cast was analyzed by spectrophotometry. An in vivo scintigraphy study was conducted using two sedated macacas. A radioactive tracer (Technetium99m) was administered using a nasal spray (1.5 MBq/2 puffs) and the pMDI/Nasal Chamber (10 MBq/20 puffs). Distribution of the radioactive tracer in nasal cavities and, in eosophage and stomach, was quantified during 20 min.

Beclometasone deposition in the nasal cast was similar using the nebulizer or the pMDI/Nasal Chamber: 26-30% in turbinates, 3-7% in ethmoids and 1-2% in maxillary sinuses. Less than 10% was deposited in the floor+rhinopharynx. In vivo, more than 80% of total deposited radioactivity was quantified in nasal cavities 2 min after spray and pMDI/Nasal Chamber administrations. Then, nasal deposition decreased with time after spray administration: -22% after 12 min and -36% after 20 min. In parallel, eosophage and stomach deposition increased: +2% at 2 min, +20% at 12 min, and +30% at 20 min. Following the administration by the pMDI/Nasal Chamber, nasal deposition remains stable during the acquisitions (±4% after 12 min). Eosophage and stomach deposition appears later than that with the spray: <1% at 2 min, +6% at 7 min and +8% at 12 min.

In this proof of concept study, the pMDI/Nasal Chamber allows penetration, deposition and time-retention of drug into nasal cavities, similar to a nasal sonic nebulizer but keeping the advantage of rapid administration like nasal spray. Human depositions studies are required to validate these results.
A Revolutionary Approach to Frontal Sinus Trauma: Transnasal Endoscopic Repair

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Purpose of the Study: Management of frontal sinus trauma includes coronal or direct open approaches through skin incisions to either ablate or obliterate the frontal sinus for posterior table fractures and openly reduce/internally fixate fractured anterior tables. Transnasal endoscopic repair represents a revolution, rather than an evolution, in the management of frontal sinus trauma because it embodies a sudden and radical change in treatment. Anterior table fractures are reduced without incisions or internal fixation, cerebrospinal fluid leaks from comminuted posterior table injuries repaired, and frontal sinus function completely preserved through long term patency of the drainage pathway. The purpose of this study is to review recent evidence regarding transnasal endoscopic repair of anterior and posterior table fractures and how such an approach improves patient outcomes and morbidity.

Materials and Methods: Prospective evaluation of patients undergoing endoscopic management of frontal sinus trauma. Data was collected regarding demographics, etiology, technique, operative site, length involving the posterior table, size of the skull base defects, complications, and clinical follow-up.

Results: Fifty-one patients (average age 41 years) with frontal sinus fractures were treated using endoscopic techniques from 2008-2016. Mean follow-up was 27 months (range 0.5-79). Patients were primarily treated with Draf IIb frontal sinusotomies. A Draf III was used in 9 patients. Average fracture defect (length vs width) was 17.2 x 8.9mm, and the average length involving the posterior table was 13.3mm. Skull base defects were covered with either nasoseptal flaps or free tissue grafts. One individual required a Draf IIb revision, but all sinuses were patent on final exam and all closed reductions of anterior table fractures (n=10) resulted in cosmetically acceptable outcomes.

Conclusion: Transnasal endoscopic repair should become a standard part of the treatment algorithm for frontal sinus trauma. This revolutionary approach allows maintenance of frontal sinus function, separation of the sinuses from the intracranial cavities, and excellent cosmesis without external incisions.
Anatomical changes in maxillary sinus hypoplasia and their surgical implications

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Anatomical changes in maxillary sinus hypoplasia and their surgical implications:

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Abstract:

Maxillary sinus hypoplasia (MSH) is a rare condition. It is associated with anomalies of the lateral wall which can lead to inadvertent surgical damage to the orbit. The uncinate process is an important landmark in endoscopic sinus surgery. In case it is absent, the first structure encountered is the lamina papyracea and inferior orbital wall.

In our study we are going to identify the position of the uncinate process and determine its relationship to the inferior orbital wall and the lamina papyracea. This will help alert the surgeons to the potential risk of early injury to the orbit.

The present study involved 11 patients with MSH who visited the department of ENT Head and Neck at the American university of Beirut medical center between 2010 and 2015. The design of this study and the collection of patients data were approved by the international review board. We reviewed the CT sinuses of these patients, and we took different measures:

1st- The volume of the hypoplastic maxillary sinus compared to the contralateral sinus

2rd- Size of the uncinate process and distance to the orbital rim

3th- Distance from the orbital floor to the hard palate

4th- Bowing of the medial maxillary wall

5th- Bowing of the anterior maxillary wall

6th- Volume of the inferior turbinate.

7th- Transverse, anteroposterior, superoinferior diameter of the Maxillary sinus.

Based on these measures, we graded the different parameters and for each grade a correlation to risk of orbital injury was set. Accordingly, 3 types were identified: mild, moderate and severe.

All these parameters were found to be associated with risk of orbital injury; hence the importance of this new classification which will help surgeons to choose the best approach possible in order to minimize the risk of orbital injury. Our recommendation is to always operate under navigation guidance in moderate to severe cases and in case it is impossible to localize the natural maxillary ostium, a combined approach through the anterior canine fossa and endoscopically through a middle meatal antrostomy is recommended.
Avoiding dacryocystorhinostomy in cases of epiphora caused by inferior meatus obstruction

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Background: Naso-lacrimal-duct obstruction (NLDO) is a common cause of epiphora. After the diagnosis is established, further evaluation is seldom preformed. Dacryocystorhinostomy (DCR) is considered the gold standard treatment for NLDO. Endoscopic evaluation of the inferior turbinate and inferior meatus could help identify and treat specific pathologies of the inferior meatus.

Methods: Files of all patients presenting to the joint lacrimal clinic with symptomatic epiphora required endonasal endoscopic surgery between October 2010 and September 2016 were retrospectively reviewed. Cases in which a pathology in the inferior meatus (IM) was identified were selected for this article.

Results: In eight patients (5.3%), endoscopic evaluation made it possible to localize the obstruction to the inferior meatus (IM). Obstruction was caused by cysts in 2 patients, dacryolith in 2 patients, mucocele in 2 patients, one patient had a membrane obstructing the inferior meatus and one case of concheal obstruction. All patients went through endoscopic treatment targeted at the cause of obstruction, avoiding DCR. Two patients continued to be symptomatic and were referred for endoscopic endonasal DCR.

Conclusion: Inferior meatus obstruction is an under-diagnosed cause of epiphora. Avoiding DCR surgery in select cases of NLDO may be possible when nasal endoscopic evaluation of patients with NLDO reveals distinct inferior meatus pathology.
Bone reduction with 980 nm diode laser for endonasal removal of frontal sinus osteomas

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BACKGROUND:

Endoscopic endonasal removal of large osteomas of the frontal sinus can be challenging. Especially in cases, when an osteoma is accidentally mobilized inside the frontal sinus and is too large to be removed via endoscopic approach in one piece. Burrs and chisels can't be used to reduce such mobile osteoma. Diode laser with 980 nm wavelength seems to be a good option for osteoma reduction in such cases, because it's energy can be transferred via thin quartz fiber and there is no need to apply any pressure to reduce mobile osteoma. On the other hand thermal effects of laser radiation may potentially damage surrounding tissues, particularly the brain. As we didn't find any data on the laser reduction of frontal sinus osteomas in the current literature, we decided to conduct an experiment.

OBJECTIVE:

Our study was aimed to investigate safe parameters of bone reduction with 980 nm diode laser in an experimental setting.

MATERIALS AND METHODS:

We used 1 cm² cubic pieces of cadaveric iliac bone as a model of osteoma. The energy of 980 nm diode laser was applied to the bone via 400 µm quartz fiber in continuous mode with output power ranging from 6 to 15 W (step – 1 W). Bone samples were irradiated by scanning motions of the fiber tip over the surface. The fiber tip was always in direct contact with the bone. The temperature at the opposite side of the sample was continuously measured by a thermocouple. The irradiation was stopped when the temperature reached 47°C. Then the sample was cooled down to its original temperature by irrigation with 22°C saline solution. 11 samples were irradiated 10 times each.

RESULTS:

According to our experimental study optimal power for bone destruction is 10 W, continuous laser irradiation should not exceed 30 seconds and the following irrigation with saline solution should continue not less than 28 seconds.

CONCLUSION:

The contact continuous mode of diode laser with the 970 nm wavelength prospectively predictable results, which makes them safe, that allows to control thermal effects and damage to the surrounding tissue.
Case report: Endoscopic transnasal DCR (ETDCR) performed in a patient with acute dacryocystitis with fistula on skin formation after LeFort II fracture

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Purpose:

This case report's purpose is to present management of patient who suffered LeFort II fracture which was followed by empyma of left lacrimal sac and post drainage cutaneous fistula on face healed by ETDCR.

Methods:

67-years old male patient suffered Le-Fort II fracture and underwent surgery at Department of Maxillofacial and Oral Surgery. Soon after he noted epiphora and 3 months after surgery was referred for emergency ophthalmologic check-up of acute dacryocystitis with empyma formation. Emergency percutaneous drainage of empyma was performed and systemic and local antibiotic treatment was prescribed. 2 weeks post-drainage complete resolution of symptoms were noted and per secundam closure of wound was performed. 3 days later puss again accumulated and started to drain through fistula on skin. Eyelid was swelling and redness with pain appeared again. Patient was referred to ENT, CT was performed all bony fragments were completely healed and osteosinthetic material was on place.

ETDCR was performed, puss was evacuated from right lacrimal sac and wide communication with nasal cavity was made. Raw bony edges were covered with mucosal flaps originating from nasal mucosa and lacrimal sac. Both canaliculi were intubated with BIKA drain.

Results:

On 6th postoperative day BIKA drain was removed and fistula between left sack and skin was completely closed and no epiphora was noted. On last outpatient visit 9 months post-surgery no cutaneous scars have been noted, no epiphora has been present and stoma was well formed.

Conclusions:

ETDCR is choice of treatment for nasolacrimal duct stenosis, repetition of acute dacryocystitis and also in case of empyma of lacrimal sac. In later case surgical intervention can be consider at first instance. Pus can be drained directly to the nose and stoma can be done at the same time. Or it can be done after draining pus through skin and ETDCR postponed till inflammation subside. In our case interdisciplinary work is of greatest importance as diagnosis is made by ophthalmologist and surgery is performed by ENT specialist with help of ophthalmologist.
Clinical Characteristics and Treatment of Oroantral Fistula

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Purpose of the study: Oroantral fistula is an epithelialized communication between the oral cavity and the maxillary sinus. The aim of this study is to investigate clinical characteristics and treatment of oroantral fistula.

Materials and methods used: The patients undergone the treatment of oroantral fistula between May 1995 and December 2015 were enrolled in this study. Demographic data of patients and characteristics of oroantral fistula were analyzed. The patients with oroantral fistula were initially administered oral antibiotics for 3 weeks. If fistula persists in spite of the medication, surgery (soft tissue flap with or without bone graft) was performed. The surgical results according to the presence of bone graft were compared.

Results: Twenty-two patients were in accordance with the inclusion criteria. The male to female ratio of the patients was 12/10 and mean age was 47.9 ± 13.4 years. Main complaint of the patients was pus discharge from the fistula. Two patients were successfully treated with antibiotics and 20 patients underwent surgery. Recurrence occurred in the 3 patients treated with soft tissue flap, but no recurrence developed in the patients treated with soft tissue flap and bone graft. Although dehiscence of soft tissue flap occurred in a patient treated with bone graft, it was successfully treated by secondary intention without an additional surgery.

Conclusion: Bone graft bears negative pressure of the oral cavity and the weight of secretions including blood. In addition, it induces secondary intention for the dehiscence of the flap. Therefore, bone graft seems to contribute to surgical success of oroantral fistula.
DESTRUCTIVE MUCOPYOCOLE OF THE MAXILLARY SINUS

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BACKGROUND: Mucoceles are benign cystic lesions in the paranasal sinuses. Infection of the content results in the formation of a mucopyocele. Most mucoceles are located in the frontal-ethmoid complex. Maxillary sinus mucoceles are rare. They should always be considered in all patients with rhinosinusal symptoms with poor evolution or when other locoregional symptoms are associated.

OBJECTIVE: The aim of this report is to describe the clinical presentation of maxillary sinus mucopyoceles causing osteolysis of the walls of the sinus and to establish the efficacy of endoscopic management in this type of lesions.

METHODS: We describe the case of a 30-years-old female patient who presented with a maxillary sinus mucopyocele causing the destruction of the anterior and lateral wall of the maxillary sinus. The presenting signs and symptoms, radiological findings, and surgical management are described.

RESULTS: Initially the patient complained of cheek swelling since the last 2 days. She had no history of preceding sinonasal or dental surgery nor facial trauma. After clinical and radiographic examinations were completed the diagnosis of mucopyocele of the maxillary sinus was done and the patient was treated with endoscopic ethmoidectomy, middle meatal antrostomy, and marsupialization of the mucocele associated to intravenous antibiotic therapy. Immediately after the surgery the presenting symptoms progressively improved. Patient completed 6 months of postoperative follow-up and no complaints were observed.

CONCLUSIONS: Maxillary mucoceles/mucopyoceles are very rare. The etiology is not well understood. Endoscopic sinus surgery is an effective treatment for maxillary sinus mucoceles with a favorable long-term outcome.
Sinonasal papillomas encompass a diverse group of lesions with distinct clinical and histopathological features which impact management and prognosis. In this symposium we will review the subtypes of Schneiderian papillomas: exophytic, oncocytic, and inverted. The incidence, clinical presentation, and histopathological characteristics of each subtype will be discussed. Clinical and radiographic features which can predict papilloma subtype will be identified. Appropriate and tailored surgical treatment options will be evaluated in the context of a literature review to improve results and outcomes. Open and endoscopic approaches to inverted papilloma will be compared. The importance of “attachment site” surgery will be explained, based on histological analysis of inverted papilloma specimens. Advanced endoscopic techniques to maximize exposure and access to maxillary, frontal, and sphenoid sinus papillomas will be demonstrated with the use of video clips. Modifications to endoscopic medial maxillectomy techniques, including septal dislocation and endoscopic Denker’s, will be demonstrated. The advantages of a sphenoid “Draf 3” technique will be shown. A stepwise surgical approach for frontal sinus inverted papilloma will be discussed. Adjunctive treatments, including radiation, chemotherapy, and COX-2 inhibitors will be analyzed. Surveillance recommendations for inverted papilloma will be discussed. An interactive, multimedia, case-based format will be utilized to highlight distinguishing features that may assist in predicting papilloma subtype and influence surgical planning.
A 30 years old female with a history of untreated nasal an sinus allergy. Presenting a six month constant unilateral epiphora and recurrent dacryocystitis treated with several antibiotics systemic and topical steroids as well as several previous nasolacrimal duct cannulations. She was evaluated by Ophthalmology and Otolaryngology services with a Computed tomography scan simple and with dacryocistography and office nasal endoscopy. With the diagnosis of chronic dacryocystitis she was taken to the operating room where after endoscopic inferior meatus inspection, removal of the anterior lip of the Hasner valve, and polypoid tissues from the nasolacrimal duct drainage was excised a dacryolith was found and removed by means of washing of the previous cleaned nasolacrimal duct. The changes of the Hasner valve and the inflammatory reaction are commented. A through bibliographic review of the last five years publications regarding lacrimal path instrumentation and dacryoliths is commented. We are making emphasis in the exploration of the inferior meatus and lacrimal drainage in every case of chronic or recurrent dacryocystitis. Although there is no specific instrumentation, nor a described technique, the results and findings are promissory. The team and group work of the Ophthalmologist and the Rhinologist is essential for the success of this challenging pathology.
endoscopic Dacryocystorhinostomy : 22 years of experience and evolution

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Introduction

Since Toti in 1904 external DCR was a reference until the end of the 20th century, even if several authors have described an endonasal procedure a long time ago.

The emergence of endoscopic nasal and sinusal surgery as changed the way of doing DCR (dacryocystorhinostomy) who now has turned to an endoscopic procedure done by ENT surgeon or ENT/opthalmologist teams.

We report 22 years experience of a team (ENT Dr Racy/OPH Dr Fayet).

Materials and methods:

2 retrospective studies made and published in 2004 and 2014 were analyzed and compared.

Results:

Between the two studies several differences are showed.

The uses of a more systematic septoplasty, the partial section of the head of the middle turbinate are part of the evolution.

The initial bone drilling procedure were linked to post-operative adverse effects like bone infection and crust.

In the second study the use of bone Kerrison Rongeur showed less post-operative complications.

Canaliculus probing is also discussed. The only indication of silicone probing at the end of the surgery is à canaliculus stenosis. There is no need of silicone probing if the lachrymal sac is widely opened.

Conclusion :

Endoscopic DCR is now the surgical reference for Nasolacrimal duct obstruction. The use of less aggressive instruments (Kerrison rongeur) and a wide lachrymal sac opening are the key of success.
Endoscopic DCR: reasons for failure and management

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Introduction: Dacryocystorhinostomy (DCR) is the treatment of choice for nasolacrimal duct obstruction. Although external DCR is regarded as the gold standard, endoscopic DCR is evolving as equally-effective with similar outcome and complication rates. The success rate in literature today is 82% to 90% depending on surgical technique. In a large cohort sex, age, the presence of earlier tube removal, and indications for surgery did not show significant influence on surgical outcome.

Purpose: To describe a large cohort of patients who underwent endo-DCR in a tertiary medical center, establishing factors effecting surgical outcome and need for re-operation.

Methods: A retrospective review of all patients undergoing endo-DCR in the Tel-Aviv medical center between 2010 and 2015. Success was defined as improvement in symptoms, no further events of dacryocystitis and a patent rhinostomy.

Results: 168 eyes of 149 patients, mean age 54.38 (range 8-93), 97 females (52 males) were included. Surgery was conducted on the right eye in 86 cases and left eye in 84 cases. Success rate was 89.3%. Factors found associated with failure were: diabetes mellitus (31.8% in the failure group vs. 9.7% in the success group, p=0.009), previous DCR surgery (25.9% vs. 10%, p=0.05) and an intra-operative finding of a small fibrotic lacrimal sac (27.3% vs. 10.3%, p=0.037). A trend was seen regarding the use of silicone tube intubation (16.5% vs. 7%, p=0.072). Factors found to be not associated with failure were: age, gender, previous punctoplasty, facial trauma and previous nose and sinus surgery. Mean time to re-operation was 6.9 months. In the second surgery all patients had adhesions, granulations or fibrosis and all but 2 patients (89%) were left with silicone tube. Success rate was 92% and only 1 patient had a 3rd operation.

Conclusion: Endoscopic DCR is a surgical technique with favorable outcome and low failure rates. Failures can be attributed to previous DCR surgery, which can be accounted for distorted anatomy, a small fibrotic lacrimal sac and diabetes mellitus. Surgeons should have a good pre-op evaluation, and resolve adhesions and granulations during surgery.
Endoscopic electrocoagulation of the SPA: An effective treatment modality for posterior epistaxis

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Endoscopic electrocoagulation of the SPA: An effective treatment modality for posterior epistaxis

Epistaxis is the commonest otolaryngological emergency, which is often a challenge for the most ENT doctors. Approximately 60% of the adult population having experienced at least 1 episode during their lives, fortunately, most of cases resolve spontaneously, and only 6% of epistaxis cases require medical intervention. Most cases of epistaxis arise from the anterior septal area, also known as the little area. It only approximately 5% of the cases, the origin of epistaxis lies more posteriorly on the nasal cavity. Those group of patients are elderly, frail and have multiple comorbidities. In addition, there is no definitive protocol for the management of epistaxis, although various procedures have been proposed in the literatures. However, all algorithms for managing this condition ultimately call for interrupting the arterial blood supply to the nasal mucosa to achieve an optimal therapeutic concept. A significant number of cases fail to respond to conservative strategies such as combined anterior and posterior nasal packing, therefor the patient should be referred to surgical intervention. The sphenopalatine artery (SPA) electrocoagulation technique seems to be safe, well-tolerated, and cost-effective treatment modality with low rates of morbidity and complications for the management of posterior epistaxis.
Endoscopic Management of Blow-out Fractures

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Tittel: Endoscopy-Assisted Reconstruction in Blow-out Fracture (BOF)

Management of blow-out fractures (BOF) is addressed by different specialties which have a substantial difference in opinions. However, there is a wide consensus that patients with the potential for late enophthalmus development require early surgical intervention. If improperly diagnosed or treated, these fractures may lead to serious complications, usually diplopia, enophthalmus, hypoglobus, restriction of eyeball motility and disturbances in sensory innervations. The timing of treatment, surgical technique and type of reconstruction material used is debated. The key to successful surgical repair of these injuries are adequate exposure, complete visualization of the entire fracture and anatomic reconstruction of the defect. The recently advocated combination of traditional transconjunctival approach and endoscopic transantral approach allows reduction and reconstruction under clear endoscopic vision without a facial skin incision. Additionally, debates exist regarding the optimal threshold for intervention. The use of angled endoscopes allows viewing regions that are almost impossible to see previously. Moreover, transantral endoscopic repair of orbital floor fracture minimizes the risk of implant misplacement and avoid complications associated with traditional Lowe eyelid approaches and increase significantly the success rate. Delayed surgery are not contraindications for the use of this technique. Long term follow-up showed maintenance of the surgical results.
Endoscopic transnasal dacryocystorhinostomy


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Purpose: The treatment of nasolacrimal duct stenosis can be performed with external and endonasal approaches. We evaluate the long-term results in patients who underwent an endonasal approach for primary or revision surgery.

Methods: We report our experience of endoscopic transnasal dacryocystorhinostomy (DCR) from February 2000 to May 2015. We use to collaborate with the ophthalmologist during the operation. The ENT surgeon usually performs the intranasal access, removal of lacrimal bone and opening of the nasolacrimal sac. The ophthalmologist localizes the lacrimal punctum helping in the localization of the lacrimal sac and positioning the bicanalicular silicone stent when necessary. The stent is usually removed one month after the surgical operation.

During the selected period we performed 616 endoscopic dacryocystorhinostomy on 461 patients (554 eyes primarily treated).

Results: We analysed data from 599 eyes treated excluding 14 patients, which have gone lost to follow up.

470 (84.8%) out of 554 eyes primarily treated have been cured at first operation and 501 (90.4%) after revision surgery. Cases of restenosis have been treated with an endoscopic approach. There was no significant prevalence of side and a female predominance of 65%.

Conclusions: Endoscopic dacryocystorhinostomy is a safe, easy to perform surgical operation with a good percentage of success compared to other kind of approaches both for primary and revision surgery.
Common cause of Otorhinolaryngology consultation, epistaxis is an emergency that can put into play the vital prognosis. Adequate management of this condition requires a good knowledge of the etiologies.

The aim of our work is to study the epidemiological and etiological aspects of epistaxis.

Materials and methods

It is a transverse, descriptive study conducted over a period of 4 months in the emergency department of CCF CHU RABAT on 50 cases of active epistaxis. The data is collected via operating cards and the statistical analysis is carried out on the spss software.

Results

Our study showed a predominance of the young male subject. Epistaxis was benign in the majority of cases. The first etiology was represented by Otorhinolaryngology and maxillofacial trauma followed by arterial hypertension, tumor pathology and Hematological deseases were also found. Epistaxis was essential in ¼ of the cases.

In the majority of cases epistaxis was of low to medium abundance we received 1 case of lightning epistaxis with hemorrhagic shock

Apart from a context of obvious maxillofacial trauma all our patients have benefited from a nasal endoscopy at a distance from the hemorrhagic episode.

The management consisted in a condition of all our patients. The bi-digital compression allowed the control of the bleeding in the majority of the cases. Anterior nasal packing was carried out in 36% of cases the posterior one in 12% of cases. Arteriography with embolization was performed in 2 cases.

Conclusion:

Although epistaxis is an ORL emergency, its therapeutic and etiological management often involves a multidisciplinary team (resuscitator, haematologist, cardiologist, etc.)

I.AZZAM,S.NITASSI,A.AYOUBI,R.BENCEIKH,A.BENBOUZID,A.OUJILAL,L.ESSAKALLI
Extent of lacrimal sac exposure in endoscopic dacryocystorhinostomy: a retrospective study

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Purpose of the Study: Endoscopic dacryocystorhinostomy (DCR) for lacrimal outflow obstruction is currently an effective alternative to the traditional external DCR surgery. However, the optimum size of the bony osteotomy for exposure of the medial wall of the lacrimal sac is still controversial. The objective of this study is to evaluate two techniques of endoscopic DCR that differ in the extent of intranasal exposure of the lacrimal sac.

Materials and Methods: The medical records of patients who underwent endoscopic DCR by the author during the last three years were retrospectively reviewed. According to the extent of bone removal, two groups were identified. Group A underwent endoscopic DCR with exposure limited to the inferior part of the lacrimal sac and the upper part of the nasolacrimal duct. In Group B, full exposure of the medial wall of the lacrimal sac extending to the fundus was performed. In both techniques, the medial wall of the lacrimal sac was widely marsupialized into the nasal cavity without creation of mucosal flaps. Main outcome measures were resolution of epiphora and patency of the intranasal ostium judged by postoperative endoscopic examination and dye testing at the final postoperative follow up visit.

Results: The study involved 54 patients who were subjected to endoscopic DCR. Two patients had bilateral surgery with a total of 56 procedures. Thirty one procedures were classified as group A and the remaining 25 procedures were considered as group B. The overall functional success rate with patent intranasal ostium was reported in 26 procedures (84%) in Group A and in 22 procedures (88%) in group B. There was no statistically significant difference between the two groups. Three patients (1 in group A and 2 in group B) reported recurrent epiphora inspite of patent intranasal ostium suggesting a functional failure of the tear pump mechanism. Regarding complications, air reflux into the eye during nose blowing was reported by 8 patients in group A. Three out of the 12 patients who had air reflux in group B also reported intermittent reflux of nasal secretions during attacks of rhinitis.

Conclusion: Exposure of the inferior portion of the lacrimal sac with creation of a bony osteotomy with a wide anteroposterior diameter is as effective as full vertical exposure to the fundus of the lacrimal sac. This can be achieved without the use of powered instruments and without disrupting the agger nasi area.
Granulomatosis with polyangiitis localized in the nose

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A 21 Year old female patient was sent by the family practitioner for evaluation of crusts in the nose. Patient refer that she had occasional self limited epistaxis, but an intense nose pain that irradiated her eyes and upper teeth. Symptoms started about three months prior to consultation, with nasal respiratory insufficiency getting worse over time. On evaluation patient had a very sensible nose vestibule (with signs of vestibulitis) and Cottle area I was filled with dark reddish crusts. Gingiva was normal as the rest of the oral cavity. Hypersensitivity was noted in trigeminal area bilateral (V2). Rest of inspection was normal. Biopsy was taken and a Ct scan was made. CT scan reported signs of necrosis within the anterior septum and head of bilateral inferior turbinates. Surgical pathology reported tissue necrosis and inflammation. Patient at two weeks had follow-up had worsen symptoms with headache, intense pain at nose level and upper teeth and increased epistaxis frequency and quantity. Second biopsy was taken at the operating room, but pathology reported the same. Oral high dose corticoids were started, with symptom relief at 3rd day. Before steroid prescription, lab studies were sent for autoimmune disease. C-ANCA levels were normal. Mometasone furoate spray and nasal irrigation was prescribed as well. After 1 month, patient was again sent to the OR for biopsy, this time with a reported result of a probable granulomatosis with polyangiitis. At this time C-ANCA levels were elevated. Patient was initiated with metrotexate and symptoms were improving, with less nasal crusting, but cartilage necrosis was seen and external nasal depression became apparent. At one year follow up, patient is stabilized and will be presented to rhinology department for the possibility of nose reconstruction.
Head and neck localizations of hydatid cyst: A series of 17 cases


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Purpose of the study: Our objective was to report the epidemiological, and clinical characteristics and the management of head and neck localizations of hydatid cyst.

Materials and methods: A retrospective descriptive study of 17 cases of head and neck hydatid cysts taken in charge in our department between 2000 and 2014 was conducted.

Results: The mean age was 35 years. Male were slightly predominant (sex ratio: 1.12). Eighty-eight percent of the patients had regular contact with dogs and 53% were of rural origin. The soft tissues of the head and neck were involved in six patients, the parotid gland in 6 patients, the thyroid in 4 patients and the submaxillary gland in one patient. Complete surgical resection of the lesions was systematically done. Hydatid disease was confirmed in all the cases by histology. The outcome was uneventful in all the patients with a mean follow-up of 2 years.

Conclusion: Given the lack of recommendations for the surgical treatment of head and neck hydatid cysts, we advocate a total resection of the affected organ if there is no functional risk. Otherwise, an excision of the cyst and of the surrounding tissues combined with an abundant washing-out of the residual cavity must be done, especially in case of intraoperative breaking of the cyst.
IgG4-related disease and granulomatous disease of the nose and paranasal sinuses: differential diagnosis

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PURPOSE OF THE STUDY:

Destructive and tumefactive lesions of the midline structures have been added to the spectrum of IgG4-related disease (IgG4-RD). We examined a work-up for the clinical, serological, endoscopic, radiological, and histological features that might be of utility in distinguishing IgG4-RD from other forms that involve the nose paranasal sinuses and the oral cavity.

METHODS:

Eleven consecutive patients with erosive and/or tumefactive lesions of the midline structures referred to San Raffaele Scientific Institute, Milano. All patients underwent serum IgG4 measurement, flow cytometry for circulating plasmablast counts, nasal endoscopy, radiological studies, and histological evaluation of tissue specimens.

RESULTS:

Five patients with granulomatosis with polyangiitis (GPA), three with cocaine-induced midline destructive lesions (CIMDL), and three with IgG4-RD were studied. We found no clinical, endoscopic, or radiological findings specific for IgG4-RD. Increased serum IgG4 and plasmablasts levels were not specific for IgG4-RD. Rather, all 11 patients had elevated blood plasmablast concentrations, and several patients with GPA and CIMDL had elevated serum IgG4 levels. Storiform fibrosis and an IgG4+/IgG + plasma cell ratio >20% on histological examination, however, were observed only in patients with IgG4-RD.

CONCLUSIONS:

Histological examination of biopsies from the sinonasal area and oral cavity represents the mainstay for the diagnosis of IgG4-RD involvement of the midline structures.
Indications for endonasal endoscopic surgery by children

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Objectives: The work presented options endonasal endoscopic techniques in pediatric patients. Methods: The authors describe a retrospective analysis of a cohort of pediatric patients who were operated on Pediatric ENT Dept. Univ. Hospital in Brno in 1991 -2016 (26-year). The diagnosis is most often applied x-ray, CT is performed in cases of complications or disability tumor. Endoscopic instrumentation, most often used optics with zero angle of view, if necessary optics are used with angle of view 25, 30 and 70 degrees. During operation used nasal swabs with a solution of adrenaline to reduce bleeding. At any given period, were operated endoscopic endonasal surgery in total 1277 children of which 756 boys (58%) and 521 girls (42%). Of this group were most often diagnosis maxillar cyst – 345 cases, recurrent maxillar sinusitis 236 cases, multiple nasal polyps 146 cases, choanal polyps 83 cases and others. Of general group, 58 were operated on newborns, children under 5 years of age were 215 children (14%). In the neonatal period was the indication for surgery choanal atresia 63 cases, in the period to 5 years of age most often lacrimal ways diseases-96 cases, orbital absces and orbitocellulitis – 29 cases, and others. Conclusion: Endonazální endoscopic surgery in children requires precise knowledge of the development of the facial skeleton due to the patient's age, relevant experience and skill.
intrasal foreign object
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The intra-nasal foreign objects constitute one of the main reasons for consulting emergency Ear-Nose-pediatric- CCF despite their benign and anecdotal character the evolution sometimes can be made towards formidable complications.

The objective of our study is to report the epidemiological aspects and the management of this pediatric emergency par excellence

Materials and methods
Retrospective study over a period of 1 year carried out in the Emergency Department ORL-CCF CHU Rabat comprising 97 cases

A data sheet prepared beforehand allowed the collection of the data. The statistical analysis is carried out by the software SPSS

Results
Our study confirms the pediatric nature of this emergency that arises from the age of grip with a clear masculine dominance. The average age was 3.7 years. Purulent and fetid anterior rhinorrhea is the main reason for consultation. Followed by epistaxis of low abundance

In 30% of the cases the foreign object was confessed by the child himself

The right nasal fossa was the preferred site in 61% of cases

Extraction is often carried out in the armchair consultation room under simple visual control, the use of general anesthesia with extraction under endoscopic guidance was performed in 2 cases.

Conclusion
Nasal foreign objects remain a frequent reason for consultation; Of diagnosis often easy but the care requires adapted material and ORL doctors trained, prevention remains the best solution.

I.AZZAM, L. ESSAKALLI
Intranasal laser endoscopic dacryocystorhinostomy

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Purpose: The subject of our research is endoscopic laser assisted dacryocystorhinostomy. Nasalacrimal duct obstruction is problem uniting ophthalmologists and otolaryngologists. In this article we present the intervention in our clinic data. To analyze the effectiveness of the treatment of patients with nasolacrimal duct obstruction by intranasal laser endoscopic dacryocystorhinostomy.

Methods and materials: The clinical findings of patients after endoscopic dacryocystorhinostomy from September 2014 to September 2016 were analyzed intra- and post-operatively. Totally 51 patients were operated in 3 years. There are 7 males, 44 females. The average age of the patients is 55 years (from 26 to 81 years). Preoperative preparations includes ophthalmological and otorhinolaryngological examination, three-dimensional computed tomography with contrast, endoscopic nasal examination (endoscopes: 0⁰, 30⁰, 45⁰).

Results: Revision surgery made after previous laser endoscopic interventions was performed in 3 (5,8%) cases. In 3 patients third endoscopic intervention was effective in one case with image guidance application. In 2 (3,9%) patients endoscopic laser dacryocystorhinostomy was effective after previous surgery with external approach. No major complications been observed in our group of patients. Most common complication is eyelid oedema - in 4 (7,8%) cases, nasal blockage – in 11 (21,6%) cases, intraoperative bleeding –in 3 (5,9%) cases. The total number of successfully completed operations was 96%. Nasal packing was never used for postoperative treatment. Nasal lavage and topical corticosteroids were recommended. In patients with nasal mucosa oedema also adrenomymetics were recommended for 3 days.

Conclusions: Our experience in laser endoscopic dacryocystorhinostomy shows a high effectiveness of this approach in a treatment of dacryocystorhinostenotic patients. Firstly this procedure is not painful, less traumatic, with no significant morbidity in postop period and can be recommended in elderly patients. This method can be fulfilled in different causes of stenosis, and most easily it can be applied in posttraumatic stenosis.
isolated sphenoid lesions

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ISOLATED SPHENOID LESIONS

introduction :
Isolated sphenoid pathology is a relatively uncommon disease.

settings:
king fahad specialist hospital,dammam,eastern province,kingdom of saudi arabia .

materials and methods :
a retrospective study at a tertiary referral hospital .

In this study, we present our experience in the minimal invasive navigation-assisted endoscopic approach to 40 cases(2009-2015) of different isolated pathologies affecting the sphenoid sinus.

results:
Different pathologies like isolated bacterial sphenoiditis,symptomatic hypoplastic sphenoiditis, pediatric and adult allergic fungal sinusitis, aspegillosis of the lateral recess of the sphenoid,invasive fungal sinusitis,multiple csf leaks,mucopyoceles with skull base erosions,different benign and malignant tumors(osteoma,inverted papilloma,lymphoma and carcinoma invading the cavernous sinus).

The clinical presentations,the radiological findings and the minimal invasive endoscopic navigation-assisted management will be presented and discussed.

the different surgical approaches to the sphenoid sinuse will be presented.

Conclusions:
although rare, isolated sphenoid sinus pathology have a common presentation and symptom complex but a variable pathologic and prognostic range.

Headache is the most common symptom and ct scan is needed to confirm the diagnosis.

The pathology ranges from bacterial sphenoidal sinusitis to an invasive carcinoma to the cavernous sinus.

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MANAGEMENT OF THE FRONTAL SINUS TRAUMA


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1. Purpose of the study

Frontal sinus trauma is a challenge for surgeons and the choice of an appropriate treatment is itself a paradigm. The most important concern when it comes to choosing the type of treatment is evaluating 5 parameters: the frontal recess, the anterior and the posterior cranial table, the dura integrity and the existence of a CSF fistula. Beside obtaining an aesthetic contour of the forehead, the treatment aims to protect the intracranial structures and to prevent complications.

2. Materials and method used

Depending on the type of sinus trauma, treatment options include observation, endoscopic repair, open reduction and internal fixation, sinus obliteration, cranialization of the sinus and rarely ablation (Reidel procedure). In order to choose the type of treatment of trauma frontal sinus, they were taken into account the type of fracture, association with fractures or injuries to the face and anatomical surrounding structures, opting for both endoscopic and open techniques. To highlight multiple types of management of the frontal sinus trauma, we chose two clinical cases, each with its particularity.

3. Results

Individualizing therapy is the basic principle of therapeutic management. The key to a successful surgery is based on a deep/rigorous preoperative examination, establishing the anatomic and surgical risk elements, determining the optimal type of approach. However, there are situations in which knowing your limits is imperative and the establishment of a multidisciplinary team (audiologist, BMF surgeon, neurosurgeons and ophthalmologists) is the best choice for resolving trauma pathology of the frontal sinuses.

4. Conclusion

This paper draws attention to the many ways in terms of therapeutic approach of the traumatic pathology of the frontal sinuses. Surgical techniques and materials have evolved, becoming increasingly less invasive even for complex fractures. The basic rule remains the same in sinus fractures-individualizing therapy based on a thorough preoperative evaluation, prevention of complications and appropriate postoperative follow-up for each clinical case.
Microscopic Repairing of nasal septal perforations. Our Experience

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Purpose of the study: Septal perforations are an anatomic defect of the cartilaginous, bone and mucosal tissues of the nasal septum. 66% of patients with a known nasal perforation are asymptomatic. Most of Symptomatic patients can control their symptoms with medical treatment. A wide variety of techniques have been described for symptomatic nasal perforations. Our purpose is to present our experience in Microscopic-endonasal approach for creating bilateral advancement flaps to repair nasal septal perforations.

Materials and methods used: Here we present a retrospective analysis of the cases in which the technique was performed. This technique is based in a microscopic-endoscopic approach creating bilateral advancement flaps and placing auricular cartilage with temporalis fascia graft previously harvested. The inclusion criteria for the retrospective study were: moderate/severe symptoms, perforation’s size less than 2cm and anterior perforation. We performed a preoperative CT scan in all cases in order to assess the septal support (cartilage and bone).

Results: Our series was composed by 35 patients selected from April 2008 to June 2016. The mean size of perforation was 1,04 cm. The mean time of follow-up after the surgery was 19,6 months (range 6-62 months). After removing the silicone endonasal splints, perforations were completely closed in all of the cases. However, four patients (11%) developed a second perforation during the follow up. Symptoms related to the septal defect disappeared in all of the cases. Local mucosal infection was the unique complication reported in only one patient (3%) and this complication was resolved without any sequel.

Conclusions: Surgery should always be preceded by a careful analysis of the perforation features especially in terms of size. Septal perforation closure using microscopic approach and bilateral advancement flaps can be an affordable technique with a high percentage of success and low rate of complications.
Nasal breathing and the vertical dimension: A cephalometric study.

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PURPOSE OF STUDY:

The aim of this work was to perform a cephalometric analysis of the craniofacial parameters and natural head posture of mouth-breathers compared with control subjects, and to study the relationship between nose-breathing and the vertical dimension.

MATERIAL AND METHODS:

The headfilms taken at start of treatment of 53 cases (28 girls, 25 boys) aged 9 to 30 who consulted the dento-facial orthopedic department of the Ibn Rochd Casablanca dental consultation and treatment center were studied.

RESULTS:

Among the mouth-breathers, we noted mandibular retrusion (SNB) in association with posterior rotation and more pronounced tilt of the mandibular plane (PP-MP) compared with the controls (P<0.05), a disproportionate increase in anterior face height and a lessening of posterior face height (hyperdivergence). These increases in anterior face height are often associated with retrognathism (and open bite).

DISCUSSION AND CONCLUSION:

Our study has shown that there are cephalometric differences between mouth-breathers and nose-breathers. There are several studies in the literature with results that support ours. Collaboration between the pediatric dentist, the orthodontist and the ENT specialist is important so as to establish an early diagnosis of mouth-breathing in children and initiate appropriate treatment to recreate the best conditions for harmonious development.

KEYWORDS:
Facial growth; Nose-breathing; Sleep apnea; Upper airways
Nasal cytology as a screening tool for workers exposed to formaldehyde.


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PURPOSE OF THE STUDY: Working in pathology and anatomy laboratories may expose to Formaldehyde (FA). FA irritating effects concern first contact tissues, such as the upper respiratory tract cells. This preliminary study was conducted to evaluate if nasal cytology could be used as a tool to early detect alteration of nasal mucosa in workers exposed to FA vapours. A secondary aim is to see if a specific pattern of alterations correlates with years of exposure, in order to evaluate possible long-term occupational exposure effects.

MATERIALS AND METHODS: The group of study consisted of twenty-five subjects: fifteen workers of a pathology laboratory exposed to FA and ten administrative employees non exposed, working in the same Hospital. All subjects underwent an anamnestic and clinical examination followed by nasal cytology. The exposed group also underwent lung function test and blood test as part of the annual health surveillance program. The level of exposure to FA in the laboratory was evaluated three times during the year. Exposure assessments were carried out during the entire time of a working session (4-6 hours), with a Portable Ambient Analyzer that utilizes infrared spectroscopy analysis.

RESULTS: Nasal cytology revealed a chronic inflammatory non-allergic rhinitis in all the workers exposed to FA and in none of the unexposed workers. Qualitative analysis of data distribution of neutrophils and mucous-secreting cells/ciliated cells ratio showed data clustering with a cut-off set at 15 years of exposure. Finally, the condition of ‘minimal persistent inflammation’ was detected in the 33% of the exposed workers (all of them exposed to FA for more than 15 years). The mean of FA concentrations during the three sampling sections, ranged from <0.04 (under the detection limit of the instrument) to 0.15 ppm. The maximum levels of FA concentrations ranged from 0.2 and 0.67 ppm.

CONCLUSIONS: Our preliminary data indicate that nasal cytology may be an essential tool for the health surveillance of workers exposed to formaldehyde in order to prevent early alterations of nasal mucosa. Implementation of security and hygiene measures, must be considered when measurements of FA concentrations in pathology laboratories exceed occupational limit values.

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Nasal Cytology Evaluation in Newborns: Preliminary Results


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Purpose: Nasal cytology has become a valuable tool in the assessment of a multitude of nasal pathologies. The rationale is based on the knowledge that nasal mucosa of healthy individuals is constituted by four cytotypes (ciliata, mucipara, striata and basalis) and does not show other cells apart from rare neutrophils and very rarely bacteria.

Thanks to this minimally invasive approach it is possible to diagnose different diseases such as allergic and non-allergic rhinitis. These are linked with many upper and lower respiratory tract pathologies like otitis, asthma, adenoiditis and, especially in adults, nasal polyposis.

There are no studies in the scientific literature that have studied baseline cytology in neonates and evaluated rhinocytograms in relation to environment and as predictive for diseases such as asthma, allergy and otitis media. The purposes of this preliminary study are:

1) description of newborn’s nasal cellularity during their first 24 hours of life;

2) study of the relationship between neonatal rhinocytogram and parents’ disease and habits, mode of delivery and complications during pregnancy.

Methods: 60 newborns were recruited at the Neonatal Unit of ASST Santi Paolo e Carlo and underwent nasal cytology (first 24h after birth), while their parents were evaluated regarding their health and habits.

The specimens were sampled on slices, dried and, after coloring (MGG QUICK STAIN), cells were evaluated by conventional microscopy and results analyzed statistically.

Results: All 60 specimens have shown the presence of ciliated cells, while inflammatory cells were present in different numbers (neutrophils 91.7%, eosinophils 8.3%, mastcells 1.7%). Statistical analysis has shown correlation between presence of neutrophils and gestational age, post-natal nasogastrical exploration, birth (C-section vs natural birth) and exposure to cigarette smoke.

The number of eosinophils and mastcells present in this population is compatible with the numbers found in adults, however neutrophils show an increase of about 20% in neonates. Interestingly this is seen in those cases where either mechanical stimulation or cigarette smoke is present, showing how responsive the mucosal system of newborns already is.

Conclusion: This is the first study that has described, with precise and rigorous modalities, neonatal nasal cellularity and the existence of factors that may alter it. The study is still ongoing with a target recruitment number of 237 and follow-up evaluations (at 1 and 3 years) aiming at recognizing links between nasal cytology at birth and development of upper/lower tract pathologies including asthma, otitis and allergic sensitization.
Nasal manifestations of systemic diseases

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Multiple systemic diseases may have an expression in the sinonasal area, developing various, slow and atypical clinical manifestations, difficult to diagnose.

An increased index of suspicion on behalf of the otolaryngologist and also a good multidisciplinary collaboration is required in order to establish a correct diagnosis and to treat this kind of pathology.

There are two ways of dealing with such disorders: understanding the pathophysiology of the systemic diseases and using the specific diagnostic tools necessary to confirm or rule out different diagnoses.

This presentation will review the most common clinical entities with sinonasal manifestation, emphasizing on the diagnosis and therapeutic algorithm used for each pathological entity.

In this way are discussed the nasal impact of Wegener Granulomatosis, sarcoidosis, Churg-Strauss Syndrome (allergic granulomatosis angiitis), Beside these granulomatous diseases, cutaneous conditions, like pemphigus vulgaris or pemphigoid, are took into consideration.

Also, the mucociliary system plays an essential role in the nose and paranasal sinuses defense mechanism against infection. This is seen in the effects of mucociliary deficiencies in dysfunctional cilia syndrome and cystic fibrosis.

Infectious systemic diseases may have a great nasal impact, from our clinical experience being presented cases of rhinoscleroma and tuberculosis. In Romanian there is presently a recrudescence of tuberculosis and interesting and particularly we assessed some patients with nasal and pharyngeal secondary tuberculosis.

KEYWORDS: granulomatous diseases, Wegener’s granulomatosis, sarcoidosis, Churg-Strauss syndrome, mucociliary diseases
Nasal valve dysfunction: custom made titanium sheets

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Nasal valve dysfunction : custom made titanium sheets

Dysfonctionnement de la valve nasale: feuilles de titane faites sur mesure

Objective: Valve problem is a frequent problem after rhinoplasty. This could be resulted from accidents and anatomic reasons. Different techniques were done during the last 50 years.

For the treatment of nasal valve dysfunction, we used custom made titanium sheets to reconstruct the nasal valve.

Methodology: retrospective study was conducted on 15 patients suffering from nasal valve collapse. All the data concerning indications, operative technique, results and complications were collected after physical examination of the patients in our clinics.

Results: Last five years we tried to use titanium sheets to rebuild the external nasal valve area. 13 patients post rhinoplasty and 2 patients for anatomical reasons underwent nasal valve reconstruction. Follow up of these patients dated since 5 years.

The post operative evaluation mean of satisfaction was 1.5 (on a scale from 1 to 10; 1= no obstruction 10= complete obstruction). No complications were documented after surgery.

Conclusion: our team was the first to use this technique to reconstruct the nasal valve in the middle east. The preliminary outcome shows a high satisfaction rate with improving the quality of life, a negative complication rate and a low cost effect.
Dacryostenosis is a disease which is caused by a narrowing or blockage of one or both lacrimal ducts. Acquired Nasolacrimal Duct Obstruction may occur as a result of injury with a fracture of the bones of the face and nose, due to chronic inflammatory processes in the lacrimal system, or as the complication after Functional Endoscopic Sinus Surgery (FESS).

The frequency of stenosis development of the lacrimal ducts after FESS ranges from 0.3 up to 1.7%. This is most likely if antrostomy will be performed very close or crosses the nasolacrimal duct.

Purpose of study:
- to study the features of dacryostenosis of the patient after Denker approach surgery;
- to consider the clinical case of successful surgical treatment of dacryostenosis of the patient after Denker approach surgery.

Materials and Methods:
- analysis of world literature was made;
- clinical example of patient K with dacryostenosis after Denker surgery was considered.

Results: Dacryocystorhinostomy in that clinical case was successfully completed under endoscopic control. The lacrimal sac was founded and opened with the help of the laser under the local anaesthesia. After applying fistula we got a lot of pus fluid. In the late postoperative period lacrimal duct was washed and all fluid came into the nasal cavity.

Conclusions: Dacryostenosis is a rare complication of nasal surgery. Even if the anatomy of the nose is disturbed, you can successfully perform a dacryocystorhinostomy.
Nasopharyngeal Rhinoscleroma: Difficulties of diagnosis. About a case and review of the literature.

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Purpose of the study:

Rhinoscleroma is a chronic and specific granulomatous disease which have an insidious evolution due to an enterobacterium: Klebsiella rhinoscleromatis.

It is located mainly in the nasal cavities, and sometimes it poses a problem of positive diagnosis which can only be histological.

The objective is to present, through an observation, a rare localization of the rhinoscleroma, as well as to clarify the diagnosis difficulties, with a review of the literature.

Material and methods:

We present the anatomo-clinical observation of a young patient, who presented a nasopharyngeal rhinoscleroma.

Results:

This is the case of a 19-year-old immunocompetent patient who consulted for progressive nasal obstruction associated with sero-mucosal rhinorrhea and right angulo-mandibular lymphadenopathy that has been evolving for 8 months.

Nasal endoscopy showed in the nasopharynx a budding, crusty, and infected mass, leading to partial choanal atresia.

Outside endemic areas, the diagnosis of rhinoscleroma is often difficult, as in our epidemiological context, and since rhinoscleroma does not affect the lymphatic system, diagnoses of cancer of the cavum, and tuberculosis have been evoked.

It was the anatomopathological examination of the biopsy of the lesion which was specific, affirming the diagnosis of rhinoscleroma by the presence of cell of MIKULICZ.

The patient was given ciprofloxacin. The evolution was marked by regression of the nasal obstruction, the nasopharyngeal process, and submaxillary adenopathy, so the sequences were satisfactory with a follow-up of 12 months.

Conclusion:

Rhinoscleroma is a benign condition that appears to be increasingly rare in Morocco. It should always be taken into account in the differential diagnosis of crusty chronic rhinitis, and also in front of a nasopharynx tumor.

Authors:

LASSIKRI. O, BENAYAD, EL AYOUBI. A, BENCHEIKH. R, BRNBOUZID. M A, ESSAKALLI. L.
Rhinocytosis – Varied presentations in head & neck

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Introduction - Rhinosporidiosis is caused by microorganism Rhinosporidium seeberi and has been reported from about 70 countries with the highest incidence from India and Sri Lanka.

Materials and methods - We present the varied clinical presentation of Rhinosporidiosis in head and neck region along with their radiological profile. We also describe their management which was surgical in most cases with dapsone being preserved only for recurrent cases.

Results - Most of the patients presented with Rhinosporidiosis of nasal cavity, nasopharynx and oropharynx. Few patients also had laryngeal involvement. One case had Rhinosporidiosis of parotid duct leading to ductocoele formation. This is an extremely rare presentation with only a handful of cases reported worldwide. Many of them had recurrent disease. The extent of lesion varied from small masses to extensive involvement of mucous membranes of nose, nasopharynx, oropharynx and larynx. All the patients had history of pond bathing.

Most of them were managed with surgical removal and cauterization of the base to prevent spillage of endospores into adjacent epithelium.

Conclusion - In areas where Rhinosporidium seeberi is endemic, it should be suspected in patients presenting with irregular polypoidal mucosal lesions. However, it may also have various atypical presentations.
Self medication with antibiotics in Primary Care Setting in King Khalid University Hospital (KKUH) Riyadh, Saudi Arabia

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PURPOSE OF THE STUDY:
To estimate the prevalence of self-medication with antibiotics in a king Khalid university hospital population, and to evaluate the factors affecting this behavior.

MATERIALS AND METHODS:
The study design is a cross sectional study conducted in king Khalid university hospital from May 2015 to April 2016. A pretested self-administered questionnaire was handled to 519 participants attending the primary care clinics and selected randomly. Data was entered into SPSS version 20 and analyzed. Descriptive statistics and chi-square were applied.

RESULTS:
The prevalence rate of self medication with antibiotics was 40.8%. Patients older aged and male group were most likely to use antibiotics without prescription. The most common disease led patients to use the antibiotics was upper respiratory tract infections 60.1%. Commercial pharmacies were the major source 74.2%. Only 16.6% patients consulted their physician about the correct dosage guidelines. Previous experience with similar illness 52.1% and difficulty of obtaining medical services 19.7% were the most common reasons for self administration of antibiotics. Improved health condition 54% is the main reason to stop the use of antibiotics while unimproved health status led to shift to another antibiotics in 58.7% of respondents.

CONCLUSION:
Prevalence of using antibiotics without prescription is relatively high. Proper education of public about the misuse of antibiotics and the right way of using it for patients through consultation and media, so it might decrease this attitude.
Septal perforation - Are the new magnetically coupled prostheses safe and effective?

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Purpose of the study:

The surgical closure of septal perforations can be difficult and failure occurs. In our clinic, we prefer custom-made silicone septal buttons in one piece to seal the defects. Insertion of those buttons is usually performed in local anaesthesia, but nevertheless can be painful and disagreeable. Moreover, the manufacturing of a custom-made button is time and cost expensive.

The insertion of a two-piece-prosthesis coupled magnetically seems to be easier, more comfortable and cheaper. Due to FDA product certification, the use of the magnetically coupled septal prostheses (Inhealth Technologies CA) is limited to 29 days. This limitation dramatically reduces the benefit in comfort and costs. Therefore, the aim of this study is to reveal the consequences for safety and medical efficiency, if longer device lifetimes than 29 days are used.

Material and methods:

Blom-Singer® Magnetically coupled septal prostheses are available in six round and six oval types sized from 5x5 mm to 15x21 mm. After measuring the septal defect, the best fitting prosthesis is inserted and connected magnetically. No specific cleaning protocol is used. A clinical control is performed after about 30 and 90 days. Photo documentation of the prosthesis is performed and the parameters device lifetime, patient comfort, undesired side effects, dislocation and biofilm formation are collected. If no serious biofilm is visible, the prosthesis is reinserted after cleaning under running water.

Results:

During the study time, eight patients were treated with a magnetically coupled septal prosthesis. Two prostheses had to be taken out due to headache and feeling of pressure in the nose. In one case, the insertion caused problems breathing through the nose and increased crusting.

In four cases, the prostheses are still in situ without any signs of deformation and contamination with biofilm after 30 to 90 days. The benefits are decreased crusting and a reduction of whistling sounds and bleeding. A dislocation was not found in any case.

Conclusion:

The increased lifetime of more than 29 days did not cause any security problems in this small study group. The effect of a good fitting magnetically coupled septal prosthesis is similar to an individual button and therefore a good alternative as it is available on short notice and easy to handle. Long term observations are in progress and data will be provided.

Simulation of the nasal airflow with Computational Fluidodynamics in Nasal Breathing Difficulties: the LES approach

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Purpose:
Nasal Breathing Difficulties (NBD) represent one of the most common medical conditions. Their surgical treatment pertains to the daily practice of ENT surgeons that typically aim at reestablishing an adequate nasal aerial flow. However, pre-surgical evaluation, and therefore the surgery itself, is still highly subjective to the surgeons’ experience. Thus, at the current state of the art, it is impossible to rationally assess the relevance of every single anatomic anomaly and its possible surgical modification on the overall nasal flow quality. Existing literature has concentrated on computational simulations using mostly the Reynolds-averaged Navies–Stokes equations and commercial software that have, albeit their low fidelity, shown to be very time consuming and not suitable for clinical use. Our aim is therefore to develop a computational tool using the much more precise Large Eddy Simulation technique (LES), making it however fast and reliable.

Methods:
CT images from a NBD patient were first manipulated with the open-source software 3D-Slicer. 3D-Slicer is used to convert the CT images into an accurate geometrical description of the boundary of the volume of interest. The reconstructed three-dimensional geometry is represented via a STereoLithography (STL) file. The reconstructed geometry is used as an input for the subsequent analysis, by first generating the computational mesh to be used by the CFD software. As CFD tool we employ the open-source CFD package OpenFOAM. The next step is the actual execution of the flow solver, which computes results like velocity, vorticity and pressure fields. The last step is the evaluation of the results and visualization of the simulation with Paraview.

Results
We completed a LES simulation with a mesh of more than 1’600’000 elements in two conditions of inspiration and expiration with a time constant volume of 19.8 L/min in around three hours.

The numeric values for the flow rate confirm what is already known from several previous studies, i.e. the major role played by the middle meatus and, to a lower extent, by the inferior meatus in accounting for most of the flow rate.

Conclusion:
With our open-source setup the LES simulation has been shown to be practicable in an immensely shortened time, when compared to literature data.

These results allow for an optimistic outlook towards the near creation of a reliable, stable and efficient tool for an objective pre-surgical assessment of the nasal airflow.
Sinonasal sarcoidosis in clinical practice otolaryngologist.

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Sarcoidosis - a systemic disease of unknown origin, characterized by the granulomas formation in different organs and tissues. Sinonasal sarcoidosis is more common other localizations of sarcoidosis in otolaryngology. The main argument for the diagnosis of a biopsy of granulomas and nodes. Under the supervision of patients are diagnosed with sarcoidosis. We observed seven patients with verified diagnosis: sarcoidosis, pulmonary and mediastinal form - the active phase and the inactive phase. All patients seen in phthisiologist in the community. Aim for ENT examination due to sinonasal complaints that have emerged over the last year. Patients - Men (3) Women (4), age - 23 - 53 year. Complaints are different - postnasal wicking syndrome, difficulty in nasal breathing. However, all complained of dryness in the nose, formation of crusts on the nasal mucosa, bleeding. A nasal endoscopy, biopsy. When endoscopic nasal study found thickening of the nasal septum caused by granulomatous infiltration of the patients (active phase, 23 years) - the granuloma on the mucosa of the lower and middle turbinates. Two patients with inactive phase - 1 - 2 granulomas on the inferior turbinate. Treatment options depend on the activity of systemic disease and determined by local manifestations. Assigned to the pulse corticosteroid therapy dexamethasone, IM, 16mg per day (5 days), irrigation nasal mucosa with saline, topical steroids. Because of the potential progression of the disease and often unpredictable response to medical therapy, patients should be observed for a long time, including periodic endoscopy of the nasal cavity. Early diagnosis and active treatment minimizes the complications associated with sinonasal sarcoidosis. It is obvious that patients with sinonasal sarcoidosis represent a fairly small proportion of all those who applied to otolaryngology, however, the diagnosis should be considered if the patient presents specific complaints. Choice of treatment depends on the activity of systemic disease and is determined by the local manifestations.
Sonography of nasal cavity and paranasal sinuses – should we trust this diagnostic imaging modality?

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Purpose of the study: We reviewed the current literature on the subject of ultrasonography of the nasal and paranasal pathology. Recent technological advances and wide scale availability of powerful ultrasound equipment revitalized this imaging modality. However the gold standard for an accurate planning of functional endoscopic sinus surgery remains computer tomography.

Materials and methods used: We propose a protocol for nasal and paranasal sonography in 15 steps: (1) transverse view of right maxillary sinus, (2) longitudinal view of right maxillary sinus, (3) longitudinal view of right maxillary sinus with head flexed forward, (4)(5)(6) the same three steps applied for the left maxillary sinus, (7) transverse view of right frontal sinus, (8) longitudinal view of right frontal sinus, (9) longitudinal view of the right frontal sinus, (10)(11)(12) the same three steps applied for the left frontal sinus, (13) lateral left view of nasal vault, (14) lateral right view of nasal vault, (15) median longitudinal view of the nasal vault.

Results: We present from our personal archive a series of cases with maxillary sinusitis, fungus ball, maxillary tumors, frontal sinusitis, frontal osteoma, ethmoid sinusitis, ethmoid tumors, traumatic injuries at the level of the nose, and hemosinus. The initial sonographic diagnosis was confirmed with further imaging using standard radiology and computer tomography. There are limitations to the use of sonography regarding imaging of deep structures such as the sphenoid sinus. Recently ultrasound examination for maxillary sinusitis in pediatric patients was credited with 92.6% sensitivity, 100% specificity, positive predictive value 100% and negative predictive value 81.8% compared with computed tomography.

Conclusion: Sonographic imaging of the nasal cavity and paranasal sinuses could be used for initial diagnosis of head trauma patients to exclude hemosinus during emergency department triage. Moreover because it lacks irradiation and permits quick serial imaging is suitable for gaining additional information from pediatric cases and pregnant women thus preventing the costs with further additional magnetic resonance imaging. Growing the awareness of the scientific community is the way to improving evidence based data regarding the use of sonography in rhinology and future implementation of this method in areas where is low access to computer tomography imaging or in emergency settings.
Frontal sinus cerebrospinal fluid leaks and meningoceles are rare and their surgical management difficult. Up until recently, they could only be treated by open surgery. With the development of FESS, less invasive techniques such as an exclusive endoscopic approach can now be used.

Material and methods

Review of the literature was performed to identify relevant articles and cases were selected from our database to illustrate this topic.

Results

High resolution CT and MRI of the sinuses are essential for the diagnosis and localization of the CSF leak/meningocele. Schlosser and Shi radiologic classifications can help the surgeon to decide for open or endoscopic surgery. Most difficult locations are lateral and superior, but current register of endoscopic techniques such as Draf or modified Lothrop allows pushing boundaries of endoscopic repair. Thorough knowledge of CSF-leak repair techniques is mandatory to achieve high closure rate.

Conclusion

Endoscopic frontal sinus CSF leak repair requires a good knowledge of both the surgical techniques specific to the frontal sinus, as well as the techniques of endoscopic CSF-leak repair. Maintenance of frontal sinus patency must be a priority during the operation. When these conditions are observed, endoscopic repair is associated with a very high success rate and a low complication rate. The current limitations of this surgery will very probably continue to decline as surgeons' experience, instruments and surgical techniques continue to improve.
Surgical ligation vs embolization for intractable epistaxis: effectiveness, safety and cost analysis.


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Purpose

Intractable epistaxis is a common otolaryngology emergency. Transnasal endoscopic sphenopalatine artery ligation (TESPAL) with or without additional ligature of anterior ethmoidal artery and endovascular arterial embolization both provide excellent success rates, and therefore the decision to choose one over the other can be challenging. The aim of our study was to compare surgical ligation and embolization in terms of treatment success, complications and cost.

Materials and methods

We performed a retrospective analysis comparing these techniques in terms of safety, efficacy and cost-effectiveness ratio. We included all patients referred to our tertiary medical centre for severe epistaxis. Patients were evaluated retrospectively and interviewed over the phone. Patients were stratified regarding to aetiology of bleeding, and data were analysed with respect to demographic factors (age, sex), comorbidities, origin and clinical impact of bleeding, duration of hospitalization, interventional approach (e.g., target artery, embolization strategy), therapy-associated complications, and short- and long-term outcomes. Economic evaluation using a decision tree model with a one-year time horizon was performed. The economic perspective was the health care third-party payer.

Results

Forty-one procedures of supraselective embolization and thirty-nine procedures of surgical ligation for intractable epistaxis are reported and analysed. We didn’t note any significant difference between groups in terms of demographic factors, comorbidities or mean length of stay. The one-year success rate was similar (75%) in both groups. Complications (minor and/or major) occurred in 34% cases in the embolization group and in 18% in the surgical group (p=0.09). The annual hospitalization cost was higher in the embolization group (5971 vs 3769 euros, p=0.02)

Conclusion

Taking into account of effectiveness, complication rate and cost, surgical ligation seems to provide a similar success rate than embolization but allows a significant reduction in hospitalization cost. Authors recommend surgical ligation as first-line treatment reserving embolization for patients refractory to this procedure.
Paediatric periorbital (preseptal) cellulitis is a common condition. The primary-care practitioner who cares for children frequently encounters a child with a swollen or red eye. However, acute orbital inflammation is secondary to sinusitis in about 70% of cases. Knowledge of the anatomy of the eye is fundamental for understanding its susceptibility to the spread of infection from contiguous structures. Indeed, the orbital septum separates the superficial eyelid from the deeper orbital structures; the orbital septum is a thin membrane that originates from the orbital periostium and inserts into the anterior surface of the tarsal plates of the eyelids, and it forms a barrier that prevents infection from extending into the orbit; through physical and radiological examinations help the clinician to differentiate between periorbital and orbital cellulitis. Nevertheless, orbital cellulitis, although very much less common than periorbital cellulitis, is the most common cause of unilateral proptosis in children. Endoscopic endonasal drainage of the abscess has been used with a significant success rate. The differential diagnosis of the periorbital cellulitis includes conjunctivitis, hordeolum, dacrocystitis, dacroadenitis, cellulitis, traumatic cellulitis and inflammatory edema secondary to sinusitis. Delay in diagnosis must not occur to avoid serious complications such as blindness and life threatening intracranial sepsis with high morbidity and possible mortality. We conclude that all patients with orbital inflammation require a high index of suspicion and a low threshold for hospital admission and CT scan without delay.
The association of dental implants and maxillary sinus pathologies: a retrospective study
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Objective: Assessing the radiological and clinical association of dental implants perforating the maxillary sinuses with sinus pathologies.

Materials and Methods:
We included patients who had facial CT during 2011-2016. Each CT scan was reviewed by a dentist and an ENT surgeon.

Patient's demographic and medical characteristics were extracted from medical records.

We conducted a logistic regression to identify risk factors to develop radio-opaque thickening in the sinuses.

Results: There were 3,732 patients who had facial CTs. We identified 197 CTs of unique patients with 719 dental implants in the maxilla.

Approximately 70% of the patients performed CTs due to symptoms connected to the maxillary sinuses.

Radiological fullness of the maxillary sinuses was associated with the implants': perforations (P<0.001), diameter, side and place (P<0.05).

Implants' perforation (O.R 3.679 95% C.I 1.891-7.157) and diameter (O.R 1.608 95% C.I 1.067-2.424), sinus floor augmentation (O.R 2.341 95% C.I 1.087-5.042), male gender (O.R 2.703 95% C.I 1.407-5.192) and smoking (O.R 6.073, 95% C.I 2.911-12.667) were associated with fullness in the ipsilateral sinuses.

Contralateral fullness was associated with smoking (O.R 3.318 95% C.I 2.136-5.157), FESS (O.R 2.700 95 % C.I 1.355-5.378), sinus floor augmentation (O.R 2.227 95% C.I 1.390-3.569) and implant perforation (O.R 2.734 95% C.I 1.814-4.121)

Conclusion:
Dental implant placement in the maxilla and perforations into the maxillary sinuses were associated with the patient’s sinuses condition and were shown to increase the risk for developing sinus pathologies.

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The frequency of nasopharynx neoplasms in patients with continued eustachian tube
dysfunction and hyperplasia of nasopharyngeal tissue

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Purpose of the study:
The analysis of neoplasms occurrence of the nasopharynx in patients with continued
eustachian tube dysfunction and hyperplasia of the nasopharyngeal tissue.

Materials and methods:
The analysis of 34 adult patients from November 2014 to November 2016 with continued
eustachian tube dysfunction was performed. In all cases, patients reported complaints of ear
fullness longer 1 month on one or both sides, as well as nasal congestion, postnasal symptom.
We fulfilled the standard methods of instrumental examination of patients, tone audiometry,
and cone-beam computed tomography of the paranasal sinuses and nasal endoscopy using
rigid endoscopes with an angle of view of 0, 30 degrees.

Results:
In the studied group of adult patients was identified 1 case of nasopharyngeal adenocarcinoma
(2.94%), 1 case of nasopharyngeal lymphoma (2.94%), 8 cases of hyperplasia of
nasopharyngeal lymphoid tissue (23.53%) and 24 cases with nasopharyngeal cyst (70.59 %),
which possibly contributed eustachian tube dysfunction. This confirms the fact that
endoscopy can not only visualize the diseased nasal structures, but it also performs a biopsy
to verify the presumptive diagnosis.

Conclusion:
The experience of our department suggests that continued dysfunction of the auditory tube is
an indication to repeated biopsy, endoscopic examination of the nasopharynx with using rigid
endoscopes of different angles in combination with cone-beam computed tomography of the
paranasal sinuses. This not only helps diagnose the cause of dysfunction, but also develops
the strategy of treatment patients with hyperplasia of nasopharyngeal tissue.
The impact of primary ciliary dyskinesia on the upper respiratory tract

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PURPOSE: Primary Ciliary Dyskinesia (PCD) is an autosomal recessive genetic condition affecting the function of motile cilia. The upper respiratory tract is lined with ciliated epithelium and hence a hallmark of PCD is the development, from the neonatal period onwards, of persisting secretion retention and suppurative infection in the middle ear, nose and facial sinuses. This review aims to remind the clinician involved in the care of a patient with PCD of the complexities of making the diagnosis of chronic rhinosinusitis (CRS) and chronic otitis media with effusion (ChOME), the morbidity associated with CRS and ChOME and of current evidence of best practice for the management of these conditions. METHOD: The Concord Hospital multidisciplinary clinic PCD data base and was review regarding otology and rhinology outcomes, along with performing a literature review on the effect of PCD and middle ear and rhinological outcomes. RESULTS: Clinical features at time of PCD diagnosis in 84 patients included bronchiectasis (84%); chronic rhinosinusitis (71%); recurrent otitis media (49%); otoscopic changes (48%); glue ear (45%); acute sinusitis (26%); ear discharge (23%) and neonatal rhinitis (15%). In 26 patients seen annually over 4 years, ENT symptoms included anosmia (84%); chronic sinusitis (84%); chronic otitis media with effusion (65%).

CONCLUSION: The manifestations of PCD in the upper respiratory tract are common, burdensome, begin early and continue through life. There is much to be gained from multidisciplinary care that follows this same tempo. Most current management has been based on anecdote and small cohort studies, or extrapolated from the evidence available for management of other causes of ChOME and CRS. Management of patients with this rare disease will benefit greatly from the disease specific, international and multidisciplinary collaborations that are currently in the pipeline.
The inhibition of Pseudomonas aeruginosa biofilm formation by micafungin and the enhancement of antimicrobial agent effectiveness in mice.

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Abstract:

Micafungin inhibits biofilm formation by impeding 1,3-β-D-glucan synthesis in Candida albicans. Since Pseudomonas aeruginosa also has 1,3-β-D-glucan in its cell wall, this study assessed the effects of antibacterial agents in vitro and in vivo on micafungin-treated biofilm-forming P. aeruginosa isolates. After treatment with micafungin as well as with a panel of four antibacterial agents, biofilm production was significantly reduced as measured by spectrophotometry. The relative mRNA transcription levels for the genes encoding pellucides (pelC) and cell wall 1,3-β-D-glucan (ndvB), which were measured by quantitative reverse transcription PCR (qRT-PCR), significantly decreased with micafungin treatment. In vivo, the survival rates of P. aeruginosa-infected BALB/c mice significantly increased after combined treatment with micafungin and each of the antibacterial agents. Of these treatments, the combination of micafungin with levofloxacin had the highest survival rate; this combination was the most effective treatment against P. aeruginosa-induced infection.

A biofilm-forming P. aeruginosa clinical isolate, PAN 14, was used in this study. The isolate was confirmed using Gram staining, colonial morphology, pigment production. Antibacterial susceptibility testing was performed using the Kirby-Bauer disk diffusion method, and the minimum inhibitory concentration (MIC) was determined by broth dilution.

In this study, the in vitro results of combining micafungin with antibacterial agents, especially the combination of micafungin and either ceftazidime or levofloxacin, indicated significant inhibition of biofilm formation in P. aeruginosa compared to the untreated isolates. The consistency in the results of the in vitro experiments with these two antibiotics prompted further study of their effects in vivo.

In conclusion, it appears that micafungin enhances therapeutic outcomes by disrupting biofilm structure and exposing the bacteria to antibacterial agents. While micafungin in combination with levofloxacin appears to have the best outcomes both in vitro and in vivo in P. aeruginosa-induced infections, studies are underway to determine the effects of micafungin and/or other antibacterial agents on translational and post-translational modifications using confocal laser microscopy to establish a cause-and-effect relationship between the observed decrease in transcription levels of biofilm-encoding genes, their corresponding proteins and the final biofilm product.
The use of FloSeal in the management of epistaxis: A prospective study

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Purpose of the study

Epistaxis is one of the most common otolaryngology emergencies. In cases where conservative measures or chemical cautery fail to control epistaxis, patients commonly receive nasal packing which is often uncomfortable, requires admission and has well documented associated morbidity. The aim of this study was to evaluate the use of FloSeal haemostatic sealant in managing patients with epistaxis.

Materials and methods used

This was a prospective clinical study, which aimed to recruit consecutive patients that were referred to our department with active epistaxis. We did not include patients with a history of hypersensitivity to materials of bovine origin and those on warfarin with an international normalised ratio (INR) above their therapeutic range. A successful outcome was defined as complete haemostasis with FloSeal alone, with no further significant bleeding requiring admission or further interventions in the subsequent 7 days. Patients reported satisfaction using a ten-point visual analogue scale. Ear, nose and throat doctors recorded patient demographics, time to prepare FloSeal, length of stay, need for further treatment and adverse events on an electronic database.

Results

Thirty patients were enrolled in the study. The mean time to prepare FloSeal was 5 minutes. The success rate of FloSeal was 90%. The mean length of stay was 2.75 hours. The mean patient satisfaction with FloSeal was 8.4/10. No adverse events occurred. FloSeal was found to be effective in controlling anterior epistaxis. There was a single case of posterior epistaxis which required operative management.

Conclusion

Our data support the use of FloSeal in patients with anterior epistaxis not controlled with conservative measures or chemical cautery. It was found to be easy to use, is well tolerated by patients and is efficient in financial terms.
TITLE: TRANSNASAL ENDOSCOPIC APPROACH IN PITUITARY TUMORS

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INTRODUCTION

The approach to diagnosis and treatment of skull base diseases have undergone to important advances with the implementation of endoscopes, especially in the access to the Pituitary Gland. It is challenging to otolaryngologists and neurosurgeons to implement this new technique in their daily practice, due to that implies a constant updating of the approach technique.

Since the implementation of endoscopic access, there have been advances in techniques, one of them being the transnasal approach, uni or binasal, which helped to decrease morbidity and mortality rates.

OBJECTIVES

1- Describe the types of trasnasal access of the pituitary tumors and the different variants.

2- Demonstrate the effectiveness of the transnasal approach to pituitary gland by unilateral or bilateral technique.

RESOURCE AND METHOD

Retrospective, observational and descriptive study of 14 patients that were submitted to transnasal endoscopic surgery of pituitary tumors, from March 2013 to October 2016. Data was collected from the clinical history, surgical technique and pathological anatomy results of all the patients included in the study, with previous patients authorization.

RESULTS

Total of cases obtained 14, on which 71% were female, with an average age of 43.875 years.

In the majority of the cases, 54%, patients had underlying conditions, 57% of them corresponded to hypertension, 14% to DM II, and in 29% had both conditions.

Taking into account, the reasons of the consultations, 10 (71.4%) had both visual impairment, dizziness and / or headache.

Regarding to preoperative diagnosis, Functional Selor Tumor is the one with the highest frequency of appearance, in which 60% were the hyperfunctioning type.

The most frequent surgical technique used was the partial excision via transsphenoidal technique in a 57%, predominantly uni nasal access.

The most prevalent anatomopathological result was the Pituitary Adenoma, in a 92.85%, MTS was shown in 1 case only, of papillary type. Low post-operative complications were describe, 14.2% bleeding and 7.14% cerebrospinal fluid fistula.

CONCLUSION
The results obtained with the transnasal endoscopic method were a safe and effective procedure to justify its implementation, taking into account the low rate of postoperative complications in addition to the global and broader view obtained in addition to the panoramic view of the human anatomy. We can consider the binasal approach as the method of greater effectiveness and comfort for the surgical team, thus reducing patient morbidity and mortality.

AUTHORS

DR. OSCAR GOMEZ HERMOSILLA; DR. FRANK MARCELO SMITH ANTONIO; DRA MARIA BELEN PERSANO; DRA. SANDRA PEDRETTI
Treatment for the orbital injury following ESS and the course of postoperative visual function

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Endoscopic sinus surgery with powered cutting instrument (powered ESS) has been developed and improved in recent years, however, sometimes can cause great complications. In our hospital, ophthalmologist, oculoplastic surgeon, and otolaryngologist performed for the repair surgery, simultaneously together. Radiologic imaging (CT and MRI) and some ophthalmic examinations are required for the treatment.

The procedure of repair surgery is as follows. Firstly, left nasal cavity and ethmoidal cells were cleaned and the injured area was watched by otolaryngologist. Secondly, transposition of the lateral rectus muscle was performed by ophthalmologist. By this procedure, the eye was adducted. The repaired medial rectus muscle was under over tension. This was reduced. Finally, Using Lynch’s approach, divided left medial rectus muscle was repaired by oculoplastic surgeon. Defective orbital wall was repaired by silicone sheet. We recommend early restoration of intra-orbital connective tissue and muscles before they will adhere.

After discharge, we follow-up for 1-2 years. Sometimes strabismic surgery is required.

We present a repair operation with actual movie, and introduce the course of postoperative visual function with change over time of binocular single visual field and Hess chart examination.

For the purpose of the enlightenment of the complication which has been happened, we describe concrete treatment of our strategy through some cases.
Unilateral exophtamos arising from ENT diseases, our department experience

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Introduction: Exophtalmos is a proptosis due to an intraorbital process. It is a frequent symptom secondary to various pathologies. Its finding in oto-rhino-laryngology practice is a sign of a serious complication.

Objective: The purpose of our study is to review a series of patients presented unilateral exophtalmos secondary to a paranasal disease.

Materials and methods: We conducted a retrospective study about 20 patients have presenting unilateral exophtalmos complicating a para-nasal disease. Our patients were admitted and treated in oto-rhino-laryngology department from 2014 to 2016.

Results: The average age of our patients was 30 years, with feminin predomiance. According to our experience, the most common etiology of unilateral exophtalmos was inflammatory diseases (60%) (ethmoiditis, fronto-ethmoidal abscess...), followed by benign and malignant paranasal tumors 40% (osteomas, fronto-ethmoidal mucocele, melanoma...) (40%). Medical history, clinical and radiological data were provide diagnosis. The functionnal prognosis of the affected eye depended of the causal etiology and the degree of ocular injury. the choice between medical treatment (Corticotherapy, antibiotherapy...) and surgery (endonasal or tranfacial approach) depended of the causal etiology.

Conclusion: Exophtalmos is a frequent complication of many paranasal diseases. The therapeutic modalities depend of the degree of ocular injury and the causal pathology.
Utility of the nasoseptal flap as support for ocular prosthesis in a third level of attention hospital in México.

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The lack or lost of an eyeball has an important impact in the self-esteem and psychological state of the patients, also affecting their social development and professional life. With the advent of the endoscopic sinus surgery, we have achieved important progress in multiple transnasal surgery procedures in the late years. The endoscopic endonasal surgery of the orbit is still a new field with a similar progression. The nasoseptal flap provides the advantages that it can be created endoscopically, and it can provide an adequate blood supply. Purpose: Although the nasoseptal flap has been used as a reconstruction method for skull base alterations, it has not been widely used in the orbital cavity. Our purpose is to determine the utility of this flap as a method of support for ocular prosthesis in patients with anophthalmia.

Material and Methods: We present a retrospective, descriptive study about the utility of the nasoseptal flap as a support method for ocular prosthesis in patients with anophthalmia, together with the oculoplastic surgeons, at the Centro Médico Nacional "20 de Noviembre", ISSSTE in the city of México. All post operative notes, electronic medical records and progress notes were inspected, and sex, age, etiology, affected side, CT scans, transurgical bleeding quantification and surgical complications were compiled. Results: Total of 4 patients who were subjected to this procedure were included in this study, in which 100% were female, with a range of ages between 39 and 82 years old, being the most frequent etiology 50% congenital and 50% traumatic, left side was the most frequently affected in 75% of the cases. All the patients had CT scans for the preoperative evaluation, to plan the surgery. The average of transurgical bleeding was 137mL, and there were no transurgical complications. The most frequent postsurgical complication was the nasal crusting formation in 100% of the patients. Until this moment just one of the patients shown signs of risk of prosthesis extrusion, but didn't reject it in the end. Conclusions: The nasoseptal flap represents an adequate option for patients with anophthalmia who had gone through multiple procedures without success, but we need a wider sample and a longer period of post-operative observation, to have more reliable results.
Correlation between shape and function in the sinonasal tract: a preliminary study using morphometric geometric and Computational fluids dynamic.


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Computational fluid dynamics (CFD) is a reliable and powerful method to study nasal airflow. Geometric morphometric (GM) is a statistical method that allows the study of the variance of the shape of anatomical structures. We aimed to analyze nasal airflow conditioning in individuals with most extreme sinonasal conformation using CFD.

Materials and methods

The shape analysis was performed by a generalized Procrustes analysis using landmarks coordinates as a database. This procedure allowed visual and statistical assessment of shape after scaling to common centroid size. Using a principal component analysis (PCA) we were able to define individuals with most extreme sinus conformations.

CFD was performed using Star-CCM+® software. Volume mesh of the computational domain was performed using a polyhedral mesher with parameters defined after a convergence mesh study. Sinonasal surface was a non-slip wall at 34°C. Nostrils were pressure outlets with an imposed pressure (p=0 Pa). Temperature of inspired air was 15°C. Nasopharynx was a pressure outlet with an imposed pressure. For steady resolution the pressure imposed in the nasopharynx was -150 Pa. For unsteady resolution we used data of a respiratory cycle experimentally measured in the laboratory in an adult healthy man. Steady analysis protocol was an inspiration. We studied the velocities and temperature of the inspired air. Unsteady analysis protocol was a simulation of 3 ventilatory cycles. We placed 2 probes in each nasal fossa, 1 in each maxillary sinus and one in the nasopharynx. We measured airflow velocities, temperature, mass flow and pressure variations. We established numerical rhinomanometry and the airflow resistance curves for every subject.

Results

We included CT scan images of 63 individuals (33 females) aged between 18 and 87 years (mean: 56.74 years). Using geometric morphometric we defined the 5 individuals with the most extreme sinonasal conformation. We had 4 females and one male aged between 18 and 78 years (mean: 50.4 years). Mean age in the female group was 56.72 years (range 18 to 78 years). The only man of our study was 25 years old. Steady analysis showed no airflow in the paranasal sinus during the inspiration. After unsteady analysis sinonasal shape did not seem to influence the way the airflow was conditioned in the nose. We performed the first study of the Correlation between shape and function in the sinonasal tract. We have shown that GM and CFD were complementary methods.
EBV infection is prevalent in the adenoid and palatine tonsils in adults

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Adenoids and tonsils are immunologically important structures located in the Waldeyer’s ring and are prominent secondary lymphoepithelial organs associated with the upper respiratory tract, where inhaled antigens first come in contact with host defense cells. These organs can become acutely or chronically infected by a number of microorganisms. Infection and hypertrophy are components of the immunological reaction of adenotonsillar tissues. However, these reactions can cause chronic diseases, such as adenotonsillar hyperplasia and recurrent tonsillitis, which often lead to complications, including nasal obstruction, snoring, auditory tube dysfunction, and obstructive sleep apnea. Patients afflicted with these complications frequently decide to undergo tonsillectomy or adenotonsillectomy.

One of the microorganisms that can infect the adenoids and tonsils is Epstein-Barr virus (EBV), which is a ubiquitous virus that infects approximately most adults following a primary infection in childhood. Adenoid and tonsil tissues often function as reservoirs for replicating EBV and may enlarge secondary to viral proliferation. More seriously, EBV has been closely associated with several malignancies, such as nasopharyngeal carcinoma (NPC) and some lymphomas, in which the EBV genome can be found in almost all tumor cells. Thus, EBV is associated with the pathogenesis of several diseases in both adults and children. However, there have been no reports on the prevalence and amount of EBV in the adenoids of adults; thus, it is important to investigate these in the adenoids and tonsils of adults and children.

In this study, 67 patients who underwent tonsillectomy or adenotonsillectomy were included and divided into two groups: adults aged ≥ 16 years (n = 35) and children aged < 16 years (n = 32). Patients’ adenoid and tonsil tissues were analyzed using quantitative polymerase chain reaction for EBV DNA. EBV DNA was detected in 26 (74%) adenoids and 25 (71%) tonsils among the adult group and was detected 21 (66%) adenoids and 20 (63%) tonsils in the child group. There was no significant difference in EBV DNA prevalence between the adenoids and tonsils for each group. However, there was a significant correlation between EBV DNA load in the adenoids and tonsils of the same individual in both groups (r = 0.579, P < 0.01, adult group; r = 0.919, P < 0.01, child group).

In conclusion, EBV infection is prevalent in the adenoids and tonsils in adults and children. These results indicate that EBV continuously reside in the nasopharyngeal region after primal infection and may develop several diseases.
Effect of High Glucose on MUC5B Expression in Human Airway Epithelial Cells.

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Purpose of the study: Excessive production of mucus results in plugging of the airway tract, which can increase morbidity and mortality in affected patients. In patients with diabetes, inflammatory airway disease appears with more frequent relapse and longer duration of symptoms. However, the effects of high glucose (HG) on the secretion of mucin in inflammatory respiratory diseases are not clear. Therefore, this study was conducted in order to investigate the effect and the brief signaling pathway of HG on MUC5B expression in human airway epithelial cells.

Materials and methods used: The effect and signaling pathway of HG on MUC5B expression were investigated using reverse transcriptase-polymerase chain reaction (RT-PCR), real-time PCR, enzyme immunoassay, and immunoblot analysis with specific inhibitors and small interfering RNA.

Results: HG increased MUC5B expression and epidermal growth factor receptor (EGFR) expression, and activated the phosphorylation of EGFR and p38 mitogen-activated protein kinase (MAPK). Pretreatment with EGFR inhibitor significantly attenuated the HG-induced phosphorylation of p38 MAPK, and pretreatments with p38 inhibitor or EGFR inhibitor significantly attenuated HG-induced MUC5B expression. In addition, knockdown of p38 MAPK by p38 MAPK siRNA significantly blocked HG-induced MUC5B expression.

Conclusion: These findings suggest that HG induces MUC5B expression via the sequential activations of the EGFR/p38 MAPK signaling pathway in human airway epithelial cells.
Effect of oral desmopressin on nasal mucociliary clearance time in patients with nocturnal enuresis

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Objective: Oral desmopressin is the pharmacological agent used for the treatment of nocturnal enuresis (NE), might be expected to have various effects on the nasal mucosa such as altering the clearance by the mucociliary apparatus. The purpose of the study is to determine any possible effect of oral desmopressin on nasal mucociliary clearance time in patients with nocturnal enuresis.

Materials and Methods: Twenty children (ten males and ten females) aged 6-16 years who were affected by primary NE were enrolled in the study. Several methods can be used to measure mucociliary clearance time. Saccharin test is a simpler and efficacious method can be safely used for this purpose. Nasal mucociliary clearance time was measured by saccharin test before and 1 and 6 months after usage of oral desmopressin.

Results: No statistically significant changes on nasal mucociliary clearance time were observed at 1 and 6 months after oral desmopressin therapy.

Conclusion: Oral desmopressin used for 6 months in children caused no change of nasal mucociliary clearance time. Thus, it can be concluded that oral desmopressin can be safely used in children with NE in a period of 6 months.
Effect of water versus saline for carboxymethylcellulose nasal packing

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Abstract

Background: Dissolvable nasal packing is used in rhinological procedures to control post-operative epistaxis and is especially desirable in the day-case setting. The Sinu-Knit Rapid RhinoTM is one such nasal dressing and is made from carboxymethylcellulose (CMC) which comes with the manufacturer's recommendation for initial use with sterile water for conversion into a dense gel thereby fully activating its haemostatic properties. Subsequently, an intranasal saline spray is recommended for promoting degradation inside the nasal fossa. There is no prior study comparing the effects of saline versus water in the degradation time of such products. This in vitro study compares the effects of water and saline on this nasal dressing.

Methods: 3 groups of 5 Sinu-Knit dressings were used; instilled with (1ml) water alone, water (1ml) and then saline (1ml); and no fluid (control group) in a water bath set to 37 degrees celsius. The containers were then observed over a 14 day period to assess rate of degradation.

Results: The ‘water then saline’ soaked dressings dissolved at day 5 while the ‘water only’ at day 8. At 14 days, the control group had not dissolved.

Conclusion: Our study shows that using saline is quicker than water for the degradation of CMC-based nasal dressings and may therefore promote earlier mucociliary flow post-packing. Water would be recommended if a longer tamponade effect is desired. A larger in vivo study would be useful.
**Escherichia coli-derived and Staphylococcus aureus-derived extracellular vesicles induce MUC5AC expression via extracellular signal related kinase 1/2 and p38 mitogen-activated protein kinase in human airway epithelial cells.**

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**Purpose of the study:** Escherichia coli (E. coli) and Staphylococcus aureus (S. aureus) release extracellular vesicles (EVs). E. coli-derived and S. aureus-derived EVs are associated with neutrophilic respiratory inflammation. In neutrophilic respiratory inflammation of human, expression of mucin is increased in airway epithelial cells and is associated with increased morbidity and mortality of the affected patients. However, no study on the effects of EVs on expression of mucin genes has been reported in airway epithelial cells. Therefore, this study was conducted in order to examine the effects and the brief signaling pathways of E. coli-derived and S. aureus-derived EVs on MUC5AC expression in human airway epithelial cells.

**Materials and methods used:** In mucin-producing human NCI-H292 airway epithelial cells and primary cultures of normal nasal epithelial cells, the effects and signaling pathways of E. coli-derived and S. aureus-derived EVs on MUC5AC expression were examined using reverse transcription-polymerase chain reaction (RT-PCR), real-time PCR, enzyme immunoassay, and immunoblot analysis with several specific inhibitors and small interfering RNA (siRNA).

**RESULTS:** E. coli-derived and S. aureus-derived EVs induced MUC5AC expression. E. coli-derived and S. aureus-derived EVs significantly activated phosphorylation of extracellular signal related kinase 1/2 (ERK1/2) mitogen-activated protein kinase (MAPK) and p38 MAPK. ERK1/2 MAPK inhibitor, p38 MAPK inhibitor, ERK1/2 MAPK siRNA, and p38 MAPK siRNA significantly blocked E. coli-derived and S. aureus-derived EVs induced MUC5AC messenger RNA (mRNA) expression.

**CONCLUSION:** The results of this study suggest that E. coli-derived and S. aureus-derived EVs induced MUC5AC expression via ERK1/2 and p38 MAPK signaling pathways in human airway epithelial cells.
Expression of CysLTR1 and 2 in Maturating Lymphocytes of Hyperplasic Tonsils Compared to Peripheral Cells in Children


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Introduction: Cysteinyl-leukotriene receptors 1 and 2 (CysLTR1 and 2) are related to allergic inflammatory responses. Recent studies demonstrated their role in lymphocyte division and maturation in the bone marrow. Few data are available about CysLTRs function in lymphocyte maturation in tonsils. The objective of this study was to compare CysLTRs expression in peripheral blood lymphocytes with the expression in tonsil lymphocytes in different stages of maturation.

Methods: Leukocytes of peripheral blood (PL) and hyperplastic tonsils of children were immunostained for CysLTR1, CysLTR2, CD3 (T cells), and CD19 (B cells) and read in flow cytometer. Lymphocyte of tonsils were divided in differentiating small cells (SC) and mitotic large cells (LC); the percentage of B and T cells expressing each CysLTR was determined and the comparison was done using ANOVA and Tukey’s tests. Data were analyzed as a whole and categorizing patients according to the presence of allergies.

Results: Sixty children were enrolled in this study. There was a large expression of CysLTR1 and 2 in CD3+ LC, and such expression decreased progressively in SC and PL. In B cells, the highest expression of CysLTR1 and 2 was found in PL while SC showed the lowest and LC showed the intermediate expression. This pattern kept unchanged in groups of allergic and non-allergic individuals.

Conclusion: CysLTRs seem to be involved in lymphocyte maturation that occurs in tonsils, without influence of allergies. New studies aiming the clinic treatment of tonsil hyperplasia must be targeted to the development of drugs capable of blocking both CysLTR1 and 2.
Expression of cysteinyl leukotriene receptor 1 and 2 in the lymphocytes of hyperplastic tonsils: comparison between allergic and nonallergic snoring children


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Background: Cysteinyl leukotriene receptor 1 and 2 (CysLTR1 and CysLTR2) are involved in allergic processes and play a role in the lymphocyte proliferation that occur in adenotonsillar hyperplasia (AH). Clinically, only CysLTR1 may be blocked by montelukast and it has been shown the effect of this drug in the clinical treatment of AH. The primary purpose of the study was to compare the expression of CysLTR1 and CysLTR2 in the B and T cells of hyperplasic tonsils of sensitized (SE) and control (NS) snoring children. The secondary objective was to compare the degree of expression of CysLTR1 versus CysLTR2.

Methods: Sixty children, from 5 to 10 years of age, referred for adenotonsillectomy, were divided into SE and NS groups, according to their responses to the skin-prick test. Cells from the removed tissues were stained for CysLTR1, CysLTR2, CD19 (B cells), and CD3 (T cells) and counted via flow cytometry. Messenger RNA (mRNA) expression of both CysLTRs genes was measured by real-time quantitative reverse transcription polymerase chain reaction (RT-qPCR).

Results: The SE group showed reduced expression of the small CD3+/CysLTR1+ lymphocytes (4.6 ± 2.2 vs 6.5 ± 5.0; p = 0.04). Regarding the large lymphocytes, the SE group showed lower expression of CD3+/CysLTR1+ (40.9 ± 14.5 vs 47.6 ± 11.7; p = 0.05), CD19+/CysLTR1+ (44.6±16.9 vs 54.1±12.4; p=0.01), and CD19+/CysLTR2+ (55.3 ± 11.3 vs 61.5 ± 12.6; p=0.05) lymphocytes. Considering the total number of lymphocytes, the SE group had fewer CD3+/CysLTR1+ lymphocytes (11.1 ± 5.5 vs 13.7 ± 6.2; p = 0.04). All other cell populations exhibited reduced expression in the SE group without statistical significance. The expression of CysLTR2 has shown a significantly higher (p < 0.05) than CysLTR1 in most studied cell populations. The mRNA expression did not show significant differences between the groups.

Conclusion: The expression of CysLTR is higher in the lymphocytes of the NS children, and CysLTR2 shows greater expression than CysLTR1. Respiratory allergies do not appear to be a stimulus for AH occurrence. Newer drugs capable of blocking both CysLTRs warrant further study.
Extracellular Vesicle of ASCs: A Role in Allergic Airway Inflammation

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Purpose of the study:
Extracellular vesicles (EVs) are nanosized membranous vesicles, secreted from a variety of cell types into their surrounding extracellular space. Various EVs containing proteins, nucleic acids and lipid are transferred to recipient cells and affect their function and activity. Several studies have showed that EVs released from inflammatory and epithelial cells implicated allergic disease. However, the role for EVs of adipose-derived stem cells (ASCs) in allergic airway diseases remains unclear. In this study, we evaluated the effects of extracellular vesicle (EV) of adipose-derived stem cells (ASCs) supernatant on allergic airway inflammation in ovalbumin (OVA) induced asthmatic mouse model.

Materials and Methods used:
C57BL/6 mice were sensitized to OVA by intraperitoneal injection and challenged intranasally with OVA. To evaluate the effect of EVs of ASCs supernatant on allergic airway disease, 10 μg/50 μl of control supernatant, ASCs supernatant with or without EV were administrated intranasally before OVA challenge. We evaluated airway hyperresponsiveness (AHR), the proportion of eosinophils in bronchoalveolar lavage fluid (BALF), lung histology, serum total and OVA-specific antibody, cytokine profile of BALF and lung draining lymph nodes (LLN), and T cell population of LLN.

Results:
ASCs supernatant with EV significantly inhibited eosinophilic inflammation in the lung. AHR, total immune cell and eosinophils in the BALF were significantly reduced after ASCs supernatant with EV administration. EV of ASCs supernatant significantly decreased the serum total and allergen-specific IgE and total IgG1 level. EV of ASCs supernatant significantly inhibited Th2 cytokines (IL-4 and IL-13) in the LLN and IL-4 in BALF. EV of ASCs supernatant significantly enhanced regulatory cytokines IFN-γ in the BALF. In addition, CD25+Foxp3+ and IL-10+ T cells in LLN were significantly increased after ASCs supernatant with EV administration.

Conclusions: EVs of ASCs ameliorated allergic airway inflammation and improved lung function through the induction of Tregs expansion. EVs of ASCs may be a regulator for allergic airway disease.

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Influenza A virus infection induces indoleamine 2,3-dioxygenase (IDO) expression and modulates subsequent inflammatory mediators in nasal epithelial cells

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Purpose of the study

Prevalence of influenza virus infection is a clinically important issue because highly pathogenic influenza viruses cause high levels of morbidity. Nasal epithelial cell is the first site to encounter influenza virus whose innate immune response would define subsequent inflammatory direction. Therefore, the purpose of this study is firstly, using metabolomics analysis to identify metabolic changes associated with influenza virus infection in nasal epithelial cells; and secondly, to identify metabolic pathways regulated inflammatory cytokines in nasal epithelial cells upon influenza virus infection.

Materials and methods

We established H1N1 IAV-infected mouse models using three viruses of varying pathogenicity and noted that the PR8 strain was the most virulent one. We then obtained nasal epithelial cells from surgery and cultured using air-liquid interface (ALI) model. Influenza virus (PR8) infection was performed. HPLC metabolomic analysis was done. And cell lysate was obtained and cytokines expression were analyzed by cytokine array.

Results

Confocal microscopic result showed loss of cilia and loosening cell-cell junction of infected nasal epithelial cells. Metabolomic analysis revealed exhaustion of essential amino acid-tryptophen and accumulation of its metabolite kynurenine during 48 hours. Other amino acid metabolic pathway is not obviously changed except increased glutamine concentration. The major enzyme involved in tryptophan metabolic pathway-indoleamine 2,3-dioxygenase(IDO) was highly expressed after infection. Cytokines expression array after infection showed at least 9 of them were increased and after using 1-MT as inhibitor, 4 of them retained in control level during 48 hours.

Conclusions

Our results indicated that inflammatory responses after viral infection on nasal epithelial cells including ciliary loss and loosening cell-cell tight junction. The viral infection signal renders exhaustion of tryptophan and accumulation of kynurenine via increased cellular IDO. IDO-mediated tryptophan breakdown was known to represent an important immune effector pathway. The tryptophan depletion is mostly possible in our experimental model since no other immune cells exist in our cell culture model. Stimulation of pattern recognition receptors (PRRs) on epithelial cells induces proinflammatory cytokines (IL-6, IL-1). IDO inhibition may modify PRR expression. In our model, IL-1, IL-6, G-CSF and CCL3/4 were most obviously modulated in nasal epithelial cells after viral infection. Further study is needed to elucidate their role in initiating subsequent inflammatory response. Replenish tryptophan or inhibition of IDO activity by locally applicable method may be a good therapeutic strategy in decreasing the initial damage of influenza virus on nasal epithelial cells.
Modified olfactory ensheathing cells may partly promote the survival of spiral ganglion cells in vitro

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Abstract:

Objective: To explore whether genetically modified olfactory ensheathing cells (OECs) could promote the survival of spiral ganglion cells (SGCs) in vitro and to further the search for new methods for the treatment of severe sensorineural deafness.

Materials and methods: Three co-culture systems were built: SGCs+OECs(Ctrl), SGCs+OECs+anti-BDNF(50 µg/ml, with added anti-BDNF), and SGCs+BDNF-OECs(BDNF genetically modified OECs). On days 3, 6 and 9, we fixed, stained and counted the cells. Then compare the numbers of SGCs in these three groups.

Results: On day 3, the number of cells in the SGCs+BDNF-OECs group was significantly greater than that in the SGCs+OECs (Ctrl) group (p<0.05). On day 6, there were no obvious differences between the SGCs+BDNF-OECs and SGCs+OECs groups. On day 9, the number of cells in the SGCs+BDNF-OECs group was significantly lower than that in the SGCs+OECs group (p<0.05). Compared with the SGCs+BDNF-OECs and SGCs+OECs groups, the number of SGCs in the SGCs+OECs+anti-BDNF group was always the lowest.

Conclusion: OECs that are genetically modified to express BDNF may partly improve the survival of SGCs in vitro, but the effects are limited. The OECs with anti-BDNF can inhibit the growth of SGCs. The results of this study might further the search for new methods for the treatment of severe sensorineural deafness.
Nasal/bronchial expression of IL-17-related cytokines in asthma frequent exacerbators

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Nasal/bronchial expression of IL-17-related cytokines in asthma frequent exacerbators

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ABSTRACT

Background: Th17 cytokines are over-expressed in the bronchial and nasal mucosa of severe asthma compared to mild asthma and controls.

Objective: We studied IL-17-related cytokines in nasal/bronchial biopsies from mild-to-severe asthmatics stratified in non-frequent (<2 OCS/year) and frequent (≥ 2 OCS/year) exacerbator groups.

Methods: Inflammatory cells and IL-17A+, IL-17F+, IL-21+, IL-22+ and IL-23+ cells were examined by immunohistochemistry (IHC) in cryostat sections of bronchial/nasal biopsies obtained from 24 frequent exacerbators (FE) and 40 non-frequent exacerbators (non-FE). IL-17F protein was also measured by ELISA in bronchial/nasal lysates. Immunofluorescence/confocal microscopy was used for IL-17F co-localization.

Results: Beclomethasone HFA equivalent daily dose was higher in FE (592±299μg) compared to non-FE (266±242μg; p<0.01). Pulmonary function parameters such as FEV1 and FVC (%pred) were different between FE (58±15% and 81±14%, respectively) and non-FE (79±22% and 95±15%, respectively; p<0.01). FE showed increased number of bronchial neutrophils/eosinophils/CD4+/CD8+ cells compared to non-FE (p<0.05). IL-17F (p<0.001) showed a significant higher expression in FE versus non-FE, as well as bronchial IL-17A, nasal IL-21 and IL-22 (p<0.05).

ROC curve analysis evidenced predictive cut-off values of bronchial (AUC: 0.79; cut-off value: 23.58 cells/mm²; p=0.0004) and nasal IL-17F (AUC: 0.78; cut-off value: 26.41 cells/mm²; p=0.0006) for discriminating FE from non-FE phenotype. IL-17F protein increased in bronchial/nasal lysates of FE compared to non-FE (p≤0.001). Both bronchial and nasal IL-17F co-localized mainly in CD4+(Th17) and CD8+(Tc17) cells.

Conclusions: Higher expression of nasal/bronchial IL-17F, mainly produced by Th17 and Tc17 cells, associated with neutrophilic/eosinophilic inflammation in asthma is able to recognize corticosteroid-insensitive frequent exacerbator phenotype.
Nonsteroidal anti-inflammatory drug pain analgesy & Heart rate variability after septoplasty

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Aim: To analyze dynamics of the activity of the autonomic nervous system (ANS) in perioperative (PeriO) patients (p.) with nasal septum deviation under different types of nonsteroidal anti-inflammatory drug pain analgesy using heart rate (HR) variance analysis.

Materials and methods: 60 p. with NSD aged from 25 to 38 years were divided into 6 Groups (Gr.), 10 p. in each gr. Gr.0 was control, of the gr.1 received no analgesia, gr.2 received intramuscularly (i/m) 5ml of 50% metamizole sodium solution, gr.3 received i/m 3ml diclofenac sol., gr.4 received i/m 2ml ketorolac sol., and gr.5 received intravenously ketamine sol. Continuous ECG recordings were obtained on all the p. using 24-hour holter monitors (Shiller MT-200). The monitoring began 90 min before operation. Data on HR were collected during 15min intervals 20min after record beginning, during surgery intervention, an hour, 6, 12 and 24 hours after record beginning. HR averages and standard deviations (SD) were derived from obtained records.

Results: In gr.0, within-Group HR comparison showed that HR at 1, 12 and 24 hours after "operation" was higher than "preoperative" (PO) HR while at 6 hours after "operation" was the same. Data on gr.1 showed reliably higher HR during operation and lower HR at 24 hours after operation as compared to data on PO stage. High HR variability (HRV) was noted before and during surgery as well as an hour after operation. No considerable differences of HR at different PeriO stages were observed in gr.2. All the values were within the reference limits. High HR dispersion was registered in this gr. High HR SD was pointed out for gr.3 before operation. Reliable difference between HR averages and variability before, during, one hour and 24 hours after operation was determined exhibiting a tendency to bradycardia. Reliable decreasing of the HR was observed in gr.4 p.6,12, and 24 hours after operation with rather high HR averages and standard. As in gr.4, reliable decreasing of the HR averages in comparison to PO HR was observed in gr.5. Data dispersion increased eventually, though there was lowering 6 hours after operation.

Conclusion: Within-Group HR analysis showed that there was high PO HR as compared to HR at other times which can be explained by high PeriO stress. In gr.1, high HRV during and 1 hour after operation was evident which spoke about prevalence of no subdivisions of the ANS. The same thing can be seen at 6, 12, 24 hours after operation in gr.2. Trend of bradycardia was noted in 3, 4, 5 gr., indicating predominance of the parasympathetic input.
Olfactory mucosa and olfactory neuroblastoma: identification and characterisation of common stem progenitors

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Esthesioneuroblastoma (ENB), also known as olfactory neuroblastoma, is a rare and poorly understood sinonasal malignancy. Most authors believe it originates from basal cells of olfactory mucosa, but its pathogenesis is still debated. Human esthesioneuroblastoma cells have been already cultured in vitro, providing the basis for some interesting insights on the SHH signal pathway in the development of the neoplasm. Further research have also shown that olfactory neuroblastoma cells are able to differentiate into odorant-responding cells upon administration of TGF-alfa in vitro, thus confirming their “olfactory legacy”. While interesting, these results are weakened by the metastatic origin of the common esthesioneuroblastoma cell line (JFEN) commonly employed by most researchers.

Methods: Upon employing a validated culturing technique we obtained cell cultures from healthy olfactory mucosa and primitive ENB lesions of two patients. Cells were cultured inducing spontaneous sphere formation and obtained tissues were compared in terms of immunostaining (for both 2d cultures and spheroids) and transcriptomic analysis.

Results: Both healthy olfactory mucosa and ENB spontaneously produced spheroids in culture, thus showing a stem potential. Both olfactory mucosa and ENB stem progenitors were ectomesenchymal cells which shared a surface markers and genetic signature.

Conclusions: Beside demonstrating the stemness of both olfactory mucosa and ENB, our study found an undeniable in vitro connection between healthy olfactory epithelium and ENB, thus strengthening the unvalidated hypothesis the latter should be considered a neoplastic degeneration of the former.
Postural changes in Acoustic Rhinometry

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Objectives: (1) Study positional changes in acoustic rhinometry (AR) (2) Analyze postural changes in patients with deviated nasal septum (DNS) and compare it to healthy participants.

Methods: Prospective comparative study, studying body posture effect on nasal patency. AR was performed under the following conditions before and after decongestion: (1) baseline seated. (2) right lateral decubitus. (3) left lateral decubitus. The minimal cross-sectional area (MCA) and nasal volume (NV) were used to analyze the results.

Results: Sixty-three participants have been studied using AR, and they were divided into 31 healthy participants and 32 participants with DNS. MCA measurements was smaller on the dependent side, but didn’t reach statistical significance (P value < .5). This difference disappeared after decongestion. A similar effect of posture was noted on NV measurements; however, the difference was statistically significant (P value < .001).

MCA measurements on the larger airway in volunteers with DNS before decongestion showed significant statistical difference of posture in the larger airway only.

Conclusions:

(1) Body position is an important factor that can affect AR resul.

NV is a more sensitive indicator in detecting mucosal swelling than MCA.

(3) Inferior turbinate is more responsive to postural changes in the larger airway in patients with DNS.

(4) Results can provide explanation of 2 clinical entities (paradoxical nasal obstruction and postureinduced nasal obstruction).
Role of vitamin D receptor and CYP27B1 in pathophysiology of chronic rhinosinusitis

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Aim: 1. Identification of vitamin D receptors and 1α-hydroxylase (CYP27B1) in sinunasal mucosa of CRS patients with (CRSwNP) and without nasal polyps (CRSsNP) and in healthy controls (HC).

2. Assessment of total amount of vitamin D3 in sera of CRS patients with (CRSwNP) and without nasal polyps (CRSsNP) and in healthy control (HC).

3. Correlation of obtained results with clinical data, i.e. SNOT-22 questionnaire (Sino-Nasal Outcome Test), CT scan (CT Lund-Mackay scale).

Material and methods: The preliminary study contained 52 CRSsNP patients (group I), 55 CRSwNP (group II) and 59 healthy control (group III). Nasal biopsies were obtained during endoscopic sinus surgery or septoplasty. The sections were evaluated for immunohistochemical detection of vitamin D3 receptors (VDR) and 1α-hydroxylase (CYP27B1).

All patients were evaluated clinically according to the Lund-Mackay CT score, SNOT-22. Additionally, the level of 25(OH)D3 from blood was estimated.

Results: We observed that staining of nuclei in sinonasal epithelial cells after immunostaining with VDR-antibody is median 32,5% (p<0,05) in CRSsNP (I group), 27,0% (p<0,05) in CRSwNP (II group) vs 66,0 % (p<0,05) in control (III group), (Fig.1). Furemore we observed that staining of cells after immunostaining with CYP27B1-antibody is comparable in all groups (Fig.2). VDR staining correlate with Lung-Mackay CT score 6,3 (group I), 16,23 (group II) vs 0,89 (group III), however does not correlate with SNOT-22 1,67 (group I), 1,7 (group II), 1,31 (group III) and sera levels of 25(OH)D3: 20,62 ng/ml (group I), 22,36 ng/ml (group II) vs 20,83 ng/ml (group III).

Conclusions: Our data provided the evidence that: 1. VDR and 1α-hydroxylase (CYP27B1) undergoes expression in sinunasal mucosa epithelial cells, so we can assume that the locally there are is a transformation vitamin D3 to active form 1,25(OH)2D3 2. decreased VDR nuclear staining in CRS patients vs healthy control, 3. VDR staining correlates with clinical observation.

Taken together, based on vitamin D expression in CRS patients correlated with clinical data we endeavor to detect patients with CRS necessitating modified therapeutic method. Furthermore, we anticipate that application of vitamin D3 into paranasal sinuses could be effective in terms of inhibition of persistent inflammation in the sinonasal mucosa.
Objectives: Both glucocorticoids and H1-antihistamines, are widely used for patients with nasal allergy (NA) and obstructive airway diseases. However, their direct effects on airway smooth muscle are not fully explored.

Material and methods: We tested the effectiveness of kidsolone and xyzal on isolated rat trachea submersed in Krebs solution in a muscle bath. Changes in tracheal contractility in response to the application of parasympathetic mimetic agents were measured. The following assessments of the drug were performed: (1) effect on tracheal smooth muscle resting tension; (2) effect on contraction caused by 10^-6 M methacholine; (3) effect of the drug on electrical field stimulation (EFS) induced tracheal smooth muscle contractions.

Results: Solely use of kidsolone or xyzal elicited no significant effect or only a little relaxation response on tracheal tension after methacholine treatment, respectively.

The tension was 90.5±7.5% and 99.5±0.8% at 10^-4 M xyzal and 10^-5 M kidsolone, respectively. However, a dramatically spasmolytic effect was observed after co-administration of kidsolone and xyzal and the tension dropped to 67.5±13.6%, with statistical significance (P < 0.05). As for EFS-induced contractions, kidsolone had not direct effect but xyzal could inhibit it, with increasing basal tension.

Conclusions: Using glucocorticoids alone had no spasmolytic effect but it can be synergized with antihistamines to dramatically relax the trachea smooth muscle within minutes. Therefore, for NA patients with acute asthma attack, combined use of those two drugs is recommended.

Key words: steroid, antihistamine, muscarinic, cholinergic effect, trachea smooth muscle.
An improved method for temporary suture medialisation of the middle turbinate following endoscopic sinus surgery

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PURPOSE OF THE STUDY

Middle turbinate lateralisation with adhesion formation is one of the commonest complications following endoscopic sinus surgery. Temporary suture medialisation of the middle turbinate is highly effective in preventing adhesions, but descriptions in the literature are technically challenging to perform and have not identified the ideal choice of suture material, limiting the widespread use of this technique.

OBJECTIVE

We sought to describe our novel technique and choice of suture material for temporary middle turbinate suture medialisation post endoscopic sinus surgery, and to assess our results in terms of adhesion formation between the middle turbinate and lateral nasal wall.

MATERIALS AND METHODS USED

A continuous 4-0 Monocryl suture is used, easily hand tied at the caudal end of the septum, quilted posteriorly, then passed sequentially through only one middle turbinate and the septum at a time before being quilted anteriorly and re-tied to the original knot. The technique is demonstrated with detailed illustrations. Retrospective chart review of 50 consecutive cases was undertaken.

RESULTS

There was a 8% adhesion rate, with no cases requiring return to theatre.

CONCLUSION

We describe a method of temporary middle turbinate medialization that is simple, easily performed, highly effective and avoids the need for post-operative splints or packing.
RA-RDP-02
RHINOLOGY & ALLERGY – Rhinology in Daily Practice

Analysis of gender peculiarities maxillary sinuses’ shapes, accorded computer tomography in mature age persons.

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Nowadays radiological diagnostic methods, including computer tomography, is the cutting-edge to diagnose sinusitis. CT examination helps to visualize minimal changes in the walls and the cavities of maxillary sinuses. In order to be able to differentiate sinusitis we must perfectly know normal anatomy of the maxillary sinus, especially its shapes, connection with the nasal cavity, the contact with the dental roots of the maxillary tooth alignment.

Purpose of the study was to investigate the structural peculiarities of the maxillary sinus in three dimensional reproduction in the two sexes of mature age (21-60 years).

Material and methods: we have analyzed 30 CT scans of maxillofacial area – 15 males and 15 females, patients of the Medical Center 3D Diagnostics, which have held CT screening examination or examination on pathologies, not associated with maxillary sinus. The examination was carried out on the machine Point 3D Combi 500. Type of equipment: cone-beam computerized tomograph (dental tomography). Region inspection/scanning (F.O.V): 9x12cm. The size of voxel/slice thickness: 0.16mm. The exposed dose level (of radiation): 20-100mSv. Scan time: 19 seconds. Program for examination analysis: RealScan. Examination storage type: DICOM-files.

Results: Five shapes of maxillary sinuses were determined: rectangular, trapezoidal, round, oval and triangular. In frontal projection in male maxillary sinus the most often takes the form of a rectangle (40%), in female – triangle (50%). In horizontal projection of the maxillary sinuses the most often have triangular form, in both gender: men (60%) and women (70%). In the examined males a complete symmetry of the sinuses’ shape in the frontal and horizontal projections was identified in 20% of the examined male and in 50% of female. During the analyzing of the combinations of form maxillary sinuses on computer tomograms at different projections, we found, that the most often rectangular shape in front projection with triangular shape in horizontal projection are combined, and trapezoidal shape in the frontal projection with triangular shape in horizontal projection. It is worth mentioning that in the analysis of examined CT scans of patients, a complete combination of triangular shape of maxillary sinus (in 3 women) and rectangular (in 1 women) in both projections (frontal and horizontal) has been observed.

Conclusions: 1. The results of CT scans analysis allowed to emphasize 5 numbers of maxillary sinus shapes: rectangular, trapezoidal, round, oval and triangular; 2. Analysis of CT images in the frontal projection revealed that the most often shape of maxillary sinus is a rectangle in men and triangle in women. Horizontal projection: triangle shape in men and women as well; 3. Complete shapes’ symmetry of maxillary sinuses in the frontal and horizontal projections was detected in 20% of men among all examined males and 50% of women among examined females.

Maryana Cherkes
Comparative study of allergy rhinitis between children and adults

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Introduction: Allergic rhinitis (AR) is a highly prevalent disease among the worldwide population, with significant impact on quality of life and healthcare costs that affects both paediatric and adults. Numerous studies describe the characteristics of AR in adult and paediatric patients, but do not compare the characteristics between both populations.

Objectives: the aim was to compare the characteristic of AR between children and adults.

Methods: Two observational cross-sectional studies in children and adults were performed with data collection consecutively. The AR was classified according to the original ARIA criteria (o-ARIA) and a modification of this classification (m-ARIA), scores (T4SS and VAS) and comorbidities were also assessed.

Results: A total of 5405 patients (children: 1275; adults: 4130) were included, mean age of 37.5 (±13.4) years in adults and 9.05 (±1.93) years in children. Distribution by gender, was 41% girls and 52% adult females. According to their duration, was 59.5% intermittent in children and 51.5% in adults (p<0.001). According o-ARIA classification by severity in adults was 26% mild, 74% moderate/severe and in children was 10.3% and 90% respectively (p<0.001). Based on m-ARIA classification, AR in adults was 56.7% moderate and 14.5% severe and in children was 59.2% and 30% respectively (p<0.001).

The T4SS for adults (6.50 ±2.8) were higher than children (6.25 ±2.8; p <0.01). Moreover, the adults’ VAS (39.78 ±23.60) were also higher than the children’s VAS (36.99 ±25.47; p<0.0001).

Regarding comorbidities of AR, 49.5% of children had asthma and 20% of adults; 54% of children presented conjunctivitis versus 28% of adults (p<0.0001). The comorbidities were also assessed according to m-ARIA, children had more severity of AR associated with even more comorbidities, than adults (p<0.000).

Conclusion: We found significant differences between the characteristics of the AR between children and adults. Rhinitis is more intermittent and severe in children, being also more prevalent comorbidities.
Computed tomography (CT) scans have played an important role in evaluating rhinology diseases. Because of the feasibility of creating multiplanar reconstruction (MPR) images having high resolution and contrast, CT scans can be an appropriate choice for investigating the complex anatomy of PNS. Flat-panel cone-beam CT (CBCT) can be a suitable substitute for a conventional multidetector CT scanner. The advantages of achieving greater spatial resolution at lower patient radiation doses and easier image generation can also be the reasons for making this substitution. CBCT is well suited for imaging the craniofacial area. It provides clear images of highly contrasted structures and is extremely useful for evaluating bone. Efforts are being directed toward the development of techniques and software algorithms to improve signal-to-noise ratio and increase contrast. Objective of this presentation: Increasing awareness and availability of this newcomer technology in maxillofacial skeleton and rhinology. Provides some clinical applications of CBCT in rhinology practice. Reviews the specific application of various CBCT display modes to clinical rhinology practice. RESULTS: The mean effective dose of twenty consecutive CBCTs of some common rhinology diseases performed over a one year period was approximately 40% lower when compared to a similar cohort of standard MDCT examinations and 30% lower when compared to low dose sinus CT scans. The visualization of high-contrast bone morphology on CBCT was comparable to standard sinus CT, allowing clear delineation of the principal surgically relevant osseous structures. Soft tissue visibility was however limited.
Dose reduction using Cone Beam CT and CT in imaging of the anterior and lateral skull base

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Purpose: Preoperative imaging of the anterior and lateral skull-base is standard in otorhinolaryngology. Regarding the optimization, the conflict between imaging quality and dose-reduction remains unresolved.

Materials and methods: In a first step the principle possibility of dosage reduction was analyzed. Based on different tube adjustments, images of the anterior and lateral skull base were taken at one phantom and four cadaveric heads with the Cone Beam CT (CBCT). The dosages applied to the lens and parotid glands were measured with OSL dosimetry. The imaging quality was evaluated by independent observers. All datasets were reviewed according to a checklist of surgically important anatomic structures. In consequence of this research, the standard protocols of the examinations of lateral and anterior skull base were changed. Afterwards, 165 examinations of the old and 165 examinations of the new protocol were compared regarding the imaging quality in a relevant cohort of patients. In a third part of the study, the potential of dose reduction using conventional CT was analyzed and compared to the previous results of CBCT studies.

Results: Regarding the first part of the study, as well for paranasal sinuses as for temporal bone a constant excellent imaging quality could be seen in high dosages. Certainly, in low dosages a reduction of imaging quality was detected. The optimal range (all parameters visualized well as average) could be evaluated for paranasal sinuses between 2.0 and 3.0 mGy and between 3.0 and 4.0 mGy for temporal bone. So, a reduction of 70–80% in comparison to highest adjustments was possible. In this combination, a reduction of 92% in lens-dose and of 77% of dosage at the parotid gland was observed. In the second part of the study, no significant differences could be detected. In this conclusion, the possibility of dose-reduction in daily routine could be proofed. In the third part of the study, conventional CT turned out to have also a relevant potential of dose reduction. In comparison to CBCT, it was not as high (optimized dosage at paranasal sinuses: CT 3-4mGy vs. CBCT 2-3mG) but significant reduced to the standard protocols.

Conclusion: The discussion of clinical needed imaging quality by otorhinolaryngologist together with the potential of the devices (CT, CBCT) by radiologists results in a significant dosage reduction in daily routine and more safety of our patients.
Emergency Nasal Packing for Epistaxis: Merocel vs Rapid Rhino a prospective study

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Purpose of study

Nasal packing in England typically involve either Merocel packs or Rapid Rhino devices. This study aims to discover the clinical differences between the two types of packing.

Methods

Patients were exclusively packed with Merocel for a period of 3 months, and then a change of clinical practice was instigated and patients were then exclusively packed with rapid rhinos. Each patient was evaluated in terms of ease of packing, clinical effectiveness, complications, pain etc.

Results

Rapid rhinos are significantly easier and less painful to insert. They are less likely to result in a bleed whilst in situ, and result in fewer cases requiring a surgical procedure. They also can be deflated, allowing assessment of bleeding risk without requiring a full re-insertion.

Conclusions

Rapid Rhinos are more expensive than Merocels, and in times of financial austerity, some NHS trusts in England may consider reverting to a 'cheaper' option. This study shows that the cost benefit ratio for using Rapid Rhino devices for emergency epistaxis certainly out weighs this perceived cost saving. We also postulate that using Rapid Rhinos will negate the need for antibiotics in nasal packing as there is no sponge like effect holding material in suspension within the nasal cavity as in Merocel packing. This would further reduce the costs associated with Rapid Rhino devices.
FEASIBILITY STUDY OF BILATERAL RADICAL ETHMOIDECTOMY IN AMBULATORY SURGICAL PROCEDURES: A RETROSPECTIVE STUDY

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Introduction and objective: The development of ambulatory surgical procedures answers to the government’s and the population’s will to optimize medical resources while ensuring medical care quality and patient security. Day surgery has the advantage of being cost-effective and resource-sparing. The objective of this study is to assess the feasibility of bilateral radical ethmoidectomy in ambulatory surgical procedures by evaluating its risks.

Methods: This retrospective monocentric study over 2 years, from July 2014 to October 2016 included all patients undergoing bilateral radical ethmoidectomy associated or not with sphenoidotomy and/or septoplasty in an inpatient unit in a university ENT department. We recorded demographic data, disease etiology, previous surgery, operative details, postoperative data, the complications, the length of hospitalization. We applied to our population all the criteria of eligibility for an ambulatory surgical procedure and we made a financial analysis on the eligible population, comparing the earnings between an inpatient hospitalization and an outpatient one.

Results: We included 127 patients with a mean (± SD) age of 49 (± 16) and a sex ratio of 1.9. Surgical indication was in 85.8% of cases nasal polyposis, 4.7% chronic sinusitis without nasal polyps and 9.5% cystic fibrosis; 23.6% of patients were asthmatic and 18.1 % had Samter triad. Fifty-eight (47.7%) patients had previous surgery. Thirty-two patients (25.2%) had an anesthetic contraindication for ambulatory surgery. The mean (± SD) time of anesthetic induction was 12:49 p.m. (± 2:35). The mean (± SD) duration was 77 (± 30) minutes for ethmoidectomy alone ± sphenoidotomy versus 100 (± 44) minutes for ethmoidectomy with septoplasty ± sphenoidotomy (p<0.05). There was a statistical difference of operating durations between a first surgery and a revision one (p<0.05). Eleven patients (8.7%) suffered from epistaxis within the 6 postoperative hours that could have prevented them from going back home. Five patients (3.9%) would have been kept in standard hospitalization for medical reasons not related to surgery. There were 9 breaches of the lamina papyracea (7%). Two patients (1.6%) had bleedings in post anesthesia care unit which required cautерization under general anesthesia. Twelve patients presented epistaxis, hematoma, infection or pain between day 2 and day 21 after surgery. The mean length of hospitalization was 1.6 days.

Conclusion: Considering anesthetic contraindications, immediate complications and our organizational limitations, 58% of the patients were eligible retrospectively for a safe ambulatory procedure. The medico-economic earning results and a prospective study with assessment of patients’ satisfaction are ongoing.
Flexible laser SPA ligation: an alternative to the classic approach

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Purpose of the study

Epistaxis is one of the most common ENT emergencies and also a well-known reason for hospital admission. About 5-15% of hospital admissions will finally require surgical treatment, with the most preferable method being ligation of the sphenopalatine artery (SPA). We are aiming to present an alternative to the classic approach which may help the surgeon overcome any obstacles leading to difficult access of the SPA area.

Materials and Methods

Flexible Diode laser fibre was used in a nasal or an even longer laryngeal handpiece in selected cases where access to the SPA area was limited due to septal spurs, narrow nose or significant bleeding. We followed all the initial steps of the classic approach in order to identify the crista ethmoidalis and the SPA branches. The SPA branches were coagulated with the laser and light packing with Surgicel or Nasopore was applied to the area.

Results

All cases were uneventful, with no rebleeding or other complications in the postoperative period. Surgical time was kept within the expected timeframe, avoiding copious ligation of the artery when trying to use the bipolar forceps in an extremely narrow space. Our patients were discharged on the following day of the operation.

Conclusion

We believe that this alternative method should be in the surgeon’s armamentarium as it can make an operation safe and significantly shorter in duration. This is crucial, as most of the patients who undergo SPA ligation are frail elderly people, often with multiple comorbidities, whose status may deteriorate after a long and copious procedure.
Frontal sinus balloon sinuplasty. Effectiveness in the management of chronic frontal sinus headache / facial pain.

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Title:

Frontal sinus balloon sinuplasty. Effectiveness in the management of chronic frontal sinus headache / facial pain.

1. Purpose of the study:

Frontal headache attributed to rhinosinusitis, commonly called frontal sinus headache (FSH), is probably one of the most prevalent secondary headaches. The purpose of our study was to assess the effectiveness and safety of balloon sinuplasty in addressing symptoms in patients suffering from FSH.

2. Materials and methods used

22 patients, ages 12-80 (mean 43), with chronic frontal headache (16) / facial pain (6) according to AAO-HNS and HIS diagnostic criteria were enrolled over a 2-year period.

All patients had failed medical therapy. A pre-operative sinus CT was obtained. Bilateral disease was present in 10 cases. Pre-operative Lund Mackay score was between 1-12 (mean 5). SNOT 22 and a VAS pain score was collected pre-operatively and at 3 month post-operative FU and used as an outcomes measure.

Balloon sinuplasty was performed as a day case under GA either as a standalone technique (11) or in conjunction with conventional FESS in a hybrid technique (11).

3. Results

Patients’ SNOT 22 score improved from 33-79 (mean 54) pre-operatively to 0-37 (mean 15) post-operatively (improvement by 70%). VAS pain score improved from 9 pre-operatively to 1 post-operatively (improvement by 88%). No complications were presented. Patients with successful outcome were given instructions for patient initiated FU and a telephone FU in 1 year was arranged. No recurrences were reported and no revisions were required in the study period.

4. Conclusion

Balloon sinuplasty is an effective and safe alternative to conventional sinus surgery in patients with symptomatic frontal sinus headaches / facial pain.
High pressure – middle volume isotonic sea water in patients after extended endoscopic sinus surgery.

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**Purpose of the study**

We have evaluated the benefits of high pressure–middle volume isotonic sea water usage in crusting prevention after extended endoscopic sinus surgery (ESS) procedures. We have encountered high degree of crusting in patients after ESS procedures especially after resection of inverted papilloma or frontal sinus surgery, when low pressure-low volume isotonic nasal douching systems were recommended and used.

**Materials and methods used**

This study has been designed as a prospective, non-blinded, cohort, pilot study. Patients were enrolled consecutively at tertiary referral institution 2 weeks after ESS. We have included 8 patients following the beforehand mentioned surgeries; all patients with skull base reconstruction, malignant disease and patients with simple ESS procedures have been excluded. All 8 patients have received high pressure–middle volume isotonic sea water systems from one manufacturer (Tonimer Lab Strong, Istituto Ganassini S.p.A., Milano, Italy) free of charge. Patients evaluated their nasal state especially regarding pain, discomfort, discharge, fullness of the nose using Likert scale from 0 (no problems) to 10 (most severe problems) - VAS at first (at 2 weeks), second, third and fourth follow-up visit (at 6 weeks). As control group we have randomly examined the records of 8 patients after various ESS for inverted papilloma (IP) operated at the same institution from 2014 to 2015.

**Results**

Out of 8 patients (4 females, 4 males, mean age 55.25 (SD 10.5) years) none has been lost to follow-up. 1 patient had medial endoscopic maxillectomy, 3 had added total ethmoidectomy with or without sphenoidectomy, 2 had extended frontal sinus procedure (Draf IIb III) and 2 extended frontal procedure with medial maxillectomy. 2 have stopped the use of nasal douche prematurely. One had a delivery system failure, one felt the blast was too strong. No one had reported epistaxis or pain after using the system. All eight patients from study group reported no crust formation at the end of study (mean 5.62 weeks). In control group 8 had significant crusts at 8 weeks. Their entering VAS score was 8.38 (vs. 7.38 p=0.08), their end score was 4.88 (study group 1.75, p=0.008).

**Conclusion**

The role and regime of nasal douching after ESS surgery is still somewhat confusing regarding standard protocol of use. In special cases after extended endonasal surgery where nasal crusting is significant, high pressure–middle volume isotonic sea water may be a better option than low pressure-low volume douching.
Iatrogenic Epistaxis: The burden of antiplatelets and anticoagulants

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Purpose of the Study: This study aimed to evaluate the extent of ‘iatrogenic epistaxis’ patients attending a large centralised ENT emergency department covering greater Glasgow, in Scotland, United Kingdom.

Materials and methods used: A retrospective review of all patients presenting with epistaxis to the Queen Elizabeth University Hospital Glasgow ENT department from 1/5/2015 to 30/11/2015 was performed. Patients’ demographics, antiplatelet (AP) and anticoagulant (AC) prescription with its indication, haematological results, and length of hospital stay were recorded. A descriptive analysis and chi-square test was used to establish differences between these groups.

Results: 192 patients (mean age 70.95, SD+/15.8, 44% male) were included in the analysis. 73% of these were on either AP or AC medications, with 43% on an antiplatelet and 37% on an anticoagulant. The mean International Normalised Ratio of those on warfarin was 3.7, of which 55% were above therapeutic range and 30% of these were given vitamin K for reversal. Blood and blood product transfusion rate was 8.3%. 94% received packing and/or cautery. 10% required surgical intervention, of which 79% were on AP/AC. There was a 6% increased likelihood of requiring surgery if the patient was on AP/AC medication (5.8% vs 11.8%, p=0.3). The length of stay was 18% greater in those taking AP/AC (1.48 days vs 1.75, p=0.09). The main indications for AP/AC therapy was cardiac or vascular disease.

Conclusion: Our results show an increased rate of surgery and longer hospital stay in patients on AP/AC medication. The risk of iatrogenic epistaxis needs to be balanced against its benefit. Continuous evaluation and close monitoring of these medicines is required especially in those with recurrent epistaxis.

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INCIDENTAL FINDINGS OF PARANASAL SINUSES IDENTIFIED ON COMPUTER TOMOGRAPHY SCANS

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PURPOSE OF THE STUDY

The aim was to retrospectively analyze the occurrence and the types of incidental abnormalities of paranasal sinuses detected by radiographic examinations in the Latvian population and to find the factors which have influence on incidental findings.

MATERIALS AND METHODS

The research work included retrospective data of three hundred patients. They underwent spiral computer tomography (CT) scan of the head referred for non-sinus pathologies in Pauls Stradins Clinical University Hospital in Latvia between February 2015 and October 2015.

RESULTS

Age of patients with incidental findings of paranasal sinuses ranged from 20 till 92 years. The mean age was 70.29 ± 12.65 years. Distribution by gender was as follows 47% male and 53% female.

Analysing descriptions of CT scans made by radiologists for primary pathology and evaluating CT scans it was found that the most frequent incidental finding is pathology of sinus mucosa. Mucosal thickening was the most frequent. The most frequently affected were sinus maxillaris dextra et sinistra. The degree of mucosal pathology in maxillary sinuses was measured. Mild mucosal pathology predominates. Sinus maxillaris dextra is the location where noted total opacity during staging CT scans with Lund-Mackay score. There was statistically significant association (P = 0.0255) between the type of incidental finding and the mean age of patients. Patients with nasal polyp or pathological substrate were the oldest. Pathological substrate and retention cyst was more common among females than males (P = 0.0007). Radiological signs of acute sinusitis were more common during winter, but antrolith was not noted during winter period at all (P = 0.0041).

CONCLUSION

Results confirmed that, radiological incidental findings in paranasal sinuses are common in Latvian population. The most common incidental findings are mucosal pathologies of mild degree in maxillary sinuses. The patient’s age, gender and season has statistically proven impact on incidental findings. Deviated nasal septum and enlarged inferior nasal turbine has no influence on incidental findings in paranasal sinuses. Incidental findings may be considered in the individual clinical context of signs and symptoms, reducing the risk of overestimation of the real impact of radiographic findings.

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Management of Epistaxis in Patients with Ventricular Assist Device: Significance of Acquired vonWillebrand Disease

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Introduction/Objectives:

Patients with a ventricular assist device (VAD) are at risk for epistaxis due to the need for anticoagulation. In addition, these patients can develop acquired von Willebrand disease (vWD) due to the device. Management is complicated by the high risk of thrombotic events if anticoagulation is reversed. This study sought to characterize the clinical features and management of epistaxis in this high-risk patient population.

Methods:

Retrospective review of 49 patients at a tertiary care hospital. Adults with VAD and epistaxis necessitating consultation with the otolaryngology service were included.

Results:

A supratherapeutic INR (> 2.0) was present in only 18 patients (36.7%). However, all patients had a diagnosis of acquired vWD. Anticoagulation was held in 14 (28.6%) patients, though active correction was not performed. Multiple interventions were required in 16 (32.7%) patients. Spontaneous epistaxis was associated with multiple interventions (Chi-square = 5.345 P-value = 0.02). The use of nasal packing was associated with a lower likelihood of bleeding recurrence (Chi-square = 3.743 P-value = 0.05). Surgery or embolization was not required urgently for any patient. Endoscopy under general anesthesia was performed for one patient electively.

Conclusion:

Acquired von Willebrand disease, rather than a supratherapeutic INR, was the main contributor to epistaxis in our patient cohort with VAD. While these patients are at high risk for recurrent spontaneous epistaxis, nonsurgical treatment without active correction of INR or vWD was largely successful. Otolaryngologists should suspect acquired vWD in patients who are at risk for this poorly-described disease entity.
INTRODUCTION
The mucormycosis is a rare fungal disease, severe and invasive, of quick and fulminating evolution. Actinomycosis is a bacterial infection whose differential diagnosis is often difficult by the low prevalence; most often affect both immunocompromised patients.

OBJECTIVE
Describe a rare case of rhinofacial infection mucormycosis associated to actinomycosis in an immunocompetent patient.

RESUMED REPORT
EMS, 60, male, diabetic, with a history of facial pain in the jaw region for 4 months, resulting in pain and bilateral periorbital edema. He denied nasal obstruction, fever, yellowish rhinorrhea, or hyposmia, trauma or previous surgery. Reported weight loss of 22 kg in the period.

He held Computed Tomography of paranasal sinuses, showing extensive osteolytic process on the left face with involvement of adjacent soft tissues, including the skull base, periorbital region and oral cavity, and multifocal sinusitis.

The patient underwent treatment with several antibiotics without improvement. He developed worsening of facial edema and periorbital on the left face, with subsequent drainage of purulent and bloody secretion by the injury in zygomatic region.

Patient underwent surgery with multiple biopsies of bone and mucous fragments of the left maxillary and sphenoid sinus, whose anatomopathological study concluded as osteomyelitis associated to mucormycosis with actinomycosis coinfection.

Systemic antifungal therapy was instituted with Amphotericin B and antibiotic therapy with Ceftriaxone and Clindamycin.

CONCLUSION
The mucormycosis and actinomycosis are opportunistic diseases that manifest as a diagnostic challenge and require histopathologic confirmation and implementation of appropriate culture tests. The treatment consists of combination of surgical debridement and prolonged therapy.
Nasoendoscopic-assisted local sclerotherapy with Lauromacrogol 400 for the treatment of Hereditary Hemorrhagic Teleangiectasia (HHT) and anterior epistaxis.

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Purpose of the study

Epistaxis is one of the most common otorhinolaryngologic emergencies representing each year more than 12% of conditions managed at our ENT emergency department. It affects up to 60% of the population in their lifetime and 93% of patients with HHT.

The high incidence of epistaxis represents a significant healthcare cost and gives us the opportunity to modify the cost-benefit equation by adopting effective management strategies.

Purpose of this study is to demonstrate the effectiveness of LA submucosal injections for anterior epistaxis and HHT treatment.

Materials and Methods

Lauromacrogol 400 (Aethoxysklerol®) injection technique: 0.5-1ml single or multiple infiltrations next to the bleeding point with a 27-gauge needle (BD Microlance™ 3). In order to achieve the best result it is important to observe the whitening of the nasal mucosa around the bleeding point during the infiltration. We also performed bilateral treatment at the same time.

We treated 26 consecutive patients (27 procedures) with anterior epistaxis with this technique, and compared them with a traditional approach, nasal packing (NP), in 26 patients.

We also report our experience with 16 patients affected by HHT and treated from 2001 till now with Lauromacrogol infiltrations.

Results

Lauromacrogol infiltrations demonstrated to be better tolerated, to have a higher remission rate, lower morbidity and costs, compared to NP.

A periodical treatment in patients with HHT has allowed to considerably reduce the episodes of epistaxis and need of blood transfusions.

Conclusion

Lauromacrogol infiltrations is a valid alternative in HHT and anterior epistaxis treatment. It is safe, easy to use, with a good efficacy and low costs.
Outcomes after functional endoscopic sinus surgery with ethmoidectomy performed as an outpatient procedure: our experience in a University hospital

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Objectives: To evaluate our activity of ambulatory FESS with and without ethmoidectomy under general anesthesia to analyze the success and safety of this procedure as an outpatient surgery. Our results could help recommending FESS as a generally accepted outpatient procedure whether it involves complete unilateral or bilateral ethmoidectomy.

Methods: A retrospective study was conducted from January 2014 to January 2016. Patients undergoing FESS with or without ethmoidectomy under general anesthesia as an outpatient procedure were included. Clinical data (age, gender, Body Mass Index (BMI), active smoking status, associated medical disease) were extracted from surgical and anesthetic computer files. We assessed surgical and anesthetic complications, unexpected hospitalizations and readmissions over a 30-days surveillance period. Each patient was called at home at day-1 to determine the level of pain and satisfaction, as well as to check for unexpected problems during the first night after discharge.

Results: Over 2 years, 500 patients had FESS with (114 patients: 23 unilateral and 89 bilateral ethmoidectomy) or without ethmoidectomy (369 patients). The 2 groups showed no differences (age, sexe, comorbidities, smoking). The length of the procedure was 50 min on average and significantly longer when bilateral ethmoidectomy was performed. Immediate hospitalization was required for 24 patients (4.8%) mainly due to bleeding (29%), with no difference between the 2 groups. Unexpected admission to the emergency room occurred in 8 patients within 30 days after FESS (1.6%) because of bleeding (62.5%) or pain (25%), with no statistical difference between the 2 groups. Conclusion: Our study strongly supports that FESS with ethmoidectomy can safely and effectively be performed as an ambulatory procedure, with an acceptable readmission rate. Increasing patient eligibility for ambulatory rhinologic surgery and extending the list of recommended procedures are major measures that can impact careful scheduling of patients in outpatient settings.
Patterns of hospital admission for patients with epistaxis over a 20-year period in Scotland, UK

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Epistaxis is a common otolaryngological emergency, accounting for 33% of all ENT emergency admissions, placing a considerable burden on resources and hospital bed days. The aetiology of the majority of epistaxis remains unclear, but the remainder are often caused by anticoagulant therapy, trauma and alcohol. Previous studies have reported that epistaxis is more common with increasing age. There are no previous published studies looking at epistaxis in relation to deprivation and mortality.

Aims: The aim of this retrospective review was to identify the following: admission rates over the study period; bed day usage per admission; deprivation scores for epistaxis admissions; mortality after one year for patients admitted to any NHS Scotland hospital with epistaxis.

Methods: Data was gathered for a period of 20 years between 1995 and 2015 from Information Services Division (ISD) Scotland. Information collected included number of hospital admissions with epistaxis, bed days, Scottish Index of Multiple Deprivation (SIMD) score (1 being most deprived, 5 being least), and mortality after one year of admission.

Results: The total number of admissions over the study period was 54,501. The numbers of admissions per year remained stable over the study period, with a mean of 2595 (SD 197). Male-to-female ratio was 1.1:1. The length of stay was an average of 3.1 days per patient in 1995, compared to 2 in 2015, a decline of 1.08. There was a difference of 4200 admissions between those of SIMD scores 1 (12,797) and 5 (8,597), and a difference of 13,940 bed-days between those of SIMD scores 1 (35,724) and 5 (21,784). The number of deaths within a year of admission was higher for those with a score of 1 (1224) compared to 5 (764).

Conclusions: This study highlights that the epidemiology of epistaxis has not changed significantly over 20 years. Despite new management methods for epistaxis patients (SPA ligation), the length of stay has not decreased significantly. Socioeconomic deprivation plays a role in both duration of stay and mortality rates post-discharge.

Authors: Broadbent, B. Douglas, C. Montgomery, J. Tikka, T. No affiliations.
Purpose of the study:
To identify predictive factors of readmission after day-case rhinologic surgery in patients undergoing sinonasal procedures under general anesthesia. To evaluate safety, efficacy and patient satisfaction within an ambulatory rhinologic surgery unit.

Methods:
A 2-year retrospective chart review of patients scheduled for ambulatory sinonasal surgery in a tertiary medical center was conducted to assess unplanned admission rates and to define predictive factors for unanticipated admission. The operating room and the anesthetic files were screened to identify demographic data, types of procedure, comorbidities and postoperative complications. Patients’ charts were reviewed up to one year after the procedure.

Results:
From January 2014 to January 2016, 924 outpatient sinonasal procedures were identified. The overall readmission rate within the 30-postoperative days was 5.1% (2.9% for overnight hospital stay, 2.2% for unplanned post procedure visit to the hospital via the emergency room, or directly to the surgical unit within 30 days of discharge). Age > or = 50 years, surgical duration > or = 80min, endoscopic sinus surgery procedures and postoperative nasal packing were identified as negative predictive factors of readmission.

Conclusion:
Careful scheduling of those higher-risk patients undergoing sinonasal surgery and appropriate postoperative observation should be implemented to improve healthcare quality in an outpatient setting.
La chirurgie endonasale est largement répandue et pratiquée. En France elle représente plus de 20000 actes annuels. La complication la plus redoutée est l’hémorragie post-opératoire. Elle amène souvent le chirurgien à utiliser en fin d’intervention à titre préventif différents dispositifs médicaux. Ceux-ci sont soit inconfortables (mèches), soit d’un cout non négligeable (matrices protéiques avec ou sans thrombine) ; et surtout leur nécessité n’est absolument pas certaine. En 2001, la société française d’ORL ne préconisait « aucune recommandation concernant le type de pansement à utiliser », et précisait qu’« en l’absence de risque hémorragique, il est également possible de laisser la fosse nasale libre en fin d’intervention ». Aucune étude à ce jour n’a comparé les différents types de dispositifs médicaux avec une puissance suffisante.

L’objectif de notre étude est de comparer 4 modalités de prise en charge peropératoire : abstention, mèche d’alginate (Algostéril®), matrices protéiques sans (Surgiflo®) et avec thrombine (Floseal®).

Il s’agit d’une étude nationale prospective multicentrique randomisée, financée par le programme national de soutien aux techniques innovantes et coûteuses. Treize centres ont participés. Les patients sélectionnés n’avaient aucun risque hémorragique connu (pathologie ou traitement), les indications retenues étaient des chirurgies fonctionnelles sans ouverture des parois externes des sinus, sans nécessité de contention endonasale. La randomisation intervenait en fin d’intervention, alors que le chirurgien ne prévoyait aucun geste complémentaire.

Cinq cent sept (507) patients ont été inclus (219 femmes), avec la répartition suivante parmi les 4 bras : abstention 130, Algosteril® 125, Surgiflo® 126 et Floseal® 126. Les groupes étaient comparables en termes d’âge, sexe, pression artérielle, taux de plaquette, fibrinogène, TCA, TP, score scannographique et indications opératoires (exceptée la méatotomie inférieure : Algosteril®=4, Surgiflo®=4, Floseal®=0, Abstention=8 ; p=0,02). Aucune différence n’a été mise en évidence en termes d’hémostase : en peropératoire, à la 6ème heure et à la 24ème heure. L’évaluation à la 6ème heure révèle une douleur (p=0,004) et une obstruction nasale (p<10-5) supérieure dans le bras Algostéril® ; et une absence de différence entre les bras pour la rhinorrhée. A la 24ème heure (après ablation de la mèche) la douleur (p=0,0007) et la rhinorrhée (p=0,004) sont significativement plus importantes dans le bras Algostéril® ; alors que l’obstruction nasale et la rhinorrhée sont similaires dans les 4 bras.

En conclusion nous recommandons, en chirurgie endonasale de routine, l’absence d’utilisation de moyen de prévention hémorragique en raison de leur absence de supériorité et de leur plus grand inconfort.
Resolution of epistaxis associated with Hereditary Haemorrhagic Telangiectasia with septal button placement. An unexpected outcome.

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Purpose: To report a first case of silastic septal button placement resulting in complete resolution of epistaxis in a patient with uncontrolled Hereditary Haemorrhagic Telangiectasia (HHT).

Materials and methods: Retrospective case review and focused patient interview.

Results: A 32-year-old woman with HHT and recurrent severe epistaxis due to endonasal telangiectasias. Previous management included topical treatment with Naseptin® nasal cream, vaseline, oestrogen cream and repeated Potassium Titanyl Phosphate (KTP) laser ablation of the nasal mucosa. Response to these treatments were partial and temporary. She had frequent hospital admissions for repeated laser ablation every 3 to 4 months with the need for multiple general anaesthetics.

She developed a 0.5 cm anterior septal perforation secondary to previous laser ablation to the nasal septum, resulting in crusting and whistling. A decision was made to use a septal button to close the perforation as opposed to surgical closure. Surgical closure with mobilisation of septal flaps would have been challenging given the bleeding risk in HHT. A silastic septal button was inserted to manage septal perforation, following which the patient described not only improvement of crusting and whistling but also complete resolution of epistaxis, with a significant positive impact in quality of life.

Conclusion: HHT-related epistaxis can pose a therapeutic challenge and is believed to be attributable to endonasal telangiectasias that are extremely fragile and bleed in the presence of turbulent nasal air flow. Many of the topical treatments act as barrier or emollient to prevent bleeding.

Nasal septal perforations cause increased airflow velocity and greater shear stress that can lead to intranasal crusting, discharge, pain, epistaxis, and whistling. Our theory is that in our patient the septal button acted as a barrier and reduced the turbulent flow, which could explain why there was complete resolution of epistaxis.

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Rhinogenic orbital inflammation – what has changed over the past 50 years?

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Background: We have compared the incidence, diagnosis, and treatment of rhinogenic inflammatory complications over the past 50 years. Methodology/Principal: This was a retrospective study of 292 patients ENT department, University hospital: Group A (treated from 1966–1995) and Group B (1996–2015).

Results: Preseptal inflammation was the most common type (73% vs. 74%), followed by subperiosteal abscess (21% vs. 20%). Surgery was indicated in 35% vs. 37% of the patients. The most commonly used surgical approach was the external route (80%) in Group A and endoscopic endonasal surgery (60%) or a combination of endoscopic surgery of the paranasal sinuses and external orbitotomy (30%) in Group B. The percentage of reoperations was 13% vs. 14%. In cases of revision surgery, the orbit was always treated using the external surgical approach. Complete recovery was achieved in 92% and 98.5% of the patients belonging to Group A and B, respectively.

Conclusions: Nowadays, the endoscopic endonasal approach is the most frequently used surgical technique if the primary inflammatory site is in the paranasal sinuses. The technique used to treat the orbital complication itself depends on several factors. The endonasal and the external approach can be used; the external approach is preferred if revision surgery is needed.
Selection of aerosol type for nasal irrigation

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Nasal irrigation feasibility in ENT-diseases complex treatment is proved. However, a large variety of manufactured forms for nasal irrigation, which have different composition and type of spray (different intensity of elimination activity), creating difficulties for the individual choice.

The purpose of the study is to determine the criteria for nasal irrigation mean selection, depending on topical features.

Materials. The study included 301 patients from 6 to 55 years with various diseases of ENT-organs. Methods: anamnesis; physical examination; ENT examination; nasal cavity and nasopharynx endoscopy; acoustic impedance measurements; microbiological, cytological and palynological study of nasal secretions; questionnaires, based on visual analogue scale (VAS) and patients diaries data. All data were statistically processed.

Results. We found that means, which form a jet under pressure, have higher elimination activity. They are useful in case of inflammatory process localization in posterior part of nasal cavity and nasopharynx. Means for nasal irrigation, which form a shower and spray, clean the front parts of nasal cavity. In addition, they improve the mucous membrane functional activity. They can be recommended in case of allergic inflammation, nasal cavity mucosa subatrophy and after nasal cavity surgery. Rhinosinusitis topical features (revealed at endoscopy) will determine the choice of mean for nasal irrigation.

Discussion. Nasal irrigation in ENT-diseases complex treatment reduces clinical manifestations severity of allergic rhinitis, contributes to inflammatory process in paranasal sinuses and pharyngeal tonsil relief. This type of treatment leads to faster rhinosinusitis resolution reduces the need of adenotomy in 2.7 times and completely restores nasal breathing in some patients.
SINONASAL COMPUTED TOMOGRAPHIC FINDINGS IN MIGRAINE: CLINICOPATHOLOGICAL CORRELATION

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Purpose of the Study: The aim of this study is to analyze the computed tomographic sinonasal abnormalities in patients with migraine who were previously misdiagnosed as sinus headache with special emphasis to the clinicopathological correlation between such abnormalities and migraine. Materials and Methods: A retrospective review of the medical records of patients who met the IHS criteria of migraine and who were previously misdiagnosed as sinus headache was undertaken. CT scans were assessed for sinus abnormalities using the Lund-Mackay score. Other evaluated findings included septal abnormalities and pneumatization of the middle or superior turbinate. Results: Two hundred and sixty eight patients were included in the study. Sinonasal radiographic abnormalities were detected in 118 patients (44%). Septal abnormalities included septal deviation (42 patients) and septal impaction (35 patients). Concha bullosa of the middle or superior turbinate was reported in 29 patients. Twenty-four patients showed an evidence of opacification of the ostiomeatal complex and paranasal sinus without a clinical evidence of chronic rhinosinusitis. The mean Lund-Mackay score of such patients was 2 ± 1.35. The correlation between the sidedness of headache and intranasal pathology was only statistically significant in patients with septal impaction and in those with concha bullosa with proven contact with the nasal septum. The effect of surgical treatment of intranasal pathological conditions on the severity and frequency of migraine was analyzed. Conclusions: Sinonasal abnormalities are common in patients with migraine. Precise correlation between the clinical presentation and radiological findings is important to define those patients with possible intranasal triggering factors for migraine that might be corrected by surgical treatment.
Surgical Anatomy of the Sphenopalatine Artery. Utility in Ligation Due to Posterior Epistaxis.

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Purpose of the study:
The purpose of this study is to review the anatomy of patients who have been operated on posterior epistaxis in our hospital. It’s important to know the anatomy of the sphenopalatine artery (SPA) and its branches, even for expert surgeons, for the success of surgical treatment.

Materials and methods:
A retrospective study from September 2013 to April 2016 was carried out in which we included all patients with posterior epistaxis whose therapeutic treatment was the ligation of SPA performed at our hospital.

The variables of the patient and the surgery were collected.

Results:
The coagulation of SPA was performed in 18 patients, 14 males (77.7%) and 4 females (23.3%). The mean age was 56.3 years (range 18-81 years). 8 patients had high blood pressure and 5 were also anticoagulated. Surgery was performed on 16 patients after failure of the double balloon catheter.

The ethmoidal crest was located in all patients, in relation to the SPA it was higher in 72.2%, anterior in 22.2% and inferior in 5.5% of the patients. We located the two branches of the SPA at the sphenopalatine foramen in all patients, the posterior nasal artery and the nasoseptal artery. 5 patients presented 3 branches, 3 patients had 4 branches and 5 patients had a single branch. In 8 patients the accessory foramen was located.

One patient presented a new bleeding on the same day of the intervention. He required embolization of the internal maxillary artery. The other patients were discharged the next day without nasal packing and without new bleeding episodes.

Conclusion:
In our series, 94.4% of the patients did not present an episode of new bleeding or any complication, however, the time period evaluated was short.

The most important point of reference for us is the ethmoidal crest.

Knowing the anatomical variability of the SPA helps in the success of the intervention.
The topical inhalation treatment of acute bacterial rhinosinusitis.

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Epidemiological studies in the world show that the inflammatory diseases of the nasal cavity and paranasal sinuses are the leading cause of ENT hospital admissions and outpatient clinic referral. The most common cause of acute rhinosinusitis is viral infection, but antibiotics are prescribed in more than 80% of cases, which may lead to the development of antimicrobial resistance. The topical nebulizer inhaled treatment of rhinosinusitis is rare.

Purpose of the study is to evaluate the efficacy of topical inhalation treatment of acute bacterial rhinosinusitis using pulsating aerosol in comparison with systemic antibiotic therapy.

Materials and methods. 60 adult patients at the age from 19 to 62 years with the diagnosis uncomplicated acute bacterial rhinosinusitis has been included in opened randomized controlled trial. 30 patients have been treated with nasal nebulizer inhalation with N-acetyl-cysteine in combination with thiamphenicol on 500 mg once daily using pulsating aerosol. Pulsatung aerosol was obtained by PARI SINUS device. Controls - 30 patients have been treated with antibiotic therapy of acute bacterial rhinosinusitis using 875/125 mg oral amoxicillin/clavulanate twice daily. An assessment of efficacy of treatment were performed with a six-point scale E.Hultcrantz including such important symptoms of rhinosinusitis as nasal congestion, blockage, and facial pain. An objective assessment of the results of treatment performed using an active anterior rhinomanometry and nasal endoscopy.

Results. For main symptoms of acute bacterial rhinosinusitis was no significant benefit of antibiotic therapy as compared to topical inhalation therapy using pulsating aerosol. Both treatment options were effective against acute bacterial rhinosinusitis, which is confirmed by the improvement of symptoms, active anterior rhinomanometry and nasal endoscopy.

Conclusion. The topical nebulizer therapy of acute bacterial rhinosinusitis may provide better treatment options, because systemic antibiotics can be associated with different adverse effects.
The usefulness of Cone beam computed tomography (CBCT) imaging in preoperative assessment of patients with chronic sinus diseases

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Cone beam computed tomography (CBCT) is imaging technique is relatively new tool in diagnosis of ear, nose and throat diseases.

The aim of this study was to analyse the usefulness of cone beam computed tomography (CBCT) in preoperative assessment of patients with chronic sinus diseases.

Clinical analysis of CBCT data was performed in everyday clinical practice in 60 patients with chronic sinusitis and sinonasal polyposis. Experienced ENT surgeons independently analyzed important radiologic landmarks as a part of preoperative assessment of endonasal sinus surgery (ESS) The analysed radiologic landmarks were: the extent of disease, the presence of anatomic variations, visualization of bone structures and borders of the sinus walls and presence of scar tissue. Each item was described and scored by questionnaire. Scores of analysed landmarks were described as: (1) could not be identified, (2) identified but poorly-defined and (3) well-defined.

The results showed well defined extent of disease in 91.7%, and 95% respectively. Anatomic variations were well defined in 95% and 96.7% respectively. CBCT was successful in analysis of bone structures and borders of the sinus walls with 98.3% well defined scores by each surgeon. In cases when surgeons evaluated visualization of scar tissue CBCT images were poorly-defined in 71.4% and 85.1% respectively.

The advantage of this imaging method is good quality of radiologic images generated at low radiation doses. Low cost and easy performing imaging technique is advantage, too. The disadvantage of the method is the limited soft tissue differentiation. This imaging cannot be performed in disabled people, children and patients who are in intensive care unit. The surgeons in this study noted that CBCT scan is confident and reliable in the process of diagnosis chronic sinusitis and planning endoscopic sinus surgery.
Unilateral versus bilateral transnasal endoscopic sphenopalatine artery ligation in adult unilateral epistaxis: a comparative retrospective study

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Background: Transnasal endoscopic sphenopalatine artery ligation (TESPAL) is a common treatment of intractable epistaxis. In unilateral epistaxis, some surgeons perform only an ipsilateral TESPAL whereas others prefer to ligate the sphenoapalatine artery bilaterally. To our knowledge, there has been no study comparing the effectiveness of these 2 strategies. The aim of this study was to evaluate the effectiveness of unilateral vs bilateral TESPAL in patients with unilateral epistaxis.

Materials and methods: We included retrospectively 83 patients presenting with unilateral intractable epistaxis and treated by unilateral or bilateral TESPAL between January 2012 and January 2016 at a tertiary care center. The main outcome was failure, defined as bleeding recurrence requiring another therapeutic procedure under general anaesthesia. The postoperative complications were also assessed.

Results: The baseline characteristics of the 2 groups were comparable. In the group of 47 patients treated by bilateral TESPAL, the failure rate was 8.5% (n=4). In the group of 36 patients treated by unilateral TESPAL, the failure rate was 25% (n=9). Hence, the failure rate was significantly higher in case of unilateral TESPAL (p=0.041), with a relative risk of failure of 2.94. No major complications (and in particular, no mucosal/septal necrosis) were reported in either of the 2 groups.

Conclusion: For unilateral intractable epistaxis, bilateral TESPAL leads to 2.94 times fewer failures than unilateral TESPAL, without any major complication.
What lidocaine preparation (lidocaine 10% nasal spray and oximetazoline or lidocaine 2% and epinephrine for injection) applied topically is best to perform rigid nasal endoscopy at the office?

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Introduction: Nasal endoscopy has become a routine office based procedure for otolaryngologist. Although many studies have demonstrated that flexible endoscopy doesn’t need for any preparation, rigid endoscopy is more uncomfortable for patients, and preparation with topical decongestants and anesthetics is usually performed to reduce discomfort and enhance proper visualization of nasal structures.

Objective: The main objective of the study is to compare and evaluate the efficacy of cotton pledget packing of two different combinations of lidocaine and vasoconstrictors (oximetazoline or epinephrine) in preparation of nose for nasal rigid endoscopy.

Methods and Material: A prospective, randomized, single blind study on 21 consecutive patients was performed during November of 2016 in a private practice otolaryngology setting. Patients were randomly divided in two groups. The first group was packed with 10% lidocaine with oximetazoline 0.05%; the second was packed with lidocaine 2% and epinephrine 0.005mg/1ml. Both groups had rigid endoscopy performed after preparation. Patients were asked to fill two 10 point Likert type scales to evaluate their level of discomfort during preparation and the procedure. Physician individually evaluated the level of decongestion on a 10 point Likert scale and the presence of septal deviation. Mean and percentages were calculated for all variables and comparison between groups through Students T test was performed.

Results: Mean age of patients was 42.24 years, 11 men (52.4%) and 10 females (47.6%). 14 patients (66.7%) had a septal deviation. 10 patients (47.6%) were assigned to group 1 (oximetazoline and 10% lidocaine), and 11 (52.4%) to group 2 (lidocaine 2% and epinephrine). Mean value for drug application was 2.6 (SD 1.8) for group 1 and 2.8 (SD 2.3) for group 2. For procedure discomfort mean value was 2.7 (SD 1.5) for group 1 and 2.3 (SD 1.3) for group 2. Difference between the two groups was assessed by the Student T test and the difference found was not significant (p=0.813) for drug application and (p=0.810) for the procedure.

Conclusion: There were no significant differences between groups for patient discomfort for application of medication and during the procedure. The mean value for both scales and groups was very low, it is possible that there’s no need to prepare the nose with anesthetics prior to rigid endoscopy, further investigation is needed.

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A Giant Thornwaldt cyst

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Purpose of the study: The Thornwaldt cyst is an uncommon benign cyst located in the upper posterior nasopharynx, that may cause clinically significant symptoms. In most cases, treatment is not necessary. The Thornwaldt cyst can be seen on Computed Tomography (CT) or magnetic resonance imaging (MRI) of the head as a well-circumscribed round mass lying in the midline of the nasopharynx. Thornwaldt cysts are clinically classified into two types: cystic and crusting type. In this paper we was described a cystic type. Materials and methods used: We presented a case of 28-year old woman with giant Thornwaldt cyst. This patient was admitted the our department with the complaint: persistent purulent drainage, nasal obstruction, chronic snoring, cephalia, seizures, dizziness, vertigo, sore throat and hearing loss. This woman had been treated for chronic sinusitis for six months, she applied to our department, because her complaints still continued. Results: The posterior rhinoscopy examination revealed the presence of a round, smooth-surfaced, semisolid mass. The endoscopic examination and the Computed Tomography revealed a cystic lesion in nasopharynx. We performed endoscopic marsupialization. Conclusion: The Thornwaldt cyst may become infected or inflamed, causing severe symptoms. In this cases the treatment consists of marsupialization or excision.When we observed a nasopharyngeal mass should be considered in the differential diagnosis: Thornwaldt cyst, nasopharyngeal carcinoma, branchial cleft cyst, Rathke’s pouch cyst, adenoids, adenoid retention cyst, meningocele or meningoencephalocele, choanal polyp, sphenoid sinus mucocele or other tumors of the sphenoidal sinus, angiofibroma and papillary thyroid cancer metastases.
An unusual presentation of bilateral inverted papilloma of the nose and paranasal sinuses.

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Objective: Inverted papilloma is a rare benign sinonasal tumour, characterized by a potentially invasive nature. The lateral nasal wall represents the most common site of origin, whereas paranasal sinuses are involved by extension quite frequently. In contrast, the sphenoid sinus is rarely reported as the site of origin. Although benign in nature, an inverted papilloma displays peculiar biological behavior, such as its tendency to recur and its association with malignancy. Since the recurrence rate after an incomplete tumor resection is high, en bloc tumor extirpation is mandatory. Here, we report an unusual case of a bilateral inverted papilloma confined to the sphenoid sinus co-existent with extensive nasal polyposis in a 59-year-old man.

Material and Methods: A 59-year-old male presented to the otolaryngology department with a recurrent nasal polyposis that had been treated with two previous excisions within the last 3 years. He suffered from bilateral nasal obstruction, rhinorhoea, anosmia, and postnasal drip. Nasal endoscopy, revealed bilateral nasal pink, polypoid masses occluding both nasal cavities. The rest of the ENT and neurological examination was normal. Computed tomography scanning of the paranasal sinuses showed homogeneous soft tissue density mass occluding the nasal cavity and extending to the maxillary, ethmoid and sphenoid sinuses on both sides. There was no erosion of the sella turcica or adjacent bony wall invasion. An endoscopic biopsy was performed and the diagnosis of nasal polyps was set. An endoscopic medial maxillectomy and total ethmoid-sphenoidotomy was performed for removal of polypoidal tissue from these sites. Intra-operatively, the tumor showed simultaneous attachment (like an internal lining) to multiple walls of both sphenoid sinuses, mainly to the floor and lateral wall. It was removed as radically as possible and the mucoperiostium was partially included in the resection.

Results: The final pathology report confirmed the diagnosis of nasal polyposis. However, the histopathological exam of the tumor in the sphenoid sinuses revealed inversion of a metaplastic squamous epithelium consistent with inverted papilloma, with no malignancy signs. The patient had an uneventful postoperative course. He has been in postoperative follow up for 20 months now, with no signs of recurrence.

Conclusion: Nasal endoscopy, image exams and biopsy are necessary for diagnostic assessment and treatment planning of inverted papilloma. Complete removal must be the crucial concern in order to avoid recurrences. Because of its varied clinical manifestations, this diagnostic must always be considered in cases of nasal polyps, regardless of its location.
Bilateral antrochoanal polyps: a case report

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Objective:
Antrochoanal polyps are benign neoplasm’s of the nasal cavity originating from the mucosa of the maxillary sinus. The pathogenesis of this lesion is not clear yet. Bilateral Killian’s Polyps are extremely rare with few reports in the literature. The study objective is to describe the clinical, radiologic features and therapeutic procedures.

Material and methods:
It’s a retrospective case study about a 43-year-old female patient with bilateral antrochoanal polyps.

Results:
The patient presented to us with a history of progressive bilateral nasal obstruction for the last 7 months specially right-sided, associated to a purulent nasal discharge and rhinolalia. Nasal endoscopic assessment disclosed a polypoid mass arising through the right middle ostium, obstructing nasal cavity and filling nasopharynx. In the left nasal fossa, a translucent polyp arising from the left middle meatus was found. Computerized tomography of nose and paranasal sinuses showed a soft tissue density in bilateral nasal cavities and nasopharynx with no bony destruction. Surgery was performed exclusively by nasal endoscopy; A bilateral middle meatotomy was performed with complete polypectomy and no postoperative complications. Histopathological examination showed benign bilateral inflammation. The patient experienced a complete recovery with resolution of complaints and no recurrence 24 months postoperatively.

Conclusion:
Although cases of bilateral ACP are extremely rare, it may be considered in differential diagnosis of nasosinusal polyposis or for an associated contralateral pathology. Nasofibroscopy associated with CT scan are the gold standard to avoid these diagnostic errors by identifying polyp’s origin and their exact extension. Removal of antrochoanal polyp in adults by endoscopic sinus surgery has emerged as a safe and effective procedure.

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**Bilateral choanal atresia diagnosed in adult patient. A case report**

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1. Purpose of the study.

To prove the existence of bilateral choanal atresia in adult life, which doesn’t need intubation or early surgery during infancy.

2. Material and methods used.

A 19 year old patient case is presented, which suffered of an incomplete cleft lip surgery during her infancy. Evaluated at the clinic with complete nasal obstruction, and bilateral chronic rhinorrhea symptoms. Through nasal fibroscopy a nasal septum deviation, and a bilateral choanal atresia was discovered. A CT Scan was performed, which was informed as a bilateral osteomembranous choanal atresia, left hypoplastic maxillary sinus with chronic sinusitis, ethmoidal cells occupation, and multiple dental malpositioning.

3. Results

A functional endoscopic endonasal surgery was performed, including: bilateral choanal permeabilization, left maxillar antrostomy, and septoplasty. After surgery, a complete choanal permeabilization was achieved, and nasal obstruction and rhinorrhea symptoms disappeared . CT scan, surgery images and videos, and the postoperative progress are presented at the communication.

4. Conclusion.

It is commonly known that bilateral choanal obstructions are diagnosed in early ages, and those who suffer from them, don’t usually reach adult life without early surgery, unlike unilateral obstruction, which can be underdiagnosed due to the lack of symptoms. However, besides the case presented here, there are few other published cases of bilateral obstruction diagnosed in adult age, so it cannot be overlooked in cases of chronic rhinorrhea and complete nasal obstruction
Clinical importance of squamous cell carcinoma antigen measurement for nasal inverted papilloma

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Serum squamous cell carcinoma antigen (SCCA) level is known to be elevated in sinonasal inverted papilloma (IP). However, the relationship between tumor volume and SCCA, and the other influence of skin or pulmonary diseases in which SCCA level is usually high, have not been established. The aim of the study is to clarify whether the serum level of SCCA can be used as a diagnostic marker of IP. In the present study, serum SCCA was measured in 30 patients with IP (IP group) and 57 with inflammatory disease (inflammatory group). Overall, 83.3% in the IP group showed elevated serum SCCA levels regardless of whether they were new or recurrent cases, and SCCA levels rapidly decreased after surgery. Only 5.3% had elevated SCCA levels in the inflammatory group. Preoperatively, the IP group had a median SCCA level of 2.4 ng/ml, while the median preoperative level was 0.9 ng/ml in the inflammatory group. Preoperative and postoperative SCCA levels were significantly different in the IP group. Regarding the IP diagnosis in the IP and inflammatory groups based on SCCA level (≥1.5 ng/ml), sensitivity and specificity were 83.3% and 94.7%, respectively. There was no significant correlation between SCCA elevation and respiratory function, and skin disease in the two groups, except for smoking in the IP group. Preoperative SCCA levels were significantly higher in smokers than never-smokers in the IP group. Tumor volume was significantly correlated with SCCA level in IP. Multivariable logistic analysis showed that tumor volume was a predictor of preoperative SCCA elevation (p=0.036; 95% confidence interval, 1.027-2.176). According to the present results, serum SCCA is a reliable diagnostic marker to distinguish new and recurrent IP from inflammatory disease. Because smokers tended to have higher SCCA levels in IP, a different cut-off level might be needed (2.0 ng/ml). Although respiratory dysfunction and skin disease were not related to SCCA level in the present study, these should be taken into consideration when evaluating SCCA level.
Endonasal endoscopic management of fibrous displasia involving sphenoid sinus and optic nerve: Postoperative outcomes


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Objective: To evaluate success of endonasal endoscopic surgery in removing fibrous dysplasia (FD) lesions involving sphenoid sinuses at areas close to important structures and to assess its effectiveness in management of patient symptoms and possible complications.

Methods: Retrospective analysis of all patients operated between 2007 and 2015 at our tertiary care unit with sinonasal FD effecting sphenoid sinuses. Open or combined surgeries were excluded. Clinical examination results, radiological studies, operative findings and treatment outcomes were evaluated.

Results: Ten patients with optic nerve encasement in 7(70%) were included. All had headache which completely vanished in all postoperatively. Preoperative visual changes were detected only in 5(50%) patients from whom symptoms have resolved completely in 2(40%) and improved in 3(60%) after surgery. No patients had postoperative additional visual deficit. During surgery there were no major bleedings, but in 2(20%) cases CSF leakage was inevitable, which were recognized and repaired immediately. Postoperative imaging showed total resection in 7(70%), gross total resection in 2(20%) patients. One patient had only optic nerve decompression due to diffuse skull disease. In a mean follow-up time of 38 months, no recurrences or growth were detected except last mentioned patient.

Conclusions: For removal of FD involving sphenoid sinuses, endonasal endoscopic approach reveals a viable technique with acceptable morbidity. Decision of surgery should be made carefully by evaluating radiological evidence for possible complications and by analyzing tumor growth and symptoms of the patients. For reducing recurrences total or gross total excision should be aimed which is achievable with this approach.
Purpose: Nasal and oropharyngeal angiofibromas and hemangiomas are one of the rare, but serious sinonasal pathologies. There are different surgery techniques of these kind of tumors depending on their size, localisation and character. Our aim was to apply the minimally invasive, blood saving and atraumatic techniques using all modern technologies presented in our new hospital.

Materials and methods: There were totally 5 such cases in our new hospital since October 2015. All the patients were kazakh males (100%) aged from 24 to 57 years. The standard ENT examination with nasal endoscopy and contrasted computed tomography with angiography were the main diagnostic criterias to choose a suitable surgery technique. The endoscopic approach has been chosen by all patients and tumor resection itself were performed using Coblator. Embolisation with Onyx prefaced the surgery.

Results: All tumors could be totally removed with no damage to dependent areas. No noticeable loss of blood was documented and due to which no blood transfusion was necessary. The control of hemorrhage was achieved as a result of preoperative embolisation and appliance of Coblator in one hand and the opportunity of complete tumor resection in the other. The histopathological results were presented by nasal angiofibroma in 3 cases (60%), hemangioma - 2 cases (40%).

Conclusion: The application of our technique of tumor resection has many previlages comparing with other methods. The practical importance of such multidisciplinary technique with the application of innovative technologies presented in our hospital is undeniable truth. It helps to achieve the best surgical results with complete tumor resection and to minimize or even to prevent blood loss. The patients could easily return to their lifestyle sooner which is the sign of positive reflection on their quality of life.
Endoscopic frontal sinus surgery vs External sinusotomy. Our experience

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Introduction

The endoscopic approach would be the technique of choice for drainage or opening of the frontal sinus. However, external osteoplasty is the technique of choice in certain cases and may constitute the rescue treatment when the endoscopic approach fails.

Material and method.

We present our experience in frontal pathology from 2010 - 2015 (we did not include the pathology of rhinosinusitis with polyps) specifying the type of initial approach, as well as the need for a second and even third surgery:

-15 Frontal Rhinosinusitis uni or bilateral not complicated without previous surgery: The first approach ,we did endoscopic Draft II in all cases, later in a second approach we must do a rescue surgery in two cases with Draft III.

- 6 Frontal Rhinosinusitis Complicated without previous surgery: The first approach, We did Draft II in 2 cases, Draft III in 3 cases, and 1 external approach. We need a second approach in one case with Draft III , and Third approach in one case, we used external.

-6 Frontal Rhinosinusitis Not Complicated with previous surgery: 5 endoscopic approach and 1 external , second endoscopic approach in 2 cases and third external approach.

-4 Frontal Rhinosinusitis Complicated with previous surgery: 2 endoscopic approach and 2 external , second external approach 2 cases.

-4 Mucoceles: 3 endoscopic approach and 1 external.

-3 Osteomas: 1 endoscopic approach and 2 external.

The percentage of cases with previous surgery (usually endoscopic) is high, which means that when we performed endoscopic surgery the frontal recess was not well controlled.

In cases without previous nasal surgery, we usually conduct Draft II or III, according to the state of the tissue in the frontal recess and ostium . In a few cases external sinusotomy was needed.

Depending on the location, we conduct external or endoscopic treatment for the mucoceles or osteoma.

In cases with previous surgery, complicated or not, the percentage that needs external initial or rescue treatment is high.

Conclusion
In conclusion, in our opinion Draft 1 is insufficient because it facilitates fibrosis and closure of the ostium. Therefore, it is important to increase the resection area in ostium and frontal recess.

The external sinusotomy is a surgical technique easier than endoscopy. It allows a great drain of the frontal sinus and it is the first choice in very lateral mucoceles or osteomas.
ENDOSCOPIC MANAGEMENT OF ADVANCED JNA: tips & tricks

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Juvenile nasopharyngeal angiofibroma (JNA) is a combined vascular and fibrous neoplasm which arises from the posterior-lateral wall of the nose. The tumor exhibits a strong tendency to bleed and, despite being microscopically benign, frequently exhibits destructive and aggressive behavior.

Various treatment modalities are currently available for JNA, but surgical resection remains the best option.

Materials and methods: We describe our experience in 78 cases of endoscopic resection of advanced JNA including cases with intracranial extension. All the patients were adolescent males, the age ranges from 6 to 48 years. Tumor staging was 41 cases were stage III, 13 cases were stage IV and 24 cases were stage I and II. all cases were embolized 2 days pre-op.

Results: complete tumor removal is achieved in 73 cases. incomplete removal in 5 cases. one case has been irradiated, the other 4 cases a 2nd session of endoscopic resection was done. two of the cases required a 3rd. session with no recurrence on the next 4 years. morbidity in the form of permanent loss of Eustachian tube dysfunction in 2 cases. infra-orbital hyposthesia in one case. in our series 2 cases of mortality from uncontrolled blood loss.

Conclusion: Recently, and after the advent of preoperative embolization, endoscopic resection of JNA is considered the state of art management, still, however, the large Tumors remain a challenge.

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Endoscopic Management of Vascular Sinonasal Tumors

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**Purpose :**
Vascular tumors of the sinus and nasal cavities are benign tumors more commonly seen in pediatrics than in adults. The Localization to the nasal cavity or paranasal sinuses is rare. They are characterized by a histological diversity; the most common histological type is the hemangioma. The objective of the work is to study clinical characteristics, therapeutic and outcome.

**Patients and Methods :**
The observations of 8 vascular tumors of the nasal cavities collected between June 20016 and July 2011 were studied retrospectively. The clinical parameters, Histopathological, radiographic and therapeutic were studied. These data were compared to the various observations of the literature.

**Results :**
We report 8 patients with an average age of 40 years, a sex ratio of 1. Unilateral Epistaxis was the revealing sign in 7 cases, but unilateral nasal obstruction in only one case. Imaging was performed in 5 patients with an extensive and uncontrollable endoscopic aspect of the tumor. An endocranial and intra sinusal extension was found in two cases. All patients were operated by endonasal technique. Histopathological examination concluded on angioma in half of the cases; cavernous hemangioma was identified in 2 cases. There were one case of capillary hemangioma and one of Hemangiopericytoma.

After a regular follow-up of 12 months, there was no evidence of recurrence or synechia in optic rhinoscopy.

**Conclusion :**
The management of hemangioma of the nasal cavity benefited from advances in modern imaging and endoscopic surgery. CTscan and magnetic resonance imaging reinforce the diagnosis in case of an extensive and uncontrollable tumor on nasal endoscopy. Given the absence of malignant potential, surgical excision should be functional and minimally invasive.


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Purpose of the study: The aim of study was to report the findings of computed tomography (CT) and magnetic resonance imaging (MRI) in patients with sinonasal fibroosseous lesions. Also, we sought to evaluate the vascularity and enhancement patterns of intralesional vessels which can help surgeons to plan and prepare for surgery.

Materials and methods used: In this study, 24 patients were reviewed retrospectively to present sinonasal fibroosseous lesions. 23 patients underwent surgery and diagnosis was pathologically confirmed and one craniodiaphyseal dysplasia case was diagnosed on clinical and radiologic features. The treatments included biopsy, endoscopic tumor removal, and optic nerve decompression. Preoperative CT and MRI images were available all patients except 2 patients who had postoperative MRI. The MRI appearances were described on T1-weighted (T1W), T2W, and post-contrast T1W images.

Results: Mean age was 27.9 years (range, 8.7-60.1 years) at the operation and 13 patients were male and 11 were female. 20 patients were fibrous dysplasia including one case of McCune-Albright syndrome, 3 patients were ossifying fibroma and 1 case was craniodiaphyseal dysplasia. Lesions were consist of sclerotic and/or cystic portion. 8 patients had cystic lesions and cystic change was easily distinct on T2W image with clear margin and high signal intensity. All lesions showed some degree of enhancement on post-contrast T1W images and contrast-filled vessels were appeared in the lesions. 7 patients underwent contrast enhanced CT however, vessel enhancement were not identified on CT scan because of bony density. On the CT images, there were mixture of hyperdense and hypodense areas and almost hypodense portion in the ground-glass opacity of fibroosseous lesions showed contrast enhancement on T1W images.

Conclusion: Hypervascular area on MRI is correlated with hypodense lesion on CT image. Enhanced CT image cannot distinguish contrast-filled vessels from bone. Enhanced MRI image is recommended for preoperative evaluation of vascularity and intralesional vessels of fibroosseous tumors.
Exophytic sinonasal papillomas and nasal florid papillomatosis: a retrospective study

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Exophytic sinonasal papillomas and nasal florid papillomatosis: a retrospective study

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Abstract

Exophytic papillomas (EP) represent 30 to 50% of the nasal cavities papillomas. The florida EP has not been yet described in the literature. The aim of this study was to describe the management of EP, including florida EP and to highlight potential risk factors.

Methods: this retrospective study included, over 10 years, all patients presenting an EP. We recorded: medical history; extension of the lesion at diagnosis; treatments performed; pathology results including features of HPV infection and dysplasia; recurrences. All patients included were invited to have a control nasal endoscopy.

Results: We included 13 patients (8 men, 5 women, mean age 36 years) with a mean follow-up of 5 years. The most common symptom at diagnosis was nasal obstruction (6 cases, 40%). Eight patients had a history of nasal trauma, ipsilateral septal deviation, occupational exposure to dust. The initial location of EP was mainly on the anterior part of the septum (6 cases, 40%) followed by the nasal vestibule (5 cases, 33%). In 3 patients multiple and diffuse EP lesions were detected (florida EP). The initial treatment was surgery for 12 patients. Pathological analysis found presence of dysplasia in 4 cases (31%) and features of HPV infection in all cases. A nasal recurrence occurred within 3 months in 4 patients (31%) (2 patients with florida EP).

Conclusion: EP in their uni/bifocal presentation have poor recurrence rates after surgery. On the contrary, florida EP treatment remains a challenge and the understanding of its pathophysiology is a key point.
Expression pattern of estroprogestinic receptors expression in sinonasal inverted papilloma

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Purpose of the study: The aim of this study has been to assess the potential estroprogestinic receptor expression in patients undergoing sinus surgery for sinonasal inverted papilloma, in order to identify new etiopathogenetic factors and/or co-factors viaticums of potential prognostic and therapeutic developments.

Material and methods used: A retrospective study was carried out in surgical specimens of 73 patients who underwent endoscopic sinus surgery for a first manifestation of sinonasal IP. These patients were categorized as "primitive IP" group. The same sample of subjects was monitored for relapse, both clinically and radiologically, for a period of not less than five years. In 21 subjects a recurrence was encountered and then categorized as "relapsed IP" group. These subjects, therefore underwent new surgery and new determination of receptor expression to estrogen and progesterone.

Our patient population consisted of 41 (60.2%) men and 32 (39.8%) women with an average age of 58 years (range 48-71 years) in the first group “primitive IP” and 13 (61.9%) men and 8 (38.1%) women with an average age of 65 years (range 53-78 years) in the second group “relapsed IP”.

Results: The results of the immunohistochemical analysis of the “primitive IP” group, showed the absence of receptor expression for progesterone in all cases analyzed and the presence of a low positivity for estrogen in 11 cases (P > 0.082). Similarly in the “relapsed IP” group the results showed a weak presence of estrogen receptors in 3 of the 21 cases (P > 0.068), while there was no evidence of progesterone receptors in the examined samples. Moreover, in positive samples, there was a significant evidence of a hypothetical gender prevalence, 8 males (72.7%) and 3 females (27.3%) (P < 0.044). In addition, in 11 of the cases 3 (27.2%) were considered positive and showed a recurrence during follow-up (P > 0.068). Overall, the number of samples considered positive for estrogen-progestin receptor expression in the “primitive IP” group, and the number of subjects with persistent positivity in the “relapsed IP” group, did not represent a sample numerically statistically significant compared with the sample considered negative.

Conclusion: Our results suggest that the sinonasal inverted papilloma is a benign tumor independent of estrogen and progesterone, and the receptors for these hormones are therefore unsuitable as predictors of relapse or possible prognostic indicators and therapeutic targets.
Fibro-osseous lesions of the sinuses and skull base

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Background;
Fibro-osseous lesions of the sinuses including osteomas, ossifying fibromas, and fibrous dysplasia, are not uncommon benign lesions arising in the paranasal sinuses.

Endoscopic resection of sinonasal fibro-osseous lesions remains a technical challenge because of the loss of anatomic landmarks and the frequent need to resect bone along the skull base.

Image-guidance technology appears to be ideally suited for the treatment of such challenging lesions.

Material & Methods;
A retrospective chart review for all patients with fibro-osseous lesions of the sinuses and skull base were reviewed.

The clinical presentations, the radiological findings on CT and MR, the endoscopic navigation-assisted and the combined endoscopic-open approach will discussed.

Results;
15 cases of different fibro-osseous lesions (8 osteomas, 4 fibrous dysplasia, 2 ossifying fibroma, and 1 juvenile active ossifying fibroma)

13 cases were managed endoscopically using the image-guidance system, 2 cases needed the combined endoscopic-open approach to ensure adequate removal of the disease.

Conclusion;
The clinical behaviour, radiological findings and the pathologic features of fibro-osseous lesions is variable.

Surgery is an effective means to resect lesions which had obviously clinical symptoms.

The location and the extent of the lesions were the decisive factor to choose an open or endoscopic approach.

Image-guided surgery is ideally suited for the surgical treatment of such lesions affecting the orbit and the skull base.
Giant Frontal Osteomas: Demographic, Clinical Presentation and Management of Ten Cases

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Introduction

Osteomas are rare tumors of osteogenic origin. They are the most common benign tumor of the paranasal sinuses and nasal cavity. Osteomas are usually asymptomatic, but can be locally aggressive and lead to infectious, intraorbital and intracranial complications. Given its rarity, management and treatment of osteomas still remain unclear. The primary objective of our study is to present and discuss the demographic, etiologic hypothesis, clinical presentation, and management of ten cases of giant frontal osteomas. Secondly, we also describe our modified unilateral osteoplastic flap approach as an easier way to remove these giant frontal osteomas.

Material and methods

A retrospective chart review of all cases of frontal osteomas treated at “Hôpital de l’Enfant-Jésus” from July 2006 to October 2016 was conducted. After exclusions, a total of ten giant frontal osteomas (largest diameter ≥ 30 mm) were analyzed. For each patient, demographics characteristics, tumor characteristics, presenting symptoms, surgical technique, and outcomes were recorded. Patients either had an endoscopic approach, an open approach (craniotomy or modified unilateral osteoplastic flap without obliteration), or a combination of both for removal of their osteoma.

Results

We observed a male predominance (70% of patients). The mean age of diagnosis was 38 years old (range 24-55 years, median 39 years, standard deviation 11 years). The most common presenting symptom was headaches (43% of symptomatic patients). Five patients presented with complications due to tumoral extension (sinusitis, cellulitis, optic nerve compression and convulsions). One patient was treated endoscopically, three patients had an open approach and six patients had a combination of both techniques. Postoperative complications include infection, cerebrospinal fluid leak, and frontal contusion. Six patients had minimal residual tumor with only one patient needing reoperation.

Conclusion

We presented one of the largest series of giant frontal osteomas. Due to its proximity to noble structures, a giant frontal osteoma or a symptomatic patient should be managed surgically. Surgery can be done via an endonasal endoscopic approach, an open approach, or a combination of both. For laterally placed frontal osteomas (which represents the majority of cases), we used our modified unilateral osteoplastic flap without obliteration. When surgery is needed, a conservative resection is warranted to prevent further morbidity. Osteomas are not known for malignant transformation and recurrences are rare, thus, subtotal resection is safe when a cleavage plan between the tumor and the bone is not found, or when the tumor is adherent.
OBJECTIVE:
Nasal chondroma is a very rare benign tumor that mainly affects young adults. Histopathologically it is a mature cartilage tissue. It has a slow growth with local invasion, which will condition the symptomatology. Differentiation between low-grade chondrosarcoma and benign cartilaginous tumors such as chondroma may be difficult.

MATERIAL AND METHODS:
We report a 40-year-old man with nasal respiratory insufficiency and progressive daily rhinorrhea since 1 year. No other symptom. At nasal endoscopy we found a polypoid tumor that blocked both nasal cavities. CT and MR of the paranasal sinuses: heterogeneous tumor of approximately 8 cm and located in the right maxillary sinus, with destruction of the medial wall into the nasal cavity with infiltration and destruction of the posterior portion of the septum and extending to the contralateral nasal cavity. It obliterates the fat of the right pterygopalatine area, reaching to contact with the pterygoid musculature. Contact with hard palate and with the orbit. Intracranial extension is not seen. In summary: neoplasia of the nasosinusal area of probable cartilaginous strain and intermediate aggressiveness. Diagnostic possibilities include nasosinusal chondroma. Differentiation from low-grade chondrosarcoma is not possible by imaging.

RESULTS:
The patient was treated with nasal endoscopic surgery, aiming during the surgical act a good delimitation of the tumor, which allows its complete excision. Histopathological report: cartilaginous differentiation tumor without atypia, which does not allow differentiating a chondrosarcoma of low grade from a chondroma.

The patient had a favorable postoperative course. After 18 months of surgical treatment, the patient is asymptomatic. Endoscopic and radiological control shows no signs of tumor.

DISCUSSION:
Given the difficulty of differential diagnosis with low-grade chondrosarcoma, the treatment of choice in both cases is surgical excision, conditioning the benign or malignant character of the lesion and the clinical course. It is therefore important to include this type of tumors in the differential diagnosis of any nasal tumor in young adults, as well as to perform close postoperative follow-up.
GRANULOMATOUS DISEASES WITH NASAL COMPROMISE

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Purpose of the study: Granulomatous diseases are a challenge in otorhinolaryngology given the multifactorial etiology of these pathologies. We present in this work 3 clinical cases related to this manifestation. MATERIALS AND METHODS: Descriptive, transversal, observational and retrospective study. RESULTS: CASE 1. LEISHMANIASIS: Parasitic disease caused by Leishmania spp. It consists an ulcerovegetant process that begins in the cartilaginous part of the nasal septum, with erythema and edema of the mucosa followed by septal perforation, with epistaxis and nasal obstruction. During evolution, the septum is destroyed and the tip of the nose is retracted ("tapir nose"). CASE 2. COCAINE ABUSE. The intranasal route is the most common form of consumption of this drug. The contact of the cocaine with the mucous membranes causes vasoconstriction and secondary necrosis of the same and of the supporting tissues. If this contact is frequent and repeated, it can lead to the destruction and perforation of the nasal septum, the choanae and the walls of the paranasal sinuses. CASE 3. WEGENER’S GRANULOMATOSIS. It is a vasculitis of small and medium caliber vessels, of unknown origin, with involvement of the upper and lower airways and the kidney. The ENT manifestations are frequent at the onset of the disease, evidencing septal perforation, chronic rhinosinusitis, epistaxis and saddle nose. CONCLUSION: Granulomatous diseases are pathologies that usually affect the nose. A number of specific diseases are involved with nasal compromise. Their chronicity causes permanent and deforming lesions and recurrent infections of the upper airway. It is important that the ENT doctor is familiar with the epidemiology and clinical manifestations of the different granulomatous diseases.
Importance of the differential diagnosis: About two cases of Respiratory Epithelial Adenomatoid Hamartoma of the nose

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TITLE: "Importance of the differential diagnosis: About two cases of Respiratory Epithelial Adenomatoid Hamartoma of the nose"

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ABSTRACT: Hamartomas are defined as aberrant differentiation, which may produce a mass of disorganized but mature specialized cells or tissue indigenous to the particular site. Hamartomas tend to originate from the lung, liver, spleen, kidney, and intestine, but uncommon examples have been described in the upper aerodigestive tract. Respiratory epithelial adenomatoid hamartoma (REAH) is a rare benign upper airway lesion that is characterized by abnormal glandular proliferation. It was first described by Wenig and Heffner in 1995 as prominent glandular proliferation lined by ciliated respiratory epithelium originating from the surface epithelium.

We present two cases of nasal cavity hamartoma diagnosed and treated at our institution. We also conducted a literature review and described the importance of the differential diagnosis of this condition, both clinical and pathological.

We report two cases: a 64 years-old man and a 63 years-old woman. The first one presented with progressive nasal obstruction on the right side, with a polypoid lesion in the right nasal cavity. The second case was referred to the ENT-doctor with an incidental finding, on the computed tomography, of a lesion at the nasal cavity roof. In both, the computed tomography imaging showed an enlargement of the olfactory clefts on the side of the lesion. Both patients were submitted to endoscopic nasal surgery, with complete excision of the lesions. The histologic study revealed in both cases the definitive diagnosis of a REAH. After two years of follow up, none of the cases have recurrence of the lesion.

Although REAH is benign, awareness and recognition of the lesion is important because it can be easily confused grossly and microscopically with more threatening tumours such as inverted papilloma and sinonasal carcinoma, that involve a more aggressive treatment. On REAH cases the complete excision is curative, lending to an excellent prognosis.
Inverted Papilloma is a rare benign tumor arising from the sinonasal mucosa. The true incidence of inverted papilloma (IP) is not yet known. From hospital-based studies, its incidence has been estimated to approximately 0.5/100,000 person years. Earlier hospital case studies have shown that IP can undergo a malignant transformation in 1-53%. The frequency of its malignant transformation on a population basis is unknown. To our knowledge, no standardized incidence ratio (SIR) has been reported for malignancies among IPs. This study aims to investigate these incidences on a population basis. Using data from the Swedish Cancer Registry (SCR), we have identified patients with IP and patients with Squamous Cell Carcinoma (SCC) diagnosed between 1960 and 2010 in Sweden. Incidence of IP, incidence of SCC among patients with IP and SIR were analyzed. 814 patients with IP were identified. The incidence of IP’s reported to SCR increased from 1960 to 2010. In this cohort, SCC was overrepresented, as compared to the general population. To conclude, the Incidence of IP in the Swedish population seems to have increased.

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Incidental Histopathologic Finding of Sinonasal Inverted Papilloma among Surgically Excised Nasal Polyps Increases the Risk of Incomplete Tumor Removal and Subsequent Recurrence

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Background. Inverted papilloma (IP) is a benign nasal tumor remarkable for its tendency toward recurrence. Local relapse implicates incomplete resection concerning the bone adjacent to tumor base. The high false negative rates on incisional biopsies, mainly when nasal polyps coexist, may affect the surgical management and outcomes. Our objective was to demonstrate the impact of preoperative histologic diagnosis in IP recurrence, particularly in patients with pre-surgical diagnosis of inflammatory polyps.

Methods. A retrospective analysis of 62 patients treated for IP at a tertiary medical center was conducted. Demographic data and information about smoking status, alcohol intake, tumor location, histology, presence of nasal polyps, staging, malignancy, previous biopsies and surgical approach were evaluated to identify factors associated with tumor recurrence.

Results. Prevalence of nasal polyps was higher in patients with recurrence. Smoking history, alcohol abuse, staging, histologic type, malignancy and surgical approach were not associated with recurrence. The presence of nasal polyps at endoscopy was inversely associated with the diagnosis of IP at incisional biopsy. Incidental histologic diagnosis of IP after surgery increased the risk of recurrence more than tenfold. Biopsy reporting the diagnosis of IP previous to surgery was inversely associated to subsequent recurrence.

Conclusions. In patients with IP, coexistence of nasal polyps at initial endoscopy and lack of pathological IP diagnosis prior to surgery are strongly associated with a higher risk of recurrence. When excisional biopsy reports IP incidentally, an early revision surgery should be considered in order to avoid future aggressive surgeries because of tumor recurrence.
INTRODUCTION

The purpose of this study was to assess the clinical and surgical features of Juvenile Nasopharyngeal Angiofibroma (JNA) and its prognostic impact.

METHODS

From January 2003 to December 2015, all consecutive patients with the diagnosis of JNA treated with either an open or endoscopic approach and a 1 year minimum follow-up, in a single Oncology specialized centre, were retrospectively analysed. Demographic and clinical characteristics were collected from medical records. The 1996 Radkowski’s classification for JNA, based on preoperative computed tomography (CT) and magnetic resonance imaging (MRI) was adopted. Follow-up included recurrence and reoperation rates. Statistical analysis was performed using chi-square and t-student tests to compare means, and Spearman correlation test to evaluate the association between group variables. Statistical significance was defined by p<0.05.

RESULTS

From 32 patients with JNA included in the analysis (all males, mean age 14.2 ± 3.3 years-old) 69% presented with nasal obstruction and 77% with epistaxis. The main extension sites of the disease were the nasal cavity (85%) and the pterygopalatine fossa (62%), with only 23% reaching the maxillary sinus and 8% the orbit. The distribution of JNA using the Radkowski’s classification was: Ia – 31%, Ib – 8%; Ila – 15%; IIc – 31%, IIIa – 8%, and IIIb – 8%. Having nasal obstruction as the presenting symptom of the disease was significantly correlated with ethmoidal tumour extension (r=0.72, p=0.006). All patients went through angiography and embolization pre-operatively. The main surgical approach was endoscopic surgery (46%); 37% of patients underwent an open approach. For the most severe cases (16%) a combined approach with neurosurgery was performed. Mean follow-up time was 75 ± 34 months, with a tumour recurrence rate of 31%, and a mean time to recurrence of 9 ± 5 months (minimum 4 and maximum 15 months), followed by a second surgical approach. The two most severe cases had a second recurrence during follow-up, leading to a third surgical tumour resection. Therefore, in this cohort, the recurrence rate was significantly higher for patients treated with a combined approach (r=0.64, p=0.019).

CONCLUSIONS

JNA has wide variety of clinical features and extension sites. Ethmoidal tumour extension correlated with a presenting pattern of nasal obstruction. Larger tumour extension required a combined surgical approach and was associated with higher recurrence rates, during follow-up.

Furthermore, the endoscopic approach of JNA proved to be a safe emerging surgical alternative with comparable recurrence rates.
Purpose of the study: We aim to present features and surgical outcomes of 48 JNA patients that were surgically treated in our clinic between 2005 and 2016.

Materials and Methods: The medical records of 48 male patients histologically confirmed as JNA that underwent surgery at Hacettepe University Department of Otolaryngology, Ankara, Turkey, between January 2005 and May 2016 were retrospectively reviewed. Medical files, including patient demographics, date of diagnosis, tumor stage, surgical reports, preoperative and postoperative imaging findings, follow-up duration, and recurrence were analyzed. Tumor stage was determined via CT and MRI, according to both Radkowski and Önerci classification systems.

Results: Mean age of the patients was 15.1 years and mean duration of follow-up was 23.2 months. The most common presenting symptom was nasal obstruction (91.6%), followed by recurrent epistaxis (83.3%). Based on Radkowski classification, 1 patient was stage IA (2.08%), 2 were IB (4.16%), 6 were IIA (12.5%), 2 were IIB (4.16%), 22 were IIC (45.8%), 11 were IIIA (23%), and 4 were IIIB (8.3%), whereas according to Önerci classification, 4 patients were stage I (8.3%), 7 were stage II (14.5%), 28 were stage III (58.3%), and 9 were stage IV (18.75%). The transnasal endoscopic technique was the initial surgical method in 40 patients (83.3%), versus combined surgery (Caldwell-Luc + transnasal endoscopy) in 8 (16.7%). The overall recurrence rate was 20.8%. In all, 30 (62%) patients underwent preoperative embolization and had a recurrence rate of 20%, whereas among the 18 patients that did not undergo preoperative embolization the recurrence rate was 22%; the difference was not significant (P=0.7). Advanced-stage tumors (Radkowski ≥IIC and Önerci ≥III) exhibited significantly more aggressive behaviour than earlier stage tumors (P<0.05 and P<0.01, respectively). There was a significant difference in the recurrence rate between patients diagnosed at age 14 years (8%) (P<0.05). There wasn’t a significant difference in the recurrence rate between initial transnasal endoscopic surgery and the combined technique surgery (P=0.6). Vidian canal drilling was associated with a significantly lower risk of recurrence (P<0.001).

Conclusion: The present findings show that transnasal endoscopic surgery could be considered the primary treatment modality for JNA, based on the high success rate. Preoperative embolization is not necessary in every patient and should be reserved for those with advanced stage tumors. Patients aged <14 years at the time of diagnosis and patients with advanced-stage tumors (Radkowski ≥IIC and Önerci ≥III) are at risk of recurrence and should be evaluated with extreme care.
Juvenile Nasopharyngeal Angiofibroma; Diagnosis & Management

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JNAF is a benign tumor that is highly vascular & non-encapsulated, affecting predominantly young adolescent males. It is commonly reported from Asian regions such as Pakistan, India and China. It originates in the region of the Sphenopalatine foramen at the posterior part of the lateral nasal wall. It grows very slowly but can become locally aggressive going through the fissures and foramen at the skull base into the orbit and cranium. In most cases, the clinical presentation of the angiofibroma comprises of the triad: Nasal blockage, severe recurrent epistaxis, and a nasopharyngeal mass. The tumor is highly vascular and has a tendency to bleed profusely. The treatment is essentially surgery with emphasis on complete excision as recurrence rates are reported as high as 50%. This course will discuss the evolving management of JNAF including a basic outline of origin and spread of JNAF, specific diagnostic evaluation, the role of CT scan with contrast and need for MRI when and why. The preoperative measures to minimize hemorrhage and discuss the merits and demerits of different surgical approaches as there are so many procedures mentioned in the literature to excise this tumor. These will be illustrated using a combination of slides and video clips based on the presenters’ experience of over 100 cases.
Management of an extensive sinonasal hemangiopericytoma involving anterior skull base

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PURPOSES:

Hemangiopericytomas are soft tissue tumors composed of pericytic cells that are characterized by their vascular branching and their variable clinical presentation. 15% to 25% of all HPC occur in the head and neck, with only 5% found in the nose or paranasal sinuses. The aim of this study is to report on the clinical, radiological and histological characteristics of hemangiopericytomas, and to discuss our experience of surgical management with data from the literature.

MATERIALS AND METHODS:

We summarize the clinical presentation of a patient managed for an extensive sinonasal Hemangiopericytoma. He has benefited from an exhaustive clinical examination including a nasal endoscopy, a radiological survey by CT scanning and MRI. The biopsy confirmed the diagnosis.

RESULTS:

A 59-year-old female presented with left nasal obstruction and epistaxis. There was no active bleeding. She noticed no visual changes and had no neurologic symptoms except for anosmia since one year. Nasal endoscopy showed a tumor completely filling the left nasal cavity. Imaging (CT, MRI) confirmed the existence of a large mass in the left nasal cavity with thinning and erosion of the left maxillary, ethmoidal sinus, the left lamina papyracea and the cribiform plate with intraorbital and intracranial extension. The patient underwent, initially, an endoscopic biopsy in the operating room due to vascularity and the risk of bleeding. The biopsy confirmed that it was an hemangiopericytoma. The patient was operated by extended paralateronasale approach. She had a complete tumor resection and reconstruction of the anterior skull base defect with autograft.

The postoperative course was uneventful. No recurrence was observed after a follow-up period of 3 years.

CONCLUSION:

The sinonasal location of Hemangiopericytoma is very rare. Imaging is essential for locoregional staging. Only a complete surgical resection will prevent any recurrence both in short and long term.

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MANAGEMENT OF JUVENILE ANGIOFIBROMA PERSISTENCE AFTER ENDOSCOPIC RESECTION

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Purpose of the study

Management of persistent juvenile angiofibroma (JA) after endoscopic resection is still a matter of debate. In the attempt to better understand the behavior, optimize treatments, and minimize morbidity of persistent JA, we report our experience in managing both unintentional and planned residual JA focusing on follow-up strategies and disease progression.

Materials and methods

We retrospectively reviewed the clinical records of all JA cases treated with endoscopic surgery at the Unit of Otorhinolaryngology of the University of Brescia (Italy) between January 1994 and October 2015. Patient imaging records were evaluated to determine the length of follow-up, as well as the presence and evolution of residual disease. The diameter of persistent lesions was measured in consecutive follow-up images and assessed with a linear regression test to determine if significant size variation occurred over time.

Results

Seventy-four cases of JA were included. Mean follow-up was 113 months (6-266 months), with MRI performed every 6-8 months for at least 3 years. Intentional residual disease was left in 1 case (1%) in the inferior orbital fissure and greater sphenoidal wing, unintentional residual disease was present in 4 patients (5%) at the level of the basisphenoid and pterygoid canal. All the residual lesions were close to the pterygoid process and 4 originally had blood supply from the ICA. Residual lesion size ranged between 5.6 and 31.8 mm. Linear regression analysis of the evolution of residual lesion size during follow-up demonstrated a significant decrease in diameter in 2 cases; 2 lesions did not show significant size variations. Significant growth of the lesion was detected in 1 case, as its diameter increased by 5% over 31 months (5.6 to 5.9 mm).

Conclusions

Persistent JAs tend to regress spontaneously or remain stable over time. Although statistically significant lesion growth was observed in one case, it was clinically negligible. Consequently, surgical approaches to JA should focus on minimizing morbidity in treatment by avoiding unnecessary removal of JA in critical areas.
Maxillary mucocele: unusual location, unusual etiopathogeny

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Purpose of the study:

Mucoceles are gradually expanding lesions involving paranasal sinuses. This is usually due to obstruction of the normal drainage channels of paranasal sinuses leading on to pent up secretions within it. Previous trauma, previous surgery, chronic infections or allergic reactions are the most common cause of the obstruction.

The anterior ethmoid and frontal sinus are most commonly involved (60%). Maxillary location is unusual and no risk factor as above is atypical.

Radiological images make the diagnostic. CT shows an homogenous sinusal round mass, with thin paranasal sinus wall. There is no enhancement after contrast. On MRI, mucocele have low T1 and high T2 signal intensity. The content is homogenous. After injection, there is marginal enhancement.

Treatment is surgical with oral or endonasal approach.

We report a case of massive idiopathic maxillary mucocele with extra sinusal extension. We describe the CT and MRI findings. We discuss the different etiopathogeny and the surgical approach.

Material. Method:

We report a case of maxillary mucocele in a 32 years old female with only past medical history of systemic lupus erythematosus and autoimmune leucopenia. She develops in few months a graduate painless right facial swelling. Oral examination shows a right upper anterior vestibular bulging, soft on palpation.

CT and MRI with contrast were consistent with mucocele of right maxillary sinus with extrasinusal entension associated with right conqua bullosa.

Endonasal approach was chosen for the surgery. Peroperative finding found a bony middle meatus and a right conqua bullosa. Conqua bullosa was removed and drainage was done by middle antrostomy with marpupialization of the cyst. No postoperative complication was reported.

Discussion:

The interest of this case resides in the location of the mucocele as maxillary sinus is rarely involved for this pathology, the absence of classical risk factor, and the anatomical findings with bony middle meatus and conqua bullosa. Most probably, the absence of natural sinus drainage associated with the obstruction created by the conqua bullosa led to this cystic retention.

Conclusion:

Maxillary sinus mucocele are rare. In case of no risk factor, abnormal anatomy needs to be considered.
Nasal Paraganglioma: Case report and surgical results of this rare entity.


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Propose: Paragangliomas are uncommon neuroendocrine tumours, representing only 0,6% of head and neck tumours. Treatment for nasal paragangliomas should be complete tumor surgical excision, because it may be locally aggressive. In this study we report a rare case of a nasal paraganglioma with intracranial extension, treated with a combined surgical approach.

Materials and methods: Report of a case with detail in surgical treatment and review of relevant literature.

Results: 73-years-old man that complains about unilateral left nasal obstruction with 6 months of evolution and recurrent epistaxis since then. On physical examination was observed a friable mass that occupied all the left nasal fossa.

Sinonasal Computed Tomography and Magnetic Resonance Imaging shown a nasal mass that occupies all the left nasal fossa and deviate the nasal septum to the right and remodeled the medial wall of maxillary sinus and left orbital wall. It extends to pterygopalatine fossa, ethmoid cribiform plate surpassing it and invaded the fronto-nasal and left parasagittal portion of the anterior fossa; it also has eroded the bony wall of nasolacrimal canal. Patient had also a left pansinusitis. The biopsy revealed a neuroendocrine neoplasia, compatible with nasosinusal paraganglioma.

Octreoscan excluded multicentric lesions.

After the embolization of the maxillary artery, the surgical procedure was made using a combined approach between the otorhinolaryngology team and a neurosurgeon. This surgery consisted in an extended Weber-Ferguson, with left subciliary extension and bicoronal approach to perform a subtotal left maxillectomy, partial ethmoidectomy with removal of the tumor “en bloc”. The anterior cranial base reconstruction was made with an epicranial flap and the remain left maxilla was reconstructed by a bone graft holded with miniplate.

A complete macroscopic tumor excision was achieved. Post-operatively the patient had mild strabismus and complains about diplopia in some eye movements.

Conclusion: Nasal paraganglioma is a rare entity, especially with this size. This paper describes the surgical challenge of treating this condition, providing some help in the planning and intraoperative decision in new similar situation.
Peculiarities of surgical treatment of patients with juvenile angiofibroma of the skull base spreaded into pterygopalatine and infratemporal fossa

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Juvenile angiofibroma of the nasopharynx and skull base is a benign tumor of the upper respiratory tract of mesenchymal origin, which has an expressed destructive growth. It is known that the disease in the majority of cases occur in men aged 10-18 years.

In the process of the growth of tumor tissue fills the natural airways and impedes nasal breathing; with frequent profuse bleeding aggravate the severity of the disease.

There are many classification of juvenile angiofibromas of skull base. The most common and valuable is the classification proposed U.Fish and modified by R.Andrews (1989). There is a name of stage IIIA tumors which are spread in infratemporal and pterygopalatine fossa, with possible penetration into the orbit, but without intracranial spread.

To implement the optimal surgical approach in removing tumors the surgeon needs the full evaluation of the characteristics of blood supply to the pterygopalatine fossa. The main sources of blood supply of juvenile angiofibroma of the nasopharynx and skull base is the internal maxillary artery and its combination with the ascending pharyngeal and facial arteries. At the same time a bilateral blood supply from the internal maxillary artery is noted in 75% of cases, and monolateral 25% of patients. At the same time, in some cases, during the carotid artery angiography more involved in the vascularization of tumors were identified. 7% of the superficial temporal artery is visualized, and in patients with stage III and IV tumors blood supply is carried out of the pool and the internal carotid artery.

The study of the blood supply to the youth angiofibroma before and after embolization allows to predict intraoperative blood loss and avoid a series of complications.

Understanding the large size of IIIA stage tumors (by U.Fish), the blood supply of the tumor is likely to be from the pool of internal carotid artery. Due to the possible massive intraoperative bleeding, it is advisable to use the system for autotransfusion («Cell Saver» ®).

Based on our own experience, we can conclude that the obtained positive results in the removal of the tumor stage IIIA using the endoscopic technique of endonasal access show the effectiveness of this method of surgical treatment. This method for removing tumors allows to reach the complete removal of the tumor and reduce the number of relapses.

Applied access allows for minimizing surgical trauma and to avoid intraoperative complications.
Pleomorphic adenoma in the nasal cavity

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Purpose of the study: Salivary gland tumours are uncommon and constitute about 3 % of all neoplasms. Minor salivary gland tumours account for 15–25 % of all salivary gland tumours. Seventy-five percent of pleomorphic adenomas locate in the parotid gland and 15 % in the submandibular gland. Only 10 % of pleomorphic adenomas arise from the minor salivary glands. Pleomorphic adenoma is extremely rare in the sinonasal area and there are published series with few patients and isolated cases in the literature. Even though pleomorphic adenomas are rare in this location, they constitute an important differential diagnostic entity. Further, infrequent malignant transformations have been reported.

Materials and methods used: We report 2 cases. The first case is a man of 37 years with progressive right nasal blockage. The duration of presenting symptoms was 4 months. He didn’t have external deformity of their nose at presentation and didn’t refer blunt nasal trauma. The second case is a 83-year-old female patient attending the emergency room due to self-limiting epistaxis in the left nostril with progressive nasal respiratory insufficiency.

Results: In the exploration we found a tumour originated from the anterior nasal septum in both cases. We request study with scanner and took a biopsy in both cases and the result was sinonasal pleomorphic adenoma. The tumors were surgically resected with endoscopica approach and there have been no recurrences or malignant transformations during the follow-up periods.

Conclusion: Pleomorphic adenomas is extremely rare in the nasal cavity. We emphasize the differential diagnostic importance of this intranasal lesion due to its neoplastic nature, which has to be considered in individual treatment planning. In the present series, the majority of these tumours originated from the septum, and there were no cases with malignant transformation.
This is a retrospective study which demonstrates our 20 years of experience in the treatment of inverted papilloma.

According to literature, inverted papilloma is defined as a benign, locally aggressive tumor prone to malignant alteration and frequent recurrence.

The purpose of the study is to show Endoscopic Endonasal Surgery as a method of choice in the treatment of inverted papilloma. During the last century the open approach was the golden standard in treatment of inverted papilloma, although endoscopic endonasal surgery shows its superiority in every respect.

In the last 20 years we have treated 56 patients with inverted papilloma. Each was preoperatively examined - necessary CT scan and underwent endoscopic endonasal surgery performed by two surgeons. Each one was tracked for 10 years.

The study included 41 males and 15 women, average age of 59. (range from 19 to 82).

We compare our results with results from literature.

Our results shows 9.8% of recurrence which is significantly less than data from literature (15-78%). Also we noticed a low percentage of malignant alteration only in 2 cases (literature 9%)

In all cases, inverted papilloma wasn’t extended out of nasal cavity and paranasal sinuses.

Our conclusion is that the new age brings new technology such as endoscopic tools and CT navigational systems and as a result we can meticously remove the tumor. Good: education of health professionals and early diagnosis bring excellent results.

In our study the endoscopic endonasal approach was shown as a contemporary method in the treatment of inverted papilloma with loads of advantages in comparison with other methods.
Sexual dysfunction as an early symptom of a sphenoidal and clival neoplasm

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Purpose of the study – Sinonasal neoplastic disease is varied and may have a wide diversity of clinical presentations. Tumors of the sinonasal tract most commonly present with complaints that are identical to inflammatory conditions, such as nasal obstruction, rhinorrhea, epistaxis, headache or hyposmia. However, in some cases the first symptoms may be atypical and apparently unrelated to the nose and upper airway. In this work, we report a case of a sphenoidal and clival prolactinoma which manifested first with sexual dysfunction.

Material and methods used – The clinical records and complementary diagnostic procedures from this patient were reviewed, including observations from Otorhinolaryngology, Neurosurgery and Sexual Medicine.

Results – A 58-year-old male patient presented to a Sexual Medicine appointment due to progressive complaints of erectile dysfunction and loss of libido. He had a history of partial colectomy due to diverticulitis obliging to a temporary colostomy and also of arterial coronary disease, having undergone a double coronary arterial bypass graft. These factors were interpreted as the likely etiology for his complaints. After 6 years of follow up, the patient developed continuous and persistent headache, due to which a CT scan was performed. The imaging revealed an osteolytic heterogeneous lesion located in the sphenoid sinus and clivus, with an 4,5cm diameter. MRI confirmed the findings. Endoscopic transnasal biopsy and prolactin dosing were performed, leading to the diagnosis of prolactinoma. Bromocriptine treatment was started with good clinical results.

Conclusions – Alternative presentations for sinonasal neoplasms may occur and should be kept in mind. An accurate clinical history is critical for their evaluation and atypical lesions should be included in the differential diagnosis if unusual symptoms are recognized.
Sinonasal glomangiopericytoma – a rare case, a rare entity

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Objectives: Glomangiopericytoma is a rare sinonasal tumour arising from pericytes surrounding capillaries which represents less than 0.5 per cent of all sinonasal tumours. The few cases reported in the international literature emphasize the rarity of this entity. The authors report a case of a 56 year old male patient presenting with persistent unilateral nasal obstruction, hyposmia and intermittent epistaxis with about one-year duration of symptoms and discuss its clinical course and treatment.

Materials/Methods: Case report with discussion of clinical presentation and histopathological characterization of sinonasal glomangiopericytoma and literature review on treatment management of this tumour.

Results: In this clinical case report, endoscopic examination revealed a left-sided vascular mass causing complete obstruction of the nasal cavity. Computed tomography of paranasal sinuses showed a large well defined expansive lesion in the posterior part of the left nasal cavity extending to the nasopharynx and sphenoethmoidal recess on the same side, with remodelling of the surrounding bone. The patient underwent total endoscopic resection of the lesion and histopathological features were consistent with glomangiopericytoma.

Conclusions: Glomangiopericytoma is a rare entity defined by the World Health Organization as a sinonasal tumor demonstrating a perivascular myoid phenotype and categorized as a borderline low-malignancy soft tissue tumour which tends to recur locally if complete resection is not achieved. Definite diagnosis is based on histopathology and immunochemistry. Successful management depends on complete resection. Strict follow-up after surgery with regular nasal endoscopic examination is crucial to prevent disease recurrence.
Sinus Fungus Ball: Experience from a Portuguese Hospital


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Introduction:

Sinus fungus ball is defined as noninvasive chronic fungal sinusitis. It is the most common form of fungal sinusitis and most frequently found in middle-aged and older females. Computed tomography (CT) findings includes: bony thickening of the diseased sinus wall and hyperdense area within the lesion. Surgical treatment is required with good outcomes.

Objective:

Characterize patients with diagnosis of fungal ball in our otolaryngology department: Centro Hospitalar e Universitário de Coimbra, Portugal.

Materials and methods:

We retrospectively reviewed the clinical records of 14 patients diagnosed with sinus fungus ball who underwent surgery between January 2010 and December 2015. The diagnosis was based on histological examination of the surgically removed material. We analyzed age, sex, symptoms, location, presence of high density area on computed tomography, surgical approach and recurrence.

Results:

Median age was 62 ± 11 years (40-70) with no difference between gender. Major presenting symptom was facial pain and occurred in 57%. All cases involved the maxillary sinus [86% (n=12) in the left and 14% (n=2) in the right]; in 14% (n=2) ethmoid sinus was also involved. There was no sphenoid sinus involvement. CT hyperdense areas within the lesion were seen in 79%. Sixty four percent was treated with endoscopic surgery and 36% with Caldwell-Luc procedure. Cultures were positive in 36% and most of the fungus balls consisted of Aspergillus. Recurrence was found in one patient (7%), one year later.

Conclusion:

Fungus ball is rare in our department, with only 14 cases in a 6-year period. Symptoms are unspecific. CT findings can suggest fungus involvement but definitive diagnosis must be histological. The prognosis for sinus fungus ball was favorable with low rate of recurrence.
Background: Serum squamous cell carcinoma antigen (SCCA) levels are elevated in sinonasal inverted papilloma (IP). However, the relationship between tumor volume and SCCA level, and the influence of skin or pulmonary diseases in which the SCCA level is high, have not been established.

Objective: To clarify whether the level of serum SCCA can be used as a diagnostic marker of IP.

Methods: Serum SCCA level was measured in 30 patients with IP (IP group) and 57 with inflammatory disease (inflammatory group).

Results: Overall, 83.3% in the IP group showed elevated serum SCCA levels regardless of whether they were new patients or patients with recurrent IP, and SCCA levels rapidly decreased after surgery. Only 5.3% had elevated SCCA levels in the inflammatory group. Before surgery, the IP group had a median preoperative SCCA level of 2.4 ng/mL, whereas the median preoperative SCCA level was 0.9 ng/mL in the inflammatory group. Pre- and postoperative SCCA levels were significantly different in the IP group. With regard to the IP diagnosis in the IP and inflammatory groups based on the SCCA level (1.5 ng/mL), sensitivity and specificity were 83.3% and 94.7%, respectively. There was no significant correlation between SCCA elevation and respiratory function, and skin disease in the two groups, except for smoking in the IP group. Preoperative SCCA levels were significantly higher in smokers than in never-smokers in the IP group. Tumor volume was significantly correlated with SCCA level in IP. Multivariable logistic analysis showed that tumor volume was a predictor of preoperative SCCA elevation (p = 0.036; 95% confidence interval, 1.027–2.176).

Conclusion: Serum SCCA level is a reliable diagnostic marker to distinguish new and recurrent IP from inflammatory disease. Because smokers tended to have higher SCCA levels in IP, a different cutoff level might be needed. Although respiratory dysfunction and skin disease were not related to SCCA level, they should be taken into consideration when evaluating SCCA level.
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RHINOLOGY & ALLERGY – Sinonasal Benign Tumors

The pleomorphic adenoma of the nasal septum. About a case.
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Purpose of the Presentation

Pleomorphic adenoma of the nasal septum is an exceptional benign tumor, usually seen in female adults (30 to 60 years). We report a case of a Pleomorphic Adenoma of the nasal septum in a 12-year-old girl.

MATERIAL AND METHODS This is a 12-years-old girl who consulted for left, chronic, nasal obstruction with an anterior epistaxis.

The anterior rhinoscopy showed a whitish mass, on the nasal septum, obstructing the left nasal fossa, the CT of the facial mass shows a well limited hypodense tissue lesion, with a large base of implantation on the septum, The biopsy was in favor of a pleomorphic adenoma of the nasal septum.

The patient received an endonasal excision.

Results This benign tumor is exceptional, few cases have been reported in the literature, it is generally seen in women between 30 and 60 years, which is not the case of our patient (12 years), the nasal obstruction is the master symptom, with sometimes an epistaxis or a headache. The treatment of these benign tumors is surgical, with a risk of local recurrence of 8%, and a cancer risk of 6%.

Conclusion The nasal septum localization of pleomorphic adenomas is exceptional, the treatment of these benign tumors is surgical, but the risk of local recurrence in incomplete excision and malignant degeneration requires long-term monitoring
Introduction: Nasopharyngeal Angiofibroma (NPF) is a benign tumor occurring almost exclusively in male adolescents and account for less than 1% of all head and neck tumors. Surgery is considered the treatment of choice, with the route depending on the stage of the tumor, overall condition of the patient and the experience of the surgeon. Stage of tumor and surgical approach are the major determining factors for outcome. Long term tumor recurrences have been reported due to incomplete initial resection.

Objective: To retrospectively describe our experience in diagnosing and managing Nasopharyngeal Angiofibroma (NPF) from 1981 to 2014 (33 years).

To analyse the various surgical treatments adopted for Nasopharyngeal angiofibroma and their results.

Materials and Methods: Analysis of findings carried out in 364 patients of Nasopharyngeal angiofibroma. The age distribution, stages of tumor, embolisation, treatment, duration of surgery, intraoperative bleeding, duration of hospital stay, complications, recurrences and outcomes of treatment were recorded. Statistical analysis was done using “t” test and test for proportion.

Results: The incidence of NPF is 1.08%. The average age of patients was 18 years, and more than 80% of patients presented to the hospital in advanced stage (i.e. III or IV). The surgical approaches used were transpalatal, lateral rhinotomy, transcacial, endoscopic endonasal, avulsion and combined approaches. 17.29% patients had recurrence and it was within one year.

Conclusion: Clinical evaluation and surgical experience are very important in selecting the proper approach. Open access approach was undertaken in the majority of cases owing to the advanced tumor stage and availability of limited institutional resources. Lateral rhinotomy approach with medial maxillectomy is very suitable even in advanced stage of NPF for total removal of the disease.
A 1842 skull from Dupuytren's museum of Paris: an original artifact of Joseph Gensoul first maxillectomy technique


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Joseph Gensoul was a pioneer of ENT surgery. In 1827, he performed the first total maxillectomy on a 17-year-old boy. His work inspired many surgeons, who were previously unwilling to remove maxillary tumours. A paleopathological study performed in the Dupuytren museum allowed us to identify a skull from the early 19th century, with a large maxillary tumour. There were indications that this skull was operated according to Gensoul’s technique. The aim of this study is to confirm that this patient had, in fact, received this surgical treatment. This is a historical and descriptive paleopathological study of a skull of the early 19th century of Dupuytren Museum in Paris. The historical research was conducted in collaboration with the French Academy of Medicine and the Museum of Medicine History (Paris). Bones mark cut studies allowed us to confirm that the patient was operated according to the method described by Gensoul in his “Surgical letter” in 1833. Our historical research has allowed us to understand the perspectives of surgeons in the 19th century and the intellectual processes that led to this discovery.

At a time when the robotization and industrialization dominate our art, it is interesting to look to our past, our origins, and our history. The study of ancient humans remains and allows us to understand the origin of our specialty and pay tribute to these pioneering surgeons. Their intellectual approach and boldness should be acknowledged and applauded, especially as it is also the key to our success.
Adenocarcinoma (intestinal type) of the nasal septum

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Adenocarcinoma rarely presents in the sinonasal region especially from the nasal septum. It is seen in individuals exposed to wood dust. It can also occur sporadically. There are various histological types ie papillary, colonic, solid, mucinous and mixed. The common sites in the nose and paranasal sinuses are the ethmoid sinus, nasal cavity and maxillary sinus. The prognosis for the intestinal type especially in the sporadic form is poor.

A fifty six year old male presented with epistaxis of one month duration. Diagnostic nasal endoscopy showed a proliferative mass between the nasal septum and middle turbinate on the left side arising from the septum at the level of the superior turbinate. CT scan with contrast showed a mildly enhancing mass between left middle turbinate and septum. The cribriform plate area was free of the lesion. The patient was advised biopsy, but he refused. He returned four months later with left sided nasal obstruction. An endoscopic excision biopsy was done under general anaesthesia. The lesion had increased in size and was extending to the nasopharynx. The adjacent mucoperiosteum was also excised. The bleeding was minimal. The histopathology was reported as adenocarcinoma. Immunohistochemistry revealed it to be of intestinal type. A PET CT scan did not show any distant metastatic. The patient was referred for post operative radiotherapy.

Conclusion: Adenocarcinoma of the intestinal type can very rarely arise from the nasal septum. It has a high local recurrence rate and poor prognosis. Aggressive local resection followed by radiotherapy is the treatment of choice. Regular follow up to assess for recurrence is mandatory.
Adenoid Cystic Carcinoma of the nasal cavity: a case report


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Introduction:

Nasal tumours are very rare. Squamous cell carcinoma and adenocarcinoma are the common histologic type, although adenoid cystic carcinoma (ACC) of the nasal cavity is exceeding rare. Adenoid cystic carcinoma (ACC) is a relatively rare tumor of epithelial cell origin, most commonly arising from major salivary glands. It is uncommonly found outside the major or minor salivary glands and is especially rare when located in the nasal cavity. The tumor has a low growth, however the neural invasion, remote metastases and multiple recurrences are common.

Some importante factos of prognosis are: anatomic location, size, involvement or not of adjacent structures, cellular atypia grade, surgical margins and the presence of metastasized ganglions. The surgery associated with post-operative radiotherapy is used as treatment.

Objective: To describe a case of nasal adenoid cystic carcinoma in a female, white, 82 year patient.

Case report: G.L.M., 82 years of age, female, presented with nasal obstruction and epistaxis from the left nostril. The nasofibroscopy showed lesion of polypoid aspect in the left nasal cavity. CT scan showed a soft tissue mass extending from the left nasal cavity without osseous destruction. She was submitted to resection endoscopically and the anatomopathological exam showed adenoid cystic carcinoma. In a therapeutic approach meeting we decided the patient should undergo surgery followed by close monitoring. At presente the patient is under periodic control and without major complications or relapse.

Conclusions:

ACC of the nasal cavity continues to pose diagnostic and therapeutic challenges to physicians, partly due to its biological behavior of slow growth, high tendency of local recurrence and perineural invasion. As far as our case is concerned, we considered the importance of conducting the differential diagnosis between chronic nasosinusal infection and nasosinusal tumors.
Purpose of the study: Rhabdomyosarcoma are the most common soft tissue tumor, affecting mainly the head and neck, especially in children and teenagers. This type of tumor are relatively rare in the adult population and can be divided into subtypes: embryonic (that can also be subdivided into embryonic, botrioid and spindle cell), alveolar and pleomorphic. After diagnosis (using imaging and biopsy exams), multimodal therapy is indicated. The prognosis is variable, being worse in parameningeal sites. Material and method (Case report): A female patient (R.B.C.G.), 47 years-old, was seen at the emergency service of the University Hospital, complaining about edema and pain in the right hemiface, especially in the maxillary region. She started the symptoms about a month ago, after having performed dental procedure. At the physical exam, ocular proptosis and facial bulging were observed. She also complained about nasal obstruction and a fibronasovideolaringoscopy showed a mass in the right nasal cavity. CT showed a tumor at the maxillary sinus, eroding bone boundaries, invading orbit, nasal cavity and premaxillary region. A biopsy revealed alveolar rhabdomyosarcoma and, after that, the patient was referred for treatment with neoadjuvant radiochemotherapy. Results: Malignant tumors of the paranasal sinuses are rare and, among the histological subtypes, rhabdomyosarcoma has a reduced prevalence. However, they are aggressive tumors and, when in adults and the alveolar subtype, have a worse prognosis. Imaging and biopsy in a timely manner are essential to increase chances of therapeutic success. A history of rapidly evolving nasal mass should be alert for malignant tumors, especially since there are no established risk factors for cases of rhabdomyosarcoma, except for genetics. Conclusion: Although rare, rhabdomyosarcoma in the paranasal sinuses is a type of cancer for which otorhinolaryngologists must be alert. Being aggressive and sometimes with poor prognosis, it becomes fundamental to have clinical suspicion for rapid diagnosis and institution of appropriate treatment.
Beyond SNUC and SNEC: the challenge of small round blue cell tumors of the sinonasal area.

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Sinonasal malignancies with neuroendocrine features form a group of tumors, which include sinonasal undifferentiated carcinoma, sinonasal endocrine carcinoma and olfactory neuroblastoma, but when regarding other poorly differentiated small round blue cell tumors the group gets even greater with including rhabdomyosarcoma, small cell carcinoma, neuroendocrine type, and others more. Altogether rare our understanding and experience is still far from complete lacking grading and prognostic subtyping.

Methods: We report our experience in $n=17$ (8 ANB, 3 SNUC, 2 SNEC, 2 RMS, and other RBCTws) which are treated with radical surgery extra- and transnasally, combined and with added radiachemotherapy.

Result: A significant survival rate with more than 2 years was only achieved in the most radical treated patients with exenteration of the orbit, intracranial resection and complete reconstruction of the skull base.

Discussion: Based on a literature review and our experience a surgical grading is proposed which allows a systematic approach to the frontal and central skull base by 3 different types A to C for best results and less morbidity in radical surgery. By all approaches the classical bicoronal incision is avoided. Typ A is an external glabellar osteoclastic subfrontal approach, type B a extended endoscopic controlled transnasal approach and type C a minimized degloving approach with or without LeFort downfracture. All 3 give give satisfying cosmetic results in combination with a possible ultraradical tumor elimination.
Characterization and evaluation of new histoprognostic markers in olfactory neuroblastoma

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Background

Olfactory neuroblastoma (ON) is a rare malignant neuroectodermal tumour thought to originate from the olfactory membrane of the sinonasal tract. The histologic grading is based on Hyams’ microscopic grading, which has been described in 1988. The reproducibility and the prognostic value of this grading system is controversial.

Objective:

To assess the expression of a panel of histologic markers and to try to identify new prognostic markers in ON.

Materials and methods:

This was a retrospective bicentric study on 45 patients treated for an ON between 1995 and 2015 in 2 University Hospitals. The expression of the following markers was assessed in all histologic samples: Ki-67, mitotic index, cytokeratins, PD1/PDL1, Tumor Infiltrating Lymphocytes (including B lymphocytes, CD4+ and CD8+ T lymphocytes).

Results:

Among all the studied markers, the only one with a statistically significant prognostic value was the CD4/CD8 ratio: a CD4/CD8 ratio > 2 was associated to a significant decrease in overall survival. The other markers (Ki-67, mitotic index, cytokeratins, absolute values of B lymphocytes and CD4+ / CD8+ T lymphocytes) had no prognostic value. PD1/PDL1 was not expressed in any of the primary tumors. However, there was a positive correlation between CD8 and mitotic index, between mitotic index and Hyams’ grade, between Ki-67 and Hyams’ grade, and between CD4, CD8 and Hyams’ grade. Cytokeratins were expressed in 25% of the tumors, and there was an association between cytokeratin expression and high Hyams’ grades (III/IV).

Conclusion:

This study allowed the identification a new histoprognostic marker in ON. It also opens new perspectives for a better understanding of the biology of this rare tumor.
Clinical outcomes and management of sinonasal inverted papilloma

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Purpose of the Study:

Sinonasal Inverted papilloma (IP) is a benign tumor of the sinonasal tract which is characterized by the inversion of the neoplastic epithelium into the underlying stroma. These tumors have a high rate of recurrence and have the potential to transform into malignant disease, thus surgery is the treatment of choice. The aim of this study is to identify the preoperative features of patients diagnosed to have inverted papilloma, discuss the treatment options and postoperative clinical outcomes.

Material and Methods:

26 patients with inverted papilloma diagnosed between 2010 and 2016 in Izmir Bozyaka Training and Research Hospital were included. Chart review of the patients were performed retrospectively. Complaints at admission, findings of anterior rhinoscopy, nasal endoscopy and computerized tomography were recorded along with histopathological features. Different treatment modalities were analyzed according to tumor characteristics and postoperative outcome.

Results:

The mean age of the patients was 54.53±11.23 years (range, 21 and 76). 25 patients were males, and 1 was female. The most common symptom was nasal obstruction (92.3%) followed by epistaxis (7.7%). Postoperative mean follow-up time was 32.1 months. According to Krouse classification, 15 patients (57.7%) were staged as T3, 8 (30.8%) were T2 and 3 (11.5%) were T1.

Ki-67 positivity was demonstrated in 4 patients and simultaneous Ki-67 and p53 positivity in another 4 patients and HPV positivity in 2 patients. Cellular atypia was prominent in five patients (19.2%), whereas atypia and concomitant invasion were observed in 2 patients (7.7%).

Endoscopic sinus surgery was performed in all patients. Caldwell-Luc approach was additionally utilized in 2 patients, and nasal septoplasty was needed in another 4 patients. Epistaxis was seen in one patient, with no other postoperative complication in the rest. Concurrent with inverted papilloma, histopathological examination revealed chronic rhinosinusitis with nasal polyposis in 5 patients (19.2%), squamous metaplasia in 1 patient (3.8%) and squamous cell carcinoma in 2 patients (7.7%). Two patients (7.7%) had proved to have recurrence of the inverted papilloma.

Conclusion:

T1 and T2 inverted papillomas can be removed via endoscopic approach. In T4 and T3 tumors, a combined endoscopic and external approach may be used to obtain an adequate exposure. HPV, Ki-67 and p53 positivity when combined with cellular atypia and invasion have a higher rate of recurrence. Following surgical intervention, patients must be followed carefully to identify the recurrence or malignant transformation, as early as possible.
diffuse large B cell lymphoma localized in the nasal fossa in an HIV +


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Introduction

Lymphomas represent the third type of malignant tumor in the head and neck (12%) because of the richness of the ENT sphere in lymphoid structures. The diagnosis is based on the biopsy with immunohistochemical study. The frequency of non-Hodgkin’s lymphoma is greatly increased in subjects carrying the HIV virus

Material and method

We report the case of a patient with retroviral infection who has unilateral nasal obstruction evolving for 3 months associated with headache

Results

It’s the case of a 44-year-old female with retroviral infection who has a UNILATERAL nasal obstruction for 3 months, the orl clinical examination and nasal endoscopy have demonstrated a process Filling the whole right nasal fossa whose biopsy with immunohistochemical study was in favor of a diffuse large B cell lymphoma,

A naso-sinusian CT and MRI showed the presence of a lesional process occupying the right nasal fossa, right ethmoidal sinus and the right frontal sinus. Extension assessment was performed making a cervico-thoraco-abdomino CT And an osteomedial biopsy was without anomaly

Discussion

The ORL sphere is a site of predilection for tumor invasion in lymphomatous pathology. In the Caucasian population, the prevalence of diffuse large cell B lymphoma is higher than the Asian and South American countries where nasal T / NK lymphoma dominates. The treatment is exclusively medical and is based on chemotherapy and / or external radiotherapy

Conclusion

The non-Hodgkin’s lymphomas of the sinonasal tract represent a rare entity, the diagnosis will always pass through a biopsy allowing to type the lymphoma. A good therapeutic result depends on an early diagnosis and a multidisciplinary management
Diffuse Large B-Cell Lymphoma of the Maxillary Sinus: A Case Report

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Objective: We present a rare case of a diffuse large B-cell lymphoma of the maxillary sinus.

Method: We report a case history highlighting the elusive nature of this diagnostic dilemma and discuss management and prognostic factors. A 57 year old woman previously fit and well, presented with a 4 month history of left sided nasal blockage, rhinorrhoea, epiphora and puffiness over the left side of her face which was initially presumed sinusitis but had gotten progressively worse. Clinical examination revealed a diffuse swelling over the left maxillary antrum extending to the left temporal region. The skin was intact. There was no proptosis and fibreoptic nasal endoscopy showed the left lateral wall of the nasal cavity being pushed medially. Operative findings were a friable tumour in the left nasal cavity that extended into the inferior turbinate, middle meatus, anterior ethmoidal sinus, frontal recess and the lamina papyracea. Such was the extent of the lesion that the origin of the tumour was not certain, with possibly two isolated tumours of the lateral maxillary wall and nasal cavity respectively.

Conclusion: Rare cases of lymphomas involving the nasal cavity and paranasal sinuses have previously been described. However, linking clinical presentation, imaging and histological diagnosis remains a challenging exercise. Diffuse large B-cell lymphoma of a high grade is a medical rarity and appreciating the relationship between presentation and management remains a challenging exercise. The authors would advocate a low threshold for prompt specialist opinion in cases of presumed protracted sinusitis and would suggest combination CT and MRI as the preferred imaging modalities.
ENDOSCOPIC RESECTION OF SINONASAL SQUAMOUS CELL CARCINOMA WITH INTRACRANIAL INVASION

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PURPOSE OF THE STUDY:

Multiple head and neck cancers are not rare entities and according to published data, their incidence is increasing. Patients with head and neck squamous cell carcinoma develop most often a second malignancy, usually in the upper aero-digestive tract, those with larynx cancer rank first within patients with multiple cancers.

MATERIALS AND METHODS:

Case report. A 67 year-old male patient presented at ENT routine follow-up evaluation. Past medical history included neoadyuvant radiotherapy, laryngectomy and bilateral neck dissection due to squamous cell carcinoma of the supraglottis, 2 years earlier. The patient reported no history of headache, double vision, neurologic deficits, or nasal symptoms. He did not have any occupational exposure, including nickel, wood or leather dust. CT scan of the head revealed a solid mass occupying the superior nasal cavities, frontal sinuses and right ethmoidal region with destruction of medial aspect of the right orbit and cribriform plate. The mass also extended into the anterior cranial fossa and right orbita. Similar findings were seen on MRI with a meningeal enhancement in the right anterior cranial fossa and a PET scan confirmed hypermetabolic activity of this mass.

The patient was operated under general, hypotensive anaesthesia. During the procedure, the tumour was found in the right upper nasal cavity attached to the anterior skull base, eroding the cribiform plate and the right lamina papyracea, also, infiltrating the osteocartilaginous septum. The tumour was completely resected endoscopically, and a small portion of orbital fat did protrude into the surgical field. The anterior skull base defect was reconstructed.

RESULTS:

There were no postoperative complications, also, there was no evidence of cerebrospinal fluid leaks from the anterior cranial fossa. A hystological diagnosis of sinonasal carcinoma, squamoid variant was made. The patient accepted postoperative radiotherapy. At 6 months follow-up, he exhibited no signs of recurrence.

CONCLUSION:

Patients with history of larynx cancer are at a higher risk for developing a second head and neck malignancy. In this context, regular follow-ups are of utmost importance in order to allow early detection of second primary cancers.
Sinonasal malignancies with intracranial invasion or orbital infiltration can be safely excised and reconstructed endoscopically with a satisfactory outcome. This surgical approach offers a minimally invasive route to the anterior skull base, avoiding the use of brain retraction and reducing manipulation of the optic apparatus and hastens postoperative recovery.
Endoscopic craniofacial resection of sinonasal intestinal-type adenocarcinomas


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Purpose of the study. Intestinal-type adenocarcinoma (ITAC) is a rare and locally-aggressive occupation-related tumor. This relatively large study with a very homogeneous population, updates our experience with a stable treatment protocol looking at survival rates, surgical technique and prognostic factors. The aim of this study was to assess survival, prognostic factors, and complications in a cohort of patients with ITAC treated with endoscopic craniofacial resection ± radiotherapy.

Material and method. Patients with ITAC who underwent endoscopic craniofacial resection ± radiotherapy in a single tertiary referral center, during the period 2004-2015, were retrospectively analyzed. Overall (OS), disease specific (DSS) and disease free (DFS) survival were calculated, and statistically significant variables were entered in a multivariate Cox regression model. Complications were also analyzed.

Results. Forty-one patients were analyzed with a mean age of 68 years. Mean follow-up was 34 months (range: 1-85 months). According to T classification, most tumors were classified as pT4a (52%) followed by pT3 (34%), pT4b (12%) and pT2 (2%). Sixty nine per cent of patients received postoperative radiation therapy. The complication rate was 6% and the resection was complete in 95% of cases. During follow-up, 36% of patients developed recurrence. The 5-year OS, DSS and DFS were 54%, 68% and 43%, respectively. Prognostic factors were: stage of disease and development of recurrences.

Conclusion. According to our experience in the treatment of ITAC tumors and the recent literature we can conclude that endoscopic craniofacial resection is a valid treatment option in most cases of ITAC. It might be considered a safe, minimally-invasive and maximally-effective option for treating these tumors.
Epithelial Myoepithelial Carcinoma of the Nasal Cavity: Clinical, Histopathological and Immunohistochemical distinction of a case report

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Introduction

Epithelial myoepithelial carcinomas are rare low-grade tumours of the salivary gland tissues. They most often occur in the parotid gland, but can also present in other head and neck regions, such as the pharynx, the nasal cavity, the paranasal sinuses, the external ear canal, the lacrimal gland, and the trachea. We herein report the case of a 75-year-old male presenting a recurrent epithelial myoepithelial carcinoma of the nasal cavity, misdiagnosed as an oncocytoma 40 months earlier.

Case report

Our patient was known for chronic nasal polyposis and was followed up frequently for this condition. He underwent a functional sinus surgery in September 2012. On the final pathology report, there was chronic sinusitis but also the presence of an oncocytic neoplasm (diagnosed as an oncocytoma) in the right nasal cavity, positive for p63, actin, calponin and smooth muscle antigen. In January 2016, he presented with right nasal congestion and epiphora. A lesion on the right inferior turbinate was noted. The mucosa was normal at his last follow-up six months earlier. Biopsy of the inferior turbinate was compatible with an oncocytoma and was positive for the same markers as in 2012. The immunohistochemical stains demonstrated the presence of both oncocytic ductal and myoepithelial cells.

Preoperative computed tomography of his sinuses revealed a 3.25 cm lesion departing from the inferior turbinate, invading the nasolacrimal duct. Our patient was treated with a right Denker approach. Surprisingly, final pathology was compatible with an epithelial myoepithelial carcinoma and not an oncocytoma. Then, the patient underwent an oncologic surgery with bone resection and periorbital margins: open right maxillectomy with resection of lacrimal ducts, excision of the nasal bone, and a right DRAF IIA. All margins were negative for tumoral invasion. His postoperative course was unremarkable, with no recurrence of disease.

Conclusion

Only a few cases of epithelial myoepithelial carcinomas of the paranasal sinuses and nasal cavity have seen reported in the literature. Epithelial myoepithelial carcinomas often present as painless mass. On pathology, they can mimic pleomorphic adenomas and clear cell tumours. They should be treated aggressively, as they can be locally invasive, recur, and give rise to distant metastases.
Purpose: Epithelial–myoepithelial carcinoma is a rare tumor of the salivary glands with an incidence of less than 1%. Most cases arise in the parotid gland. Extraoral location is exceptional. The purpose of this study was to describe a case with nasal location, which is exceptionally reported in the literature.

Materials and methods: We report a case of epithelial–myoepithelial carcinoma arising in the nasal cavity of a 59-year-old man.

Results: It is a 59-year-old patient with no previous history who has presented for 1 year a left nasal obstruction of progressive aggravation that has become bilateral for 5 months with homolateral epistaxis, associated with left hypoacusis and tumefaction of the root of the nose with decreased visual acuity left evolving in a context of conservation of the general state. The rhinological examination has objectified a deformation of the nasal pyramid with voussure at the level of the left internal cantus, a polyploid tumor occupying the whole of the left nasal cavity, a large deviation of the nasal septum to the right and absence of the nasal flow of both sides. The remainder of the ENT examination revealed a left sero-mucosal otitis without cervical adenopathies. The computed tomography showed a voluminous osteolytic tumor process of the left nasal cavity heterogeneously heightened with lysis of the nasal bones, of the inner wall, of the left maxillary sinus, of the pterygoid apophysis left behind extending into the cavum with lysis of ethmoidal cells and protrusion in the ocular globe. Biopsy with pathological examination and immuno-marking was performed, which returned in favor of an epithelio-myoepithelial carcinoma. The patient was operated on paralateronasally and received adjuvant radiotherapy with good progression.

CONCLUSION: The occurrence of CEM in the nasal cavity is exceptional. Clinical and radiological findings are non-specific, diagnosis of CEM is established by standard histopathological examination and confirmed by the immunohistochemical study.

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Evaluation of the radio-clinical correlation of olfactory cleft’s malignant tumors: CORFO study


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Malignant tumors of the olfactory cleft (OC) are rare. Their prognostic is due to their local extension and to the surgical resecability. The pre-therapeutic tumor’s local extent seems to be over-evaluated by the radiologist (R) based on inadequate classifications, generating major avoidable morbidities, mainly intracranial.

The goal of this study is to evaluate the radio-clinical correlation of the OC malignant tumors’ local extent and to propose a new adapted classification.

An observational, prospective, multicentered, multidisciplinary study was driven from July 2015 to July 2016 on intestinal type sinonasal adenocarcinoma and olfactory neuroblastoma of the OC. Pre-therapeutic (cT) and pathologic (pT) stages were analyzed and compared for the 2009 TNM classification of the International Union international against Cancer; a qualitative analysis on 28 local anatomical structures and a quantitative analysis were made independently by a senior specialized radiologist (R) based on preoperative imaging, a senior ENT surgeon (S) based on endoscopic surgical procedure, and a senior pathologist (P), considered as the gold standard. The quantitative analysis was calculated with a computer-assisted program based on the local extent area hatched by each expert on an anatomical diagram. The equivalent of p<0.05 was considered significant and Cohen’s Kappa correlation coefficient (κ) was calculated for each anatomical structure.

19 patients in 6 different centers were included in the analysis. The cT stages were significantly higher than the pT stages (p=0.005). The global R-P correlation was mediocre (κ=0.35 [0.25-0.46]), and the global S-P correlation was good (κ=0.61 [0.50-0.71]). The R (mean: 1 135 692 pixels (px), standard deviation (SD): 571 677 px) significantly overevaluated the local extent compared to the S (mean: 624 051 px, SD: 463 049 px, p<0.0045) and the P (mean: 502 083 px, SD: 495 304 px, p<0.0008) on the quantitative analysis.

The R over-evaluates OC malignant tumors’ local extent qualitatively and quantitatively. Data from the literature and results of this study enabled us to propose a new adapted classification for these rare tumors.

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Abstract

OBJECTIVE:
To determine presenting features, management and prognosis in extranodal non-Hodgkin lymphoma of the sinonasal tract.

MATERIAL AND METHODS:
A retrospective study between 2004 and 2013 recruited patients with lymphoma discovered by sinonasal involvement. Epidemiologic, diagnostic, clinical and prognostic criteria were analyzed, with survival studied on the Kaplan-Meier estimator and Log-rank test.

RESULTS:
Twenty-two patients were included: 14 male, 7 female, with a mean age of 65 years at diagnosis. All had non-Hodgkin lymphoma, with strong predominance of diffuse large B-cell lymphoma (77%). Seven patients had risk factors for lymphoma (infection by HIV, EBV or chronic lymphocytic leukemia). A majority (68%) had advanced tumor at diagnosis (stage IV on the Ann Arbor classification). Most were located in the craniofacial bones (68%), mainly involving the maxillary or ethmoidal sinuses. The most frequent presenting symptoms were unilateral nasal obstruction, mucopurulent rhinorrhea, recurrent epistaxis or diplopia. Treatment consisted in chemotherapy, in some cases associated to radiotherapy. Overall survival was 82% at 12 months and 73% at 36 months. Recurrence-free survival was 76% at 12 months and 64% at 36 months.

CONCLUSION:
Lymphoma is an aggressive pathology; revelation by sinonasal involvement is rare. Recommended treatment is chemotherapy, possibly associated to radiotherapy. Prognosis depends on histologic type, Ann Arbor stage at diagnosis and the therapeutic options available for the individual patient.
Interest of an anatomical diagram in the resection of sinonasal malignant tumors

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Purpose: Diagrams are widely used to report the results after endoscopy and surgery of the tumors of the upper aero-digestive tract. We recently developed a diagram suited to the resection of sinonasal tumors. The objectives of this presentation are to present the technical specifications of this diagram and to emphasize its contribution to the care of patients with such tumors.

Methods: Technical specifications of the diagram have been determined in order to prevent loss of surgical and pathological information between the surgery and the Multidisciplinary team meeting and to give a visual support during this meeting. A first version of the diagram was created using anatomical structures selected from the analysis of pathological reports. The understandability of the diagram was tested through two successive labelling tests where participants had to legend the diagram. In a multicenter study, we assessed the third version of the diagram, its ability to avoid loss of information and the satisfaction of users.

Results: A diagram of sinonasal cavity in exploded view was created from forty-seven selected structures. Labelling tests lead to modification of the diagram by overall restructuring and suppression of the structures the less recognized. Third version has been introduced in clinical practice and avoids the loss of information in 75% of pathological samples with non-informative names. More than 80% of participants find that diagram useful in patient global care.

Conclusion: This diagram of sinonasal cavities is an understandable and validated tool that allows the record of the resection and the invasion of sinonasal malignant tumors. It may also help the communication between the members of the multidisciplinary teams.
Intranasal Condyloma Acuminatum With Malignant Transformation

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Purpose of the study

Condyloma acuminatum is a venereal disease, transmitted by the human papillomavirus (HPV). Generally, it is a benign entity but carcinomatous change have been reported in anogenital area. The malignant transformation is associated with the immunocompromised patient, especially HIV. Condyloma acuminatum is uncommonly identified in the nasal cavity, the malignant transformation is extremely rare.

Materials and methods used

A 48-year-old man had suffered from progressive right nasal obstruction with epistaxis for six months. Physical examination revealed a cauliflower-like lesion over the right nasal vestibule, expanding to the septum. Due to this male had history of penile condyloma acuminatum, biopsy was done and sent hc2 high-risk-HPV DNA testing (Hybrid Capture® II). The results was compatible with condyloma acuminatum and negative for high-risk-HPV infection.

Results

Eradication surgery was performed with carbon dioxide (CO2) laser cauterization. Necrotic tissue with pus content was buried in the lesion. This mass was completely excised eventually. The formal histopathology reported condyloma acuminatum with focal invasive squamous cell carcinoma. We suggested this patient receiving adjuvant radiotherapy because there was no planning safe margin; the examination for HIV and syphilis was advised. But the patient refused and lost of follow-up thereafter.

Conclusions

The first epidemiological reports of a possible association between condyloma and cancer go back to 1953, and most occur in genital area according to the literatures. Human papillomavirus types 16 and 18 are found in up to 90% of patients with cervical carcinoma, however HPV type 6 and HPV type 11 are the main factor in developing giant condyloma acuminatum, which is reported 56% incidence of malignant transformation. Abscesses and fistulas are more common in lesions as described in our case. Immunosuppression, coexisting HIV infection, and unhygienic conditions play a role in malignant transformation, therefore AIDS together with other venereal diseases should be examined. Electrocautery or laser total excision could be applied for treatment. Non-resectable lesions, radiotherapy could be applied either alone or along with chemotherapy. In conclusion, condyloma acuminatum with invasive squamous cell carcinoma is rarely found in the nasal cavity, more cases should be obtained for more comprehensive understanding.
Langerhans Cell Histiocytosis of the Frontal Sinus in An Adult Patient

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Purpose of the study:

Langerhans cell histiocytosis (LCH) is a rare disease affecting less than 10 of every 1 million people. The majority of cases being reported were in the pediatric population. Frontal sinus LCH is an exceptionally unusual but important identity with few isolated cases having been previously reported in the literature. We present a most unusual case of a 39 years old female with frontal sinus LCH.

Materials and methods:

A 39 years old female, presented with a history of progressive frontal headache and nasal symptoms such as purulent nasal discharge of 3 months duration. The patient had no other complaints. The range of movement of both eyes were full. Her vision was normal. Other ENT examination revealed normal findings. Computed Tomography (CT) scans showed an approximately 15x10 mm soft tissue mass with osteolytic bone destruction in the lateral wall of the frontal sinus. Magnetic Resonance Imaging (MRI), showed thickened dura around the lesion but there was no intraparenchymal extension.

Results:

Endonasal endoscopic approach under general anaesthesia was used to reach pathology. A soft friable fleshy mass mass coming from the left frontal sinus was identified. The mass had eroded posterior table of the frontal sinus without involvement of the dura. The mass was removed totally. Histo-pathologic analysis of the lesion revealed langerhans cell histiocytosis. For further evaluation, consultation with the hematology/oncology department was obtained.

Conclusion:

Langerhans cell histiocytosis of the frontal sinus is a rare manifestation of a relatively common pediatric disorder. This report acquaints the physician with this unusual disease presentation, but also emphasizes that a clear diagnosis obtained in a timely fashion is necessary to initiate appropriate treatment without delay.

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Purpose of the study:

Under the name of nasosinusal malignant tumors is grouped a wide range of tumors, with different histologies and locations, but often with similar clinical presentations. The diagnosis of these tumors is difficult, requiring a multidisciplinary approach. The purpose of the study is to report our experience with this disease.

Material and methods:

We report a retrospective study about 32 cases of malignant nasosinusal tumors, treated in the ENT department of Avicenna military hospital in Marrakech, between January 2004 and December 2014.

Results:

Data analysis noted that the incidence of epithelial tumors (75% of cases) was higher than that of non-epithelial tumors (25% of cases), with in the lead adenocarcinoma of the ethmoid (31.25%) and squamous cell carcinoma of the maxillary sinus (18.75%). These tumors occur most often in the elderly with an average age of 52 years and an equal distribution between sexes. The average consultation time was 12 months with symptoms dominated by a sinonasal syndrome (71.8%), associated in some cases to ophthalmological (12.5%) and neurological (15.6%) signs. All patients underwent a clinical endoscopic examination, imaging exploration of the tumors and their extensions, and diagnostic confirmation by histopathological examination. The treatment consisted of surgical removal of the tumor as soon as possible in 81.3% of cases (26 patients), usually supplemented by a radio-chemotherapeutic treatment (77%). A one-year follow-up of our patients allowed to note a good evolution for 08 of them (25%), recurrence in 6 cases (18.75%) and the death of nine patients (28.1%), the other cases (28.1%) was lost of view.

Conclusion:

The study of this series of sinonasal cancers shows the extreme gravity of these tumors, the prognosis is poor, despite the proliferation of current diagnostic and therapeutic tools. Patients should be monitored by clinical, endoscopic and radiological assessments for screening recurrences the earliest possible. Professionals exposed should be subject to special surveillance and specific prevention measures. The prognosis remains closely linked to early diagnosis and local control of the disease.
Nasal cavity and paranasal sinus cancer: our experience

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The purpose of the study:

Malignant tumors arising in the nasal cavity and paranasal sinuses are infrequent lesions. Due to its location tend to be asymptomatic until they invade adjacent structures. Thus, most patients have advanced disease by the time the diagnosis is established requiring mutilating surgery and severe complications.

The objective of this study is to analyze descriptively the epidemiological characteristics of patients with nasosinusal malignancies in our center, as well as surgical techniques performed, postoperative complications, prognosis, and survival.

Material and methods

We present a retrospective series of 42 patients diagnosed with malignant nasosinusal tumors between 2005 and 2015. We collected data on demographic, clinical and pathological variables, and survival was analyzed according to the stage, type of surgery and adjuvant treatment.

Results

In our series, the mean age at diagnosis were 58 years (range: 28 to 88) and the cohort comprised 33 men (74%) and 12 women. The most frequent initial symptom was a unilateral nasal obstruction (49%) and epistaxis (39%). The histological type that predominates was squamous cell carcinoma (48%). The treatment of choice was surgery: endoscopic resection was performed in 12 cases (30%), open surgery in 18 cases (45%) and combined (endoscopic-intracranial) approach in 8 cases (20%). Among the postoperative complications, the most frequent were cerebrospinal fluid fistula on 5 occasions, epistaxis in 3 and infection of the surgical wound in 3 cases. The mean hospital stay was 21 days. 73% received treatment with adjuvant radiotherapy.

The mean follow-up was 72 months, during which complete remission was observed in 23%, local recurrence in 26%, lymph node recurrence in 2%, and metastatic recurrence in 10%. The 2-year overall survival was 79% and at 5 years 58%, however, if it was a melanoma the overall survival was lower (in 5 years 25%).

Conclusion:

Nasal cavity and paranasal sinus cancer are rare disease and have a low survival due to their late diagnosis and advanced stages. In our center this entity is more frequently in men in their fifties, the most frequent histology type is squamous carcinoma and the worse prognosis is the melanomas. The main treatment is surgery, with endoscopy being an effective treatment but with the appropriate indications.
Purpose of the study: We present a case of a Midline malignant granuloma – nasal NonHodgkin Lymphoma with T cells. Lymphoma is the most common blood cancer. The two main forms of lymphoma are Hodgkin lymphoma and non-Hodgkin lymphoma (NHL). Adult T-cell Leukemia/Lymphoma (ATLL) is a rare form of T-cell lymphoma linked to infection by the human T-cell lymphotropic virus type 1 (HTLV-1) virus.

Material and Methods used: Midline malignant granuloma involved the nasal cavity and determined right thigh cutaneous metastases in a 47 years old female. The patient presented in the same time a chronic viral type C hepatitis and chronic cirrhosis. Clinic and paraclinic complex investigations were performed in order to establish the diagnosis. Essential for diagnosis and treatment protocol included nasal videoendoscopy and bioptic - morphologic exam (hystochemic and immunohystochemic).

Results: It was instituted antibiotic and corticoid treatment, with local favorable evolution. The prognosis is reserved; radiotherapy was applied, as the only therapeutic method.

Conclusions: This rare affection has an unknown ethiopathogeny with rapid evolution and poor prognosis due to tumor midline tissue destruction. The positive diagnosis is morphologic - hystochemic and immunohystochemic. Actual treatment modalities did not achieve a local tumor control.

Key words: NonHodgkin Lymphoma with T cells, radiotherapy
NASOSINUSAL HEMANGIOPERICYTOMA – 16 YEARS EVOLUTION – CASE PRESENTATION


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Purpose of the study: To evaluate a 27 years old male patient with nasosinusal hemangiopericytoma regarding clinical features, therapeutic methods and effects. The patient was admitted in ENT Department, "Victor Babeș” University of Medicine and Pharmacy Timișoara, Romania.

Hemangiopericytomas are rare, vascular neoplasms that are derived from Zimmerman’s capillary pericytes, being found most commonly in the retroperitoneum / pelvis and lower extremities, being known to have malignant biological behavior.

Case Presentation and materials and methods used: The patient was first diagnosed at the age of 11 years old with a nasal tumor. The biopsy examination revealed a nasal hemangiopericytoma tumor. The diagnosis was based on clinical and biological data, pathology and immunohistochemistry. Clinical signs and symptoms included recurrent anterior epistaxis and intermittent left nasal obstruction, hyposmia, head ache. The tumor was removed endoscopically (FESS - functional endoscopic sinus surgery) but, 16 years later the patient presented a recurrence which necessitated left maxillectomy and tumor removal by midfacial degloving technique. Immunohistochemistry revealed nasosinusal hemangiopericytoma.

Results: Follow-up period was 24 months after maxillectomy and tumor removal. The patient is without recurrence and symptom free.

Conclusions: Nasosinusal hemangiopericytomas are rarely found in the sinonasal cavity. The long-term evolution during childhood represents a particular aspect.
Neuroendocrine carcinoma of the sinonasal region


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Introduction

Sinonasal neuroendocrine carcinomas of the sinonasal region are relatively uncommon but clinically very important. Accurate histologic diagnosis, grading and clinical staging are critical for pronostication and treatment.

However, transnasal biopsy material can be limited, which often poses significant diagnosis difficulties for the pathologist. These are aggressive tumors requiring multimodality treatment that includes chemotherapy.

Propose of the study

A case of sinonasal neuroendocrine small cell undifferentiated carcinoma in a 57 year old man is presented.

Material and methods

The tumor possessed the diagnostic histologic e immunohistochemical characteristics of small round cell tumor.

Histologically the tumor was composed of cells arranged in sheets, nests and trabeculae. They are small sized with high nucleus to cytoplasm ratios, have hyperchromatic nuclei and only a few nuleoli. The tumor cells show stippled chromatin, nuclear molding, crush artifact, necrosis, large number of apoptotic cells, a high mitotic rate. The mitotic activity of 11 per 10 high power fields is the diagnostic feature for high grade.

Results

Immunohistochemical staining was positive for chromogranin (+), synaptophysin (+), CD 56 (+) p63 (+focal), EMA (+), ESA (+), (+/-) Calretinin, (+) CAM 5.2.

This reported case of small round cell tumor (neuroendocrine carcinoma) draws attention to the importance of including this tumor in the differential diagnosis of sinonasal tumors.

Conclusion

Recent advances, such as endoscopic surgery, neoadjuvant chemotherapy and proton beam radiotherapy have improved prognosis and reduced the morbidity of treatment.
Primitive Neuroectodermal Tumors (PNETs) of the Nose: A Case Report and a Literature Review

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Educational Objective: At the conclusion of this presentation, the participants should be able to consider primitive neuroectodermal tumors as a differential diagnosis with aggressive tumors in the nose and immunohistochemistry is essential in the diagnosis. Surgery followed by radiochemotherapy is the best treatment modality.

Objectives: Primitive neuroectodermal tumors (PNETs) are highly malignant tumors composed of small round cells of neuroectodermal origin that affect soft tissue and bone. Rare in the head and neck. Exhibit pathologic similarities with other small, round cell tumors. We report the second case in the literature of PNET arising in the nose with a review of the literature.

Study Design: A case report and literature review.

Methods: We report a 17 year old female patient presenting with long history of bilateral nasal obstruction. On examination, a firm and non-painful mass occluding both sides of nasal cavity and expanding causing fascial disfigurement with proptosis of the left eye. High resolution CT was performed and showed a mass filling the nasal cavity infiltrating the left orbit with invasion of both maxillary and ethmoidal sinuses and the hard palate.

Results: Biopsy was taken and pathology diagnosed angiofibroma. Preoperative angiographic embolization was performed then complete excision was done. Immunohistopathology examination of specimen was consistent with PNET. Radiochemotherapy was introduced to the patient. She was completely cured and free of the disease in the past three years of followup.

Conclusions: With aggressive tumors in the nose, PNETs should be considered as a differential diagnosis, immunohistochemistry is essential in the diagnosis. Complete excision with negative margins should be done and affect the prognosis. Surgery followed by radiochemotherapy is the best treatment modality, the orbital location seems to be associated with a particularly better prognosis. Larger studies are needed to assess the nature of PNETs and to formulate more effective therapeutic protocol.
Prognostic value of two tumour staging classifications in patients with sinonasal mucosal melanoma


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Introduction. Sinonasal mucosal melanoma is a rare disease associated with a very poor prognosis. The purpose of this study was to assess the prognostic value of the 2 staging systems published in the literature for these tumours: the American Joint Committee on Cancer (AJCC) Cancer Staging Manual for mucosal melanoma of the head and neck published in 2009 (7th edition) and the AJCC Cancer Staging Manual for cancers of the nasal cavity and paranasal sinuses published in 2002 (6th edition) and the prognostic value of tumour site, either limited to the nasal cavities or with paranasal sinus invasion.

Methods. A retrospective study was conducted on 18 patients treated between August 1998 and June 2014. Each lesion was staged according to the AJCC Cancer Staging Manual 2002 and 2009 and the following data were collected: age, sex, tumour site, initial symptoms, treatment modalities, follow-up, recurrences and overall survival. Patient survival, from the date of discovery of the melanoma until death, was analysed by Kaplan-Meier survival curves and between-group comparison of survival was performed with a log rank test.

Results. The mean age at diagnosis was 72 years (range: 54-94) and the cohort comprised 11 women and 7 men. The median overall survival was 80 months, the 1-year overall survival was 82.6% and the 5-year overall survival was 54.5%. The AJCC 2002 staging system presented a statistically significant prognostic value (p=0.0476), while no statistically significant prognostic value was observed for the AJCC 2009 staging system (p=0.108). Paranasal sinus invasion was significantly associated with a poor prognosis (p=0.0039).

Conclusion. This study demonstrates the superiority of the nonspecific AJCC 2002 Cancer Staging Manual. Medical and surgical management must take paranasal sinus invasion into account, as it constitutes a major prognostic factor.
Reconstruction of nasal septum tumors with vertical extension by free flaps.

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Introduction:

It is known that malignant tumors of the nasal septum have the potential to rapidly grow invading adjacent structures, by vertical extension, requiring frequently an extensively large excision with a difficult reconstruction by a free flap.

Objective:

The aim of this article is to describe one case of vertical excision with medio-facial reconstruction by a free flap for two anatomical unites.

Case presentation:

45 years old female presented with a poorly differentiated adenocarcinoma of the nasal septum, invading both floors of the nasal fossa and the hard palate.

Total excision of the hard palate, floor of both nasal fossa, nasal septum along with parts of nasal bone until the frontal spine was carried on. An ante-brachial free flap with a costal graft were used for the reconstruction.

Conclusion:

Using a free flap to reconstruct two distinct anatomical unites after an extensive surgical excision, allow the reconstruction of complex tissue loss with a satisfactory functional and esthetical results. In addition, this technique can reduce donner sites compared to other techniques, with equivalent results.
Sinonasal and Nasopharyngeal Neoplasms: A single institution 5-year experience

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Purpose of the study – Sinonasal and nasopharyngeal disease is one of the most common head and neck pathologies. Symptoms of nasal cavity, paranasal sinus and nasopharyngeal neoplasms are similar to those of more common disorders such as chronic rhinosinusitis, which often delays their diagnosis. However, a variety of malignant lesions may arise in these anatomical location, and many benign neoplasms may be locally aggressive, which makes an accurate and timely diagnosis and treatment extremely important. In this work, we intended to study the cases that were managed in our department in the last 5-year period.

Material and methods used – Our department’s operatory records between November of 2011 and October of 2016 were reviewed. The clinical records from all patients who underwent Endoscopic Sinus Surgery, Polypectomy or interventions in the nasopharynx were analysed, and those diagnosed with a sinonasal or nasopharyngeal neoplasm were selected. For each case, age at presentation, gender, clinical presentation, anatomic site, comorbidities, imaging methods, histology, stage, treatment and follow up information was obtained.

Results – 63 patients were selected with a sinonasal or nasopharyngeal benign or malignant neoplasm diagnosis. Median age at presentation was 58 years, ranging from 15 to 89 years. Male gender was more frequent, with a 3:1 male to female ratio. Symptoms at presentation were varied and nasal obstruction was the most frequent. The period from 2012 to 2014 had the highest incidence of cases, peaking in 2013. Nasal cavity was the most common location, involved in 38 cases either isolated or together with the paranasal sinuses or the nasopharynx. CT scan was performed in all cases but 3. Benign pathology was the more frequent, although 21 cases of malignant neoplasms were recorded, 9 of which involving the nasopharynx. Malignant pathology was most commonly diagnosed in locally advanced stages. In 44 cases, endoscopic sinus surgery was used for treatment, isolated or in combination.

Conclusion – Sinonasal and nasopharyngeal neoplasms often present in Otorhinolaryngological practice, but a high index of suspicion and access to endoscopic evaluation and imaging is necessary to distinguish them from inflammatory or infectious pathology. In our study they were more frequent in men in the 6th and 7th decades of life. Benign pathology is more frequent in the nasal cavity and paranasal sinuses but less frequent in the nasopharynx. Malignant disease is often diagnosed in advanced stages, which makes it essential to raise awareness about its early signs.
Sinonasal undifferentiated carcinoma; Management and outcome: a REFCOR study


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PURPOSE

Sinonasal undifferentiated carcinoma (SNUC) represents less than 1% of all malignancies. Recommendations concerning their management are diverse and controversial. Due to the rarity of SNUC, only multicenter approach allow to assess oncologic outcome.

MATERIALS AND METHODS

We performed a retrospective study using the REFCOR database. We screened all patients included in the database with the diagnosis of SNUC from 2007 to 2015. All institutions were called and authors finally assessed medical record, management and oncologic outcome.

RESULTS

This is a multi-institution retrospective study of 43 patients. The median age at presentation was 53 years. Fifteen patients underwent surgery. Majority of patients received radiotherapy (94%), intensity-modulated radiotherapy was used for 19 patients. Twenty nine patients received chemotherapy, neoadjuvant chemotherapy was used for 14 patients (48%)

After a median follow-up of 43 months, 12 patients (32%) died, 16 patients showed no evidence of disease and 2 were alive with persistent disease (8%). The 3 year local control (LC), disease-free survival (DFS), and overall survival (OS) were 60;63%; and 59% respectively. Induction chemotherapy provided 73% OS compared to 54% OS in patients who received concurrent or adjuvant chemotherapy (p=0.02). Intensity-modulated radiotherapy provided 73% OS compared to 38% OS in patients treated with conventional radiotherapy.(p=0.02). The 2 year local control was higher in the surgical group.

CONCLUSION

SNUC is an aggressive neoplasm that frequently presents at an advanced stage. Our data show that multimodality approach including neoadjuvant chemotherapy and intensity-modulated radiotherapy should offer better disease-free and overall survival. Surgery might improve local control.

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The presentation, diagnosis, and management of prostatic adenocarcinoma metastatic to the sphenoid sinus are reviewed. We present the case of a 51-year-old man with a history of highly aggressive prostatic adenocarcinoma with dorso-lumbar spine metastases treated with hormone therapy and radiotherapy for spine cord compression. Six months later, he presented with gradual right visual loss. Magnetic resonance imaging revealed a lesion of the right orbital apex with extension into the ipsilateral sphenoid sinus. Endoscopic endonasal biopsy of the lesion showed a metastasis of adenocarcinoma of the prostate. The lesion received 30 Gy radiotherapy dose then the patient was treated with chemotherapy as of the progression of the disease. Even sphenoid sinus metastases of malignancies are uncommon, the otolaryngologist must consider the eventuality of such diagnosis whenever he encounters a mass in the sphenoid sinus. A history of malignancies should be elicited. Having a high level of suspicion for metastatic disease from specific primary sites will help guide the clinical and pathological evaluation. As in this clinical case of a patient with a history of prostatic adenocarcinoma, appropriate analysis would entail sending specimens for immunohistochemical staining. Correct diagnosis is of most importance, as these patients may achieve remission and prolonged survival with irradiation and/or hormonal therapy.
Introduction: Synovial sarcoma is a rare tumour found in soft tissue; it is a mesenchymal spindle cell tumour that is not related to the synovial membrane. Synovial sarcoma is a highly malignant tumor affecting mostly extremities of young adult. The nasal location represents less than 1% cases. Only a few sporadic cases have been reported. Its treatment is not well established. The prognosis remains poor and usually the patient succumbs to death within a year. The purpose of this report is to increase data on this sarcoma in this rare location, and to highlight the histopathological differential diagnosis with other nasal tumors.

Case report: We report the case of a synovial sarcoma of nasal cavity in a 16 years old female patient characterized by its recurrent character being controlled by a treatment combining endoscopic surgery and chemoradiotherapy.

Discussion: We will discuss the various radio-clinical, histological, genetical and therapeutic specificities referring to literature review.

Conclusion

Synovial sarcomas rarely involve the nasal cavity. Nevertheless, they should be considered in the differential diagnosis of nasal tumors. Such small numbers of case reports limit the conclusions that can be drawn about the optimal treatment and prognosis of synovial sarcomas arising in this location, although we advocate an aggressive treatment with both surgery and adjuvant chemoradiotherapy.
Systemic disease presenting as frontal forehead lump

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Purpose of the Study: Multiple Myeloma (MM) is characterized by malignant proliferation of clonal plasma cells, usually restricted to the bone marrow. MM comprises approximately 1% of all cancers and is associated with very poor clinical outcomes. Extramedullary Plasmacytoma (EMP), occurring outside the bone marrow, in the soft tissue and organs, is an uncommon manifestation in MM and can either accompany newly diagnosed disease or develop with disease progression or relapse. The incidence of EMP is 7% to 18% at MM diagnosis and up to 20% at relapse.

Materials and Methods: We present a case referred to our hospital of a Solitary Extramedullary Plasmacytoma presenting as a forehead lump in a patient with recurrent MM.

Results/Case presentation: A 74-year-old woman presented with a 2-month history of a painless, progressively enlarging mass on the right side of the forehead and bridge of the nose, without other symptoms. Her past history revealed diagnosis of Multiple Myeloma 11 years ago and she received several chemotherapy treatments. She had remained in remission for more than 2 years.

Local examination revealed a 3 cm frontal tender mass. CT and MRI showed a 3,6 × 3,8 cm lesion, in the frontal region, with bone erosion, involving the frontal sinus, the nasal pyramid, the anterior ethmoid, the cribiform plate of the ethmoid and the maxillary sinus walls. It was suspected that the lesion might represent recurrent Multiple Myeloma.

Using a transnasal endoscopic approach and an external approach, the tumour was partially excised and a skin reconstruction with a flap had been realized. The lesion extended from frontal sinus bilaterally, to nasal bones, right lamina papryacea and ethmoid posteriorly. The postsurgical histopathological analysis revealed proliferation of plasma cells, consistent with Extramedullary Plasmacytoma.

Consequently, the patient was referred to the Haematology Service, which carried out the appropriate extension study, concluding no evidence of intramedullary disease. Hence, the patient was diagnosed with recurrent Multiple Myeloma presenting as a Solitary Extramedullary Plasmacytoma. Radiotherapy plus chemotherapy treatments were instituted and serial follow-ups were scheduled by the Haematology Service.

Conclusion: Forehead lumps are an uncommon presentation in otorhinolaryngology patients. A significant proportion are manifestations of malignancies. This work highlights the fact that systemic diseases may manifest in our clinical practice and there should be a high index of suspicion. In this case, once the diagnosis was established, the patient could be treated in the best way.
RA-SC-32
RHINOLOGY & ALLERGY – Sinonasal Cancers

The sinonasal sarcoma: About a particular case.
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Purpose of the study:
Malignant tumors of the nasal cavities and sinuses are rare tumors in the general population (3% of cancers of the Aero-Digestive Upper Airways).
Different anatomo-pathological types are involved including sarcoma with its different histological varieties.
The purpose of this clinical case is to describe the importance of clinical data and those of nasal endoscopy in the orientation of the diagnosis, the CT aspects and the results of the microsurgical approach.

Clinical case:
It is a 54 year old male patient, carpenter, without any particular sinusian history. His symptomatology goes back to 1 year by the progressive installation of a left nasal obstruction associated with fetid rhinorrhea as well as episodes of epistaxis of low to medium abundance.
Six months later an exophthalmos of the left eye appeared gradually without any notion of diplopia or a decrease in visual acuity.
The nasal endoscopy revealed a reddish process ulcerated filling the entire left nasal fossa bleeding in contact.

A nasosinusal CT scan then a nasosinusal MRI have described an expansive process of the left nasal fossa whose characters are in favor of a benign process (inverted papilloma)!!

Conclusion:
Each unilateral nasal pathology associated with a lysis on a sinus scan justifies the realization of an MRI. Medical Imaging should be performed before biopsy in order to avoid haemorrhagic complications in certain types of tumors.
The treatment is based on complete macroscopic and microscopic excision with sufficient surgical margins of excision and not a tumor reduction.

Authors: H. Ait taleb Oum’hand, L. Azzam, A. Oujila, L. Essakalli
Trans-Frontal Five-Fluorouracil (TraFFF): A novel technique for the application of adjuvant topical chemotherapeutic agents in sinonasal adenocarcinoma.

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Purpose of the study

Sinonasal adenocarcinoma has traditionally been treated with surgery (craniofacial or endoscopic) and adjuvant radiotherapy. Recently, two large series have demonstrated equal or better 5 year survival using surgery with adjuvant topical chemotherapy (5-Fluorouracil), applied repeatedly over several weeks. The authors describe transnasal application of the topical chemotherapeutic agent. However, complete coverage of the frontal region of the anterior skull base can be difficult to achieve with a purely transnasal approach, in an outpatient setting. We present a novel method of delivering chemotherapeutic agents into this key area.

Materials and methods used:

At the primary endoscopic resection, frontal mini-trephines are placed to aid in the identification and clearance of both frontal recesses. At subsequent reviews, nasal toilet is performed before applying 5-fluorouracil transnasally onto the sinonasal mucosa. In addition, we use the previously-formed mini-trephine sites to apply topical 5-flourouracil to the anterior skull base, under endoscopic guidance.

Results:

Trans-Frontal Five-Fluorouracil (TraFFF) was used in the treatment of a 37 year old male with a T2N0M0 ethmoid adenocarcinoma. The procedure was well-tolerated in an outpatient setting. The patient remains disease free at 3 years.

Conclusions:

The TraFFF technique is a useful adjunct to aid in the accurate placement of adjuvant topical chemotherapeutic agents in the treatment of sinonasal adenocarcinoma.
Transnasal endoscopic resection of ethmoid adenocarcinoma: preliminary results of a multicentric prospective study of the REFCOR group.


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*Author

PURPOSE:
The general objective of this study is to investigate the safety and oncologic outcomes of transnasal endoscopic techniques in the management of ethmoid adenocarcinoma, in a prospective national multicentric setting. In this preliminary report, we chose to focus on the description of the surgical techniques of the inclusion centers and on the post-operative complications.

PATIENTS AND METHODS:
This is an observational prospective multicentric study of the REFCOR group. All adult patients treated by an endoscopic approach for a histologically confirmed ethmoid adenocarcinoma are included. The follow-up period is 2 years. The primary endpoint of the study is the 2-year disease specific survival. However, as this endpoint could not be fully evaluated in this preliminary report, we focused on secondary endpoints, namely on the analysis of the surgical technique and on the assessment of peri-operative morbidity.

RESULTS:
The inclusion period of the study runs from May 2014 to December 2016. At mid-term analysis in June 2015, 51 patients had been included, with a mean age of 62; 75% were wood-workers. The TNM stages were as follows: T1=2.8%, T2=30.6%, T3=16.6%, T4=50%; all patients had N0, M0 disease. All patients had an exclusive endoscopic approach, and 47.2% had a dural resection. The duraplasty was performed with fascia lata in all cases. Of note, the rate of dural resection varied considerably from one center to another. In the post-operative period, the only reported complication was dacryocystitis in 1 patient; 83% of the patients had a postoperative radiation therapy, with concomitant chemotherapy in 2 cases (3.9%). At the time of this short term analysis, 4 patients (7.8%) had residual or recurrent local disease, and 2 patients (3.9%) were dead of disease.

CONCLUSION:
In this preliminary report, we provide an overview of the surgical management of ethmoid adenocarcinoma by endoscopic approach in a multicentric setting. Though the follow-up periods are still limited, this study also seems to confirm the safety of this procedure, with a low rate of post-operative complications.
UNILATERAL ENDOSCOPIC RESECTION WITH TRANSNASAL CRANIECTOMY FOR INTESTINAL TYPE SINONASAL ADENOCARCINOMA


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Purpose of the study

Intestinal-type sinonasal adenocarcinoma (ITAC) is a neoplasm that almost invariably occurs in wood and leather workers. Wood or leather dust exposure of both nasal cavities traditionally favored bilateral resection of the ethmoid complex even in unilateral tumors. During the last decades, improvements in endoscopic surgery and high definition imaging have allowed to better define local tumor extension and surgical margins. The aim of the present study was to assess the oncological validity of unilateral endoscopic resection with transnasal craniectomy (uERTC) in selected cases of ITAC. Preservation of uninvolved ethmoid can minimize surgical morbidity in terms of sparing smell and taste.

Materials and methods

All patients affected by ITAC who underwent uERTC from 2004 to 2016 in the Unit of Otorhinolaryngology of University of Brescia and Varese were retrospectively analyzed. A control group of bilateral endoscopic resection with transnasal craniectomy (ERTC) that was comparable in terms of occupational exposure, TNM stage, grade (according to Barnes), positive margins, adjuvant radiotherapy, age, and gender was selected. Olfactory and taste function were studied with the VAS score and olfactometry. Survival and functional outcomes of the two groups were compared.

Results

Forty-six patients who underwent uERTC (23/46) or ERTC (23/46) for ITAC were included. Three-year overall (OS), disease-free (DFS), and disease-specific survival (DSS) of the uERTC group were 86%, 83%, and 92%, respectively. ERTC group showed 3-year OS, DFS, and DSS of 94%, 100%, and 94%, respectively. No significant differences in survival were detected between groups. Olfactory function preservation was observed in 31% and 0% of uERTC and ERTC, respectively. Differently from ERTC group in which taste was always compromised, it was preserved in all patients who underwent uERTC.

Conclusions

uERTC is an adequate surgical procedure for selected unilateral ITAC with similar survival rates and lower morbidity compared to ERTC. Restricted indications and close follow-up are crucial to ensure the oncological validity of uERTC.
A challenge response skull base surgery specific checklist as an add-on to standard surgical checklist: An evaluation of potential safety issues

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Authors: Isak PI, MD, Vinh B, BHSc, Farrokhyar F, PhD, Reddy KK, MBBS, Ramakrishna J, MD, Sommer DD, MD Head & Neck Surgery Division, Department of Surgery-Otolaryngology, Department of Neurosurgery, and Department of Anesthesia, McMaster University Medical Centre. Objective: To evaluate the impact of a specific skull base surgery aviation-style challenge and response checklist on surgical efficiency and safety. This initiative is designed to be utilized in conjunction with the standard WHO surgical checklist. Methods: This prospective observational study is designed as a quality improvement initiative, which monitors the occurrence of any safety or equipment issues before and after implementation of the surgical checklist. In a four month study period, 54 consecutive cases were audited, the first 27 without the checklist and the following 27 with the checklist. The checklist was developed by mapping out patients' operative journey, utilizing the available literature, expert consensus, and finally re-evaluation with audit type cases. The checklist evaluates equipment, imaging, patient positioning, and operative room ergonomics. Work flow delays were recorded and used to compare study groups. Results: Implementing this specific surgical checklist in 27 cases at our institution allowed us to identify and rectify 42 separate instances of potentially unsafe, improper or inefficient pre-operative setups. These incidents included issues with availability, function, and/or position of video monitors/image guidance (7, 17%), suction (6, 14%), microdebrider (10, 24%), bipolar cautery (8, 19%), epinephrine (3, 7%), pedal (5, 12%) and endoscope (3, 7%). No significant total procedure time difference was observed between cases with or without the checklist. Conclusion: Implementation of a surgical checklist in 27 cases allowed us to identify and rectify 42 separate instances that may be potentially unsafe, improper or inefficient without compromising surgical workflow. Design and integration of this surgical checklist for skull base surgery can potentially improve patient safety and efficiency in the operating room.
A less aggressive approach to nasal and skull base chondrosarcoma

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*Author

Objective: Chondrosarcoma of the nasal cavities is a rare tumor which is treated aggressively due to its malignancy by surgery followed by protontherapy. However, mortality rate is very low and treatment complications are frequent, we consider a less aggressive approach.

Methods: We studied retrospectively all patients operated on in our department since protontherapy is routinely available to us. We collected data concerning surgical and protontherapy treatment and follow-up. Patients were contacted to obtain their most recent status.

Results: 49 patients were operated on between 2002 and 2015 in our department; 24 males and 25 females, mean age at diagnosis 48 (11 – 85). Petroclival location was found in 34 patients and nasal fossa in 15. Primary symptoms were headaches and VI nerve palsy in the first case and nasal obstruction in the second. All patients were operated on, 24 by endoscopic surgery and 26 by open surgery. Almost all patients had grade II tumors, with only 2 grade I and one grade III. Resection was total in 15 cases (31%) and partial in 34 (69%). Complementary protontherapy was done in 29 cases (59%) with a dose of 70 Gy, on average 5.6 months after surgery. Mean follow up was of 6.1 years (1.6 to 14) with an excellent survival rate (3 deaths, including the grade 3 patient). 13 patients (27%) presented with complications due to surgery (primarily CSF leak, 12%) and 9 patients (31%) due to protontherapy (primarily hearing loss, 17%). Patients with protontherapy had in 90% petroclival location and only 14% total surgical resection. However, 52% had a residual zone on the MRI follow-up compared to 30% with patients without surgery (p=0.02). Within the 34 patients with partial surgical resection, we also compared use of protontherapy (21 and 12 patients). 57% of patients with and 17% without had complications due to the treatment (p=0.03) whereas 5% and 17% had a relapse (p=0.04) many years after. There was no statistical difference in mortality rate.

Conclusion: These results tend to show that chondrosarcoma can be well controlled surgically especially in the region of the nasal fossa. In the petroclival region, where total resection is difficult to achieve, we suggest that a more conservative approach could be discussed, as in the acoustic neuroma. Maximal surgical debulking and a close follow-up could solely be proposed initially to minimize complications, and protontherapy discussed in case of relapse.
An algorithm for the use of the free tissue graft as a reconstructive technique in the endoscopic endonasal approach for pituitary tumors


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Purpose

Though the pedicled nasoseptal flap has become the workhorse in skull base reconstruction, it is not without donor site morbidity. This study aims to identify factors that are associated with successful use of free tissue grafting for the reconstruction of defects resulting from the endoscopic endonasal approach (EEA) for pituitary tumors.

Methods

A retrospective chart review of 223 patients who underwent EEA for pituitary tumors over 3.5 years (January 1, 2013 and June 30, 2016) in a tertiary academic medical center was conducted. Variables assessed included surgical exposure (sellar, parasellar or extending past parasellar), intraoperative cerebrospinal fluid (CSF) leak, volume of leak, body mass index (BMI), and revision surgery. Reconstructive techniques were divided into those with no reconstruction, free tissue grafts, defined as free mucosal grafts, fat grafts or commercial collagen matrix, and vascularized flaps, defined as nasoseptal flaps, inferior turbinate flaps, or revision vascular flaps.

Results

Free grafts were used in 115/223 cases (51.6%), principally with sellar exposure (71/106; 67%) or parasellar exposure (37/77; 48.1%). In cases that had intraoperative CSF leaks, free grafts were used in 35% (36/104) of the cases. Minimal leaks were commonly reconstructed with free tissue grafts when resection was limited to the sella (19/29, 65.5%), however this decreased as the resection defect increased, (47.1%) parasellar and 37.5% extended approaches). When a robust CSF leak encountered, it was unlikely to be reconstructed with free graft. There was no difference in the average BMI when comparing reconstruction with free graft to vascularized flap (31.7 versus 31.8). This held true when stratified by exposure and intraoperative CSF leak status with the exception of cases with an extended approach with intraoperative CSF leak (27.83 versus 31.64).

Postoperative CSF leak occurred in 7 patients (7/223, 3.1%); 4 with parasellar and 3 with extended approaches. Two of the 7 were repaired with a free graft (2/115, 1.7%) while the remainder underwent a vascularized flap (5/95, 5.3%). Three of the 7 tumors (42.9%) were recurrent and one of the 7 (14.3%) included clipping of an aneurysm off of the ophthalmic artery.

Conclusions

Given these data, we propose an algorithm whereby low flow CSF leaks in sellar and parasellar resections can by reconstructed with a free graft. Vascularized flaps are to be reserved for high flow, extended approaches or recurrent disease. BMI does not appear to impact the choice of reconstructive technique, though further study is needed.
Analysis of the complications of transsphenoidal endonasal endoscopic approach of pituitary pathology.

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Introduction and Objectives: The endonasal transsphenoidal endoscopic pathway has been a challenge in surgical neuroendoscopy. The incorporation of the endoscopic approach implies an improvement in tumor resections, as well as lower rates of morbidity and mortality. The aim of this study is to show our experience in complications of patients operated by this way.

Method: A retrospective, longitudinal, descriptive, evaluating 52 patients who underwent endoscopic endonasal pathology sealed with transsphenoidal approach Study.

We studied the characteristics of the population, symptoms, histopathological diagnosis, clinical evolution and transitional and permanent postoperative complications are discussed.

Results: Headache is the principal clinical symptom in our series. There is a slightly higher incidence of Macroadenomas with long evolution of symptoms resulting statistically significant transient occurrence of complications. The most common complications are endocrine group, highlighting the unique diabetes insipidus or associated with other events. We found few sinonasal complications. There are significant advantages to the use of neuronavegador, being statistically significant it’s use with less development of secondary complications due to anatomical directional errors.

Conclusions: The transsphenoidal endoscopic approach is a minimally invasive technique. It has been observed a lower incidence of cerebrospinal fluid leakage and patients show a rapid recovery with minimal postoperative discomfort.
Anterior skull base defects: primary or secondary reconstruction: a report on 83 consecutive cases at the ENT Department of the University of Verona from October 2014 to October 2016

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The study aims to analyse the outcome and complications of a consecutive series of 83 patients referring to our ENT Department from October 2014 till October 2016 who underwent anterior skull base reconstruction or repair.

This series includes patients who underwent one time surgical reconstruction of the anterior skull base or second time surgery after failure or complications after surgical procedures.

41 patients underwent reconstruction after endoscopic resection of anterior skull base lesions (pituitary adenomas, schwannomas, meningiomas, chordomas, craniopharingiomas), 22 after endoscopic removal of endonasal lesions (adenocarcinomas, pleomorphic sarcomas, chondrosarcomas, squamous cell carcinomas, cavernous hemangioma, osteoma), 9 were reconstructions after surgery for encephaloceles, mucoceles, abscesses, 1 patient was treated with a reconstruction after post-radiotherapy necrosis and 10 were reconstructions in patients with postoperative, spontaneous or posttraumatic CSF leakages.

A great variety of techniques were used depending on the size and site of the defect and the nature of the lesion.

Both pedicled (Galeal-pericranial flaps, naso septal flaps-Hadad-Bassagaisteguy-, middle turbinate flaps) and non pedicled (mucopericondrial flaps, fascia lata, xenogeneic patches) were used. Reconstructions of the skull base were performed in a monolayer or in a multilayer/gasket seal technique.

In the postoperative period we encountered 8 cases of major complications: 5 csf leakages, 1 pneumoencephalum (early complications) 2 abscesses (delayed complications).

In conclusion from our experience large dural defects after extended endoscopic endonasal skull base resections require careful reconstruction to prevent cerebrospinal fluid leak postoperatively. Minor leakage can be safely managed with small peduncolated flaps, mucopericondral flaps or xenogeneic tissue patches.
Cavernous sinus and orbit in the management of juvenile nasopharyngeal angiofibroma (JNA)

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Purpose of the study JNA is a benign locally aggressive tumour affecting mainly the adolescent males. It can spread into the orbit or intracranially into the cavernous sinus, which poses a great surgical challenge. Many consider the tumour inoperable once it goes into the cavernous sinus because of the risk of bleeding from the venous plexus, cerebrospinal fluid leak from the dural defect or potential injury to surrounding structures i.e. internal carotid artery and cranial nerves. Similarly, orbital invasion is also challenging. This concerns a surgeon to resort to other non surgical options like irradiation. With the advent of newer navigation and endoscopic systems, some prefer removing these tumours with careful dissection and gentle traction. Evolution in the management of JNA involving the critical areas like cavernous sinus and orbit, will be discussed, in reference to the recent advances available for diagnosis and treatment.

Materials and methods A prospective analysis of 15 patients of JNA was conducted with post-operative follow-up from 12-24 months. Surgeries were performed at Post-graduate institute of medical education and research, Chandigarh - A tertiary care centre. Only patients with intracranial or intraorbital extension were considered for evaluation. All patients underwent pre-operative embolisation followed by surgical excision. Intraoperative and post-operative morbidity was considered as main outcome measure.

Results The average operating time, estimated blood loss with transfusion, excision of tumour and morbidity were studied. No patient suffered stroke, vision loss, or any cranial nerve deficit. Post-operative nasal endoscopy and magnetic resonance imaging was done in all the cases to see for residual lesion. All patients were followed-up for 24 months to see for recurrence or residual disease. Data was statistically analysed.

Conclusion: Cavernous sinus and intraorbital invasion can still be managed by transnasal endoscopic techniques in selected cases however one should be ready with external approaches and combined craniofacial resection techniques in extensive lesions. Complete tumour removal with acceptable morbidity should be the aim.
Cerebrospinal fluid leak which occurs during resection of pituitary adenomas.

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Endoscopic transsphenoidal surgery is the gold standard in the surgical treatment of pituitary adenoma. Cerebrospinal fluid leak is the most frequent complication during resection of pituitary adenomas, which may occur as intraoperatively and postoperatively.

Materials and patients.

During 2008 to 2016 it was operated 112 patients with pituitary adenoma. The age of patients ranged from 16 to 77 years. Men 72, women 40. The average length of stay of the patient in the hospital was 9 days. Microadenomas (tumor size was 10 mm) were detected in 13 patients (11.6%), macroadenoma (tumor size of 10 to 20 mm) in 57 patients (50.8%), large adenomas (tumor size of 20 to 40 mm) in 20 patients (18%), giant (tumor size of more than 40 mm) in 22 patients (19.6%). All patients were operated by endoscopic endonasal transsphenoidal approach.

Results.

Intraoperative cerebrospinal fluid leak occurred in 39 patients. Reconstruction of the dural and bone defect was performed by fat tissue, fascia lata flap, septal piece of bone. if it needed once we used Hadad flap.

Conclusions.

The larger the tumor, the higher the risk of intraoperative cerebrospinal fluid. In the absence of cerebrospinal fluid leak intraoperatively should be performed plastic defect sella (in patients with tumors larger than 20 mm) fragment of fascia lata, autologous bone to prevent liquorrrhea in the postoperative period.
Comparison of quality of life after endonasal endoscopic versus transnasal trans-speculum microscopic transsphenoidal for pituitary tumor resection

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Objective To compare the effect of the microscopic trans-speculum transsphenoidal (TSS) versus the endoscopic endonasal (EEA) approaches to pituitary tumors on patients' QOL using disease-specific multidimensional questionnaires.

Methods Retrospective chart review and questionnaires of 50 patients who underwent transsphenoidal surgery for resection of pituitary tumor between 2005 and 2014 at Tel-Aviv Sourasky Medical Center.

Main Outcome Measures Anterior Skull Base Questionnaire (ASBQ) and the 22-Item Sino-Nasal Outcome Test (SNOT-22) questionnaires

Results Twenty four males and 26 females with a mean age of 55 years were included. Thirty one patients were operated endoscopically, and 19 patients by the TSS approach. Forty two percent of patients had undergone previous surgery in the EEA group compared to only 11% in the TSS group. Patients who underwent TSS surgery had higher mean scores than those who were operated by the EEA approach in all of the QOL domains of ASBQ. However, this did not reach statistical significance. Similarly, the mean score of SNOT-22 was lower in the TSS in comparison to the EEA group but it did not reach statistical significance.

Conclusions The study showed that endoscopic endonasal (EEA) approach to pituitary tumors did not significantly impact disease specific QOL compared to the traditional microscopic transsphenoidal approach.
COMPLICATIONS OF PITUITARY TUMOR RESECTIONS

INTRODUCTION

The choice of treatment of the pituitary tumor is the surgical resection. The most common approach is trans sphenoidal, with this approach more than 90% of the pituitary tumors can be resected. This surgical approach can be done with microscope or by endoscopy. The complications can be presents until 20%. The most common complications are: Cerebrospinal fluid leak (CSFL), meningeal rupture, meningitis, bleeding, carotid lesion, blindness, insipid diabetes and permanent pan hypopituitarism. The CSFL was reduced after the nasoseptal flap concept. The aim was review the relationship between the complications and recurrence with the size of the tumor, in the resection by the transesfenoidal approach.

METHOD

A retrospective case and control study design, based on a single surgeon´s group practice on a third level hospital. Eligible patients were identified from a retrospective surgical database, we perform a review in a system using: "trans esphenoidal, Hipofisis tumor and hipófisis adenoma". We founded 46 files, 14 was excluded because they wasn´t treated by surgery. The demographic data: age, sex, tumor size, approach, recurrence, complications and histopathological results was registered.

Descriptive statistics were used for patients parameters (mean, range, standard deviation). A bivariate descriptive analysis, Shapiro-Wilk test analysis for normality was used. Quantitative variables was analyzed using Student “t” and Percentages, x² was used.

RESULTS

32 Patients was included, eighteen was female (56.2%), age average was 45.3 years (sd 14.5), Terthy patients was diagnosed like adenomas (eleven was considered like macroadenomas), one was prolactinoma. All surgeries was performed by microsurgery, none by endoscopic approach, one tumor was by mixed (trans esfenoidal and frontal) approach. The average of the tumor size was 1.14cm (ds 0.82). Tree complications was founded, all complications was postoperative nasal bleeding. There were 3 tumor recurrences.

There is no statistical relation between the complications and sex, size tumor, age, and surgical approach (p = 0.01), There is no statistical relation between recurrence and sex, size tumor an age.

CONCLUSION

Presence of complications and recurrences are not related to age, tumor size and sex. The retrospective data analysis and a reduced sample were limiting factors of this study.
Ecchordosis Physaliphora, a rare and difficult diagnosis


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Ecchordosis Physaliphora

Purpose of the study:
We present a case leading to the diagnosis of a rare benign skull base tumor, and also the therapeutic procedure used in this precise case, which must be discussed.

Materials and methods:
Description of the treatment of this patient with a clivus tumor discovered after a bacterial meningitis, illustrated with CT and MRI descriptive images.

We will also describe and present our treatment strategy, which is an endoscopic transsphenoidal surgery procedure. We will show step by step in video, the way to remove the tumor, and the multi layer reconstruction of the skull base, with fascia lata, which is the key point.

Results:
It is the surgical treatment, endoscopic procedure, of this rare skull base tumor and review of the literature about the ecchordosis physaliphora and also its different clinical presentations.

Conclusion:
The ECCHORDOSIS PHYSALIPHORA is a benign and rare skull base tumor, responsible of cerebrospinal fluid leak.

The diagnosis is suspected basically on the CT scan and MRI images. Its treatment when needed is surgical particularly when the patient presented complications such as meningitis. The final histologic diagnosis can be difficult, because the differential diagnosis is the chordoma, which is malignant.

An adjuvant treatment can be discussed after the surgery if the microscopic study cannot be decisive.
RA-SKE-11
RHINOLOGY & ALLERGY – Skull Base Endoscopic Approaches

Efficacy of Multilayer Reconstruction after Endonasal Endoscopic Transcribriform Approaches


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Objective: Endonasal endoscopic transcribriform approaches aiming to manage various pathologies like olfactory groove meningiomas could reveal large craniotomies opening to the sinonasal cavity at the end of the procedure. Large defects created by this approach between two lamina papyracea could involve resection of crista galli and reveal challenges during reconstruction. The aim of this report is to emphasize the value of multilayer reconstruction techniques for watertight closure after endoscopic transcribriform approaches.

Methods: Retrospective analysis of all patients operated between 2009 and 2015 at our tertiary care unit through an endoscopic transcribriform approach. Postoperative outcomes of reconstruction were evaluated by endoscopy and objective CSF testing in nasal secretion.

Results: Fourteen patients were included to the study, 11 requiring surgery for tumor removal (olfactory groove meningioma 6, esthesioneuroblastoma 2, fibrous dysplasia 2 and meningoencephalocele 1) and 3 for CSF fistula closure. Multilayer reconstruction was done in all patients using fascia lata in intradural underlay, extradural underlay and overlay fashion. After 2013 nasoseptal flap was utilized as the last layer in 8 patients. Twelve patients had Draf III and 2 required Draf IIB drainage procedure for frontal sinus aeration during reconstruction. No postoperative clinical CSF leak was encountered, verified by Beta-2-Transferrin test in nasal secretion at 1st month and endoscopic mean follow-up of 21 months.

Conclusion: Multilayer reconstruction of the large anterior skull base defects with fascia lata promises a stable and effective closure method after transcribriform approaches. Use of nasoseptal flaps as the last layer improves stability and results in rapid healing.
Endonasal endoscopic repair of 320 patients with CSF leak rhinorrhea. What have we learned?

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PURPOSE: We present a retrospective evaluation of our experience with endoscopically guided repair of rhinorrhea over an 18-year period.

MATERIALS AND METHODS: 320 patients were included in the study. The follow-up period was 1-18 years. The evaluation focused on risk factors contributing to the recurrence of CSF leaks in patients previously operated for rhinorrhea. The evaluation was based on chart review.

RESULTS: 320 patients, aged 3-79 yo, had a mean age of 48.3+10.7 y.o., There were 163 (50.94%) spontaneous leaks (mostly obese women with BMI=39.5+6.7, high ICP and accompanying pathology); 69 (21.56%) iatrogenic, most common after meningioma neurosurgeries (4 children after PCF neurosurgeries); and 88 (27.5%) traumatic CSF leaks.

RESULTS: 275 patients (85.9%) were successfully treated endoscopically at first approach; 45 underwent endoscopic revision, and 19 posttraumatic patients (5.9%) required neurosurgeries.

We didn’t find association recurrences with: fistula size, localisation; material was used for plastic and type of glue; furthermore we didn’t see the necessity in lumbar shunting, which was traditionally used in our Institute.

Recurrence of CSF leak was associated with: failure of locating the initial CSF leak during the surgery (p=0.01); patients with high ICP. We are also able to show that the surgeries performed by more experienced surgeons had a higher success rate (p=0.02).

CONCLUSION: CSF rhinorrhea is successfully treated endoscopically. But accurate pre-op diagnosis and intraoperative localizing CSF leakage; meticulous preparation of recipient bed and grafting is needed for achieving better results. The results are much better when performed by experienced surgeons.
Purpose of the study: To review the published data on the endoscopic endonasal approach (EEA) used in skull base reconstruction in patients previously treated with exclusive radiotherapy or chemoradiotherapy protocols, even with adjuvant or neoadjuvant administration.

Materials and Methods: A systematic literature review of any publication on endoscopic endonasal surgery for the treatment of anterior skull base and sinonasal tumors, focusing on reconstructive results in patients undergoing radiotherapy.

Results: Among 161 abstracts, 27 articles published between 2006 and 2015 were chosen for analysis, and these included 264 patients. The patients were all previously treated and irradiated for anterior skull base lesions and subsequently underwent an EEA with skull base reconstruction using different techniques and with different outcomes.

Conclusions: EEAs are increasingly being adopted in order to reduce morbidity, and different reconstruction techniques are being used. Although the gold-standard treatment for anterior skull base and sinonasal cancers is currently represented by surgical resection followed by postoperative radiotherapy, the role of radiation therapy in the postoperative outcome of surgical reconstruction of the anterior skull base has not been clarified and no guidelines are available.

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Endoscopic coronal plane approaches: anatomical considerations


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Objectives. To evaluate the variations in course of maxillary artery from the temporalis muscle to its distal branches, anatomical variations of sphenopalatine foramen, vidian nerve foramen, foramen lacerum, foramina rotundum and ovale with corresponding neurovascular structures as the limiting factors in coronal plane endoscopic approaches to the skull base with its surgical implications.

Design. Descriptive anatomical study with illustrative case series presentation.

Materials and methods. Anatomical study was performed on 26 fresh human cadaver specimens with injected arteries (52 sides). Maxillary artery was exposed from the level of temporalis muscle deep belly to it's terminal branches via combined transnasal-transoral approach. Anatomical relations between maxillary artery second portion, temporalis muscle deep and superficial bellies, lateral pterygoid muscle lower head (LPMLH) and buccal nerve are documented. The relations between vidian canal, descending palatine neurovascular bundle, foramen rotundum (FR), foramen ovale (FO) and lacerum after removing the pterygoid base and cartilaginous eustachian tube were assessed to estimate the risk of neurovascular structures injury during the transnasal coronal plane approaches.

Results. Second part of maxillary artery was found in all dissections in the area of crossing of LPMLH and temporalis muscle deep belly thus staying superficial to LPMLH in all specimens. Anterior and posterior deep temporal arteries, posterior superior alveolar artery, infraorbital artery and the distal branches of maxillary artery third portion were identified. No significant variations were found except the maxillary artery third portion looping characteristics. The mean distance between VC and PVC was 3 mm (mean deviation 1 mm). The distance between VC and foramen rotundum varied from 1,4 to 7,6 mm, the mean distance was 4,6 mm. Distance between vidian canal caudal orifice and foramen lacerum varied significantly from 6 to 18 mm which corresponds to sphenoid sinus pneumatization.

Conclusion. With the development of endoscopic sinus and skull base surgery there is a growing interest to the variable anatomy of pterygopalatine fossa (PPF), infratemporal fossa (ITF) and retropterygoid area (upper parapharyngeal space). Combined endonasal-transoral approach to the infratemporal fossa is becoming the workhorse in ITF tumor surgery. Endonasal approaches to the cavernous sinus, petrous apex, Meckel’s cave and floor of the middle fossa are developing rapidly. Search for the constant anatomical landmarks which could be also assessed on the pre-operative imaging like the foramina of the skull base could reduce the approach-related morbidity and improve the surgical outcome.

Keywords: endoscopic endonasal approach, maxillary artery, skull base surgery, infratemporal fossa, transpterygoid approach
Endoscopic management of giant paranasal mucocele with intracranial or/and orbital extension.

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Mucoceles of the paranasal sinuses with intracranial and/or orbital extension are relatively uncommon and in the past have been generally treated in Russia by an external approach. Our purpose was to evaluate 20 patients with paranasal sinus mucoceles with intracranial and/or orbital extension who have been treated during the past 9 years, and establish the etiologic factors, the approach to therapy, and the follow-up.

Materials and Methods:

20 patients with the diagnosis of paranasal mucocele with intracranial and/or orbital extension presented in our Institute over the period 2007-2016. There were 8 males and 12 females, with ranging age 23 to 84 years old (mean 42). The follow up period was 6 months to 9 years.

Results:

The etiology in 16 patients was chronic sinusitis, 6 of these patients had previous FESS 2-8 times, 4 were operated on neurosurgically due to frontal sinusitis complicated by abscess of frontal lobe; 4 patients had repeated head trauma.

There were 10 fronto-ethmoidal mucoceles, 4 frontal mucoceles, 6 sphenoid sinus mucocele. Mucocele in 6 patients extended intracranially, in 8 – intraorbitally and in 6 both intracranially and intraorbitally.

Presenting symptoms were progressive headache, exophthalmos and visual symptoms with the duration 2 months to 6 years.

All patients were successfully treated endoscopically, 18 of them were managed by an entirely endonasal endoscopic approach, of which 7 - with image-guided navigation; 2 - by a combination of an external/ endoscopic approach (dealing the combined above/below marsupialization). In cases with intracranial extension mucosa was observed directly against dura.

Revision was necessary in only patient with frontoethmoidal osteoma complicated by intracranial mucocele and polyps sinusitis (who started nose-blowing too early after the surgery) because of postoperative CSF leak with progressive pneumocephalus.

One patient with recurrence of sphenoid mucocele was operated endoscopically 5 years after the surgery.

Mean follow-up was 5 years.

Conclusion:

The etiology of most mucoceles was due to sinusitis and multiple previous rhinological or neurosurgical procedures.
The paranasal mucocele with intracranial and/or orbital extension are relatively rare, occurring most frequently in the fronto-ethmoidal region.

Paranasal mucocele even with intracranial and/or intraorbital extension are successfully treated with endoscopic guidance. Wide marsupialization can be achieved using the endonasal endoscopic approach in cases of extended frontal mucocele with medial location. Combined approach may require for frontal sinus mucocele in the lateral part of the frontal sinus.
Endoscopic Repair of Spontaneous CSF leak from Meningocele in Lateral Sphenoid Recess

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Even overall spontaneous and secondary of sphenoid sinus CSF leak incidence are rare, spontaneous cerebrospinal fluid (CSF) leak occurrence may be more common in sphenoid sinus than secondary CSF leak. Obviously it is very rarely diagnosed disorder in such low populated and wide country like Mongolia with just around 3 million people.

Instead of standard transcranial procedure of neurosurgical field, we report the case of endoscopic repair of spontaneous sphenoid sinus CSF leak which is managed as first time by the Mongolian ENT specialist team. A 36-year-old female patient, obese, suffered from long-lasting left-sided watery nasal discharge. There were no clinical signs of elevated intracranial pressure. The ENT examination revealed left-sided rhinorrhea. This was confirmed by biochemical tests of the albumin/glucose levels.

High resolution coronal CT scans and T2 weighted MRI disclosed a highly pneumatized lateral recess of the sphenoid sinus that extended laterally into the either greater wings of the sphenoid bone with full of liquid in left side.

Due to far lateral extension of the sphenoid sinus, the endoscopic transethmoidal-sphenoidal-pterygoidal approach (TESPA) was chosen as the surgical procedure. We began with a wide maxillary antrostomy followed by complete sphenoethmoidectomy performed in a standard manner. After that, an attempt to expose the posterior wall of the maxillary sinus was performed. The sphenopalatine artery was exposed and coagulated. The posterior wall of the maxillary sinus was then removed and the pterygopalatine fossa was entered. We then entered the lateral recess of the left sphenoid sinus. After having identified the leak from the 5 mm meningocele locating on the opening of the canal (Sternberg canal) superior posterior wall of lateral recess of sphenoid sinus by assistance of fluoresceine, the meningocele was resected and removed. Mucosa and periosteum around the defect and inside the canal were removed to denude the bone.

First we inserted and stuck the canal with 1 piece of septal bone, 2 piece of cartilage then abdominal fat, mucoperiosteum from the inferior turbinate, were put on the canal opening using the overlay technique, and additionally fixed with fibrin glue. Lumbar drainage was used at the time of surgery and also 5 days after surgery. The patient was followed up for 9 months without any suspicion of recurrence.

We conclude the endoscopic transnasal approach to the sphenoid sinus is an excellent minimally invasive alternative choice of method to the standard transcranial procedures.
ENDOSCOPIC-ASSISTED APPROACHES TO THE MAXILLARY SINUS: FROM ANTROSTOMY TO RADICAL MAXILLECTOMY

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Instructor: Mario Turri-Zanoni, Italy. Topic: Classification of surgical approaches.


The maxillary sinus is the most commonly approached paranasal sinus and usually requires a multidisciplinary management, including otorhinolaryngologists, dentists and maxillo-facial surgeons. Better understanding of the anatomy of the osteomeatal complex, improved anesthesiological techniques, as well as the greatly enhanced visualization provided by endoscopes, have led to a tremendous evolution of endonasal approaches to the maxillary sinus. Recently, the significance of the natural ostium of the sinus in mucociliary clearance indicates use of the most conservative and minimally invasive approach possible. However, in spite of these advances, some areas of the maxillary sinus remain technically difficult to access using the standard antrostomy and there are still several diseases involving the maxillary sinus or deeper areas of the skull base, such as the pterygopalatine fossa, infratemporal fossa, and upper parapharyngeal spaces, that require expanded endoscopic approaches in order to be adequately managed.

The objectives of this instructional course are to describe the variety of endoscopic-assisted endonasal and external surgical procedures for approaching the maxillary sinus and to analyse indications, contraindications and potentials complications of each approach. Technical notes and surgical tricks will be also provided.

The spectrum of endoscopic endonasal approaches currently available will be classified in a modular way, from the standard antrostomy to the medial maxillectomy that can be progressively expanded by removing the inferior turbinate, the nasolacrimal duct, the pyriform aperture, and finally the anterior maxillary wall with transposition of the infraorbital nerve. Traditional external radical maxillectomies will be also described, paying attention to recent technological innovations such as the endoscopic-assisted midfacial degloving technique. Clinical cases for each type of surgical approach will be presented and discussed with the audience. The comprehensive experience of our Institution, based on 1378 cases of expanded maxillary sinus approaches will be also critically analysed. Our results together with data emerging from recent literature suggest that by progressively expanding the approach, the surgical exposure is gradually increased but so do the rates of complications and morbidity for the patients. In conclusion, endoscopic-assisted approaches to the maxillary sinus are versatile techniques offering increasing access, which can be tailored to different maxillary, sinonasal, and skull base pathologies. Open questions that still remain in the surgical management of maxillary sinus diseases and future trends in this field will be fully discussed in the present instructional course.
Extended nasopharyngectomy: interest of the endonasal endoscopic approach compared with the maxillary swing

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Objective: The nasopharynx and the parapharyngeal areas are deep regions difficult to access for the surgeon. Among the various external access routes described since Fisch procedure in 1983, the maxillary swing (MS) has emerged as the gold standard because of its simplicity. However, the morbidity associated with the MS led to the development of less invasive techniques. The aim of our study was to compare the surgical anatomy of the 2 surgical approaches to nasopharyngeal carcinomas invading the parapharyngeal spaces: the MS and endonasal endoscopic approach (EEA).

Material and Method: The MS and EEA were performed on 20 anatomical specimens. The exposure and the limits obtained from the two approaches were evaluated. After dissection an imaging study with CT-scan was performed.

Results: In our experience, the EEA has allowed increased limits and a wider exposure. This was confirmed by the CT-scan study. Unlike MS, the EEA has allowed a precise visualization of deep structures and a reproducible and careful dissection of parapharyngeal spaces. However, the MS has provided better access to the lower part of the nasopharynx after lateralization of the maxilla with an operative time approximately 3 times shorter than the EEA.

Conclusion: Our results show that the EEA pushes the surgical limits of MS, while being a minimally invasive technique. The EEA provides excellent exposure, a wide dissection range and a precise definition of anatomical structures that place it as an alternative of choice to the MS. This is the first study comparing these two procedures.
Image Guided, Endoscopic Repair of CSF Rhinorrhea Using a Superiorly Based, Middle Turbine Rotational Flap

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Introduction: An endoscopic approach is a common surgical repair for CSF rhinorrhea due to a defect in the anterior skull base. At our institution, an image guided, endoscopic approach using a superiorly based, middle turbinate (MT) rotational flap to repair these defects. This case series describes the surgical technique and outcomes/limitations of the repair.

Study Design: 22 patients with CSF rhinorrhea surgically treated with the described technique

Methods: A retrospective chart review for patients undergoing the surgical repair for CSF rhinorrhea and assessment of complications and need for further procedures. All patients underwent CT guidance, intrathecal fluorescein, exploration of middle & superior meati and nasopharynx, ethmoidectomy and/or sphenoidotomy, and de-epithelialization of the defect's edges. Septal cartilage was harvested for free graft, and the medial aspect of the middle turbinate was de-epithelialized posteriorly, and rotated superiorly (Superiorly based flap). Lastly, fibrin glue, and packing was used to cover the repair.

Results: 22 patients (9 males & 13 females) with no post-operative meningitis, frontal lobe abscess, anosmia, pneumocephalus, or intracranial hemorrhage/hematoma. There was one post-operative headache that was later diagnosed as a migraine, one episode of epistaxis secondary to anticoagulation & one recurrence 5 years later.

Conclusions: Preliminary data shows: Image guided, endoscopic repair of CSF rhinorrhea with a superiorly based, MT rotational flap is a safe and effective repair option, with one delayed recurrence and little to no morbidity. This is an effective repair for defects up to 5x5 mm in size & potentially 1x1 cm. This is an effective repair for defects in cribriform plate, ethmoid roof, and lateral sphenoid defects; however it cannot reach the posterior sphenoid defects.
INTRODUCTION

While transnasal endoscopic approach may seem minimally invasive because of avoiding craniotomy, it significantly disrupts structures and nasal cavity mucosa. Structural and physiological nasal changes may occur, with synechiae, crusting, smell changes, nasal airflow obstruction. ACTH-producing adenomas lead to an increased production of cortisol by adrenal glands, Cushing's Syndrome, causing deleterious effects to most tissues of the body, including nostrils. Also, nasal mucosa changes are observed in these patients, such as atrophy, bleeding and adhesions formation. Objective: considering the differences between ACTH adenomas producing and non-producing, as well as the systemic effects of Cushing's syndrome, which influences mucosal appearance, healing and patient recovery, we intend to compare nasal and visual complaints, physical examination data and radiological data of residual tumor between two groups of patients undergoing adenoma resection of pituitary by endonasal endoscopic approach, with at least 3 months after surgery.

METHODS AND MATERIAL.

We evaluated retrospective cohort patients who underwent endonasal endoscopic surgery for adenomas of the anterior skull base in a single tertiary institution. Patients with non-producing pituitary adenomas and ACTH producers who had no pre-operative nasal complaints were included in the study. Patients undergoing more than one surgical approach, patients with previous nasosinusal complaints, adenomas producing hormones other than ACTH, and patients undergoing external craniotomy were excluded from the study. The ASBQ is a quality-of-life instrument for the disease-specific. Has been validated for patients submitted to surgery of anterior base of the skull. ASBQ contains 35 items divided into 6 different domains: performance, physical function, vitality, pain, emotional influence and specific symptoms. We recorded responses in domain referring to five specific symptoms, which were applicable to endonasal surgical approach.

RESULTS

Total of 87 charts were evaluated. 37 filled inclusion criteria of the study. Of these, 25 were non-producing adenomas, and 12 were ACTH producers. 13 were male and 24 female. The median (interval) follow-up time was 19 (3-50) months. Anterior skull base was reconstructed in multiple layers through vascularized flaps, fascia lata, abdominal fat and fibrin glue. Postoperative smell (3.11 vs 3.76, p = 0.03) and taste (3.04 vs 3.69, p = 0.03) were significantly lower in cushing group. Vision scores improved by 3 weeks postoperatively with durable results 1 year in both groups without statistical significance.

CONCLUSION
Endonasal endoscopic pituitary surgery is a viable technique, yielding good surgical and functional results and low morbidity in both groups, with better results in adenomas non-producers than adenomas producers.
IMPLEMENTATION OF ENDOSCOPIC TRANSNASAL APPROACH OF THE SKULL BASE IN DEVELOPING COUNTRIES.

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IMPLEMENTATION OF ENDOSCOPIC TRANSNASAL APPROACH OF THE SKULL BASE IN DEVELOPING COUNTRIES.

Aga Alfred MD*, Shytaj Edlir MD*, Abdyli Asead MD**, Xhumari Artur MD**

Purpose of the study

To assess the applicability of the endoscopic transnasal approach (ETA) of the skull base in countries which have limited economic and medical resources. The benefits and limitations associated to the application of this technique versus the classical approach.

Materials and methods

From June 2013 to June 2016 in the ENT department of American Hospital and Neurosurgery Department of Mother Teresa Hospital in Tirana, were operated the first 6 cases of repair of the skull base by transnasal endoscopic approach. We do not use dedicated instruments for the skull base surgery (only FESS instrumentation) and no fibrin glue. The 2 layer technique was used in all cases. In 4 cases we used Hadad flap as the second layer and in 2 cases we used middle turbinate flap. Days of hospitalization, the major and minor complications, costs and the difficulties for the surgeon while dealing with the lack of appropriate equipment was evaluated.

Results

All the 6 patients had successful surgical correction with no cerebrospinal fluid leak after surgery. The follow up period was from 6 to 30 months.

The advantages of this technique were evaluated in terms of:

1. Less average time of hospitalization (7 days /12 days)
2. No major or minor complication (0/25 %)
3. Less hospitalization costs (5000$/10000$)

Limitations are the lack of economic possibility to buy the appropriate equipment and instruments and the inappropriate preparation of the medical/paramedical staff for the diagnosis and management of these patients.

Conclusions

Despite our limited number of cases and all logistical difficulties we think that this technique is applicable even in developing countries, leading to benefits for both patients and national health systems. However, the surgeon and the supporting staff must have adequate experience in this field considering the high degree of the challenging problems.
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Interdisciplinary approach in surgical treatment of JNA involving the skull base

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Purpose of the study: To enhance the effectiveness of transnasal endoscopic JNA removal, thus facilitating earlier postoperative rehabilitation and to optimize surgical treatment of JNA with skull base involvement by means of 3D CT - angiography scan reconstruction.

Materials and methods: From 2014 to 2016 29 patients with JNA stages Fisch-Andrews I-IIIB (9-17 years old) were operated at the Department of oncology and pediatric surgery. Among them there were 12 primary and 19 revision cases. 33 surgeries were made, including 30 transnasal endoscopic approaches (10 of them with IGS, 5 IGS and coblation, 5 with coblation without IGS, 10 without IGS neither coblation) and 3 open (1 transmandibular and 2 maxillary swing approach). In all cases 1 day pre-op angiography with selective percutaneous embolization was performed.

In two revision cases with previously ligated external carotid artery surgical treatment was performed in two steps: first, an open approach was performed (either transmandibular or maxillary swing approaches), then in three month an endoscopic transpterygoid approach was performed for removal of residual component. In one patient with JNA Fisch-Andrews IIIB the tumor was removed just with a maxillary swing approach. In all cases where open approach was performed the single-stage osteosynthesis was made with titan miniplates and original occlusion restoration.

The presence of residual tumor and the probability of recurrence was evaluated with 3D angio-CT scans reconstruction before and after the surgery.

Results: The residual tumor was present in 11 patients, 4 of them required second look surgery. Other patients are in “watchful waiting” group. Follow-up of all 29 patients is 3 month to two years.

Conclusion: 1) IGS and coblation in transnasal endoscopic JNA removal aids in minimizing the mean operation time, blood loss, complications rate, the need of tamponade, what facilitates postoperative rehabilitation and enhances postoperative quality of life

2) In stage II Fisch-Andrews transnasal endoscopic removal is preferable

3) In stage IIIA-IIIB Fisch-Andrews in primary cases the transnasal endoscopic approach with IGS is preferable

4) In the presence of the masticiatory and parapharyngeal spaces, orbit or skull base involvement in primary cases the combination of transnasal endoscopic and open approaches is feasible. In revision cases open approaches are preferable
Intraorbital Surgery as Advanced Endoscopic Endonasal Surgery

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The boundaries of endoscopic sinus surgery increase daily as experienced Functional Endoscopic Sinus Surgery surgeons try their hands working in territories outside the nose, in the treatment of pathology which otherwise would require more aggressive surgical management.

The skull base and the orbit are just two locations which advanced endoscopic endonasal surgery has shown to be helpful in sometimes solving otherwise difficult to reach or delicate pathology.

The authors propose to present a few cases on which intra orbital surgery was performed through an endoscopic endonasal approach.

Using video tapes, the authors illustrate techniques as diverse as the endonasal endoscopic repair of orbital floor defect in the silent sinus syndrome, the three wall orbit decompression in the management of extreme proptosis in Graves’ disease, the optic nerve decompression in the management of severe acute optic nerve disease, and the biopsy of intra orbital cancer metastasis of a prostatic cancer located on the, difficult to reach, bony orbit roof.

All cases show how intra orbital surgery can be successfully performed through an endoscopic endonasal approach in a wide range of pathologies, not only as treatment, but also as a diagnostic procedure. Frequently, this approaches offer less morbid surgical solutions than alternative, conventional, surgical options.
Is Expanded Endoscopic Sinus Surgery Cost-Effective Compared to Open Surgical Approaches for Olfactory Groove Meningiomas: A Cost-Utility Analysis


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Background: This study is an economic comparison between expanded endoscopic sinus approaches to open craniotomy approaches for the management of olfactory groove meningiomas (OGMs).

Methods: We adopted a hospital administrator perspective, and modelled the treatment for OGMs using decision tree analysis over a one-year horizon. We included the complication of CSF leakage in our model and derived model parameters from hospital costing data, our own health utility study and a comprehensive literature review.

Results: In this base case analysis, the average cost of an endoscopic approach for olfactory groove meningioma resection was $20,376.55 (CAD) compared with $26,267.79 for open bifrontal craniotomy approaches for a cost savings of $5,891.24 per patient treated. Rates of CSF leakage postoperatively were 30% and 4% for endoscopic and open approaches respectively. The quality of adjusted life expectancy over a one-year horizon for endoscopic approach was 0.87 compared with 0.74 for an incremental effectiveness of 0.13 QALY per patient treated. In this base case analysis, endoscopic approach dominated open approach with cost savings and incremental effectiveness, despite higher rates of CSF leakage.

Conclusions: Our initial base case analysis demonstrated that endoscopic approach is cost effective when compared with open approaches for resection of OGMs. This finding, though significant, should be interpreted carefully until long-term data including recurrence, and survival are incorporated. We plan to further develop our model to capture the impact on cost and utility scores of recurrences, further treatment, and follow-up for each of these treatment approaches.
Management of Spontaneous CSF Rhinorrhoea - Is it different than other causes of Leak?

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Background:

CSF Rhinorrhoea is treated with endoscopic approach with very low rate of failures but an individualized surgical management can improve results. Spontaneous CSF Rhinorrhoea is the most common cause of CSF Rhinorrhoea and in most cases etiology is not known. Spontaneous CSF Rhinorrhoea is mainly prevalent in middle-aged female having high BMI but rarely present in females and males with younger age group and normal BMI.

Spontaneous CSF should be treated differently from other etiology as they have characteristic features of signs of raised ICP and can be categorized in low, medium and high pressure leaks. In this study we are sharing our experience in managing Spontaneous CSF leak and the very unique pattern in Radiology and intra-operative findings and individualized approach towards each case. CSF diversion for initial few days in select cases and using vascularized flaps is very useful in getting results close to 96 percent.

Material and Methods:

This Retrospective study was done at tertiary care Institute. We reviewed the record of 63 patients who were operated endoscopically, from Jan 2011 to April 2016. Preoperative CT cisternography and T-2 weighted MRI was done in all cases. Radiology was studied in details to identify the CSF leak site and size and various unique features in CT Scan and MRI, which are associated with CSF rhinorrhoea. The method used to repair leak along with use of CSF diversion or intrathecal fluorescein for identification of leak was also noted. Postoperative use of acetazolamide was documented in these patients. Minimum follow up was of 6 months and average 18 months.

Results:

45 cases were Females and 18 cases were males. Mean age group in females was 46 years, in males were 38 years. The overall success rate was 96 percent. 35 patients underwent temporary CSF diversion and 2 permanent CSF diversion. Empty sella syndrome was present in 55 cases and CSF leak in optic nerve in 35 cases, B/L leak was seen in 4 cases. Most common site was cribriform followed by fovea ethmoidalis and sphenoid sinus. Vascularized flap was used in 43 cases and tissue glue was used in all cases.

Conclusion:

Spontaneous CSF rhinorrhoea has some features of raised ICP in most of patients but not amounting to Benign Intracranial hypertension. Use of CSF diversion procedure in select cases with postoperative use of acetazolamide is useful in achieving successful outcome.
Meningocele and meningo-encephalocele of the lateral wall of sphenoidal sinus: role of endoscopic endonasal surgery

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Purpose of the study

Meningocele and meningo-encephalocele of the lateral wall of the sphenoidal sinus (LWSS), are quite rare pathologies that may be considered life threatening diseases due to the high risk of meningitis.

Our main objective is to demonstrate how endoscopic endonasal surgical approaches (EEA) could be useful and effective, giving us the opportunity to study and treat these pathologies under a different point of view.

Materials and methods

Our series include 23 patients operated into our University Hospital since 1998 to 2015;

7 males and 16 females were enrolled, mean age 52 y.o. (26-73), all operated through EEA. Previous episodes of CSF leak, seizures, meningitis/meningoencephalitis were evaluated.

Among our patients 2 had a positive anamnesis for epilepsy; 11 were affected by meningo-encephalocele and 12 by meningocele, 19 of them presented with preoperative CSF leak, and in 3 cases it was associated with previous episodes of meningitis.

Outcome has been studied and assessed through the analysis of neuroimaging executed after surgery and clinical evaluation.

Results

In all patients treated, no post-operative complications occurred, but one isolated case who presented seizures at the awaking from anaesthesia. The mean follow-up time was 84 months (4-167 months) and no relapse of epileptic crisis or CSF leak were detected.

Conclusion

EEA is a safe and effective surgical approach, and can be considered a valid minimally invasive alternative to conventional transcranial surgery, for meningocele and meningo-encephalocele of the LWSS.

Moreover, since this approach does not require cerebral tissue manipulation, the risk of infectious complications is decreased as well as the hospitalization time. It has also a better psychological impact on the patient due to the absence of scars or other visible signs after surgery.
Meningoencephalocele treated by exclusive endoscopic surgery

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Purpose of the study:

In this retrospective study we decided to evaluate the efficacy, the interest and the technical surgical aspects of the management of the meningoencephaloceles of the anterior skull base by endoscopic endonasal approach, in order to eliminate all the complications and the aesthetic sanctions that were almost constant with external approach surgery.

Materials and methods used:

During the period 2012 to 2016, 17 meningoencephaloceles from the anterior skull base were treated exclusively with endoscopic surgery, the majority of patients were referred to us by the infectious disease departments which treated these patients for repeated meningitis. Average 2 episodes), there were 2 children the rest was adults.

In 14 of these patients the meningoencephalocele was post traumatic, and without precise etiology (probably embryologic) in 3 patients.

We operated patients exclusively endoscopically.

Results:

We had 93% of closure of the defect without any rhinorrhea.

We had one case of failure in a very indiscipline patient who did not respect the postoperative measures preventing the elevation of intracranial pressure.

Cases were chosen by increasing difficulty in order to have a learning curve.

Conclusion:

Encephalomeningoceles are currently managed at our level (in multidisciplinary team ENT-Neurosurgery) exclusively by endoscopic surgery and this whatever the size of this one.

This resulted in the elimination of all the aesthetic, functional and neurological complications of this surgery when it was still performed by external approach.
Modern technologies and multidisciplinary view in the nasal liquorrhea treatment

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Cerebrospinal fluid spaces and the cranial cavity delimited by natural barriers.

Damaged of anatomical structures makes conditions for cerebrospinal fluid outflow from the its intracranial spaces towards to a nasal cavity. Nasal liquorhea is a life-threatening condition because of a possible infection of the liquor system.

Sixty patients suffered from were nasal liquorhea observed, all persons were divided into four groups: I group consisted of 15 patients who underwent operation to install a bypass in the cerebrospinal fluid space. II group included of 15 individuals who were operated with classical intracranial neurosurgical approach. In the III group there were 23 patients who were operated with plastic of liquor fistulous with intranasal approach. IV group held of 16 people who were operated with combined approach (intracranial plus intranasal).

In addition there were general clinical investigation, included radiological examination (MRI and CT with 3D and VRT reconstruction), and immunological study (at necessity only) was conducted to determine the presence of β2 transferrin in nasal liquid.

During the postoperative period for 3 days lumbar drainage and invasive manometry (CSF pressure monitoring) was performed to the patients from III and IV groups.

There was one liquorhea recurrence in the first group, in the second group it was noticed five liquorhea relapses. In III and IV groups there were no liquorhea recurrences.

Preventing liquor fistula failure was caused by adequate postoperative management of patients with CSF pressure monitoring. All patients were recovered, the observation period takes from 3 months to 10 years range.

Conclusion. The multidisciplinary view to diagnosis and treatment of nasal liquorhea promotes the most successful surgical treatment result.
Narrow band imaging in giant pituitary adenomas surgery

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Introduction: Narrow band imaging (NBI) has proven a useful in vivo tool for early cancer diagnosis in different settings. NBI endoscopy has been proposed also as a surgical aid for endoscopic procedures, but its use in the neurosurgery is at present limited to ventricular lesions biopsies. In this presentation we would like to report a successful preliminary case of NBI-assisted giant pituitary adenoma (GPA) endoscopic transsphenoidal resection.

Material and methods: the patient, an otherwise healthy 60-year-old male, was referred to our neurosurgery department for a 42-mm non functioning GPA with marked field of view reduction. The patient was candidate to extracapsular dissection via transsphenoidal approach. The operating room was set-up for a 2D endoscopic approach with an ultra-HD endoscopic system. A conventional bi-nostril transsphenoidal approach was chosen. During microdissective intrasellar adenoma removal NBI was used to check the vascular patterns. The tumor showed a dark spotted pattern which is common to other neoplastic lesions due to neoangiogenesis. The tumour starkly contrasted with capsule and diaphragma sellae and the pituitary gland.

Results: NBI integrated the common white light vision during the remainder of the procedure, allowing a safer dissection and identification of a bulky tumor residue, which would have gone completely unnoticed with conventional endoscopy. A satisfactory decompression was achieved without complications. Postoperative imaging confirmed a gross total resection and the patient’s pituitary function was preserved. The NBI findings were confirmed by the histological report of a non-secreting pituitary adenoma without normal pituitary gland residues in the specimen.

Conclusions: In this preliminary experience, NBI allowed distinguishing the neoplastic tissue from the surrounding structures thanks to the different vascular pattern. Adenomas are usually well distinguishable from normal pituitary structures, nevertheless a more confident tumor recognition leads to two major advantages: first, minimizing accidental injuries to neighboring structures (major vessels, pituitary gland and diaphragm sellae) reducing bleeding, CSF leaks and postoperative hypopituitarism risk; and, second, achieving a more complete tumor resection. Though our findings obviously need further validation (especially with different histotypes), NBI imaging could represent a powerful tool in endoscopic pituitary surgery. We hope that our initial observation could incentive other colleagues to experiment this noninvasive technique in pituitary surgery and in other skull base endoscopically treated neoplasms (e.g. craniopharyngiomas and chordomas) in order to gather more data on this useful technique.
Nasal functions in three-dimensional endoscopic skull base surgery: a prospective study on 100 consecutive patients


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Purpose. Endoscopic transnasal transsphenoidal surgery has become the standard procedure for the majority of skull base diseases. The aim of this prospective study was the objective evaluation of nasal airflow resistances and olfactory function in three-dimensional (3D) endoscopic transnasal transsphenoidal surgery.

Materials and methods. One hundred consecutive patients who underwent 3D trans-nasal endoscopic surgery for sellar, parasellar and clival diseases were enrolled. Cold knife was used to harvest all the nasoseptal flaps, in order not to damage the olfactory neuroepithelium. The posterior third of nasal septum was removed before performing sphenoidectomy. All patients underwent symptoms evaluation and endoscopic fiber optic nasal examination. Nasal functions were investigated with active anterior rhinomanometry and Sniffin' Sticks tests. Each assessment was performed before endoscopic surgery, and at 3 and 6 months post-operatively.

Results. No significant difference about nasal airflow resistance and olfactory function was observed between preoperative and postoperative subjective and objective scores (p>0.05). In the group of patients with sellar and parasellar diseases, a worst nasal respiratory function was seen when crusting was present and a worst olfactory function was observed in patient with synechiae (p<0.05).

Conclusions. 3D endoscopic transnasal transsphenoidal surgery represents a more and more important tool in skull base surgery with superior visualization of neurovascular structures and low morbidity. It does not determine nasal respiratory and olfactory alterations after the treatment, without an increase in nasal complaints that could worsen quality of life.

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New landmarks in endonasal surgery: from nasal bone to anterior cribriform plate

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BACKGROUND

Despite the development of endoscopic endonasal surgery, the anatomy of nasal bone and anterior cribriform plate remains unclear. A preliminary study found two distinct foramina at the anterior part of cribriform plate: an ethmoidal foramen and a cribroethmoidal foramen. The aim of the present study was to precise and extend these results.

METHODS

Thirty six cadavers were analyzed according to four ways:

- Osteological analysis: foramina and sulcus were observed on twelve skulls
- Histological analysis: standard coloration, immunohistological study and electronic microscopy were realized on 12 skulls.
- Radiological analysis: two skulls were analyzed on micro-CT contrasted with osmium tetroxyde. Then, we realized a three dimensions reconstruction.
- Endoscopic analysis: ten skulls were injected to identify main surgical landmarks.

RESULTS

The ethmoidal foramen and the cribroethmoidal foramen were observed in all cases. It measured respectively 4,2 (1,9) mm et 1,6 (0,7) mm. The ethmoidal foramen contained dura mater, arachnoid granulations and the nervus terminalis enabling, at least among animals, to pheromonal recognition. The cribroethmoidal foramen contained the anterior ethmoidal nerve and the anterior ethmoidal artery.

It continued forward with « cribroethmoidal foramen sulcus » with a mean lenght of 2,5 (0,3) mm. Foremost, we described « nasal bone sulcus » and « nasal bone foramen ».

CONCLUSION

The clinical applications of this new anatomical description relates both cribriform plate surgery and frontal sinus surgery.
Our Experience of Endoscopic Transnasal Repair of Skull Base Defects with Encephalocele


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Objective: Endoscopic transnasal approach has become the routine procedure in repair of cerebrospinal fluid (CSF) leaks with encephalocele. This study aimed to present the characteristics and surgical outcomes of our patients with encephalocele.

Material and methods: We retrospectively reviewed the medical records of patients who underwent endoscopic transnasal repair of CSF leaks with encephalocele at Hacettepe University Otolaryngology Head and Neck Surgery department between Jan 2007 - Nov 2016. Aetiology, defect location, graft material, history of meningitis, usage of lumbar drainage and follow up time were noted down.

Results: A total of 62 patients underwent CSF fistula surgery in our clinic between 2007 and 2016. An encephalocele was identified in 42 of these patients. Aetiology of encephalocele was trauma in 27 cases, benign intracranial hypertension in 9 cases, iatrogenic in 1 case, congenital encephalocele in 2 cases and tumor-related in 2 cases. 20 patients had history of meningitis. Cribriform plate was most common defect location and we used tensor fascia lata, temporal fascia and septal cartilage to repair skull base defects. Size of the fistula defects were smaller than 10 mm at fifty percent of patients. All patients had favorable outcomes during follow up (2 months- 9 years).

Conclusion: The endoscopic approach to CSF leaks with encephalocele is a minimal invasive and effective surgical method. There was no significant effect of existence of encephalocele on surgical success rate. The operative technique and graft materials depend on defect size, location and the surgeon’s preference.
Pituitary involvement in Wegener’s granulomatosis: a case report and literature review

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Wegener’s granulomatosis (WG) is a systemic vasculitis that can affect a variety of organs including ear, nose and throat, lungs and kidneys. A 56-year-old male was referred to our institution for right otomastoiditis and facial nerve palsy on a background of 18 months of chronic sinusitis and otitis media. He underwent cortical mastoidectomy, facial nerve decompression and ossicular chain reconstruction. Post-operatively raised inflammatory markers, strong c-ANCA positivity and actively inflamed granulation and fibrous tissue on mastoid lining histopathology prompted a likely diagnosis of WG. He was commenced on conservative medical management. However over the following six months despite immunosuppression, pre-existing polyuria and polydipsia persisted and an enlarging heterogeneously enhancing pituitary gland was noted on radiological imaging. Following endoscopic transsphenoidal pituitary biopsy and debulking, final tissue pathology was diagnostic for WG of the pituitary and he was commenced on methylprednisolone and rituximab pulsing. Pituitary gland WG is an exceedingly rare complication of the disease. We conducted a literature review to examine the presentation, imaging findings, treatment and outcomes for WG in the pituitary gland.

The majority of cases of WG in the pituitary present with central diabetes insipidus (CDI) and varying degrees of hypopituitarism on a background of disease activity in other organs. Tissue diagnosis to confirm vasculitis is important however histological confirmation is rarely necessary unless pituitary disease is the sole manifestation or it is unresponsive to immunosuppression. Radiological abnormalities occur in greater than 90% cases, frequently with diffuse pituitary enlargement with heterogenous or homogenous pattern, infundibular thickening and loss of signal intensity in the adenohypophysis. Cyclophosphamide-based regimens are recommended in the treatment of pituitary gland WG with rituximab-based therapy reserved for severe refractory cases. Long-term prognosis of patients with pituitary WG is unknown. However, despite systemic therapy and good disease control elsewhere, few patients experience full recovery of pituitary function.

This case report and literature review highlights the need to consider this differential diagnosis in patients with CDI in the setting of relevant associated symptoms and disease background. Timely diagnosis is important to ensure best possible management especially considering long-term prognosis is largely unknown.
Successful Endoscopic Repair of Spontaneous Cerebro-Spinal Fluid Rhinorrhea

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Purpose of the study:

CSF rhinorrhea is classified into traumatic and non-traumatic (spontaneous). The spontaneous type is rare and accounts for around 3-4% of all CSF rhinorrhea cases.

Majority of spontaneous cases occur in female, with an insidious onset, often mistaken for a feature of rhinitis.

Endoscopic approach to repair the defect has become the standard of practice with a reported success rate of between 76% and 95%.

We will present our experience in endoscopic repair of spontaneous CSF rhinorrhea in our institute, analyze the pathogenesis, comorbidities, surgical approach, technique and outcome.

Materials and Methods:

Patients whom underwent Endoscopic repair of spontaneous CSF rhinorrhea at our institute from 2009 – 2016 were reviewed. 14 patients collected. The following data’s where analyzed: Site and size of defect, comorbidities, body mass index, sense of smell, intracranial pressure analysis, surgical approach and technique, type of graft, duration of surgery, lumbar drain insertion and surgical closure success.

Results:

14 patients fit the inclusion criteria’s, all patients where females and found to have high Body Mass Index. Site of defect was at cribriform plate, lateral lamella and lateral wall of sphenoid sinus.

All cases were managed by transnasal endoscopic approach, single over lay fascia lata graft was used.

All patients received post up lumbar drain and 30% of the patients received Acetazolamide post-operative. With a 100% success rate up to a mean of 2 years follow up.

Conclusion:

Spontaneous CSF leak is very uncommon. It requires a high index of suspicion for diagnosis. A detailed history, endoscopic examination and appropriate investigations are important to confirm the diagnosis.

The trans-nasal endoscopic technique has become the standard approach for CSF defect closure. The most important step in the success of the surgical closure is clear endoscopic localization of the site of the defect.

Endoscopic repair of CSF fistula carries a high success rate with a high margin of safety and low morbidity rate.
Surgical Endoscopic Management of an Accidental Ruptured Internal Carotid Artery During Skull Base Surgery


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Purpose of the study.

Injury to the internal carotid artery is a feared complication during endoscopic endonasal surgery of the skull base. It is associated with a high morbidity and mortality. Even if bleeding is controlled, permanent neurological defects frequently persist. Many techniques have been developed to manage internal carotid artery rupture with varying degrees of success. We report a case of carotid artery injury which was successfully managed with in situ compression with cotton patties so surgery could be finished without major complications.

Case report.

We present a 74 year old patient who had a non functioning hypofisary macroadenoma with invasion of the right cavernous sinus and severe compression of the optic chiasm. The endoscopic endonasal route was preferred. During the neurosurgical phase of the surgery, the right parasealar carotid was ruptured. While making haemostasis of the sphenoid sinus, heat from the electrocautery was transmitted through the bone and the artery was injured between C3 and C4 segments close to the optic-carotid recess.

Results.

The severe hemorrhage was controlled endoscopically by using contralateral suction and local compression with cottonoid patties. A foley catheter was used to hold the compression on the patties and the patient was transferred to the angiovascular room. The digital substractigation showed an apparently intact right carotid artery with no active bleeding, so the surgery was resumed achieving a complete tumor removal. The patient did not tolerate a carotid occlusion test. Before closure, the patties were carefully removed and immediately replaced by a piece of crushed vastus lateralis muscle. Pressure was maintained again with Surgicel packing, and a water-filled Foley catheter, which was kept in place for seven days. Angiographic controls after surgery showed a millimetric area of dissection which is being followed in case a stent is needed in the future.

Conclusion.

Every otolaryngologist who practices endoscopic skull base surgery must be trained to manage this potentially fatal intrasurgical complication. Intraoperative carotid occlusion should be reserved for selected cases, as it is associated with a high risk of infarction. The placement of a stent needs high doses of antiagregation and forces to differ to a second surgical intervention.
The endoscopic endonasal approach (EEA) to anterior skull base meningioma: experience of Skull Base Team at the Tertiary University Referral Center of Verona

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PURPOSE OF THE STUDY

Assessment of surgical and clinical outcomes of endoscopic expanded transnasal approach in patients affected by meningioma involving the anterior skull base

MATERIALS AND METHODS

A retrospective analysis was conducted on patients affected by meningioma of the anterior skull base underwent endoscopic endonasal surgery at the Tertiary University Referral Center of Verona between December 2014 and April 2016. The minimum follow-up for each patient was at least 6 months. Demographics data, tumor features, surgical informations, imaging, intra- and post-operative complications were collected. All data were re-analyzed and codified.

RESULTS

On a total of 47 patients managed by EEA for anterior skull base diseases in the examined period, 7 showed a meningioma (F:M ratio 2:5, mean age 56.7 years). Primary tumor location was olfactory groove, tuberculum sellae and sellar in 4, 2 and 1 cases respectively. GTR was achieved in 6 patients (86%); in 1 patient with a small tumoral residual close to the optic nerve post-operative radiosurgery was planned. Reconstruction was achieved by multilayer and gasket seal technique respectively in 6 and 1 patients. Post-operative CSF-leakage occurred in one case and penuomocephalus in other one: both patients underwent revision surgery succesfully. All patients are actually disease-free.

CONCLUSION

Our preliminary results confirm EEA to anterior skull base meningioma as reliable technique with acceptable peri-operative morbidity.

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The endoscopic transnasal approach to clival chordoma: experience of Skull Base Team at the Tertiary University Referral Center of Verona

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PURPOSE OF THE STUDY

To assess surgical and clinical outcome of endoscopic endonasal approach to skull base in patients affected by clival chordoma.

MATERIALS AND METHODS

A retrospective analysis was conducted on patients affected by clival chordoma underwent endoscopic endonasal surgery at the Tertiary University Referral Center of Verona between December 2014 and April 2016. The minimum follow-up for each patient was at least 6 months. Demographics data, tumor characteristics, surgical informations, imaging, intra- and post-operative complications were collected. All data were re-analyzed and codified.

RESULTS

On a total of 47 patients managed by endoscopic expanded transnasal approach for anterior skull base diseases in the examined period, 6 showed a clival chordoma (F:M ratio 1:1, mean age 57.3 years). In all of these, surgery with adjuvant prothon therapy was planned. In 2 patients tumoral resection was subtotal cause the close bond to neurovascular structures; tumoral recurrence requiring revision surgery occured in 1 patient. Intra-operative major bleeding occured in 1 patient. Reconstruction was achieved by multilayer and gasket seal technique respectively in 4 and 2 patients; none of theme showed post-operative CSF-leakege.

CONCLUSIONS

Our preliminary results confirm endoscopic transnasal approach as a reliable technique for treatment of clivus chordoma with acceptable peri-operative morbidity. The encasement of neurovascular structures remains the most challenging issue to manage.

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The Sequential Endoscopic-Microscopic Pituitary Procedure (SEMPP): A novel technique for removal of pituitary tumours

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Purpose of the study:

The endoscopic approach has brought many benefits to anterior skull base surgery. However, for pituitary tumours, a purely endoscopic approach, whilst providing certain benefits, also results in the loss of other key benefits of the microscopic technique. In particular, the endoscopic approach mandates 2 surgeons to operate simultaneously and only offers limited access via each nostril, compared to the wide exposure offered by a trans-septal microscopic technique. It also requires an experienced microscopically-trained neurosurgeon to learn a new and unfamiliar mode of surgery. We have developed a novel sequential endoscopic-microscopic pituitary procedure (SEMPP), unique to our institution, that utilises the key benefits of each approach and the skills and experience of each subspecialty surgeon to perform pituitary surgery in a manner that is rapid, safe, highly effective and allows efficient utilisation of two simultaneous operating lists.

Materials and methods used:

We undertook a retrospective chart review of all SEMPP cases performed at our institution, analysing the following variables: operative time, gross total resection (GTR), LOS, CSF leak rate and revision rate. Comparison was made with reported results from purely endoscopic approaches.

RESULTS:

Data from 33 consecutive patients over a 35 month period were analysed. Mean operative time was 132 mins +/-28.15 with a LOS of 7.55 days +/-4.08. GTR was 72.73%. 4 patients had intra-operative CSF leak with only 2 requiring a post-op lumbar drain and no patients requiring post-operative repair. 2 patients required a revision procedure at a mean of 103 days +/-98.98 follow-up.

CONCLUSIONS:

Our results indicate that the SEMPP technique is safe and efficacious. The technique is faster than a purely endoscopic approach and allows 2 subspecialty surgeons to perform simultaneous operating lists, thus maximizing their productivity, without compromising patient outcomes.
Transnasal, transethmoidal endoscopic removal of a foreign body in the medial extraconal orbital space

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Purpose of the study:
Published Case Report.

Materials and Methods:
Intraorbital foreign bodies are located within the orbit but outside the ocular globe. Though not uncommon, removal of these objects poses a challenge for surgeons. External approaches have been the most frequently used, but are associated with increased complications and morbidity. An endoscopic endonasal approach can be an appropriate and less complicated technique in these cases.

Results:
We report a case of a patient with a chronic intraorbital foreign body located within the medial extraconal space lateral to the lamina papyracea and behind the lacrimal duct. As the foreign body was located in such a concrete and accessible location, beside the lamina papyracea and behind the nasolacrimal duct, we opted to perform a transnasal transethmoidal endoscopic approach (without neuronavigation) to remove the foreign body by accessing the lamina papyracea with preservation of our anatomic references, the nasolacrimal duct in this case. Neither postoperative complications nor ocular impairment were reported. The patient improved and remains asymptomatic.

Conclusion:
The transnasal transethmoidal endoscopic approach can be employed as an alternative when removing intraorbital foreign bodies located in the medial extraconal compartment. This is a safe and less invasive approach in comparison with classic surgical techniques.
**Introduction.** Surgical treatment of epistaxis, including sphenopalatine artery ligation, usually takes place in severe cases when conservative treatment fails. In some cases transnasal endoscopic approach to the distal branches of maxillary artery is not possible due to the tumor filling the nasal cavity, pterygopalatine and infratemporal fossae and/or maxillary sinus cavity. The aim of the study is to develop transoral approach to proximally localized second part of maxillary artery, which could be used for clipping and coagulation of the artery. Anatomical study and illustrative cases of the surgical technique are described.

**Results.** Second part of maxillary artery was found in the area of crossing of horizontal fibers of the lower head of lateral pterygoid muscle (LHLPM) and vertical fibers of deep belly of temporalis muscle, staying anterolaterally to the LHLPM in 5 specimens and posteromedially running through its fibers in 1 specimen. Buccal nerve was identified in all specimens running above and perpendicular to the lateral pterygoid muscle lower head, medially to maxillary artery and after crossing the artery coming down to stay parallel to the deep belly of temporalis muscle in a close proximity to it. Anterior and posterior deep temporal arteries, posterior superior alveolar artery, infraorbital artery and the distal branches of maxillary artery were identified. The technique was used in two clinical cases. The first 46-year old patient was operated elsewhere by extended endonasal approach for chondrosarcoma and developed intraoperative bleeding from maxillary artery branches. The patient has undergone successful transoral endoscopic ligation of maxillary artery with no postoperative bleeding. The second 20-year patient had residual angiofibroma in pterygopalatine and infra temporal fosse and has successfully undergone the procedure before the tumor excision.

**Conclusion.** Modified endoscopic transoral “around-the-maxilla” approach is feasible for maxillary artery ligation at the level of crossing of temporalis muscle deep belly and lateral pterygoid muscle lower head. Minimal muscle manipulation can be done during the approach, thus reducing the chance of trismus development. Buccal nerve can be visualized and preserved. Endoscopic transoral approach can be used for proximal vascular control in cases where transnasal and transantral approaches are not feasible (e.g. tumor in the nasal cavity spreading into the pterygopalatine and infratemporal fossae or like in our clinical case tight packing filling nasal cavity and maxillary sinus).
Transseptal Subperichondrial Endoscopic Hypophysectomy: our experience about 138 cases.


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Introduction. Pituitary surgery involves various approaches and techniques. First described, the transseptal subperichondrial approach was done with microscope, with translabial approach and then a transnasal incision. Later, the sella was gained using transnasal transsphenoidal approach with endoscope guidance. We combine the use of transseptal transsphenoidal approach with the guidance of endoscope.

Method. Retrospective monocentric study from January 2002 to December 2012. A prospective data collecting was performed from January 2012 to December 2016. We selected patients who underwent surgery in dual team (Neurosurgeon/ENT) in the University Hospital of Montpellier, France. The surgical technique involved transnasal transseptal subperichondrial approach, allowing a large opening of both sphenoidal sinus (SS), a removal of the septum between the 2 SS, the drilling of the sella and finally tumour removal. All these steps were endoscopically guided. We analysed the epidemiology, presentation mode, pathologic findings, success rate regarding endocrine disorders and compressive symptoms, adverse effects, operative time, length of hospital stay, and re-operative rate.

Results. 128 cases were reported: 80 women and 58 men, aged 22 to 80 years (average 53 years). Symptoms leading to diagnosis were isolated clinical endocrine findings (n=56, 40.6%), isolated compressive symptoms (n=51, 37%), associated endocrine and compressive symptoms (n=8%), incidental findings during skull or brain imaging (n=19, 13.8%), or anti-doping control (n=1, 0.7%). Pathologic findings were macroadenoma in 73.2% (n=101), microadenoma in 19.6% (n=27), Rathke cyst in 2.2% (n=3), and other very rare diagnosis in 5.1% (n=6). 90% of patient with compressive symptoms benefited from visual improvement after surgery. Good endocrine results were 80%. We had transitory diabetes insipidus in 16.7% (n=23), permanent hypopituitarism induce by surgery in 2.9% (n=4), permanent diabetes insipidus in 1 case, revision surgery for CSF leakage in 2.9% (n=4). One patient had transient meningitis. No death occurred. Nasal adverse effects were septal hematoma in 1 patient, epistaxis in 3. The operative time was 98 minutes in average. Length of hospital stay was 7.6 days in average. 13 patients (9.4 %) needed a second surgery after tumour recurrence.

Discussion. Our results are similar to the literature. We think that our approach provides safety since it is medial route, bilateral and symmetric without any mucosal defect on the anterior wall of a sphenoidal sinus.

Conclusion. . We assume that using endoscope by transseptal transnasal route is easy, safe and provides a good visualization of pituitary sella. ENT surgeon should play an important role in pituitary surgery.
Purpose: Most congenital nasal lesions occur secondary to development errors in one of three embryologic zones: the anterior neuropore, the central midface and the nasobuccal membrane. Within the neuropore lesions, the encephaloceles have an incidence that ranges from 1:3,000 in North America to 1:30,000 in Europe. Encephaloceles can be divided according to the location of skull base defect into occipital (accounting for almost 75% of cases), sincipital and basal encephaloceles. The latter represent a defect in the floor of anterior cranial fossa between cribiform plate and superior orbital fissure or posterior clinoid fissure, manifesting as intranasal masses causing unilateral nasal obstruction, broadening of the nasal vault and eventually hypertelorism.

We report a case of a transethmoidal basal meningoencephalocele in a 2-year old child.

Materials and methods: Case report describing the clinical presentation, iconography and imaging studies used in the diagnostic workup and treatment.

Results: A 2-year old otherwise healthy child presented to the general ENT appointment with complaints of nasal obstruction and mouth breathing. On anterior rhinoscopy a paramedian oval mass was visible on the left nasal fossa, medial to the inferior turbinate, occluding most of the lumen. The mass was soft, compressible and non-friable. The imaging studies solicited showed the presence of a bony defect of the anterior portion of the cribiform plate on the left side associated with a herniated meningoencephalocele with 3 x 2.2 x 1cm at the level of the straight gyrus. The child was submitted to surgical endoscopic resection of the meningoencephalocele and correction of the defect with a three layered reconstruction (septal cartilage + perichondrium + DuraGen®). The child received intra-operative IV antibiotics and was discharged 2 days after surgery.

Conclusions: Unlike frontoethmoidal sincipital encephaloceles, which present as protruding masses on the nasal dorsum that are visible at birth and enlarge during crying, basal encephaloceles are usually occult and can herniate into nasal cavity, being discovered later in life.
Visual Disorders Outcome after Endoscopic Endonasal Trans-Sphenoidal Surgery of Pituitary Macroadenomas

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Describe the outcome of visual disorders after endonasal transsphenoidal (EET) surgery of pituitary macroadenomas with preoperative chiasmal compression. Patients and Methods: From 2009 to 2013, 225 patients underwent EET surgery for sellar tumor. Among them, 168 suffered from visual disorders induced by chiasmatic compression, of which 88 met the inclusion criteria for this study. Average duration of follow up was 1.8 yrs ± 0.4 yrs. All patients had sellar MRI before surgery and yearly postoperatively, visual acuity (VA) and/or visual field (VF) measurements before, 3 months after surgery and yearly postoperatively. Results: All tumors were macroadenomas with a mean preoperative MRI-estimated volume of 10.0 {plus minus} 9.07 cm³.

Preoperative VA was impaired with an average of 0.43 ± 0.13 LogMAR (left eye) and 0.36 ± 0.14 LogMAR (right eye) and VF was disturbed in 99% ± 2% of the cases with the most frequent disorder being bitemporal hemianopsia (38 patients). Post-operatively, the mean residual MRI-estimated tumor volume was 3.15 ± 3.71 cm³. Mean tumor volume reduction was 62% ± 9% (p < 0.001). Optic chiasmal compression resolved in 72% ± 10% of the cases. Visual function improved in 86% ± 7% of cases (p < 0.001). Conclusion: Endoscopic endonasal management of pituitary gland neoplasms is effective to reduce tumor volume. This technique achieved significant visual improvement in the majority of cases presenting with chiasmal compression syndrome.
APPLICATION OF PIEZOSURGERY IN ENDOSCOPIC SINONASAL SURGERY


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Purpose of the study

New applications of piezoelectric devices have been already documented from otologic and ophthalmic endoscopic studies. Piezoelectric ultrasound technology potentially allows thinner and more precise bone cutting without lesioning neighboring delicate structures, even in the case of accidental contact. We evaluated the piezoelectric bone scalpel (piezosurgery) in endoscopic sinonasal surgery.

Materials and methods used

A pilot longitudinal study of consecutive adult outpatients presenting for rhinogenous headache, rhinorrhea, nasal obstruction and sinusitis, between January 2011 and December 2015. Computed tomography of paranasal sinus and a clinical examination with a rigid endoscope 0 degrees were carried out in order to exclude patients with polyposis or other soft-tissue diseases. Endoscopic surgical procedures performed with piezosurgery were: maxillary antral ostium calibration, septoplasty, turbinoplasty, anterior ethmoidotomy.

Results

Thirty-two patients were enrolled in the study. The piezoelectric surgical device performed successfully in removing bone anomalies during endoscopic sinonasal procedures and no complications were noted from its use. The postoperative reduction of headache and the resolution of symptoms were obtained in all patients.

Conclusion

Preservation of the mucosa and neurovascular structures in endoscopic sinonasal surgery is crucial for securing optimal long-term results. The traditional high-powered mechanical tools are efficient in terms of speed and penetration, but they can provoke bone necrosis and sometimes damage neurovascular structures. Piezoelectric ultrasound technology demonstrated a meticulous and soft tissue-sparing system for bone cutting. Other main advantages of piezosurgery are optimal visibility in the surgical field, decreased blood loss, less vibration and noise. On the basis of the favorable observations from this clinical experience, further exploration and discussion would appear to be valuable.
The study evaluates the feasibility, performance and results of intraoperative individual application of resorbable polylactide in craniofacial reconstructions.

The primary endpoint was the achievement of intraoperative individual reconstruction according to the intraoperative situs.

Secondary endpoint was the mechanical stability of the reconstructions, aesthetics, function and biocompatibility in the follow up.

Early forms of resorbable fixation induced foreign body reactions with low possibilities of forming and shaping. ResorbX® is a plating system derived from 50:50 poly(D,L) lactide, with a resorption time that gives minimal foreign body reaction but adequate strength for bony fixation and also larger reconstructions.

The degradation of the material is at the same speed as ossification takes place.

We present our experience with 44 patients undergoing 48 procedures using this polylactide between August 2007- November 2015.

38 procedures of malignant tumors, 5 traumas and 5 mucoceles. Out of 48 procedures there were 16 procedures with the polylactide in combination with bone and 4 with cartilage graft.

Overall postoperative follow up shows excellent stability and excellent aesthetic and functional results in all cases. This study documents the safety and efficacy of resorbable polylactide in bony reconstructions after extended tumor resections, midfacial trauma and other bony defects of facial skeleton especially in paranasal sinus.
Does Endoscopic Sinus Surgery Alter The Biomechanics Of The Facial Skeleton?

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OBJECTIVE: Functional endoscopic sinus surgery (FESS) is considered the gold standard therapy for patients with chronic rhinosinusitis that have failed medical management. This involves removing the uncinate process of the ethmoid bone and the bony septations of the ethmoid air cells in order to reestablish drainage into the infundibulum. Previous studies have shown that the sinuses also act as a “crumple zone” protecting the eye during maxillofacial trauma. As a traumatic force is applied to the eye, hydraulic pressure is transmitted through the globe and an orbital blowout fracture occurs, preventing globe rupture. Despite its thin nature, the medial orbital wall, or lamina papyracea, is less likely to fracture than the orbital floor. It is not known if the bony alterations of sinus surgery destabilize the lamina papyracea, leading to an increased risk of medial orbital wall fracture in the post-FESS patient. The purpose of this experimental cadaver study was to determine if endoscopic sinus surgery leads to a change in the pattern of orbital blowout fractures, and a reduction in the force required to create them.

METHODS: Six fresh-frozen cadaver heads were acquired and underwent endoscopic uncinectomy, maxillary antrostomy and anterior ethmoidectomy on one, randomized, side. The contralateral sinuses were used as intra-specimen control. Hyaluronic acid globe injections were used to increase globe pressure to normal intra-ocular pressure. Pre-op and post-op CT scans confirmed no orbital fractures prior to trauma testing. The heads were mounted on cement filled PVC pipe for stability and orbital trauma was induced using a guided weight-drop technique. Both orbits were tested in random order for each round, and sequentially higher drops were performed until both the test and control side demonstrated an orbital fracture on CT scan.

RESULTS: In all 6 heads, the post-FESS side incurred a medial orbital wall fracture in all cases. No orbital floor fractures were identified. On the control side, all 6 heads incurred orbital floor fractures at drop heights equal to, or higher than, the surgical side. Fisher’s exact test demonstrated a significant difference in fracture pattern (p<0.01).

CONCLUSIONS: To our knowledge, this is the first demonstration that the uncinate process and ethmoid air cell septations act as a buttress for the medial orbital wall. The anatomic changes of FESS may alter the biomechanics of the orbit and affect the pattern of subsequent traumatic blowout fractures.
Double Margin Stent for Endoscopic DCR – Our Experience on 32 patients


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Purpose of the study

The purpose of the study was to assess the efficacy of the double margin stent using endoscopic DCR. We used different dimensions of stents in order to obtain the best postoperative results in the treatment of chronic dacryocystitis.

Materials and methods

32 patients with chronic unilateral lacrimal duct obstruction were admitted in IFACF-ORL "Prof. Dr. D. Hociotă" - Ward I between January 2015 – July 2016. After dacryocystorhinostoma is performed, a double margin stent was transnasally inserted to the bottom edge of the lacrimal sac and positioned into the bony margin of the ostium. Stents used varied in size from 1.5 to 4 mm diameter. To avoid restenosis, stents used had a success rate of 90.6%. Patients were followed up at 2 weeks, 1-3-6 months pursuing the symptoms caused by the functionality (epiphora) of the lacrimal apparatus.

Results

Mean age of patients varied between 31 and 65 yo. At a total number of 24 patients epiphora disappeared, this decreased to 5 patients, and in 3 patients persisted. These three patients with no changes have spontaneously eliminated the double margin stent 2 or 3 days after the surgery. The most widely used stent size was 3 mm diameter.

Conclusion

Definitive treatment for acute dacryocystitis or chronic conjunctivitis is endoscopic surgery, an effective procedure that creates a passage between the lacrimal sac and the nasal cavity (dacryocystorhinostomy). In order to achieve an efficient result it is necessary both a preoperative and a postoperative rigorous preparation. Double margin stent used may be a great alternative method for silicone stents.

Key words: Dacryocystorhinostomy, Lacrimal Stent, Chronic Dacryocystitis
Efficacy and safety of endoscopically-assisted transblepharoplasty approach for frontal sinus pathology

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Purpose

While endoscopic approaches are the primary treatment for inflammatory and neoplastic disease of the frontal sinus, fibro-osseous neoplasms and lesions extending laterally and superiorly remain challenging and may necessitate additional open approaches. An alternative to bicoronal or eyebrow incisions, the endoscopically assisted transblepharoplasty approach (ETB) can access the floor of the frontal sinus while minimizing cosmetic sequelae and bony removal of the frontal bar. However, the efficacy and safety of ETB is not reported.

Methods:

A single institution retrospective review of ETB was conducted from 2013-2016. The surgical indications included pathology lateral to the mid-pupillary line, extending above the superior ½ of the posterior table and fibro-osseous lesions. The outcome measures were accomplishment of the surgical objective, complications and post-operative cosmesis. Full profile eye-open post-operative pictures were evaluated by a plastic surgeon to determine asymmetries between operative sides.

Results

Twelve patients underwent 13 ETB approaches. Pathology included: osteoma (5); mucocele (3); epidermoid (1); encephalocele (1); inverted papilloma (1); residual necrotic SCCA (1). The majority of lesions had lateral extension (10). Complete tumor resection was accomplished in 9/9 mass lesions and all mucoceles including an infected mucocele within fibrous dysplasia were marsupialized. Complications included transient V1 numbness (6) and 1 upper lid scar contracture that required revision. No new facial asymmetries were identified in the 7 cases where pictures were available.

Conclusion

Combining an upper lid blepharoplasty approach with endoscopic visualization to access the frontal sinus allows for complete tumor resection and/or marsupialization with excellent consequences cosmesis and limited complications.
Is Really Controlled Hypotension the main Determinant of Surgical Bleeding in Functional Endoscopic Sinus Surgery (FESS)? A Pilot Study

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PURPOSE OF THE STUDY

FESS is a minimally-invasive surgical technique for patients with nasal and paranasal sinus pathology, that has become popular worldwide. Surgical bleeding reduces operative field visibility, increases the incidence of serious vascular, orbital, and intracranial complications, prolongs surgical duration.

Epinephrine injection into the nasal mucosa, head elevation and controlled hypotension can be used to minimise bleeding. However, hypotension carries risks and sometimes a MAP of 60 mmHg does not reduce surgical bleeding.

Study goal was to see if there is a correlation between bleeding and haemodynamic parameter using a new non-invasive monitor, the CLEARSIGHT (Edwards Lifesciences).

MATERIAL AND METHODS

We enrolled 20 patients undergoing FESS into a prospective study, approved by the ethics committee and procedures performed were in accordance with the 1964 Helsinki declaration.

Inclusion criteria: ASA 1-3, aged 18-80. Exclusion criteria: neoplastic lesions and clotting disorders.

Monitoring: Standard ASA plus CLEARSIGHT to assess stroke volume index (SVI), stroke volume variation (SVV). Hemodynamic targets: MAP 60mmHg, SVV >12% and SVI 40ml/m2/min. In order to ensure consistency as much as possible, all procedures were performed by one surgeon and following the same surgical steps. The surgical operation was divided in 10 times (from T0 to T9) corresponding to a specific surgical phase. Intraoperative bleeding was assessed using the Fromm scale (0, no bleeding to 5, worst bleeding). The surgeon was blinded to the monitor.

RESULTS AND DISCUSSION

An adequate surgical field was achieved in 15/20 patients (p 12% better then hypotension (MAP=60 mmHg) (R^2=0,027). In particular, increasing the SVV (>12%) we observed a decrease of the bleeding and, as a consequence, a better visibility of the surgical area. Conversely, to elevate values of BMI was associated high levels of intraoperative bleeding (R^2= 0,45).

CONCLUSION

The results showed a strong negative correlation between surgical bleeding and volemic status of the patients as determinate by a SVV >12%. Targeting higher SVV, we achieved shorter surgical duration and minimal risk of complications; in conclusion, we can assert that it is an important parameter to take into consideration during the head and neck surgery to reduce as much as possible the intraoperative bleeding.
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MEASUREMENT OF NASOFARINGEAL PART OF EUSTACHIAN TUBE FUNCTIONALITY BY STROBOSCOPY

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Introduction

Tubal dysfunction is a fundamental cause in the etiopathogenesis of diseases of the middle ear, 92% due to obstructive causes And 8% of dynamic dysfunctions

In recent years, rigid and flexible endoscopy of the nasopharyngeal end of the Eustachian tube has emerged as a new tool to evaluate the functioning of this structure. Also the use of slow motion has been able to show that most of its alterations appear to be functional rather than anatomic or obstructive. However, there are not many studies in this regard, and reproduction equipment is needed for this type of evaluation. In the present work, we propose the use of stroboscopy of the nasopharyngeal end of the tubal tube to evaluate the functionality of The same as a novel and practical method, analyzing the stages of opening of the trunk during rest, yawning and swallowing determining the four phases, as well as important anatomical structures

On the other hand, important anatomical points were evaluated, such as:

1. Salpingopharynx Replenishment
2. Repliegue salpingopalatino
3. Mucosal Replenishment of the Muscle Periestafilino internal or levator of the veil of the palate
4. Rosenmüller’s Pit
5. Pharyngeal orifice of the tube
6. Upper edge of the trunk
7. Nasopharyngeal duct
8. Prominence of Ostmann’s Fat

CONCLUSIONS

The study and management of tubal dysfunction is a subject constantly reviewed in the literature. However, there are still controversies in the diagnostic methods for their evaluation and management. In this way, an adequate study is fundamental for the association of information provided by the clinic and complementary examinations as a whole, rather than by any particular isolated tool.

Within these tools, endonasal stroboscopic evaluation of the nasopharyngeal end of the Eustachian tube would present a potential diagnostic and therapeutic role, which could complement the techniques used in a classical way in otorhinolaryngological practice
Role of surgery for reversal of vision loss in patients with Idiopathic Intracranial Hypertension.

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Purpose of study:

Idiopathic Intracranial Hypertension (IIH) is a disorder resulting from raised cerebrospinal fluid pressure in absence of an intracranial mass lesion or ventricular dilatation with normal spinal fluid concentration, in an alert and awake patient. The aim of this study is to analyze the role of Optic nerve fenestration for the reversal of vision loss in patients with IIH. Also various predictive factors in diagnosis, management and prognosis of IIH were studied.

Materials and Methods:

A retrospective study was conducted in Department of Otolaryngology and Head and neck Surgery, Post Graduate Institute Of Medical Education And Research, Chandigarh, India. Medical records of 32 patients with definite IIH (fulfilling modified Dandy’s criteria) who underwent surgical management by endoscopic optic nerve fenestration were reviewed. All patients underwent preoperative and post operative analysis by an ophthalmologist in which detailed visual examination was done that included visual acuity testing, fundus examination, perimetry and visual evoked potentials (VEP).

Results:

Postoperatively 90.6% patients reported subjective improvement in their visual symptoms. Fundus picture showed resolution of papilloedema in 97% patients. 68.7% of patients reported objective improvement as seen on VEP. Improvement in headache was observed in all the patients. Data will be statistically analyzed and presented.

Conclusion:

Optic nerve fenestration is an effective surgical modality for management of visual symptoms in IIH. Early detection and early surgery improves chances of reversal of visual loss.
Shape Reconstruction of a Multi-Degree-of-Freedom Continuum Robot with Fiber Bragg Grating Sensors

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Purpose:
The overall aim of this project is to use an array of Fiber Bragg grating (FBG) sensors to reconstruct the 3D shape of flexible miniaturized robotic instruments. This is done in stages and will provide the basis for a prototype navigation system.

First stage is to develop a protocol for the calibration of the system, shape modelling with 2D and 3D reconstruction of the sensor.

This is followed by validating the shape reconstruction in a phantom.

The aim of the first stage is described below.

Material:
- 3 fiber optics of 1 metre length arranged in a triangulated fashion encased in a protective sheath with outer diameter of 1.6mm.
- 12 Fiber Bragg Grating (FBG) sensors in each fiber at 12.5cm intervals.
- Calibration device of 30cm diameter with groove width of 1.6mm to fit fiber optic.
- Deminsys FBG interrogator for detection and conversion of reflected light band into strain measurements.
- Matlab software programming for coding of strain measurements into shape reconstruction.

Method:
- Calibration with respect to shape.
- Static and Dynamic shape reconstruction in 2D (XY plane) and 3D (XY, XZ and YZ planes).
- Cost Optimization of reconstruction by coding to reduce error.
- Validation of trajectory in 2D maxillary sinus model with Aurora Electromagnetic Tracking device as comparison.

Results:
- Dynamic reconstruction more accurate than static reconstruction with error of <1% to 6%.
- Error increases the further the sensor is from the tip.
- Similar error pattern when comparing 8 sensor positions with overall fiber length.
- Precise.
- Low accuracy with 8 nodes in 1 meter fiber.
Discussion:
More sensors in longer fiber OR same no. of sensors in shorter fiber
Different calibration factors for different trajectories hence robust automation required
Alternate FBG configuration e.g. Multicore fibers

Conclusion:
Aim was to investigate FBGs for accurate shape sensing
Methods described reduced error for shape sensing
Improved reconstruction was demonstrated
Validation of reconstruction in sinus model was achieved
Feasible as Proof of Concept

Future work:
Fiber Bragg Grating specs for base of skull and paranasal workspace
- multi-core fiber sensors for better accuracy
- calibration for strain(shape), temperature and pressure
- self-calibration algorithm
- Computer vision for real time shape reconstruction

2. Integration with a Continuum tube platform
3. Validation in a 3D model of paranasal sinuses and skull base
4. Validation with skull base cadavers
Three dimensional animation of the lacrimal pathway: an important guide for endoscopic dacryocystorhinostomy

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Purpose: One of the indispensable requisites for approaching endoscopic sinus surgery is to be knowledgeable, not only regarding the normal and topographic anatomy of the nose and paranasal sinuses, but also of a new branch of anatomy, namely endoscopic anatomy. The endoscopic bidimensional vision offered by the endoscope involves difficulty in visualizing surgical field depth which makes it difficult to learn this surgical technique and makes it necessary for the endoscopic surgeon to mentally create a three-dimensional (3D) picture of the paranasal sinuses anatomy. Aim of this project is to help the surgeon to mentally create a 3D image of the paranasal sinuses focusing our attention on the anatomic area of the lacrimal sac and duct. This could help any endoscopic surgeon to perform endoscopic dacryocystorhinostomy with greater confidence and fewer risks.

Materials and Methods: A detailed 3D reconstruction of the paranasal sinuses with particular attention to the lacrimal pathway, starting from computer tomography scans of a human skull, was realized using a professional 3D graphics software.

Results: starting from this model a short animation has been created highlighting the three-dimensional characteristics of this anatomical area with particular attention to the main landmarks for endoscopic surgery.

Conclusions: This is the first experience reported regarding this new technique of iconographic didactics applied to endoscopic sinus surgery and focused on the lacrimal pathway. The didactic objectives of this project can be integrated with the possibility of physically reconstructing the structures thus created with notable anatomic accuracy using modern three-dimensional printers or by presenting them under the form of video with framing and rotations in the various spatial. The use of modern technologies for 3D graphic is the new frontier of the anatomical iconography, which exceeds and complements the previous teaching techniques: drawings, pictures, anatomic section of specimens.
Urgent transnasal endoscopic orbital decompression for dysthyroid optic neuropathy failing medical therapy - a sight-saving procedure

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Objective:
To report visual acuity outcomes and potential complications in patients undergoing endoscopic transnasal orbital decompression in the setting of acutely deteriorating sight secondary to dysthyroid optic neuropathy (DON) unresponsive to corticosteroid therapy. No previous series describes vision outcomes in this specific patient population undergoing endoscopic decompression.

Methods:
Retrospective case series at a tertiary-care academic hospital. Four patients with Grave’s disease were identified that underwent urgent endoscopic orbital decompression for acutely deteriorating vision in 2014. Two patients underwent a second decompression of the other orbit, yielding six decompressions in total. Operative technique entailed inferior and medial wall decompressions. The posterior limit of medial wall decompression was within the sphenoid, just anterior to the annulus of Zinn to fully decompress the optic nerve. Primary outcome was visual acuity.

Results:
In all six decompressions, visual acuity improved substantially. In 3/6 eyes, preoperative vision was severely impaired at 20/200. Two eyes had moderate impairment at 20/100 and 20/150. In the final eye, preoperative impairment was mild at 20/50. Postoperatively, the moderately and severely impaired eyes improved to 20/60 or better. In the mildly impaired eye, improvement was also noted. One bilaterally decompressed patient noted new diplopia after the first decompression and esotropia after the second. It was unclear whether this was secondary to surgery or progression of the underlying disease. No other complications were noted.

Conclusions:
Transnasal endoscopic orbital decompression is a safe, effective treatment for acutely worsening visual loss from DON. All cases demonstrated significant objective improvement in visual acuity.
Use of the ultrasonic bone curette for the postoperative maxillary cyst.

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Aims

A postoperative maxillary mucocele (POMC) presents as a delayed complication of radical operation involving the maxillary antrum (i.e. Caldwell-Luc procedures). Conventionally, POMC were treated by excision with sublabial approach. Because of its frequent sequelae (i.e. facial paresthesia, soft-tissue swelling, hematoma, wound infection, tooth root injury and oroantral fistula), transnasal endoscopic marsupialization (TNEM) is more widely used in POMC management in recent years.

During the TNEM, most of bone work is performed with high-speed drill and that can cause damage 4-mm optics and surrounding nasal mucosa in narrow corridors. In this presentation, we wish to demonstrate the application of an ultrasonic bone curette (UBC) during transnasal endoscopic marsupialization (TNEM) for POMC.

Method

A 40-year-old woman with POMC underwent TNEM in Soonchunhyang university Seoul hospital. The UBC was used to remove the lateral wall of the inferior meatus.

Results

The patient showed a good surgical outcome with no mechanical device or tissue damages resulted from UBC. The surrounding nasal mucosa was also well preserved.

Conclusion

UBC remove bone by using high-frequency vibrations to break down hydrogen bonds in tissue proteins, resulting in their denaturation with minimal heat production. It is known that the UBC has many advantages compared with high-speed drill, including prevention of heat-related injury to the surrounding soft tissue and maintaining a clear operative field. Thereby, UBC is widely used in nasal surgeries recently, such as turbinoplasty, osteoma removal, rhinoplasty and dacryocystorhinostomy. In this report, we describe the first application of this technology to TNEM for POMC.