Pan Arab Rhinology Society
PARS Reader's Digest

Reader Digest

Digested by Dr. Tarek Kandil, MD. ENT Consultant, students Hospital, Cairo University

Introduction

This newsletter is intended to provide information that is useful to the student and specialist in the field of rhinology and allergic disorders.

The selected recent material represents important fundamental knowledge, current trends or recent developments in this field.

We hope that this newsletter will help the reader have a greater understanding of rhinology and allergic disorders

1. Function and physiology of the maxillary sinus

H L Sieron 1, F Sommer 2, T K Hoffmann 2, A-S Grossi 2, M O Scheithauer 2, F Stupp 2, J Lindemann 2

Abstract

Background: The question of the "true" function of the maxillary sinus and the paranasal sinuses (PS) has been a controversial issue in the literature for decades, leading to many discussions and speculations.

Objective: This review briefly summarizes various theories on the possible physiology and functions of the maxillary sinus/PS that have been discussed over the centuries.

Materials and methods: A literature search was conducted in PubMed using a combination of the search terms "physiology," "function," "maxillary sinus," and "paranasal sinuses."

Results: Current and scientifically evidenced theories are described. "Sinusology" is the science of the PS. The maxillary sinuses might simply serve to improve the respiratory function of the nose. A flow of inspiratory air does not occur. The maxillary sinuses are decisively involved in the production of nitrogen monoxide (NO) and thus in supporting the immune defense of the nasal cavity. The mucosa of the maxillary sinus continuously synthesizes NO and serves as a reservoir of NO. Other important functions are protection of the orbit and the brain in case of skull fractures, as well as weight reduction of the skull.

Conclusion: The various theories about the function of the PS still raise many questions and their true function is yet not fully understood. Possible functions of the maxillary sinuses are local immune defense through the production of NO. The PS serve as a crumple zone for vital cerebral structures in the context of craniocerebral traumas.

HNO. 2020 Aug;68(8):566-572.

2. Impact of Nasal Trauma on Olfactory Function

Süleyman Emre Karakurt 1, Zekiye Orhan 1, Mehmet Fatih Karakus 1, Mehmet Ali Cetin 1, Aykut Ikinciogullari 1, Huseyin Dere 1

Abstract

Objective: To determine the impact of nasal trauma with and without the potential to produce nasal fracture on the olfactory function.

Study design: A descriptive analytical study.

Place and duration of study: Ear, Nose, Throat Clinic, Ankara Numune Training and Research Hospital, Ankara from October 2018 to June 2019.

Methodology: The study included patients with nasal trauma and control subjects. The patients with nasal trauma were divided into two groups as fracture group (Group F, n=83) and non-fracture group (Group Non-F, n=30). The Group F was further divided into two subgroups according the presence as septal fracture as Group SF (patients with septal fracture) and Group Non-SF (patients with non-septal fracture). The smell functions of all participants were evaluated using the Sniffin' Sticks test. The odour scores of Group F and Group Non-F were compared versus control group, using the independent sample t-test or Mann-Whitney U-test. Percentage of patients with olfactory dysfunction was compared between Group F and Group Non-F and between Group SF and Group Non-SF using the Chi-square test.

Results: There were a total of 113 participants with mean age of 35.64±10.44 years. The median TDI score of Group F was significantly lower in comparison to control group, no significant difference was found between Group Non-F and control group in terms of median TDI score. There was a significant difference between Group F and Group Non-F in terms of the percentage of patients with olfactory dysfunction. No significant difference was found between Group F and Group Non-F with respect to the percentage of patients with olfactory dysfunction.

Conclusion: Nasal trauma can lead to olfactory dysfunction only if it has the potential to produce a nasal fracture.

J Coll Physicians Surg Pak. 2020 Sep;30(9):912-916.

3. Allergic rhinitis

Jean Bousquet 1 2 3 4, Josep M Anto 5 6 7 8, Claus Bachert 9 10 11 12, Ilaria Baiardini 13, Sinthia Bosnic-Anticevich 14 15, G Walter Canonica 13, Erik Melén 16, Oscar Palomares 17, Glenis K Scadding 18, Alkis Togias 19, Sanna Toppila-Salmi 20

Abstract

Allergic rhinitis (AR) is caused by immunoglobulin E (IgE)-mediated reactions to inhaled allergens and is one of the most common chronic conditions globally. AR often co-occurs with asthma and conjunctivitis and is a global health problem causing major burden and disability worldwide. Risk factors include inhalant and occupational allergens, as well as genetic factors. AR impairs quality of life, affects social life, school and work, and is associated with substantial economic costs. The Allergic Rhinitis and its Impact on Asthma (ARIA) initiative classified AR into intermittent or persistent and mild or moderate/severe. The diagnosis is based on the clinical history and, if needed in patients with uncontrolled rhinitis despite medications or with long-lasting symptoms, on skin tests or the presence of serum-specific IgE antibodies to allergens. The most frequently used pharmacological treatments include oral, intranasal or ocular H1-antihistamines, intranasal corticosteroids or a fixed combination of intranasal H1-antihistamines and corticosteroids. Allergen immunotherapy prescribed by a specialist using high-quality extracts in stratified patients is effective in patients with persistent symptoms. Real-world data obtained by mobile technology offer new insights into AR phenotypes and management. The outlook for AR includes a better understanding of novel multimorbid phenotypes, health technology assessment and patient-centred shared decision-making

Nat Rev Dis Primers. 2020 Dec 3;6(1):95.

4. Management of complicated pediatric rhinosinusitis in the COVID-19 era

Conor H Blanco 1, John B Stein 1, Gregory L Barinsky 1, Christina H Fang 1, Jordon G Grube 1, Roger E Turbin 2, Jean Anderson Eloy 3

Abstract

With the ongoing development of the COVID-19 pandemic, research continues to emerge regarding the pathophysiology, characteristics, and treatment considerations for patients with COVID-19. No reports have highlighted the specific challenges posed in the management of pediatric patients with COVID-19 who present with complicated rhinosinusitis. In this report, we discuss our preoperative, intraoperative, and postoperative multidisciplinary treatment strategy

for these cases and provide two examples of complicated rhinosinusitis cases in COVID-19 patients, treated with two different approaches. Pearls, insights, and a brief review of the literature are discussed.

Am J Otolaryngol. Nov-Dec 2020;41(6):102746

5. Rhino-Orbital Mucormycosis Associated With COVID-19

Salil Mehta 1, Abha Pandey 2

Abstract

Coronavirus disease 2019 (COVID-19) infections may be associated with a wide range of bacterial and fungal co-infections. We report the case of a patient with COVID-19 infection, which, during the course of the treatment, developed rhino-orbital mucormycosis. A 60- year-old male patient, a longstanding diabetic, with a positive reverse-transcriptase polymerase chain reaction (RT-PCR) for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), was admitted for treatment. He received parenteral meropenem and oral oseltamivir with parenteral methylprednisolone. Over the course of the admission, he developed signs of orbital cellulitis. Magnetic resonance imaging (MRI) of the brain, orbits, and paranasal sinuses, revealed soft tissue swelling in the right preseptal, malar, premaxillary and retrobulbar regions with paranasal sinusitis. A nasal biopsy revealed broad aseptate filamentous fungal hyphae suggestive of mucormycosis, which was confirmed on culture. Extensive use of steroids/monoclonal antibodies/broad-spectrum antibiotics may lead to the development/exacerbation of a preexisting fungal disease. Physicians should be aware of the possibility of secondary invasive fungal infections in patients with COVID-19 infection.

Cureus. 2020 Sep 30;12(9):e10726.

6. Efficacy of corticosteroid therapy in the treatment of long-lasting olfactory disorders in COVID-19 patients

L A Vaira 1 2, C Hopkins 3, M Petrocelli 4 5, J R Lechien 6 7, S Cutrupi 8, G Salzano 9, C M Chiesa-Estomba 6 10, S Saussez 6 7, G De Riu 1

Abstract

Background: The growing number of COVID-19 patients with long-lasting olfactory disorders makes it necessary to identify ef- fective treatments that enhance the spontaneous recovery of olfactory function.

Methods: Multicentre randomised case-control study that involved 18 patients with COVID-19 related anosmia or severe hyposmia for more than 30 days. Nine patients were prescribed

systemic prednisone and nasal irrigation with betamethasone, ambroxol and rinazine for 15 days. The other 9, untreated, patients were used as controls. The olfactory function was evaluated with CCCRC test at 20 and 40 days from the first evaluation.

Results: In the control group, a median olfactory score of 20 (IQR 30) was detected at baseline. At the 20-day control there was no significant improvement in olfactory function. The improvement in olfactory performance became significant at the 40-day follow-up compared to baseline scores [60 (IQR 60) versus 20 (IQR 30)]. In the treatment group, patients had a mean olfactory score of 10 (IQR 15) at initial control. At the 20-day control, a significant improvement in the olfactory scores, compared to the baseline, was detected [70 (IQR 40) versus 10 (IQR 15)]. Olfactory function further improved at 40 days [median score 90 (IQR 50)]. Patients in the treatment group reported significantly higher improvements of the olfactory scores than the controls at both the 20-day [40 (IQR 45) versus 10 (IQR 15)] and 40-day [60 (IQR 40) versus 30 (IQR 25)] evaluations.

Conclusions: Based on the results of this study, the mix of drugs including steroids could represent a useful specific therapy to reduce the prevalence of this long-term morbidity

Rhinology. 2020 Dec 8

7. TUSC (TUrbinate Surgery Classification): A Novel Classification Proposal for Turbinate Surgery

Pelucchi Stefano 1, Cogliandolo Cristina 1, Pagella Fabio 2, Emanuelli Enzo 3, Galiè Manlio 4, Vicini Claudio 5, Ciorba Andrea 1

Abstract

Aim of this manuscript is to propose a clear and easily applicable classification for turbinate surgery, based on the use of a numerical model, which could be introduced in the practice of Otolaryngologists and Maxillo-Facial surgeons.Applying this classification, it will be possible to offer an easy format when describing which turbinates are involved in a procedure, and to offer a quick method to record and analyse clinical data, also for scientific purpose.

Ear Nose Throat J. 2020 Dec 11;145561320981448.

8. Gigantic paranasal sinuses osteomas: clinical features, management considerations, and long-term outcomes

Evangelos Giotakis 1, Valentinos Sofokleous 2, Alexander Delides 3, Andriana Razou 1, Georgios Pallis 1, Alexandra Karakasi 1, Pavlos Maragoudakis 3

Abstract

Purpose: Paranasal sinus osteomas are slow-growing, benign bony tumours that when larger than 30 mm, they are termed 'gigantic'. Special considerations apply for tumours of this calibre, and their rarity renders their management fairly controversial. This study seeks to contribute to an increased understanding concerning their management by presenting a 12-year experience from a single institution.

Methods: Retrospective review of files of patients treated for a gigantic paranasal sinus osteoma from January 2008 to December 2019. Additionally, all patients were prospectively reexamined in early 2020 for late complications or clinical recurrence.

Results: Ten patients were included, with a mean age of 53.8 years (range: 23-77 years). The leading presenting findings were proptosis (80%) and diplopia (70%). Transient visual impairment was remarkably frequent (30%). Five patients were managed with an open approach, two with an endoscopic, and three with a combined technique. The most common adverse characteristics that dictated the use of an open approach, alone or in combination with an endoscopic approach, were the involvement of the anterior wall of the frontal sinus (40%), erosion of its posterior wall (30%), and a far-anterior intraorbital extension (30%). No major postoperative complications were observed, and also no recurrences.

Conclusion: Our study illustrates that these tumours may require a different management attitude. Despite substantial advances in the endoscopic management of benign sinonasal tumours, managing these massive tumours solely endoscopically could, in many cases, be inefficacious or impossible. Open approaches remain valuable, representing a safe and straightforward method for adequate exposure

Eur Arch Otorhinolaryngol. 2020 Oct 16.

9. Inverted papilloma is associated with greater radiographic inflammatory disease than other sinonasal malignancy

Peter Papagiannopoulos 1, Ching Lick Tong 1, Edward C Kuan 2, Bobby A Tajudeen 3, Christina M Yver 1, Michael A Kohanski 1, Noam A Cohen 1, David W Kennedy 1, James N Palmer 1, Nithin D Adappa 1

Abstract

Background: The pathogenesis of inverted papilloma (IP) has not been fully elucidated. However, chronic paranasal sinus inflammation has been anecdotally observed in sites distant from tumor obstruction in IP patients, suggesting an association between inflammation and IP tumorigenesis. This study assesses the association between sinonasal inflammation found in IP and compares this to the level of inflammation observed in other sinonasal tumors.

Methods: A retrospective chart review was performed identifying patients with unilateral IP. Pertinent clinical data was obtained and comparative analysis of preoperative computed tomography (CT) imaging and histopathology was performed. A sample of unilateral, sinonasal, non-IP and non-squamous cell tumors was used as the control. The Lund-Mackay scoring system was used to assess radiologic sinonasal inflammation both ipsilateral and contralateral to the tumor.

Results: Seventy-one patients were included; 58.9% of patients with IP had evidence of contralateral sinusitis at the time of presentation. In the control group, 26.7% had evidence of contralateral inflammation. When comparing contralateral sinus inflammation between the 2 study groups, the IP patients had significantly higher Lund-Mackay scores than the control group (1.9 vs 0.26, $p < 0.001$). When comparing ipsilateral sinus inflammation, no significant difference was found in Lund-Mackay scores (5.44 vs 4.00, $p < 0.184$).

Conclusion: In this study, unilateral IPs were associated with a higher level of contralateral sinonasal inflammation when compared to control. This suggests that IP may be associated with inflammation that is independent of obstruction by the tumor. Further studies are needed to better understand the temporal relationship between chronic inflammation and tumorigenesis

Int Forum Allergy Rhinol. 2020 Mar;10(3):278-281.

10. Combined endoscopic and transoral resection of a high-staged juvenile nasopharyngeal angiofibroma: A pictorial essay

Wilson P Lao 1, Kristelle J Lagabon 2, Gabriel A Arom 1, Paul C Walker 1, Steve C Lee 1

Abstract

Juvenile nasopharyngeal angiofibromas (JNAs) are highly vascular and benign tumors that can expand into the skull base. Delay of treatment can result in intracranial invasion, requiring extensive open approaches such as a facial translocation, maxillary swing, or an orbitozygomatic craniotomy. We describe a single-stage, combined endoscopic and transoral approach on a 14-year-old male with extensive high-stage dumbbell-shaped JNA involving the infratemporal fossa, orbit, buccal space, and intracranial extension into Meckel's cave. Successful resection of the tumor and good postoperative outcome was achieved. A transoral approach allowed for greater access to the infratemporal fossa, where endonasal resection was not possible, allowing for improved visualization, greater traction, and dissection. In select highly staged JNAs with significant lateral extension and intracranial involvement, successful and complete resection may be accomplished with this combined approach. Utilization of this approach avoids the morbidity of more invasive open approaches

Head Neck. 2020 Oct 28.