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. Oropharyngeal Airway

Danny Castro 1, Lori A. Freeman 2

Excerpt

Acute respiratory failure is caused by a wide range of etiologies. Progression to cardiopulmonary arrest and ultimately death is likely in the absence of effective and timely airway management. Therefore, one of the primary goals of airway management is to provide adequate ventilation and oxygenation to avoid or halt the progression to cardiopulmonary arrest. Effective and timely airway management is also an essential component of successful cardiopulmonary resuscitation. Airway management is critical in the pediatric population as pediatric airway problems are commonly seen in pediatric and general emergency departments. Respiratory distress is the fourth most common chief complaint in children presenting to the emergency department. Initial steps in airway management include airway positioning maneuvers (for example, head-tilt-chin lift, jaw-thrust), suctioning, supplemental oxygen, and re-positioning of the airway if the previous steps are ineffective. Airway positioning maneuvers place the airway in a neutral position and help move the tongue and palatal tissues away from the posterior wall of the pharynx. When choosing an airway positioning maneuver, one must be cognizant of the possible presence or absence of a cervical spine injury. Suctioning assists with the removal of secretions that could be causing or contributing to airway obstruction. If these steps do not help in maintaining a patent airway or in providing adequate ventilation and oxygenation, then an airway adjunct should be utilized. Airway adjuncts are used to relieve or bypass an upper airway obstruction during airway management. However, upper airway

obstruction may be present for several reasons, and airway adjuncts may not be able to relieve or bypass all types of obstruction. Upper airway obstruction may occur from anatomical causes such as choanal atresia, pathological causes such as a tonsillar abscess or adverse effects from patient management such as loss of airway patency during the administration of sedation and/or analgesia. There are also subsets of patients that are more prone to develop upper airway obstruction. Patients with obesity are at significant risk for upper airway obstruction due to altered upper airway anatomy. Pharyngeal tissues have increased fat deposition causing excess upper airway tissue and an increased likelihood of pharyngeal wall collapse resulting in airway obstruction. This can be exacerbated when patients with obesity are given drugs that depress the central nervous system or have other co-morbidities, such as obstructive sleep apnea (OSA) and/or obstructive hypoventilation syndrome (OHS). The presence of OSA and/or OHS can be associated with increased sensitivity to the respiratory depressant effects of sedatives and opioids increasing the tendency to obstruct the airway. Pediatric patients, in particular infants and young children, are susceptible to upper airway obstruction. This predisposition is due to the differences between pediatric and adult airways. Infants and young children have a relatively large occiput that causes neck flexion when lying supine. This results in a natural tendency to obstruct the upper airway. They have a proportionally large tongue relative to the size of their oral cavity which also causes a natural obstruction of the airway. Additionally, a shortened thyromental distance in this patient population brings the tongue into proximity of the soft palate. Consequently, this leads to obstruction of the airway. Lastly, compared to adults, infants and young children have larger adenoidal tissue, as well as, more distensible and compliant larger airways which predisposes them to airway obstruction. In general, by the age of eight, the pediatric airway is very similar to that of an adult airway. There are two types of airway adjuncts. One is an oropharyngeal airway, and the other is a nasopharyngeal airway. This article will summarize the former.

In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2020 Jan.

2020 Aug 22.

2. Cribiform Plate Fractures

Jonathan Gomez 1, Shannon Pickup 1

Excerpt

The cribriform plate is a portion of the ethmoid bone located at the base of the skull. The base of the skull is the term used to describe the most inferior portion of the skull. It is comprised of portions of the frontal bone, ethmoid bone, sphenoid bone, temporal bone, and occipital bone. The base of the skull is divided into three sections, the anterior fossa, the middle

fossa, and the posterior fossa. Within the center of the anterior fossa sits the ethmoid bone. This bone is located in the midface and forms the medial wall of the orbits, the nasal septum, and the roof of the nasal cavity. The cribriform plate is the portion of the ethmoid bone that forms the roof of the nasal cavity. This narrow bony structure contains deep grooves known as olfactory fossa, which supports the olfactory bulb. It is perforated by numerous small openings, known as olfactory foramina, through which the olfactory nerve fibers enter into the roof of the nasal cavity to allow olfaction. The cribriform plate is the thinnest portion of the base of the skull and is therefore susceptible to fracture in cases of facial trauma. Fractures can lead to partial or complete anosmia secondary to a severing of the olfactory nerves or due to contusion of the olfactory bulb itself. The dura overlying the cribriform plate is thin and tightly adherent to the skull; thus, fractures of the cribriform plate can easily tear the dura and lead to leakage of cerebral spinal fluid (CSF) into the nasal cavity. Once the dura is compromised, the patient is at risk for ascending infections, such as meningitis, pneumocephalus, and even brain tissue herniation into the nasal cavity and paranasal sinuses. Prompt diagnosis and evaluation by a neurosurgeon can lead to early treatment and reduce the risk of developing these potentially life-threatening complications. Diagnosis of cribriform plate fractures and dural fistulas can be difficult; thus, clinicians must maintain a high index of suspicion when evaluating a patient with facial trauma to allow early diagnosis and prevention of serious complications.

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2020 Sep 19.

3. COVID-19: When dust mites and lockdown create the perfect storm

Matteo Gelardi[1], Eleonora M C Trecca[1], Francesca Fortunato[2], Lucia Iannuzzi[3], Pier Gerardo Marano[1], Nicola A A Quaranta[3], Michele Cassano[1]

Abstract

The aim of the present study was to understand if the course of the disease of patients suffering from dust mite allergy could have been negatively affected by the COVID-19 restrictions, which have been certainly important to fight the pandemic, but forced patients to stay at home for a long time. Laryngoscope Investig Otolaryngol. 2020 Aug 11;5(5):788-790.

4. Contemporary Classification of Chronic Rhinosinusitis Beyond Polyps vs No Polyps: A Review

Jessica W Grayson 1, Claire Hopkins 2, Eri Mori 3, Brent Senior 4, Richard J Harvey 5 6

Abstract

Importance: Chronic rhinosinusitis (CRS) is a broadly defined process that has previously been used to describe many different sinonasal pathologic conditions from odontogenic sinusitis and allergic fungal sinusitis to the more contemporary definition of broad inflammatory airway conditions. Previous classification systems have dichotomized these conditions into CRS with nasal polyps and CRS without nasal polyps. However, clinicians are learning more about the inflammatory subtypes of CRS, which can lead to improved delivery and effectiveness of treatment.

Observations: In clinical practice, treatment decisions are often based on observable findings, clinical history, presumed disease, and molecular pathophysiologic characteristics. A proposed classification system is simple and practical. It proposes that the functional anatomical compartments involved create the first level of separation into local and diffuse CRS, which are usually unilateral or bilateral in distribution. Diffuse does not imply "pansinusitis" but simply that the disease is not confined to a known functional anatomical unit. This classification takes into account whether local anatomical factors are associated with pathogenesis. Then the inflammatory endotype dominance is separated into a type 2 skewed inflammation, as this has both causal and treatment implications. The non-type 2 CRS encompasses everything else that is not yet known about inflammation and may change over time. The phenotypes or clinical examples are CRS entities that have been described and how they align with this system.

Conclusions and relevance: Although research continues to further define the subtypes of CRS into phenotypes and endotypes, the proposed classification system of primary CRS by anatomical distribution and endotype dominance allows for a pathway forward.

JAMA Otolaryngol Head Neck Surg. 2020 Sep 1;146(9):831-838.

5. Two Cases of Allergic Fungal Sinusitis with Differing Postoperative Course

Yuma Matsumoto 1, Hidenori Yokoi 1, Michitsugu Kawada 1, Masachika Fujiwara 2, Koichiro Saito 1

Abstract

Allergic fungal sinusitis (AFS) often develops in unilateral paranasal sinuses, which must be differentiated from tumors. When AFS develops on both sides, however, it must be differentiated from eosinophilic chronic sinusitis with evident eosinophilic infiltration at nasal/paranasal sinus mucosa; both conditions are highly recurrent and commonly considered intractable paranasal sinusitis. Surgical correction is the primary treatment method for AFS, as it is essential to connect the paranasal sinus communication to ensure exhaustive resection of the pathologic mucosa and for nasal steroids to reach each paranasal sinus. We recently encountered two AFS cases with differing postoperative courses. Case 1 showed evident exacerbation in the computed tomography findings, which suggests progression to eosinophilic sinusitis. Case 2 showed a benign prognosis without recurrence. Close long-term follow-up should be mandatory after surgery for the treatment of AFS.

Case Rep Otolaryngol. 2019 Nov 21;2019:9598283.

6. Sinus Endoscopic Surgery

Marie Therese Homsi 1, Megan M. Gaffey 2

Excerpt

Endoscopic sinus surgery (ESS) has significantly advanced since it was first applied. The introduction of endoscopic examination of the sinuses took place in 1902. However, for most of the last century and until the 1970s, ESS was not performed regularly. In fact, sinus pathologies were addressed using external approaches using a headlight. Since the 1970s, the techniques applied in endoscopic sinus surgery have been in a constant race with advances in technology with new surgical instrumentation, imaging, simulation, and navigation. The concept behind sinus surgery stems from Messerklinger's studies on mucociliary clearance and its role in the pathogenesis of sinusitis. The goals of functional endoscopic sinus surgery (FESS) in the treatment of sinusitis are to enlarge sinus ostia, restore adequate aeration of sinuses, improve mucociliary transport, and provide a better route for topical therapies. The notion behind FESS may seem straightforward. However, the anatomical variance and the broad range and severity of diseases addressed in every FESS remain challenges for the surgeon in every case. Pre-

operative planning for sinus surgery is the crucial step to obtain optimal results and to avoid all possible complications. Endoscopic sinus surgery targets sinus pathology and is the gold standard for treating chronic rhinosinusitis (CRS). The boundaries of ESS are continually expanding with technological advances. At this point, the indications of ESS have surpassed the field of rhinosinusitis. The application of this procedure marked its place in the management of sinus tumors and pathologies beyond the sinuses

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7. Benign Tumors of the Anterior Cranial Base

Carl H Snyderman 1, Philippe Lavigne 2

Abstract

Benign tumors of the anterior cranial base may originate from intracranial, cranial, or extracranial sites. Intracranial tumors such as meningiomas may secondarily involve the cranial base and extend into the sinuses or nasal cavity. Bony tumors arising from the cranium include benign fibro-osseous lesions such as osteoma, fibrous dysplasia, and ossifying fibroma. The most common extracranial tumors that may extend to the skull base include angiofibroma and inverted papilloma. Symptoms are nonspecific and diagnosis is often delayed. In most cases, a diagnosis can be established based on the clinical presentation and radiographic features. Some small asymptomatic tumors may be observed for growth (meningioma, osteoma), whereas others should be treated due to continued destructive growth (angiofibromas) or potential for malignancy (inverted papilloma). Surgery remains the predominant treatment modality for benign tumors of the anterior cranial base. The major advance in recent decades has been the adoption of endoscopic techniques. Advances in endoscopic transnasal surgery have dramatically altered the surgical landscape, enabling the removal of tumors of the anterior cranial base with minimal morbidity. Due to decreased morbidity in comparison to transfacial or transcranial approaches, endoscopic transnasal surgery has lowered the threshold for surgery for benign tumors and can be applied to adult as well as pediatric populations. Anatomical limits include the anterior cranial base from the frontal sinus to the sella and optic canals and laterally to the mid-plane of the orbital roofs. Large dural defects can be reliably reconstructed using local (nasoseptal) and regional (extracranial pericranial) vascularized flaps

Adv Otorhinolaryngol. 2020;84:106-113.

8. Low Epstein-Barr virus count in sinonasal inverted papilloma

Alexandra Schindele 1, Anna Holm 1, Karin Nylander 2, Annika Allard 3, Katarina Olofsson 1

Abstract

Background: Sinonasal inverted papilloma (SIP) is a benign tumour originating from the sinonasal mucosa showing an extensive growth pattern, a high risk of recurrence and a 5-10% risk to malignify. Epstein-Barr virus (EBV) is an oncogenic herpesvirus which infects most individuals via the saliva eliciting a latent infection. Previous studies have been reporting variable data on EBV in SIP, and there is no present appreciation regarding the association between these.**Aims/objectives:** The aims were to investigate the presence and count of EBV in SIP and map the viral distribution in the epithelium versus the connective tissue.**Material and method:** Fifty-three SIP patients were identified in the Pathology Department register at the University Hospital of Umeå. The biopsies were analysed with Epstein-Barr Encoded Region (EBER) in situ hybridization. EBER-positive cells were counted in the epithelium and connective tissue.**Results:** We found EBER-stained cells in 30% of the cases, where 19% of these had an abundance of stained cells, and the rest showed a low count.**Conclusions/significance:** These findings demonstrate a low EBV count in SIP. EBV is less likely to be a causative agent in the formation of SIP, or its malignant transformation.

Acta Otolaryngol. 2020 May;140(5):413-417.

9. Spontaneous Involution of Juvenile Nasopharyngeal Angiofibromas: Report of a Case

Janice T Chua 1, Joseph A Choy 1, Ronald Sahyouni 1, Jack L Birkenbeuel 1, Dillon C Cheung 1, Edward C Kuan 1, Naveen D Bhandarkar 1

Abstract

Juvenile nasopharyngeal angiofibroma (JNA) is a locally aggressive tumor that predominantly affects adolescent males. Surgical resection is generally considered the standard treatment for both primary and recurrent tumors, regardless of staging. The natural history of these tumors, particularly when untreated or in the setting of residual tumor, is not well characterized. In this article, we report a case of true spontaneous JNA involution. Although the involution of residual tumor after surgical resection has previously been reported, to our knowledge, this is the first documented case of spontaneous JNA involution following a period of tumor growth post-treatment

Laryngoscope. 2020 Nov 11.

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10. Adenoidectomy: Anatomical variables as predictive factors of intraoperative adenoid residues

Fabio Pagella[1], Roberta Lizzio[2], Alessandro Pusateri[3], Sara Ugolini[3], Eugenia Maiorano[3], Rosolino Mirabella[3], Annalisa De Silvestri[4], Guido Tinelli[3], Elina Matti[5]

Abstract

Objectives: Adenoid hypertrophy is a common cause of upper airway obstruction in children. However, after adenoidectomy, nasal obstructive symptoms may persist or recur, requiring surgical revision. The aim of this study is to evaluate if individual patient features can influence the efficacy of the traditional technique.

Methods: A retrospective observational study was conducted by recruiting patients from candidates for adenoidectomy. All children underwent conventional transoral curettage adenoidectomy with endoscopic control at the end of procedure, and in presence of adenoid residues, a concomitant revision adenoidectomy was performed. For each patient, the following data were collected: age, sex, weight, height, length of the soft palate and surgical technique used.

Results: In 18% of patients (113/612), the most critical areas of the nasopharynx were not reached by standard surgery, making a complete adenoidectomy difficult. In this group, the average length of the soft palate was 3.1 cm, 5 mm more than the average of the sample, and 6 mm more than the average length of patients undergoing standard surgery alone ($p < 0.001$).

Conclusion: Our study confirms the hypothesis that a greater length of the soft palate conditions the results of the intervention. The length of the soft palate can be considered an intraoperative criterion to select the cases in which perform endoscopic control after the standard procedure

Int J Pediatr Otorhinolaryngol. 2020 Nov 11;110493.