Pan Arab Rhinology Society
PARS Reader's Digest

Reader Digest

Digested by Dr. Tarek Kandil, MD. 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. Choanal Atresia and Craniosynostosis: Development and Disease.

Lesciotto KM1, Heuzé Y, Jabs EW, Bernstein JM, Richtsmeier JT.

Abstract

A number of textbooks, review articles, and case reports highlight the potential comorbidity of choanal atresia in craniosynostosis patients. However, the lack of a precise definition of choanal atresia within the current craniosynostosis literature and widely varying methods of detection and diagnosis have produced uncertainty regarding the true coincidence of these conditions. The authors review the anatomy and embryologic basis of the human choanae, provide an overview of choanal atresia, and analyze the available literature that links choanal atresia and craniosynostosis. Review of over 50 case reports that describe patients diagnosed with both conditions reveals inconsistent descriptions of choanal atresia and limited use of definitive diagnostic methodologies. The authors further present preliminary analysis of three-dimensional medical head computed tomographic scans of children diagnosed with craniosynostosis syndromes (e.g., Apert, Pfeiffer, Muenke, and Crouzon) and typically developing children and, although finding no evidence of choanal atresia, report the potentially reduced nasal airway volumes in children diagnosed with Apert and Pfeiffer syndromes. A recent study of the Fgfr2c Crouzon/Pfeiffer syndrome mouse model similarly found a significant reduction in nasal airway volumes in littermates carrying this FGFR2 mutation relative to unaffected littermates, without detection of choanal atresia. The significant correlation between specific craniosynostosis syndromes and reduced nasal airway volume in mouse models for craniosynostosis and human pediatric patients indicates comorbidity of choanal and

nasopharyngeal dysmorphologies and craniosynostosis conditions. Genetic, developmental, and epidemiologic sources of these interactions are areas particularly worthy of further research

Plast Reconstr Surg. 2018 Jan;141(1):156-168.

2. Closed and Open Reduction of Nasal Fractures.

James JG1, Izam AS1, Nabil S2, Rahman NA3, Ramli R2.

Abstract

AIM:

The objective of this review was to determine the different types of surgical intervention in the management of nasal bone fractures, the outcomes, and complications associated with each **intervention.**

METHODS:

A search was conducted using the PubMed and Cochrane Database of Systematic Review databases from January 1, 1997 until September 9, 2017. The search strategy was constructed using the Population Intervention Comparison Outcome framework with keywords related to nasal fracture and its treatment. Two sets of independent researchers performed the analysis. Qualitative analysis was performed using the Methodological Index for Non-Randomized Studies and National Institute for Clinical Excellence methodology for randomized controlled trial checklists.

RESULTS:

The 4276 titles were obtained from PubMed database alone. Exclusion was made based on the title, abstract and full-text analysis. Finally, 23 papers were included and analyzed. Of the 23 papers, 13 (56.5%) were retrospective record review, 2 (8.7%) were randomized clinical trial or a randomized study and 8 case series (34.8%). 16 (69.6%) studies addressed closed reduction, 3 studies (13%) on open reduction and 4 studies (17.4%) addressed both open and closed reduction. The main focus in the outcome in all studies was accuracy of the anatomical reduction of the nasal bones. Three studies (13.0%) reported restoration of function such as breathing comfort or release in respiratory obstruction and another 3 (13.0%) addressed both cosmetic and breathing outcomes. Residual deformity was the most described complications in the studies (30.4%). In general, most of the studies were not of high quality as they lacked in some key elements in the Methodological Index for Non-Randomized Studies checklist.

CONCLUSION:

Both closed and open reduction provided good outcomes in cosmetic and breathing. Septoplasty is recommended to be performed simultaneously with fracture reduction

J Craniofac Surg. 2019 Aug 21.

3. Endoscopic Sphenopalatine Artery Ligation: General Applicability in a Teaching Unit.

Hey SY[1], Koo Ng NKF[1], McGarry GW[1].

Abstract

BACKGROUND:

Endoscopic sphenopalatine artery ligation (ESPAL) is the intervention of choice for refractory epistaxis in specialist ear, nose and throat (ENT)units and should be within the repertoire of competencies for all ENT trainees. Following its recent incorporation within the United Kingdom competency-based training syllabus as an explicit outcome standard, the ESPAL is not uncommonly being delivered by trainees under appropriate supervision. We assessed the efficacy and outcome of ESPAL in epistaxis management within our teaching hospitals.

METHODS:

Retrospective, structured review of all ESPAL procedures performed for epistaxis between December 2005 and December 2013. The techniques of ligation, operator grade, and outcome were studied.

RESULTS:

Sixty-five patients (41 male:24 female; average age of 58.2 years) were identified in whom 67 artery ligations were performed (63 unilateral; 2 bilateral). Overall, success rate of ESPAL was 92.3% (60/65), with 5 rebleed cases recorded within 30 days of the primary procedure. Sixteen (24.6%) underwent "clipping," 26 (40.0%) had diathermy ligation, 18 (27.7%) had both clipping and diathermy, and in 5 (7.7%) patients, the ligation technique was not recorded. In 31 (47.7%) of 65 cases, a consultant was the principal surgeon. The remaining 34 (52.3%) of 65 cases were performed by trainees with (24, 70.6%) or without (10, 29.4%) supervision. There was no correlation between rebleed and operators' grade, level of supervision, or ligation technique.

CONCLUSION:

With appropriate training, ESPAL can achieve hemostasis in teams of varying grades of operators without significant reduction in outcome. To further enhance the technical learning curve, the utility of simulation-based training could offer continuous and longitudinal development of skills.

Ear Nose Throat J. 2019 Feb;98(2):85-88.

4. The mechanism and treatment of nasal obstruction in allergic rhinitis.

Zhou B, Xu G.

Abstract

Summary Nasal obstruction is one of the main symptoms of allergic rhinitis（AR） as well as one of the most common complains in the otolaryngology department. Among the many causes of nasal congestion, such as inflammation and anatomy, the most common clinical cause is the nasal mucosal inflammatory response that caused by AR. The nasal congestion caused by AR can induce nighttime sleep disturbance and mental-psychological burden. Nasal congestion has a greater impact on children, which can directly affect growth and development due to affecting nighttime sleep, and may even affect maxillofacial development, which should be paid special attention by physicians. According to the particularity of AR nasal congestion, this review summarizes how to carry out clinical consultation, select specialist examination and objective examination methods, and develop the optimal treatment strategy

Lin Chung Er Bi Yan Hou Tou Jing Wai Ke Za Zhi. 2019 Aug;33(8):780-785.

5. Balloon Sinuplasty.

Lofgren D1, Shermetaro C2.

Excerpt

Since the Federal Drug Administration (FDA) approval for nasal sinus use in 2005, balloon sinuplasty (BSP) has continued to grow in popularity among otolaryngologists as a minimally invasive way to treat patients suffering from chronic rhinosinusitis (CRS).[1][2][3] The idea of using balloon dilation to open an anatomic structure is not a new concept, as cardiac surgeons have used similar techniques in coronary arteries since the late 1970s. In the late 1990s, some otolaryngologists were attempting to use 5-7 french Fogarty catheters to preserve the patency of nasal ostia.[4] This technique offers the ability to dilate sinus ostia and outflow tracts via local microfracture - without destroying the overlying mucosa and maintaining physiologic function.[3][5] The goal of BSP is to allow for improved mucociliary clearance by minimizing obstruction of the outflow tracts, thus causing symptomatic improvement in patients suffering from CRS. The description of chronic rhinosinusitis in the literature as the inflammation of nasal mucosa and the surrounding sinuses lasting more than 12 weeks.[1][6][7] Patients describe a myriad of symptoms including congestion, rhinorrhea, facial pressure, hyposmia, but most commonly nasal obstruction.[1][5][6] This condition's etiology is not fully understood, and multiple studies point to various causes, including biofilms, bacterial antigens, fungal infections, or immune dysfunction, among others.[3][7] The disease is currently broken down into two distinct subgroups: CRS with nasal polyposis (CRSwNP) and CRS

without nasal polyposis (CRSsNP). Approximations are that over 31 million people suffer from CRS, and although medical management is the mainstay treatment in these patients, the literature notes an increasing number of surgical cases.[1][6] From 2006 to 2011, estimates were that 1 in 3.7 CRS patients underwent a sinus surgery for treatment. Upwards of 300000 patients elect for sinus surgery annually, which include BSP, functional endoscopic sinus surgery (FESS), or a mix of both called a "hybrid" procedure.[1][3][5][6] Recently, there has been a push to perform BSP under local sedation in an in-office setting, which avoids the use of general anesthesia in patients with concomitant comorbidities and provides cost savings to the patient and the physician.[8] Holy et al. described that the ratio of sinus surgery per 100,000 patients had remained constant between 2006 and 2011, however, they did note a 7% increase in BSP only procedures during that time frame.[9] One study, which used the Center for Medicare and Medicaid Database, looked at billing codes to compare the number of specific sinus procedures performed from 2012 to 2016. The number of balloon only procedures jumped from 5603 to 25640 in that timeframe. This study found that in-office BSP served as the major reason for this jump in treatment numbers.[10] With the application of in-office BSP, concerns exist regarding the possibility of overutilization of the procedure due to its variety of proposed indications, which this activity will discuss later. In one retrospective cohort study, the authors used one of the largest commercial health insurance program's database and noted that 86.53% of BSP procedures studied took place in an in-office setting.[1] With the recent increase in popularity of BSP procedures and the ease of availability in an in-office setting, the authors of this paper hope to provide a general overview of balloon sinuplasty for physicians, healthcare providers, and patients alike.

StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2019-. 2019 Aug 30.

6. The use of magnetic resonance imaging in differential diagnosis of allergic fungal sinusitis and eosinophilic mucin rhinosinusitis.

Meng Y1, Zhang L1,2,3, Piao Y4, Lou H1, Wang K1, Wang C1.

Abstract

Background:

Allergic fungal sinusitis (AFS) and eosinophilic mucin rhinosinusitis (EMRS) represent pathophysiological variants of sinusitis and have similar clinical features. However, to date, few studies have described the differential diagnosis of AFS and EMRS in detail. We therefore investigated the use of magnetic resonance imaging (MRI) in the differential diagnosis of AFS and EMRS.

Methods:

Ninety-three patients (aged 13-75 years) with sinusitis and AFS or EMRS established according to pathological, clinical, or laboratory examinations were enrolled. Each patient was evaluated for demographic and clinical characteristics, fungal-specific immunoglobulin E, peripheral blood eosinophils, histopathology of the sinuses, as well as signal attenuation within the opacified sinuses on computed tomography and MRI scans.

Results:

Thirty patients presented with AFS and 63 with EMRS. The histopathological characteristics of the secretion and mucosa in the affected sinuses, but not the absolute counts or percentage of blood eosinophils, differed between the 2 groups. The presence of asthma was significantly higher in the EMRS group, whereas allergy to fungi and T2-weighted MRI signal attenuation were significantly increased in the AFS group.

Conclusions:

MRI features are key to the differential diagnosis of AFS and EMRS

J Thorac Dis. 2019 Aug;11(8):3569-3577

7. Surgical treatment of paranasal sinus osteomas: A single center experience of 58 cases.

Wolf A1, Safran B1, Pock J1, Tomazic PV1, Stammberger H1.

Abstract

OBJECTIVES:

Osteomas are osseous tumors that primarily occur at the skull, in particular the paranasal sinus system. Surgical tumor resection is the "gold standard" treatment in symptomatic osteomas. The aim of this study was to investigate the use of surgical approaches (endoscopic, open, combined) and to provide a step-by-step approach for patients' management.

METHODS:

Fifty-eight patients (31 m, 27 f, 42.1 ± 15.3 years) that were treated between 2001 and 2015 at our department were included in this retrospective, single center study.

RESULTS:

In almost half of cases (n = 28, 48.3%) endoscopic, endonasal approaches were used for tumor resection while open (n = 11, 19%) or combined (n = 19, 32.8%) approaches were used in

the rest of the cohort. Open or combined approaches were applied in patients suffering from osteomas localized in the maxillary or frontal sinuses only.

CONCLUSION:

Beside interviews, clinical examination, nasal endoscopy, and computed tomography are crucial for diagnosis of paranasal sinus osteomas. Magnet resonance imaging can be useful in extensive pathologies. The preoperative selection of the optimal approach for osteoma resection might be most challenging in patients' management. Although useful recommendations regarding the use of surgical approaches have been published, technical requirements and surgical experience of surgeons have to be considered in the limitations of endoscopic approaches. If there are doubts about the resectability of an osteoma by an endoscopic approach, the surgical procedure may be started endoscopically, and, if necessary, it can be combined with an external approach

Laryngoscope. 2019 Sep 14.

8. High CT attenuation values relative to the brainstem may predict squamous cell carcinoma arising from inverted papilloma.

Azuma S1, Kikuta S1, Yoshida M1, Ando M1, Kondo K1, Yamasoba T1.

Abstract

Background: A diagnostic indicator for differentiating squamous cell carcinomas (SCCs) from inverted papillomas (IPs) has not been established. **Objectives:** This study aimed to evaluate whether CT attenuation values relative to those of the brainstem (relative CT number) could be useful in differentiating IPs from SCCs. **Material and Methods:** Consecutive patients who were pathologically diagnosed with IP or SCC between 2007 and 2017 were retrospectively identified. Relative CT numbers were compared between the two patient groups. The factors with predictive power for differentiating IPs from SCCs were identified by univariate and multivariate logistic regression analyses. **Results:** Fifty-four sinonasal tumour cases were finally analysed (IP, 25 cases; SCC, 29 cases). Relative CT numbers were significantly higher in SCC than in IP ($p < .001$). The univariate logistic regression analysis showed BMI, relative CT number, and disease duration to have predictive value for differentiating IPs from SCCs. In the multivariate logistic regression analysis, only the relative CT number had predictive value for distinguishing IP from SCC (odds ratio, 1.97), with a relative CT number of ≥1.4 being significantly associated with SCC. **Conclusions:** High relative CT numbers could potentially be used to identify SCCs, and their measurement could provide a basis for differentiating IPs from SCCs

Acta Otolaryngol. 2019 Nov;139(11):1030-1037.

9. Endoscopic Resection of Sinonasal and Ventral Skull Base Malignancies.

Alokby G1, Casiano RR2.

Abstract

The transnasal endoscopic resection of ventral skull base lesions represents a safe and effective method for the surgical management of sinonasal and ventral skull base malignancies in carefully selected cases. The goal of surgery is complete removal of all tumor with negative resection margins while maintaining the key oncological principles. Careful selection of cases along with the presence of an experienced surgeon and a fully involved multidisciplinary skull base team trained in the management of ventral skull base neoplasm are essential for excellent outcomes.

Otolaryngol Clin North Am. 2017 Apr;50(2):273-285.

10. Olfaction and quality of life in patients with nasal septal deviation treated with septoplasty.

Valsamidis K1, Printza A2, Titelis K3, Constantinidis J4, Triaridis S5.

Abstract

OBJECTIVE:

Patients with septal deviation-induced nasal obstruction may experience olfactory impairment. This study aimed to evaluate septoplasty-related changes in olfactory function and their effect on patients' quality of life (QoL).

METHODS:

Prospective study of sixty patients with nasal obstruction and septal deviation and 25 healthy controls. Objective measurements were performed for the evaluation of nasal patency and "Sniffin' sticks" tests were used for quantitative assessment of lateralized and bilateral olfactory performance. All participants self-assessed their smell using a visual analog scale and completed validated questionnaires for nasal obstruction (Nasal Obstruction Symptom Evaluation: NOSE), for nasal symptoms QoL (SinoNasal Outcome Test-22: SNOT-22), for olfaction-associated QoL (Questionnaire of Olfactory Deficits: QOD) preoperatively and six months after septoplasty and reported personal benefit after surgery (Glasgow Benefit Inventory: GBI), six months postoperatively.

RESULTS:

Smell was significantly compromised due to septal deviation especially in the more obstructed nasal cavity side. Smell improved significantly after septoplasty (subjective report and olfactory measurements), along with increased nasal patency. Increased nasal cavity volume was significantly correlated with olfactory thresholds but not with suprathreshold measurements. Subjective hyposmia and lateralized olfaction were significantly reduced postoperatively. Postoperatively, normosmic patients reported higher personal benefit from surgery than patients with olfactory disorders. The patients' QoL improved significantly, but it remained lower than the controls' group. Olfaction-associated QoL was not significantly different between patients and controls before and after septoplasty.

CONCLUSION:

Septoplasty leads to improvement in smell perception, and patients with improved smell report greater personal benefit from septoplasty than patients with remaining olfactory deficits.

Am J Otolaryngol. 2019 Sep - Oct;40(5):747-754