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. Extraoral anatomy in CBCT – a literature review. Part 1: Nasoethmoidal region

Thomas von Arx 1, Scott Lozanoff 2, Michael M. Bornstein 3

Abstract

Cone beam computed tomography has become a widely used imaging technique for dental indications. Depending on the selected size of the field of view, anatomical structures outside the dentomaxillary complex become visible. As a consequence, the clinician must be able to interpret also those anatomical regions. In this article, the anatomy of the nasoethmoidal region is presented based on a literature review. The nose is characterized by the nasal septum and the superior, middle, and inferior conchae. The turbinates may be pneumatized (concha bullosa), mainly the middle concha. The ethmoid bone has a complex morphology (ethmoid labyrinths) and contributes with its perpendicular plate to the nasal septum. Other structures of the septum include the vomer and the septal cartilage. The nasal meatuses stabilize the airflow and direct the inhaled air to the nasopharynx via the choanae. The middle nasal meatus, which is also a part of the so called ostiomeatal complex, serves as the major drainage area (semilunar hiatus) of the paranasal sinuses, i.e., maxillary sinus, anterior ethmoid cells, and frontal sinus. Posterior ethmoid cells empty into the superior meatus and the sphenoid sinus drains into the sphenoethmoidal recess, located above the superior concha. The nasolacrimal duct that is running along the middle portion of the lateral nasal wall opens into the inferior nasal meatus.

Swiss Dent J. 2019 Oct 14;129(10):804-815. Epub 2019 Aug 8

2. Choanal atresia surgery: outcomes in 42 patients over 20 years and a review of the literature

H Attya 1 2 3, M Callaby 4, R Thevasagayam 5

Abstract

Background: Choanal Atresia (CA) is potentially life-threatening and its repair has a variable revision rate.

Objectives: A case series study from 1997 to 2017 to evaluate the results of repair of CA and review factors affecting outcome.

Methods: Forty-two patients aged one day to 16 years were included. The outcome measures were the number of revision operations and the length of time over which surgery was required. A focused review of the recent literature (2000-2018) was done.

Results: Bilateral cases (17) had a mean of 5.24 operations compared to 2.2 operations in unilateral cases (25). Nine patients had bony CA and required 3.56 operations, twenty-four patients had mixed CA and required 3.58 operations. Twelve patients with comorbidities required more operations. Patients with reflux disease required a mean of 4.67 operations.

Conclusion: An increased rate of restenosis was found in patients with bilateral CA, GERD and those with comorbidities. Parents should be counselled regarding the likelihood of revision surgery. Use of stents or Mitomycin C did not impact the revision rate in this series.

Eur Arch Otorhinolaryngol. 2021 Jan 2.

3. Submental Intubations in Panfacial Fractures

Ravish Mishra 1, Deepak Yadav 1, Shashank Tripathi 1, Laxmi Kandel 1, Pawan Puspa Baral 2, Snigdha Shubham 3, Abhishek Karn 4, Kishor Dutta 5

Abstract

Introduction: Airway management in patients with panfacial fracture remains a challenge to anesthesiologists and surgeons. Submental intubation is an effective and less invasive alternative to tracheostomy during intraoperative airway management where orotracheal and nasotracheal intubation are not appropriate options. In addition, submental intubation allows proper access to oronasal airways and occlusion during intraoperative management.

Methods: The descriptive retrospective study was carried out and evaluated the outcomes of submental intubation in the management of panfacial fracture, complex maxillary or mandible fracture associated with nasal bone fracture and naso-orbito-ethmoid (NOE) fracture. The medical records of 23 patients who received submental endotracheal intubation were reviewed at UCMS College of Dental Surgery, Bhairahawa, Rupandehi, Nepal from March 2014 to December 2018. The following parameters were evaluated: mode of trauma, time required for intubation, accidental extubation, accidental perforation of the pilot balloon during its insertion, period of hospital stay, post-operative complications, such as the healing of submental scars both intraorally and extraorally.

Results: The submental intubation was successfully done in all patients with minimal obvious post-operative complications. The mode of trauma for majority of cases of panfacial fracture who underwent submental intubation was road traffic accident (69.56%). The mean time required for intubation was 8.43 (±0.84) minutes. No accidental extubations occurred. Accidental perforation of the pilot balloon was seen in one patient (4.35%) during tube manipulation which was managed successfully by changing the tube. The healing of submental scars was uneventful intraorally and extraorally in almost every case. The mean period of hospital stay in patients with submental intubation was 7.95 (±1.49) days.

Discussion: Submental intubation is an effective and safe method as it is not associated with complications of tracheostomy during management of panfacial fracture, NOE fracture and craniofacial fracture. In addition, it does not interfere with IMF during intraoperative period

Clin Cosmet Investig Dent. 2020 Feb 19;12:41-48.

4. Effects of Vitamin E and Selenium on Allergic Rhinitis and Asthma Pathophysiology

Jinan Jiang 1, Entezar Mehrabi Nasab 2, Seyyede Masoume Athari 3, Seyyed Shamsadin Athari 4

Abstract

Allergic diseases such as asthma and rhinitis are common health problems that affect hundreds of millions of people in the world. T helper 2 cytokines participate in the immune responses in these diseases. Vitamin E and selenium (Se) are supplementary factors which have immunomodulatory and antioxidant effects. The present study investigated the effects of vit E + Se administration on allergic symptoms in mice models of asthma and rhinitis. Mice were treated with vit E and Se, and the levels of IL-4, IL-5, IL-13, IL-25, IL-33, total IgE, and histamine were measured. Lung histopathology was also analyzed. Our results indicated that vit E could attenuate allergic rhinitis and asthma symptoms; nevertheless, treatment with Se alone was not effective in controlling allergic symptoms. We noticed reduced airway inflammation and

constriction and mucus secretion in the mice, especially when vit E was used in combination with Se. Our result suggested that vit E, especially in combination with Se, could control allergic mediators and symptoms in rhinitis and asthma and reduce pulmonary inflammation and airway mucus secretion, helping to open obstructed bronchi

Respir Physiol Neurobiol. 2021 Jan 7;103614.

5. Surgical treatment of isolated sphenoid sinusitis - A case series and review of literature

Noémie Villemure-Poliquin 1, Sylvie Nadeau 2

Abstract

Introduction: Isolated sphenoid opacification is a rare pathology. Unlike other sinusitis, the treatment is most often surgical. Only few studies reporting the recurrence rates with long-term follow-ups are available in the literature. In our experience, isolated sphenoid sinusitis tends to have a significant recurrence rate after a first surgical intervention. This study aims to describe our experience with patients operated for isolated sphenoid sinusitis and to compare our reoperation and complication rates with those reported in the literature.

Methods: We conducted an electronic chart review of patients operated at the CHU de Québec between 2007 and 2018 for isolated sphenoid sinusitis.

Results: 29 patients were analyzed. All patients had a sphenoidectomy with a transnasal approach. The reoperation rate was 103% (3/29) and the mean recurrence time was 15 (9-26) months. Among the patients reoperated, 2 patients had a fungus ball and one had a mucocele. Both patients with fungal balls had reossification of their sphenoidal ostium whereas the patient with the mucocele rather had a mucosal closure. No patient encountered any serious post-operative complication. Median duration of follow-up was 44 months (IQR: 25-68) for the 29 patients analyzed in our study.

Conclusion: Reoperation rates reported in the literature are probably underestimated. Our series emphasizes the importance of long-term follow-up for these pathologies. Highly inflammatory and chronic conditions such as fungal diseases could be linked to an increase in the occurrence of relapses

Int J Surg Case Rep. 2021 Jan 2;79:18-23.

6. Efficacy of Absorbable Steroid-Impregnated Nasal Packing in Functional Endoscopic Sinus Surgery for Chronic Rhinosinusitis: A Systematic Review

Michael Zhang 1 2, Peter J Ryan 1, Singh Shashinder 1 2

Abstract

Objective: To evaluate the efficacy of absorbable steroid-impregnated nasal packing on postoperative outcomes following functional endoscopic sinus surgery (FESS) for chronic rhinosinusitis (CRS).

Methods: A systematic review of the literature was conducted as per Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Twelve databases (including Journals@Ovid, Embase®, Medline®, EBM Reviews and Joanna Briggs Institute EBP Database) were searched using relevant keywords and expanded with corresponding MeSH/Emtree terms. Results were narrowed to English articles assessing the efficacy of absorbable packing impregnated with steroids post-production placed at time of surgery under general anesthetic, with hollow-lumen devices and devices inserted in-office excluded.

Results: Eight studies met criteria and were included in this review. Five evaluated the efficacy of the intervention in only CRS with nasal polyposis (CRSwNP) patients, two included all subtypes of CRS, and one included only CRS without nasal polyposis (CRSsNP). Of the eight studies, four studied the efficacy of Nasopore®, three studied bioabsorbable gels, and one studied bioabsorbable calcium alginate. Four studies applied triamcinolone as the operative steroid, with the other studies utilizing betamethasone, budesonide, mometasone, and dexamethasone. Seven studies demonstrated statistically significant improvements in endoscopic outcomes using validated scoring scales, albeit at differing timepoints. The one study which included only CRSsNP patients failed to find a significant difference.

Conclusion: Steroid-impregnated nasal packing appears to have positive effects on postoperative endoscopic outcomes in CRSwNP patients undergoing FESS. Additional research is needed to evaluate the efficacy of these interventions in more recently defined subtypes of CRS, and whether these interventions differ in their efficacy in eosinophilic and non-eosinophilic CRS.

Laryngoscope. 2021 Jan 4.

7. Plasma ablation-assisted endoscopic excision versus traditional technique of endoscopic excision of juvenile nasopharyngeal angiofibroma

Avinash Shekhar Jaiswal 1, Rakesh Kumar 2, Alok Thakar 3, Rajeev Kumar 4, Hitesh Verma 5, Ashu Seith Bhalla 6, Arvind Kumar Kairo 7, Aanchal Kakkar 8, Suresh Chandra Sharma 9, Pirabu Sakthivel 10

Abstract

Background: Juvenile nasopharyngeal angiofibroma is the vascular and locally aggressive tumor of the posterior nares and nasopharynx. Endoscopic excision is the preferred surgical modality in early Radkowski stages. The prime challenge is intraoperative bleeding. Literature is in favor of the use of plasma ablation to overcome surgical challenges.

Objective: To evaluate the effectiveness of plasma ablation technique in the surgical management of juvenile nasopharyngeal angiofibroma.

Materials and methods: The current study recruited 36 patients of clinico-radiologically diagnosed cases of primary JNA of stage I and II (Modified Radkowski). In prospective arm, 18 consecutive patients were recruited, who underwent plasma ablation assisted endoscopic excision. In retrospective arm, 18 consecutive patients who underwent excision by traditional endoscopic instruments in the past two years, were recruited. Both the groups were compared for baseline characteristics, intraoperative blood loss, duration of surgery, length of hospital stay, and recurrence rates.

Results: The use of plasma ablation decreased overall blood loss by 338 ml (mean difference) which was not statistically significant ($p = 0.26$). On subgroup analysis, the use of plasma ablation significantly decreased mean blood loss (648 ml, $p = 0.046$) and duration of surgery (83 min, $p < 0.001$) in patients who underwent embolization. No statistically significant difference was noted between two groups in length of hospital stay ($p = 0.36$) and recurrence rates ($p = 0.64$).

Conclusion: Plasma ablation is an effective technique available to decrease blood loss and duration of surgery during endoscopic excision of post embolized stage I and II patients of JNA.

Int J Pediatr Otorhinolaryngol. 2020 Dec;139:110410.

8. Long-term Clinical Course of Benign Fibro-osseous Lesions in the Paranasal Sinuses

Jung Joo Lee 1, Gwanghui Ryu 2, Kyung Eun Lee 1, Sang Duk Hong 1, Yong Gi Jung 1, Hyo Yeol Kim 1, Hun-Jong Dhong 3, Seung Kyu Chung 1

Abstract

Objectives: Fibro-osseous lesions of the paranasal sinuses can present various clinical conditions. This study aimed to report the long-term clinical course of benign fibro-osseous lesions (BFOLs) in the paranasal sinuses, including clinical and radiologic features.

Methods: Radiologically confirmed BFOLs except osteoma cases were reviewed retrospectively between 1994 and 2016. We compared demographic data between the surgery and observation groups. Reason for image study, radiographic features, histopathology, and clinical course with serial image scans were analyzed.

Results: A total of 183 subjects were selected from a thorough review of head and neck radiologic tests (n= 606,068) in a tertiary referral hospital over 22 years. The mean age was 28.6 ± 18.1 years, and 56.3% were males. Diagnostic image workup was performed in 55.7% of patients due to facial asymmetry, headache, skull mass, or other symptoms related to BFOLs. Other patients (37.7%) found BFOLs incidentally on a CT or MRI. The most common diagnosis was fibrous dysplasia, followed by ossifying fibroma, in both radiology exams and histopathologic results. In total, 42.6% of patients underwent surgery because of subjective symptoms or esthetic concerns. The surgery group was younger ($p < 0.001$) and had a longer follow-up duration ($p < 0.001$) compared to the observation group. Patients who experienced increased lesion size (11.5%) were younger ($p < 0.001$) and had more lesion sites ($p = 0.018$) than those who did not, regardless of surgical treatment. Five patients underwent optic nerve decompression, and one patient experienced malignant transformation.

Conclusion: BFOL in the paranasal sinuses is a rare disease, and most cases are observed without specific treatment. Surgical treatment should be considered in symptomatic patients with aggressive clinical features. Regular observation and management are needed, particularly in younger patients in their teens.

Clin Exp Otorhinolaryngol. 2020 Nov 4.

9. Updates in the cause of sinonasal inverted papilloma and malignant transformation to squamous cell carcinoma

Charles C L Tong 1, James N Palmer

Abstract

Purpose of review: The purpose of this study was to give an overview of recently published articles investigating the cause of inverted papilloma and possible mechanisms mediating malignant transformation into squamous cell carcinoma (SCCa).

Recent findings: Inverted papilloma is a sinonasal tumour that is benign in nature, but has a tendency for local invasion, recurrence and malignant degeneration. Its pathogenesis has not been elucidated and the etiological role for human papillomavirus virus (HPV) has been controversial. Recent reports have varied in detection method (mRNA ISH, DNA ISH and PCR amplification of highly conserved regions of the viral genome), ranging from 0 to 100%. Advances in meta-genomics have permitted detection of HPV viral signatures that were previously cost-prohibitive, and there appears to be a potential role for both low-risk and high-risk in the cause of the disease. Activating EGFR mutations have also been identified to be correlated with malignant transformation, which may be exclusive of HPV infection. Furthermore, more comprehensive approaches in detecting genomic markers have been reported, with HOX-related genes and epithelial-mesenchymal-transition-related gene sets appear to be differentially upregulated.

Summary: Sinonasal inverted papilloma is a diverse disease that is predominantly benign, but it harbours the potential for malignant degeneration in the SCCa with cause yet to be elucidated. Current evidence supports a potential role for high-risk HPV in a subset of SCCa, with the role of low-risk HPV yet to be defined. Historic studies of individual and small groups of molecular markers have not consistently adequate characterize signalling pathways underpinning the oncogenesis, and comprehensive genomic studies are needed to better understand the disease.

Curr Opin Otolaryngol Head Neck Surg. 2021 Feb 1;29(1):59-64.

10. Endonasal endoscopic surgery for sinonasal squamous cell carcinoma from an oncological perspective

Akihiro Homma 1, Yuji Nakamaru 2, Valerie J Lund 3, Ehab Y Hanna 4, Luiz Paulo Kowalski 5, Ronaldo Nunes Toledo 6, Antti A Mäkitie 7, Juan Pablo Rodrigo 8, Alessandra Rinaldo 9, Carl H Snyderman 10, Alfio Ferlito 11

Abstract

Endonasal endoscopic surgery (EES) has been applied to the management of sinonasal (SN) tumors based on recent advances in endoscopic surgical techniques and technologies over the past three decades. EES has been mainly indicated for benign tumors and less aggressive malignant tumors. Notwithstanding this, EES has been gradually adopted for squamous cell carcinoma (SCC), which is the most common histology among SN malignancies. However, an analysis of the outcomes of EES for patients with SCC is difficult because most articles included SCC a wide range of different tumor histologies. Therefore, we herein review and clarify the current status of EES focusing on SCC from an oncological perspective. The oncologic outcomes and the ability to achieve a histologically complete resection are similar between endoscopic and open approaches in highly selected patients with SN-SCC. Surgical complications associated with EES are likely similar for SN-SCC compared to other sinonasal malignancies. The indications for a minimally invasive approach such as EES in the management of patients with SN-SCC should be stricter than those for less aggressive malignant tumors because of the aggressive nature of SCC. Also, it is important to achieve negative surgical margins with EES in patients with SCC. We believe that the indications for EES for SN-SCC are widening due to advances in diagnostic imaging, and endoscopic surgical techniques and technologies. However, while expanding the indications for EES for SN-SCC we must carefully confirm that the outcomes support this strategy

Auris Nasus Larynx. 2020 Dec 3;S0385-8146(20)30319-9.