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. Off-Label Use of Ciprofloxacin/Dexamethasone Drops in the Pediatric Upper Airway: Case Presentation and Review of Adverse Effects

Tom Ben-Dov 1, Jackie Yang 2, Max M April 1

### Abstract

**Objective:** This report describes a new observation of hyperglycemia in a child with Type 1 diabetes after off-label use of otic ciprofloxacin/dexamethasone drops in the nasal passage and reviews previous reports of adverse endocrine effects from intranasal corticosteroids in pediatric patients.

**Methods:** We describe the clinical case and conducted a literature review of MEDLINE (PubMed) and EMBASE.

**Results:** A 9-month-old female with a history of Type 1 diabetes who underwent unilateral choanal atresia repair was started on 1 week of ciprofloxacin 0.3%/dexamethasone 0.1% otic drops twice a day for choanal obstruction with granulation tissue. While the patient's airway patency improved, average daily blood glucose increases by 40 to 50 points were noted on the patient's continuous glucose monitor. The hyperglycemia resolved within 2 days after switching to mometasone furoate 0.05% spray. We also review 21 pediatric otolaryngology cases of iatrogenic Cushing's syndrome associated with on- and off-label use of topical steroid suspensions in the airway. Patients ranged from 3 months to 16 years in age and used doses of 50 μg/day to 2 mg/day.

**Conclusion:** This is the first reported pediatric case of increased blood glucose levels associated with intranasal steroid suspensions, to the best of our knowledge. Counseling families on precise

dose administration and potential endocrine disturbances is critical when prescribing these medications for off-label use in infants and small children, particularly among patients with underlying endocrine disorders such as diabetes.

Ann Otol Rhinol Laryngol. 2023 May;132(5):589-595.

## 2. Advances in the application of ultrasound for fracture diagnosis and treatment

M-J Du 1, Y-H Lin, W-T Chen, H Zhao

### Abstract

Fractures are commonly encountered in clinical practice. Early diagnosis and individualized treatment are the basis for achieving high-quality fracture healing and functional recovery. Radiographic examinations play an important role in the diagnosis and treatment of fractures. In recent years, with the innovation in ultrasonic examination technology and equipment, its application in the diagnosis and treatment of fractures has greatly increased. Long bone, rib, radius and ulnar, metacarpal, cartilage, nasal bone, and occult are common fracture types. Ultrasound has long been used in fracture diagnosis and treatment. This narrative review summarizes and discusses the application of ultrasound in the diagnosis and treatment of fractures

Eur Rev Med Pharmacol Sci. 2022 Nov;26(21):7949-7954

## 3. Nasal and blood transcriptomic pathways underpinning the clinical response to grass pollen immunotherapy

Matthew C Altman 1, R Max Segnitz 2, David Larson 3, Naresh Doni Jayavelu 4, Malisa Smith 2, Sana Patel 2, Guy W Scadding 5, Tielin Qin 3, Srinath Sanda 6, Esther Steveling 5, Aarif O Eifan 5, Martin Penagos 5, Mikila R Jacobson 5, Rebecca V Parkin 5, Mohamed H Shamji 5, Alkis Togias 7, Stephen R Durham 5

### Abstract

**Background:** Allergen immunotherapy (AIT) is a well-established disease-modifying therapy for allergic rhinitis, yet the fundamental mechanisms underlying its clinical effect remain inadequately understood.

**Objective:** The GRASS study was a randomized, double-blind, placebo-controlled trial of timothy grass allergic individuals who received 2 years of placebo (n=30), subcutaneous (SCIT) (n=27), or sublingual immunotherapy (SLIT) (n=27) and were then followed for 1 additional

year. Here we used yearly biospecimens from the GRASS study to identify molecular mechanisms of response.

**Methods:** We utilized longitudinal transcriptomic profiling of nasal brush and peripheral blood mononuclear cell (PBMC) samples after allergen provocation to uncover airway and systemic expression pathways mediating responsiveness to AIT.

**Results:** SCIT and SLIT demonstrated similar changes in gene module expression over time. In nasal samples, alterations included downregulation of pathways of mucus hypersecretion, leukocyte migration/activation, and endoplasmic reticulum stress (log2 fold changes (logFC) -0.133 to -0.640, FDRs <0.05). Interestingly, we observed upregulation of modules related to epithelial development, junction formation, and lipid metabolism (logFC 0.104 to 0.393, FDRs <0.05). In PBMCs, modules related to cellular stress response and type 2 cytokine signaling were reduced by immunotherapy (logFC -0.611 to -0.828, FDRs <0.05). Expression of these modules was also significantly associated with both Total Nasal Symptom Score and Peak Nasal Inspiratory Flow responses, indicating important links among treatment, module expression, and allergen response.

**Conclusion:** Our results identify specific molecular responses of the nasal airway impacting barrier function, leukocyte migration activation, and mucus secretion, that are affected by both SCIT and SLIT, offering potential targets to guide novel strategies for AIT.

J Allergy Clin Immunol. 2023 Jul 15;S0091-6749(23)00890-4.

## 4. Unified Airway Disease: Surgical Management

Amar Miglani 1, Tripti K Brar 2, Devyani Lal 2

### Abstract

Support for the unified airway hypothesis is embedded in similarities in upper and lower airway structure, function, and cellular/extracellular compositions. The impact of endoscopic sinus surgery (ESS) on the unified airway is influenced by multiple factors including the underlying upper and lower airway condition(s) present and severity of pathology. Beyond improvements in subjective and objective CRS outcomes, ESS also improves clinical asthma outcomes and measures of asthma control. Emerging evidence suggests that early ESS may mitigate the risk of developing asthma in CRS patients without asthma. Comprehensive management of upper and lower airways is paramount to optimize patient outcomes.

Otolaryngol Clin North Am. 2023 Feb;56(1):169-179.

## 5. State of the Art Medical Management of Nasal Polyps

Kelly L Staricha 1, Hawa M Ali 1, Janalee K Stokken 1

**Abstract**

**Background:** Chronic rhinosinusitis with nasal polyposis (CRSwNP) is an inflammatory disease with a treatment goal of controlling symptoms and limiting disease burden. While endoscopic sinus surgery is effective for removing polyps and aerating sinuses, proper medical management remains necessary for reducing inflammation and limiting polyp recurrence.

**Objective:** This article aims to summarize the literature regarding medical treatment of chronic rhinosinusitis with nasal polyposis, with a specific focus on developments in the past 5 years.

**Methodology:** We conducted a literature review using PubMed to identify studies assessing medical treatment strategies for patients with CRSwNP. Articles focusing on chronic rhinosinusitis without nasal polyposis were excluded unless specifically stated. Surgical treatment and biologic therapies for CRSwNP will be covered in subsequent chapters and are therefore not included.

**Results:** Intranasal saline irrigations and topical steroids are mainstays of CRSwNP treatment in the pre-surgical, post-surgical, and maintenance phases of the disease. Alternative steroid delivery methods and adjunctive treatments with antibiotics, anti-leukotrienes, and other topical therapies have been investigated and may benefit certain patient populations, but convincing evidence does not exist to warrant addition of these treatments to the standard of care for CRSwNP.

**Conclusions:** Topical steroid therapy is clearly effective for CRSwNP, and recent studies demonstrate the safety and efficacy of high-dose nasal steroid rinses. Alternate delivery methods for local steroids may be useful for patients who are not responding to or who are noncompliant with conventional intranasal corticosteroid sprays and rinses. Future studies are needed to clarify if oral or topical antibiotics, oral anti-leukotrienes, or other novel therapies are significantly effective in decreasing symptoms and improving the quality of life in patients with CRSwNP.

Am J Rhinol Allergy. 2023 Mar;37(2):153-161.

## 6. Update on Allergic Fungal Rhinosinusitis

Andy J Chua 1, Ali Jafar 2, Amber U Luong 3

**Abstract**

Allergic fungal rhinosinusitis (AFRS) is a unique clinical entity that falls under the broader umbrella of chronic rhinosinusitis with nasal polyps with type 2 inflammation. It is characterized by nasal polyposis, production of characteristic thick eosinophilic mucin, and expansile change of involved sinus cavities. The diagnosis is classically made using the Bent and Kuhn criteria. However, recent studies have indicated the lack of specificity of some major criteria. The need to fulfill all 5 criteria before diagnosing AFRS partially mitigates this but renders the criteria cumbersome to use, and highlights the need to develop more specific criteria. Our understanding of AFRS pathophysiology has advanced significantly and has helped elucidate the lack of histatins contributing to the inability to clear fungal spores, consequently leading to fungi-induced disruption of the epithelial barrier and stimulation of sinonasal epithelial cells. These trigger a cascade of type 2 inflammatory cytokines driven by both the adaptive and innate immune system. Although more research is needed, these findings could hypothetically point to a limited type 3 immune response at the sinus mucosa, resulting in a compensatory overstimulation of type 2 inflammatory processes. Treatment for AFRS remains centered on surgery and topical corticosteroids. Short courses of systemic corticosteroids may be used with caution, and fungal-specific immunotherapy and systemic antifungals are options in recalcitrant disease. Biologics show early promise, as we await data from randomized controlled trials under way. Finally, new insights into AFRS pathology provide opportunities for novel therapeutic strategies.

Ann Allergy Asthma Immunol. 2023 Feb 26;S1081-1206(23)00126-6.

## 7. Preoperative Embolization Techniques in the Treatment of Juvenile Nasopharyngeal Angiofibroma: A Systematic Review

Dhruv Shreedhar Kothari 1, Lauren A Linker 1, Tristan Tham 2, Andrew J Maroda 1, Jenessa M McElfresh 3, Judd H Fastenberg 2, Ralph Abi Hachem 4, Lucas Elijovich 5 6, Lattimore Madison Michael 1 6, Sanjeet V Rangarajan 1 6

### Abstract

**Objective:** Preoperative embolization has proven beneficial in the surgical treatment of juvenile nasopharyngeal angiofibromas (JNA). However, the consensus for the best embolization practices remains unclear. This systematic review seeks to characterize the reporting of embolization protocols throughout the literature and to compare differences in surgical outcomes.

**Data sources:** PubMed, Embase, and Scopus.

**Review methods:** Studies investigating embolization in the treatment of JNA from 2002 to 2021 were selected from defined inclusion criteria. All studies underwent a 2-stage blinded screening, extraction, and appraisal process. Embolization material, time to surgery, and

embolization route were compared. Embolization complications, surgical complications, and rate of recurrence were pooled.

**Results:** Of 854 studies, 14 retrospective studies with 415 patients met the criteria for inclusion. A total of 354 patients underwent preoperative embolization. A total of 330 patients (93.2%) underwent transarterial embolization (TAE) and 24 patients had a combination of direct puncture embolization and TAE. Polyvinyl alcohol particles were the most used embolization material (n = 264, 80.0%). The most common reported time to surgery was 24 to 48 hours (n = 8, 57.1%). Pooled results showed an embolization complication proportion of 3.16% (95% confidence interval [CI]: 0.96-6.60) (n = 354), a surgical complication proportion of 4.96% (95% CI: 1.90-9.37) (n = 415), and a recurrence proportion of 6.30% (95% CI: 3.01-10.69) (n = 415).

**Conclusion:** The current data on JNA embolization parameters and their effect on surgical outcomes remains too heterogenous to provide expert recommendations. Future studies should use uniform reporting to allow for more robust comparisons of embolization parameters, which, in turn, may lead to optimized patient outcomes.

Otolaryngol Head Neck Surg. 2023 Feb 17.

## 8. Exclusive Endoscopic Approach in the Management of Sinonasal Inverted Papilloma

Pradeep Pradhan 1, Abhijeet Mishra 1, C Preetam 1, Pradipta Kumar Parida 1, Saurav Sarkar 1, Dillip Kumar Samal 1, Swagatika Samal 2

### Abstract

**Background:** With the advancement in endoscopic endonasal surgeries, there has been a change in the surgical approach from the traditional open surgeries to the more conservative endoscopic endonasal approach for the management of sinonasal inverted papilloma. In the present study, we have shared our experience of endoscopic excision inverted papilloma involving the paranasal sinuses in a tertiary care hospital. **Materials and methods:** It is a retrospective case series of 28 patients who underwent endoscopic excision of inverted papilloma of paranasal sinus in a tertiary care hospital from April 2017 to October 2020. The medical records were retrospectively analyzed for the clinical, radiological, pathological, intraoperative and postoperative findings and later compared among the surgical approaches. **Results:** Of the total of 28 patients with inverted papilloma (3; Krouse 2 and 25; Krouse 3), 11(21.4%) patients were operated through endoscopic modified Denker, 8(39.3%) patients with endoscopic medial maxillectomy and 6(21.4%) patients with endoscopic sinus surgery. Patients who underwent modified endoscopic approach had lesser complications compared to the standard endoscopic

procedures. **Conclusion:** Endoscopic excision of the sinonasal inverted papilloma can be a valid alternative to the open surgical approach, enabling complete clearance of the disease with a minimal complication rate. A large population with a long-term follow-up may be needed for a better understanding of the results

Indian J Otolaryngol Head Neck Surg. 2023 Apr;75(Suppl 1):785-792

## 9. Clinical experience and treatment approaches in sinonasal osteomas from a Tertiary Care Hospital in Turkey

Hasan Mervan Değer 1, Büşra Yaprak Bayrak 2, Fatih Mutlu 1, Murat Öztürk 1

### Abstract

**Objective:** Osteomas are slow-growing benign osseous tumors that particularly located in the paranasal sinuses (PS). Here, we aimed to define the clinical symptoms and features, diagnostic conditions caused by osteomas located in four different PSs, to evaluate the surgical indications and methods, to compare the factors that can affect the surgical decision, radiological findings, and prognosis.

**Methods:** The data of patients with paranasal sinus lesions and diagnosed as osteoma according to the radiological imaging, who applied to our clinic between 2010 and 2020, were retrospectively collected and re-evaluated in the light of clinical, radiological, and pathological data. Patients who underwent surgical treatments and were definitively diagnosed as osteoma by pathology were enrolled in this study.

**Results:** We presented the data of 117 patients retrospectively. Most of these cases (n = 77, 65.8%) had an osteoma located in the frontal sinus, while 32 cases (27.4%) had osteoma in the ethmoid, two cases (1.7%) had in sphenoid and six cases (5.1%) had in maxillary sinus. We found that the presence of symptoms, diameter of osteoma, surgical indications including state of sinus drainage, and chronic/recurrent sinusitis influence the choices of physicians in management of frontal sinus osteomas. Moreover, we found a significant correlation between the grading systems defined to classify the frontal sinus osteoma to be operated (r = 0.878, 95% CI: 0.724-0.949, P<0.0001).

**Conclusion:** There are several grading systems useful for the choice of surgical approaches, however, the clinical symptoms and surgical indications should not be neglected in the follow-up of patients with frontal sinus osteoma. If there are concerns about the grade of osteoma and the endoscopic approach is considered not to be sufficient for resection, the surgical procedure may be initiated endoscopically, and, if necessary, it can be combined with an external approach.

Auris Nasus Larynx. 2022 Feb;49(1):84-91.

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# 10. Nasofrontal meningiomas: retrospective series and review of literature

Ivo Peto 1, Molly Monsour 2, Keaton Piper 2, Gabriel Flores-Milan 2, Elliot Pressman 2, Mark Tabor 3, Harry van Loveren 2

## Abstract

**Introduction:** Lesions affecting the anterior skull base and involving the paranasal sinuses (PNS), nasal cavity (NC), and orbit are infrequent and include predominantly a wide variety of sinonasal malignancies. Less than 3% of intracranial meningiomas extend extracranially and involve PNS and NC. Given their relatively low incidence, little is known about the treatment outcome of this subset of meningiomas.

**Methods:** Systematic literature and retrospective review of own institutional series of midline anterior skull base meningiomas with significant PNS and NC involvement were performed.

**Results:** Overall, 21 patients-16 in the literature review group and 5 of our institutional series-were included. Eleven (52.4%) patients had had a prior surgery for midline anterior skull base meningioma. Of patients having reported WHO grade, two were WHO II. Gross total resection was achieved in 16 (76.2%) of patients, utilizing solely transcranial approach in 15 patients, combined endoscopic and transcranial in five patients and purely endoscopic in one patient. Postoperative radiotherapy was administered in three (14.3%) patients, all after total resection via transcranial route, without a history of prior treatment. A postoperative cerebrospinal fluid leak was reported in four (10%) patients, requiring surgical repair in two. There were no reports of postoperative meningitis. No neurological complications were observed except of a reported worsening of vision in one patient.

**Conclusion**: Midline anterior skull base meningiomas infrequently extend significantly into the PNS and NC. Despite their significant involvement, along with concomitant involvement of orbit, gross total resection is possible in the majority of cases with low morbidity using either purely transcranial or combined endoscopic/transcranial approach

Neurosurg Rev. 2023 Jun 29;46(1):158