Introduction:
Nasal packs are widely used following septoplasty and turbinectomy mainly to prevent nasal bleeding and to support the nasal pericondrium and mocoperichondrial flaps; however their removal is reported to be very painful. In this study we compared one group with merocel nasal pack and the second group with merocel within a glove finger with regard to pain and bleeding before and during tampon removal.

Materials and Methods:
A prospective, randomized, controlled clinical trial on 100 patients who underwent septoplasty with/or turbinectomy randomized to two groups was conducted. Patients in the first group were packed at the end of the surgery with standard 8 cm Merocel (group A). Patients in the second group were packed with a merocel standard 8 cm nasal dressed in a glove finger (group B). The main outcomes measured were pain and bleeding during the postoperative period. Consumption of pain killers and transamenic acid were also recorded.

Results:
The mean VAS score 12 hours after surgery and during tampon removal in group A were 6.78 and 8.92 respectively, compared to 4.06 and 5.27, respectively in group B (p<0.001). A statistically significant difference in the bleeding rate and transamenic acid consumption during tampon removal in favor of group A was shown (p<0.001).

Conclusion:
The use of merocel in a glove finger is significantly less painful than merocel, although a higher chance of bleeding is demonstrated. The influence of the surgeon's experience in using this technique is further to be investigated.
To pack or not to pack? - A decision analysis model

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Background
Packing of the operated nasal cavities after endoscopic sinus surgery (ESS) for chronic sinusitis is a common practice which aims to reduce post-operative bleeding and synechia. Both absorbable and non-absorbable packing materials have been suggested for this purpose. Nonetheless recent literature challenges the need for packing which is associated with significant patient discomfort.

Objective
The goal of the present study was to build an up-to-date decision-analysis model to determine the need for packing in ESS and to identify the variables that effect the decision.

Methods
A decision analysis model was used to compare post-operative outcome with and without the use of nasal packing after ESS. Probabilities and utilities were derived from the literature. The model was evaluated with Monte Carlo simulation. Sensitivity analysis was used to determine which variables most affected the model.

Results
No-packing arm was associated with better expected utilities than no packing (0.958 vs 0.953). Sensitivity analysis demonstrated packing as the preferred option when disutility of no- packing outweigh disutility of packing, when the probability for synechia is greater than 35% without packing or lower than 2% with packing. When the component of packing removal was subtracted from the overall disutility simulating absorbable packing, results favored towards packing.

Conclusion
Based on our decision-analysis model, packing is not recommended for patients undergoing ESS. When packing must be applied, absorbable packing is preferred and associated with less impairment of patient's quality of life.
VOLUMETRIC QUANTIFICATION OF HEALTHY PARANASAL SINUSES IN ADULTS USING COMPUTED TOMOGRAPHY IMAGING

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Background: The volume of the paranasal sinuses is a simple and important index for evaluating normal and diseased paranasal sinuses. However, few volumetric studies have been performed among healthy adults and the elderly population.

Objective: To study volume characteristics of the maxillary, sphenoid and frontal sinuses among adults, using computed tomography (CT) scans.

Methods: A volumetric anatomical study, including 201 CT scans, was conducted to estimate the volume of the paranasal sinuses bilaterally. The study population was subdivided by gender and age (50 men aged 25-64; 51 men aged ≥65; 50 women aged 25-64, and 50 women aged ≥65).

Results: The mean volume ranges of maxillary, sphenoidal and frontal sinuses in the four groups were 10.5-15.7; 2.6-4.7; 2.3-3.6 cm³, respectively. In both genders, older patients demonstrated a significantly lower volume of the maxillary and sphenoid sinuses (14.81 vs 11.82 cm³ and 4.84 vs 3.84 cm³ respectively; p<0.001). Men had significantly larger sinus volumes: maxillary 14.38 vs 12.23 cm³ (p<0.0001), sphenoid 4.91 vs 3.76 cm³ (p<0.001), frontal 4.47 vs 2.97 cm³ (p<0.001). No correlation or synergistic effect was found between age and gender. A significant difference between sides of the sinuses was noted, without a predominance of either side. Only the maxillary sinus demonstrated normal distribution of its volume.

Conclusions: Age related volume degeneration is expected in the paranasal sinuses. Further research is required to understand the factors affecting final volume of the paranasal sinuses and causes for different volume distribution between sinuses.
The advantages of open surgical approach versus endonasal correction of severe nasoseptal deformities

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**Background:**
Successful management of severe nasal deformity after a previous trauma or revision rhinoplasty is best achieved through careful analysis of the functional problem and aesthetic deformities. Endo-nasal approach provides adequate exposure for the vast majority of patients, but for severe S-shaped, multiple fractured septum as well as for most revision, the open approach with complete septal reconstruction considers to be the method of choice. Controversies exist regarding comparative outcomes between these two techniques. Nasal skeleton can be reconstructed, recontoured and repositioned with autogenous cartilage grafts (septum, auricle, rib or calvarial bone).

**Objectives:**
A review of different surgical techniques to repair severe nasal deformity.

**Methods:**
This study investigated 40 consecutive total nasal reconstruction who underwent surgery between June 2013 and February 2015. The evaluation was based on clinical record form and standardized photographs.

**Results:**
We investigated 40 patients who underwent total nasal reconstruction due to past trauma, medical pathologies, congenital anomalies and revision of prior nasal surgery. In our group 12 patients underwent endo-nasal surgical repair, 28 underwent open surgical approach. Large septal nasal defects were reconstructed with nasal septum in 25, auricular graft in 5 cases, rib in one case. In two cases because of extensive nasal defects it was reconstructed by forehead flap. All patients reported significant improved symptoms during a follow up period of 2-24 months.

**Conclusions:**
Surgical approach should tailored according to anatomical limitations, the choice is a reflection of surgical education and experience. Open surgical approach has a wider anatomical exposure and gives superior results.
A Systematic Review of the Evidence Base for Vidian Neurectomy in Managing Rhinitis.

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ABSTRACT

**Background:** Vidian neurectomy (VN) is an option for medical refractory rhinitis. However, the evidence base for its benefit remains unclear. The studies providing outcomes for VN in managing rhinitis patients is assessed.

**Methods:** A systematic review of MEDLINE (1946 - ) and EMBASE (1974 - ) databases to December 16th 2013 was performed. Studies reporting original data on patients with rhinitis treated by VN, were included. Primary outcome were Patient reported outcome measures (PROMs). Secondary outcomes were specific peri-operative morbidity and objective findings.

**Results:** 853 articles fulfilled the search, producing 30 included studies. Case series accounted for 83.33% (25). The rest were 3 case-control studies, 1 cohort and one randomized controlled trial. PROMs were compared before and after surgery in only 20% (n=6). There were n=473 patients represented in these studies. Significant improvement in rhinorrhea or nasal obstruction was reported in all 6 studies. Dry eyes were reported in 24.63% (272/1104) and were temporary in 96.31% (210/218) with the majority resolving in 6 months. Temporary paresthesia in the V2 nerve was the next most common adverse event at 9% (99/1100) and resolving in all. Histological changes in the nasal mucosa were examined in 3 studies (n = 165), all reported a decrease in the cellular infiltration and in the number of glands.

**Conclusions:** Vidian neurectomy remains an option for medical refractory rhinitis. A well designed cohort study is needed, to support the findings presented. Ocular side-effects are common but temporary for the majority of patients.
Orbital complications caused by paranasal sinus infections- a 10 years experience in Israel

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Abstract

Background

Orbital complications are the most common complications of paranasal sinus infections. The epidemiology of the disease is extremely important and intensively investigated in order to detect changes in its natural behavior.

Objectives

Data on patients with sinusitis and orbital complications was retrospectively collected from three medical centers in Israel during the last 10 years.

Results

257 patients were included in the study, the average age was 13.5 years, 160 were males. The male predominance was significantly higher in patients younger than 18 years. Seasonality was observed in children but not in adults. A linear correlation was found between age and hospital stay. The Chandler score in patients aged group 2-18 years was significantly higher than in the other age groups. 98 (39%) patients received antibiotics before hospital admission. Their average hospital stay was similar to those who did not receive antibiotics. 101 patients (39.6%) had fever. A linear association was found between age and the presence of fever. 170 (66.7%) patients had leukocytosis. The difference in white blood count between patients aged 2-18 to the other groups was statistically significant. 39 patients underwent surgical intervention. Fever and white blood cell count were similar to those who were not operated.

Conclusions

Periorbital cellulitis occurs mainly in children, more in males, with higher disease severity and a clear seasonality in that age group. Fever is less pronounced in adults. Patients who undergo surgical intervention do not have higher white blood cell count or elevated fever than those who were not.
Solitary fibrous tumor of the nose and sinuses- review

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Abstract

Background

Solitary fibrous tumor (SFT) is a rare tumor of mesenchymal origin that usually arises in the pleura but can also arise in the head and neck region. The lesion was described to involve the nose and sinuses in rare occasions and only case reports have been published in the literature.

Objectives

The aim of the study was to describe a patient with solitary fibrous tumor of the sinonasal cavity and to review all the case reports published on the subject.

Methods

We performed a systematic review on all the case reports describing patients with SFT of the nose and sinuses and compared demographics, symptoms and clinical signs, location, appearance on imaging, treatment and sequela.

Results

29 case reports describing 45 patients were published in the English literature from 1991 until 2014. The mean age 45.6 years, 21 males, 25 were on the right side. The presenting symptoms were nasal obstruction, epistaxis, rhinorrhea, hyposmia, headache, epiphora, exophthalmos. The tumor ranged in size from 2.8-9 cm in greatest dimension. When performed, none of the pre operative biopsies indicated the true nature of the lesion. On non-enhanced CT the tumor is usually homogeneously isodense to gray matter with possible calcifications, homogeneously isointense on T1-weighted MRI images and heterogeneously iso/hypo intense on T2. Two patients had tumor invasion to the skull base. The mainstay of treatment is surgical excision- mainly endoscopic in recent years. Postoperative radiation is reserved for incomplete resection. No recurrent disease or metastases have been described.

Conclusions

SFT is a rare malignancy of the sinonasal region that should be considered in unilateral lesions. Its clinical, radiological and histological appearance should be familiar as well as the treatment options based on the up to date literature.
Laser Treatment of Hereditary hemorrhagic telangiectasia

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Abstract

Background:
Hereditary hemorrhagic telangiectasia (HHT; also known as Osler-Weber-Rendu syndrome) is a relatively common, under-recognized autosomal-dominant disorder that results from multisystem vascular dysplasia and is characterized by telangiectases and arteriovenous malformations (AVM) of skin, mucosa and viscera. The most common clinical manifestation of HHT is epistaxis.

Objective:
To assess the efficacy of 980 nm diode laser in treating epistaxis due to telangiectases in HHT patients.

Material and methods:
16 patients (10 females, 6 males) diagnosed with HHT and intractable bleeding were treated with 980nm diode laser (neoV, neoLaser Caesarea Israel) under local anesthesia as an office procedure. Follow-up treatment was 2-12 months. Hemoglobin levels and severity of bleeding were recorded before and after the procedure. Analyzing the results we divided the patients in to two groups: single lesion versus multiple lesions.

Results:
During the follow-up period there was no bleeding from the lesions treated by laser. In patients who had a single lesion at the time of treatment there was no bleeding at all during follow-up period and the hemoglobin levels went up from an average of 10.2 to an average of 13.3. In patients who had multiple lesions at the time of treatment there was marked improvement in the intensity of bleeding and improvement in frequency and severity of epistaxis with longer bleeding-free periods. In this group average hemoglobin level before treatment was 8.9 and after treatment 12.1.

Conclusion:
980 nm diode laser is an excellent treatment option for epistaxis in patients with HHT as an office based procedure with good results and no side effects.