

Editor's Note:

The editorial board has decided to publish the abstracts of each international congress held in Iran. This helps our otolaryngology society which helped the Iranian Journal of Otorhinolaryngology during the past two decades to have a close contact with its members. Through this publication all of the members who could not take part in the congress, can enjoy the scientific works of their colleagues. Although this is a post congress publication of the abstracts, we will try to publish it before the congress in the future.

For those who do not remember the previous events, in most of which I have been a member of the scientific committee, let me report them as far back as I can recall. The 1978 international congress was held in Amir Alam Hospital under supervision of the late professor Morshed (the keystone of modern otolaryngology in Iran) and conducted by professor M.H. Khalesi. That event was a good opportunity for Iranian otolaryngologists to be acquainted with mainly European professors and well known otolaryngologists. We learned much from previous annual and biannual and the 12th international congress held recently, with the collaboration of the Iranian Society of Otolaryngology and dedication of national and international authorities. The last congress taught us that, we can develop and make progress in our field by communicating with other societies. I would also have to mention that, in the past we had to arrange for synchronous translation which is not necessary anymore, because most of our colleagues understand English lectures directly.

I do insist that the publications and CD's should be available to those who could not attend the congress.

The following countries had the best collaboration with us and have helped us bring in the new developments and technologies in the field of ENT surgeries and we should thank their representatives for their time and effort: Canada, France, England, Italy, USA, Australia, Belgium, Germany, Egypt, UAE, Turkey, Azerbaijan, India, Switzerland, and Austria.

Our young generation has a lot to offer the ENT society through their education, travels, professors and their international scientific communications.

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Certification Number: 92802 (approved by Iranian Ministry of Health and Medical Education).

URL: http://www.mums.ac.ir/ear_journal/en/index

Address: Ghaem Hospital, Ahmad Abad Street, Mashhad, Iran.

ISSN: 1560-1293

Tel: +985118012606

Fax: +985118413492

Email: ijo@mums.ac.ir

Language: English

Circulation: 1000

Price: Iran 30000 RIs; All other countries, US\$ 15

Frequency: Quarterly

Indexing

www.indexcopernicus.com

www.emro.who.int

www.isc.gov.ir

www.Iranmedex.ir

www.SID.ir

www.google scholar.com

WELCOME ADDRESS

It is a great pleasure to cordially extend a warm welcome to our distinguished guest and to the Iranian participants of the 12th international congress of Iranian society of Otolaryngology, Head and Neck surgery. We hope this congress will provide an opportunity for exchange of scientific knowledge and will be a pleasant and successful congress. Thanks to our eminent professors who have accepted our invitation and have come to Tehran.

We welcome you with open arms and will do our best to offer a good hospitality.

Sincerely yours



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Frequency of Different Types of Head and Neck Cancers in Patients, Admitted to ENT-HNS Department of Imam Hospital 1997-2007

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Keywords: Head and Neck Cancer, Squamous Cell Carcinoma, Smoking, Alcohol

Background and Objectives: Worldwide, an estimated 644,000 new cases of head and neck cancers are diagnosed each year, with two-thirds of these cases occurring in developing countries. The populations at risk for head and neck cancers are those who have a long-standing history of smoking and alcohol use. However, the trend in age and sex of the patients has been reported to be changing in the recent decades in some countries. To our knowledge, there is not yet an epidemiologic study about the head and neck cancers in our centers. So this study aims at evaluating the frequency of different types of these cancers during the past decade. **Methods and Materials:** In an analytic-descriptive cross-sectional study, profiles of 610 patients, 470 males and 140 females with a mean age of 58.36 ± 15.74 (13-95) years, with definite diagnosis of head and neck cancer were reviewed in Tabriz Imam Khomeini and Imam Reza Hospitals during 1997 to 2007. The inclusion criteria were the diagnosis of head and neck cancers according to the internationally accepted definition (excluding for example intracranial, eye and thyroid cancers) and the presence of a reasonably complete data about the patient. Possible risk factors were also documented for each patient.

Results: Different cancers according to location were related to larynx (45.2%), oral cavity (12.6%), lip (11.5%), nasopharynx (11%), hypopharynx (7.2%), maxillary sinuses (2.3%), tonsils (2.1%), salivary glands (7%), nasal cavity (0.8%) and oropharynx (0.2%). SCC was the most common pathologic subtype (75.2%). The majority of SCC cases (80.6%) were well-differentiated tumors. History of smoking was significantly higher in patients with cancer of larynx, oral cavity and nasopharynx and history of alcohol intake was

significantly higher among those with oral cavity and lip cancers.

Conclusion: According to available data, diverse reports are available regarding the frequency of different types of head and neck cancers. Further studies in similar centers are recommended for comparison.

Association Between P53 Overexpression and Recurrence in Laryngeal SCC with Negative Histopathologic Margin

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Keywords: Laryngeal SCC, P53 Gene, Recurrence

Introduction: The most important prognostic factor for laryngeal SCC is the total excision of neoplasm with surgery. Thus if we see neoplastic cells in the microscopic assessment of margin's specimen, the recurrence rate will be significantly increased and the survival of the patient will be decreased. Thus we decided to investigate mutant P53 in the margin of specimens.

Objective: Assessment of association between P53 overexpression and recurrence in laryngeal SCC with negative histopathologic margin.

Materials and Methods: This study was performed with a historical cohort method on the patients who had undergone laryngectomy because of laryngeal SCC. According to the Central pathology Department of the Imam Khomeini Hospital of Tehran University, the specimens of laryngeal SCC that were excised with laryngectomy from 1383 to the 1st half of 1387. After histopathologic assessment of the specimens' margins, the specimens with positive margin were excluded. In the negative margins, P53 assessment and patients' follow-up were performed. The recurrence rate was determined, and comparison and conclusion were made.

Results: At the end, 31 patients with negative histopathologic margins were determined

to have the capability for follow-up. In the assessment of P53 at the specimens' margins with the I.H.C. method, 26 patients had negative margins and five patients had positive margins. In the follow up of patients with negative margins, only five cases (19.2%) had recurrence, whereas in the patients with positive margins, four cases (80%) had recurrence. **Conclusion:** According to the Risk Ratio about 4, molecular analysis in the surgical margins can help us to decide about more vigorous attempts, such as radiation, after the surgery.

Assessment of Adenotonsillectomy Effect on ADHD in Patients with Adenotonsillar Hypertrophy and ADHD

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Keywords: Adenotonsillectomy, ADHD, Attention Deficit, Hyperactivity, Impulsivity

Objective: Attention deficit hyperactivity disorder (ADHD) is a common behavioral disorder in children. ADHD was diagnosed with ≥ 6 criteria of attention deficit, hyperactivity and impulsivity based on Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM – IV) criteria for at least six months. On the other hand, sleep-disordered breathing is a frequent presentation in children with adenotonsillar hypertrophy, and this disorder can lead to some significant cognitive and behavioral complications such as hyperactivity and aggressiveness. The aim of this study was the evaluation of the effect of adenotonsillectomy on the improvement of ADHD symptoms.

Methods: In this prospective study, 36 patients aged 5-12 years old were enrolled between September 2008 and July 2010. One patient missed the follow up because of the long-distance journey involved. The main criteria for entrance were to have sleep-disordered breathing secondary to Adenotonsillar hypertrophy that was diagnosed by an otolaryngologist and to have

ADHD based on DSM – IV criteria Questionnaire completed by parents preoperatively. After adenotonsillectomy, 35 children were followed for six months.

Results: Among 35 patients with adenotonsillar hypertrophy and preoperative ADHD, ADHD improved in 14 patients after the surgery, ($P = 0.001$). There were no significant differences between the prevalence of attention deficit, hyperactivity and impulsivity before and after the surgery. ADHD, attention deficit, and hyperactivity scores were significantly different preoperatively and six months after the surgery. The score difference was not significant for impulsivity.

Conclusion: Upper airway obstruction is an important but treatable cause of ADHD and should be considered during the evaluation of affected children. This study suggests that surgical treatment for children with adenotonsillar hypertrophy and ADHD is associated with improvement in behavior and cognitive function.

Mandibular Graft in Ameloblastoma Tumor

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Keywords: Ameloblastoma, Tumor

A 27-year-old male was admitted with a tumor of mandible that affected 2/3 of the body of the bone with progressive enlargement. The chief complaint of the patient was pain and bulging. In incisional biopsy with local anesthesia, ameloblastoma was reported. After resection with safe margins (1-1.5 cm), we had a larger defect and for reconstruction we needed sufficient bone. We used mandibular graft as allograft from the bone bank. All the documents are present in the paper.

Sialendoscopy: A Minimally Invasive Procedure for Diagnosis and Treatment of Diseases of the Salivary Gland

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Keywords: Sialendoscopy, Salivary Gland, Sialoadenitis

Introduction: Sialendoscopy is a new procedure for visualizing the lumen of the salivary ducts, as well as diagnosing and treating ductal diseases. Because of the required equipment and the complexity, the duration and the potential complications of the procedure, it appears important to distinguish two different procedures: diagnostic sialendoscopy and interventional sialendoscopy. Diagnostic sialendoscopy is an evaluation procedure, while interventional sialendoscopy must be considered an operation on the obstructive ductal disease.

METHODS: The procedure was performed under general anesthesia, the submandibular orifice was dilated, and a rigid endoscope was inserted under direct vision with normal saline irrigation after dilatation. The stones were either broken down by laser or removed with a basket or forceps.

RESULTS: A total of 18 patients underwent the procedure. The duration of the median follow-up was 11 months. In 14 patients, the stones were identified and removed. No stones were found in four patients. The symptoms subsided completely in 15 patients within three weeks after the procedure. No lingual nerve or hypoglossal nerve injury was detected in any patient.

CONCLUSION: Sialendoscopy is a safe and efficacious treatment for submandibular ductal stones. It reduces the incidence of missed stones and nerve injury, as well as the need for sialadenectomy. Diagnostic sialendoscopy is a new, minimally invasive technique that may become the investigational procedure of choice for salivary duct disorders.

Evaluation of the Effect of Ketamine on Severity of Postoperative Pain in Children with Tonsillectomy Procedure

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Keywords: Tonsillectomy, Ketamine, Postoperative Pain

Background: Tonsillectomy with or without adenoidectomy is one of the most common surgical procedures in children. Pain after the surgery is a common problem. The aim of this study was to evaluate the effect of ketamine on the incidence and severity of postoperative pain in children.

Material and Methods: This randomized double-blind placebo controlled study was performed on 60 children in two groups. The control group received normal saline and the second group received 3-5 ml of ketamine injected in peritonsillar fossa. Postoperative pain was assessed using Visual Analogue Scale (VAS) and the obtained data were analyzed.

Results: The mean of pain severity was significantly less in the group receiving ketamine compared with the control group.

Discussion: According to the results, preoperative injection of ketamine reduces postoperative pain in children after tonsillectomy procedure.

Guidelines in Carotid Body Surgery: Case Series Report

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Keywords: Guidelines, Carotid Body, Tumor

The carotid body tumor is a rare neoplasm, originating from the neural crest and developing within the adventitia of the medial aspect of the carotid bifurcation. The etiology is obscure, and the only known risk factors are the presence of chronic hypoxic stimulation and genetic predisposition. It is a slow-growing tumor that can remain asymptomatic for many years. As the tumor enlarges, there may be symptoms such as

syncope attacks because of the compression of the carotid arteries and the surrounding nerves. The recommended guidelines for carotid body tumor resection are: 1. Evaluation of clinical picture (pheochromocytom, blood pressure, urine studies, unilateral, and bilateral), 2. Carotid angiography, MRI, MR angiography, color Doppler sonography, CT scan, 3. Trans-catheter embolization for tumors greater than 4 cm in size, 4. Vascular surgeon consultation (may require carotid artery bypass or replacement), 5. Neurology consultation (EEG-monitoring of cerebral blood flow), 6. Vascular instrument, bipolar forceps, double suction, etc., 7. Blood reserve (2000cc), 8. Skill and experience of the surgeon (is very important and the first step), 9. Wide filed surgical approach (3-4cm proximal, 2cm distal to the tumor), 10. Identifying and preserving cranial nerves (X, X1, X11), S.L.N. sympathetic trunk, 11. Slow and careful dissection, beginning of posterolateral surface of internal carotid (loose adhesions), 12. When CBT is large and encircle carotids, we may require internal carotid resection and bypass vascular surgeon aid), 13. Post-operative care (A. Watch for Post-operative hemorrhage, and late strokes) B. Watch in ICU and Heparinization in bypass patients), 14. Follow-up

Overcoming Complications Through Pre-Patient Surgical Training in Otolaryngology

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Keywords: Pre-Patient Training, Surgical Curriculum, Cadaver Dissection, Facial Nerve Paralysis

Objective: Planning a balanced academic and practical surgical curriculum that is parallel to the constant innovations in surgical fields is the cornerstone of surgical education. Current training methods have concurrent benefits and drawbacks. In this study, we compare the efficacy

of two learning models: pre-patient training outside the operating room versus step-by-step training on real patients in the operating room. Facial nerve preservation in superficial parotidectomy is the surgical model used in the study.

Methods: Five otolaryngology residents in the third year of their residency participated in this study. They were divided into two groups: a treatment group, which underwent a pre-patient training program by cadaver dissection, and a control group, which followed a step-by-step training model.

Result: At the end of the study, significant differences were apparent between the two groups in the ability to find the facial nerve trunk, microdissection of the facial nerve branches, and the mean duration of total operating time.

Conclusion: Pre-patient training programs outside the operating room provide surgical residents with the opportunity to learn by trial and error without fear of complications.

The Effects of Voice Therapy Approaches on Laryngeal Stroboscopic Features in Patients with Vocal Nodules

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Keywords: Vocal Nodule, Voice Therapy, Glottal Closure, Symmetry of Phases, Periodicity, Mucosal Wave

Introduction: The vocal nodule is one of the most prevalent and known types of voice disorders that is diagnosed by laryngologists. The aim of this study was investigating the effects of voice therapy on laryngeal stroboscopic features in patients with vocal nodule.

Methods: This study is an interventional study or clinical trial. Five women with vocal nodules between 14 and 45 years old participated in a voice therapy program. Stroboscopic features in the first and the ninth sessions were assessed.

Results: 1. After voice therapy, glottal closure in three subjects reached/almost reached

complete closure. 2. After voice therapy, symmetry of phases in three subjects reached/almost reached symmetrical phases. 3. After voice therapy, periodicity of phases in one subject reached periodical phases. 4. After voice therapy, right mucosal wave in four subjects reached normal waves. - After voice therapy, left mucosal wave in one subject reached normal and in one subject approached normal waves. 5. According to laryngologists' clinical judgment, patients had improved between 70 and 100%.

Conclusion: In this study, after voice therapy in all subjects, at least one stroboscopic variable healed. Perceptual assessment of patients' voice by voice therapist, laryngologist, and patients themselves is an important part of clinical evaluation that should be performed. Vocal hygiene and voice therapy approaches were effective in the treatment of the patients.

Tracheostomy: As a Safe Airway

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Keywords: Tracheostomy, Endotracheal Intubation, ICU

In order to achieve a long-term airway, one of two ways is used: Endotracheal intubation and tracheostomy. Tracheostomy is sometimes hazardous with serious complications and outcomes, especially in pediatric groups, while endotracheal intubation is accompanied with lighter complications. The author, based on a 32-year experience from 1978 to 2010, having performed 83 tracheostomies with various indications in both pediatric and elderly groups and having compared the two groups, believes tracheostomy is a safe alternative way to establish airway in I.C.U. centers.

Bipolar Radiofrequency Tonsillotomy Compared with Traditional Cold Dissection Tonsillectomy in Adults with Recurrent Tonsillitis

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Keywords: Bipolar Radiofrequency Tonsillotomy, Cold Dissection Tonsillectomy, Adult, Recurrent Tonsillitis

Objective: To compare short- and long-term results of radiofrequency tonsillotomy and those of traditional cold dissection tonsillectomy in adult patients with recurrent tonsillitis
Study design and setting: A randomized clinical trial, in a tertiary referral university hospital.

Materials and methods: Of the 62 adults with recurrent tonsillitis, 24 patients were treated with cold dissection tonsillectomy (CD), while radiofrequency tonsillotomy (RF) by use of RFITT probes was performed in the remaining 38 patients. Duration of surgery, amount of intraoperative bleeding, recovery time, post-surgical pain (by use of Visual Analogue Scale [VAS] on days 1, 3, 5, 10 after the surgery), dysphagia, weight loss, and time of return to normal diet and activity were measured. All the patients were followed for 12-24 months for recurrence of tonsillitis episodes.
Results: In the RF group vs. CD group, the mean duration of surgery was 16.89 vs. 45.04 minutes, the recovery time was 14.32 mins vs. 17.08 mins, and the amount of intraoperative bleeding was 15-20 cc vs. 250-300cc respectively ($P < 0.005$). There was no difference between the two groups in the recurrence of tonsillitis episodes after 24 months.

Conclusion: Tonsillotomy with RF is a simple, rapid, and effective method in adult patients with recurrent tonsillitis.

Human Papilloma Virus and TP53 Gene Mutation in Oral Tongue SCC and their Correlation with Tumor Characteristics; a Multi-Center Study

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Keywords: HPV, SCC, Tongue

Introduction: Head and neck squamous cell carcinoma (HNSCC) is the sixth most common cancer worldwide; the most common site of oral

cancer development is the anterior two-thirds or the oral tongue. Over the last few years it has become clear that human papilloma virus (HPV) is associated with a subset of HNSCC and it has been recently suggested to be considered a risk factor besides the tobacco and heavy alcohol consumption.

Objective: The purpose of this study was to investigate the prevalence of HPV infection in patients with squamous cell carcinoma (SCC) of the tongue and subsequently its significance in cervical lymph node metastases and tumor differentiation.

Materials: Sections of a formalin- fixed, paraffin-embedded tissue block from a hundred and fifteen histologically confirmed tongue SCC patients, having undergone primary surgical treatment from April 2000 through March 2007 were enrolled in this study. Patients' demographic and clinical characteristic data were collected. **Methods:** Polymerase chain reaction (PCR) was performed using β -globin primers for the confirmation of amplifiable DNA in the tissue extracts. β -globin-positive samples were analyzed by polymerase chain reaction for the detection of HPV 16 and 18 infection.

Results: The frequencies of HPV 16 and HPV 18 infection were 10.6% and 18% respectively. Young patients (aged below 45 years) comprised 20.4% of all patients. There was not a significant association between HPV 16 or HPV 18 presence and higher stages of the tumor, tumor differentiation or the presence of nodal metastasis.

Conclusion: Although the association between HNSCC and HPV infection is being recognized and reported, our data implicates that HPV infection may not play a significant role in oral tongue SCC pathogenesis, differentiation or metastasis.

Expression of Biomarker of Tongue (cd44 p53 EGFD) and Correlation with Cervical Metastasis

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Keywords: p53, EGFR, CD44, E-Cadherin, Squamous Cell Carcinoma, Metastasis

Abstract The evaluation of the expression of CD44, p53, E.Cadherin and EGFR in SCC sample biopsy of the tongue in the Amiralam Hospital during the period 2002-2009.

Background and Aim: Neck lymph node metastasis has a prognostic role in SCC of the tongue and the importance of the biological markers in tumor invasion and metastasis has been stated in medical literature. We evaluated the relationship between two biomarkers, p53 and EGFR (which had the main role in cell proliferation) and two other biomarkers, CD44 and E-cadherin, in lymph node metastasis.

Material and Methods: In an analytic descriptive study, fifty three patients with SCC (Squamous Cell Carcinoma) of the tongue who underwent the resection of tumor and dissection of neck lymph nodes were assessed during between 2002 and 2009. Histological samples from 53 patients were immunohistochemically stained and the analyses of these markers were performed according to clinicopathological variables and the metastasis of the neck lymph nodes.

Result: The result showed that among the clinicopathological factors, the relationship between age ($p=0.01$), history of having risk factors ($p=0.002$), clinical lymphadenopathy ($p=0.002$), the size of the tumor ($p=0.001$), decreasing of CD44 ($p=0.02$) and lymph node metastasis of the neck was statistically significant. No significant differences were found between sex and other biomarkers including p53, EGFR, and E-cadherin.

Conclusion: CD44 is an important indicator of prognostic markers that can also be used as an indicator of clinicopathological markers.

HLA-DR Association in Papillary Thyroid Carcinoma

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Keywords: Genetics, HLA, Papillary Carcinoma

Abstract Objective: Papillary thyroid carcinoma (PTC) is the most frequent type of thyroid malignancies. Several genes may be involved in susceptibility of thyroid cancer including Human Leukocyte Antigens (HLA). The association of thyroid carcinoma with HLA alleles had been previously studied in other populations and certain HLA alleles were shown to be either predisposing or protective. The aim of this study was to determine the association between HLA-DR and papillary thyroid carcinoma in an Iranian population.

Design: HLA-DR antigen frequencies were determined in patients with papillary thyroid carcinoma (N=70) and non-related healthy controls (N=180) using PCR -SSP.

Main outcome: We found that HLA-DRB1*04 frequency was significantly higher in our patients compared to that of the controls [P=0.02, OR; 1.9, 95% CI (1.04–3.57)].

Conclusion: Our results revealed HLA-DRB1*04 as a predisposing factor in papillary thyroid carcinoma in an Iranian population. This confirms the previous findings for the associations between HLA-DRB1 and differentiated carcinomas in other populations.

The Effect of Endoscopic Findings in Subjective Smell Rehabilitation in Post-Laryngectomy Patients Using Nasal Airflow Inducing Maneuver

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Keywords: Total Laryngectomy, NAIM, Nasal Endoscopy, Smell Function, Polite Yawning

Objective: to evaluate the characteristics of post-laryngectomy patients, including nasal endoscopy,

in subjective smell improvement in the post-surgical period.

Subjects and Methods: Thirty patients who had undergone total laryngectomy participated in at least three sessions of smell rehabilitation program under the supervision of a speech-language pathologist who taught them NAIM. In addition to patients' characteristics, their nasal endoscopy findings were evaluated.

Results: Participants experienced an improvement of 61% in smelling and a significant improvement in their appetite. Moreover, the males and patients with nasal discharge had a significantly better outcome.

Conclusion: The NAIM technique is an effective method to improve the smell and the appetite of the laryngectomy patients. We could not find any relationship between endoscopic findings of the patients and the outcome of the NAIM rehabilitation program in our series.

Introduction of a Synthetic Barrier Role in Isolating Reconstruction Plate from Soft Tissues in Mandibular Reconstruction for Reducing Plate Exposure: Technical Notes and Initial Experience

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Mandibular reconstruction plates have revolutionized the treatment of mandibular continuity defects following ablative or trauma surgery. Plate exposure is one of the most serious complications in the mandibular reconstruction field. Plate exposure is closely associated with patients who receive radiation therapy, and have lateral defects reconstructed with a plate only or plate/flap reconstruction. Our experience in this field showed that plate adhesion to soft tissues is one of the main causes of this complication. Our hypothesis was based on adding a synthetic barrier between the soft tissue and the reconstruction plate. This kind of isolation is routine in the reconstructive field of orthopedic surgery with

synthetic barriers that are called “attachment tube”. This polyethyleneterephthalat (PET) tube (MUTARS®, Implant cast GmbH) allows for the reconstruction of the capsule and the relaxation of the muscles and helps minimize dislocation when it is used in proximal treatments of the humerus (rotator cuff) and the femur. In cases of proximal tibia replacement, arthrodesis of the knee and total knee replacement the tube allows for the attachment of muscle flap (i.e. gastrocnemius muscle) and the extensor apparatus as well as the patella ligament. We evaluated this hypothesis in two groups: one group treated with plate or plate/flap-only reconstruction, and the other with plate and barrier complex or plate and barrier complex/flap reconstruction. We followed these patients for one to two years and evaluated the barrier concept in the mandibular reconstruction field. Our experience in 20 cases in each group (from 2006 to 2008) showed that adhesion is transferred to barrier by using this tube around mandibular reconstruction plate (proved by histopathologic examinations). This adhesion prevents any friction between soft tissues and the reconstruction plate during mandibular movement and the main etiology of plate exposure would be managed. Plate exposure in the barrier group was significantly lower than that of the control group in the follow-up period. ($P < .001$) We have shown that the synthetic barrier could be an effective tool to achieve much better results and reduce the plate exposure rate in the mandibular reconstruction field.

Reconstruction of Midface and Orbit Wall Defects after Maxillectomy with Titanium Mesh, Fascia Lata and Septal Cartilage

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Objectives/Hypothesis: To determine a new method for the reconstruction of midface and orbit wall defects due to the removal of a tumor after

eye-sparing maxillectomy using titanium mesh, fascia lata and septal cartilage.

Study Design: A prospective study

Methods: Twelve patients (two females and ten males, 11 primary and one revision surgeries, 11 with malignant pathology and one with ameloblastoma) were entered in this study from March 2009 to August 2010. Patients with an invasion of the tumor to the orbital wall or periorbita but normal visual acuity and eye movement that make it possible to spare the eye were included. All patients underwent radical maxillectomy (with the removal of the floor or the medial wall of the orbit). The defect was reconstructed with a pliable titanium mesh that was shaped according to the defect. The floor and the medial orbital wall were also reconstructed with this mesh, but a piece of septal cartilage and the fascia lata were placed between the orbital fat and the titanium mesh in the reconstructed floor of the orbit to prevent the entrapment of the orbital fat in the mesh and the consequent diplopia due to post-operative fibrosis. The complications of the prosthesis, like extrusion, diplopia, and enophthalmus, were observed during the post-op period.

Results: During the follow-up period (3-12 months, mean: 8 months) there was no infection or extrusion of the prosthesis in any patients. Diplopia occurred in one patient because of the entrapment of the orbital fat in the titanium mesh in the part that was used to reconstruct the medial orbital wall. No fascia lata or septal cartilage was used in this part. Good cosmetic results for midface were also obtained. Post-op enophthalmus or proptosis could also be reduced to some extent by pushing or pulling that part of titanium mesh which was used to reconstruct the floor of the orbit.

Conclusions: Using a titanium mesh, fascia lata and septal cartilage to reconstruct the midface and the floor and medial wall of the orbit is a good option for maxillectomy patients with minimal complications.

Nasal Chondromesenchymal Hamartoma in an Adult Case

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Keywords: Benign Nasal Tumors, Hamartoma, Cartilaginous Tumors.

Introduction Nasal chondromesenchymal hamartoma is a benign tumor that was described in 1998. The occurrence of this lesion is especially rare, with only 21 cases reported in the international literature. It is a benign mass lesion of the nasal cavity predominantly described in young infants. To our knowledge, only one case in an older child has been reported, and no cases have been reported in adults. **Case Report:** A 52-year-old woman was presented with a one-year history of progressive left-sided nasal obstruction. She had no associated rhinosinusitis or atopic symptoms, and experienced no symptomatic relief with the use of topical nasal steroid spray. Nasal endoscopy revealed that a large polypoid mass was arising superior to the left inferior turbinate. Computed tomography demonstrated a 4.6x4.4-cm partially mineralized left nasal soft-tissue lesion. The mass abutted and displaced the vertical strut of the left middle turbinate laterally, contacted the septum medially, and extended superiorly to, but did not breach, the cribriform plate. Complete transnasal endoscopic excision was performed. Intraoperative examination revealed a mass that was distinct from the left inferior and middle turbinates, arising in slender stalk-like fashion from an intact nasal roof. Microscopic examination of the specimen revealed a polypoid lesion consisting of variably sized nodules that were predominantly composed of mature hyaline cartilage surrounded by a cellular mesenchymal stromal component which included cellular spindled areas as well as myxoid features.

Normal Olfaction Range of Rasht Residents with a New Test Designed for the Region

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Keywords: Olfactory Disorder, Hyposmia, Anosmia, Smell Test

Introduction: An important part of one's information from the surrounding environment comes through the olfactory system. Therefore, its disorders, regardless of the reason, can lead to many problems. An appropriate diagnostic smell test is needed to determine the normal range of olfactory sense, to evaluate patients' complaint of hyposmia or anosmia and to determine the severity of the problem. It should also help with the follow-up and choosing the most effective surgical or medical treatment. Unfortunately the tests currently used in Iran have not been standardized, are difficult to interpret and are usually expensive to run.

Objective: Development of standard smell test for Iranians and determination of the normal range of olfactory sense in this region were the aims of this study.

Materials and Methods: In order to find popular odorous items in the region, fifty-six well-known materials were presented to two hundred, 15-60 year-old, normal relatives of patients who came to the university-based Amir-Al-Momenin Hospital. Then, 16 materials with the highest scores were selected (based on this census) as the test materials. These were: petrol, alcohol, tea, rice, soap, cinnamon, florigan, garlic, onion, washing powder, mint, rose water, lemon juice, olive oil, vinegar, and Vicks. Then, these 16 selected materials were presented to 150 people in the study group (77 women, 73 men). All the materials were presented in identical containers. Participants were requested to smell each material at a 2-centimeter distance for three seconds, without being able to see the material. They would then choose an answer in a multiple-choice questionnaire. Each nostril was tested separately; therefore, the total score for both nostrils and the 16 materials was 32 for each person.

Results: Considering the 97 percentile, the normal range of the olfactory score for the 15-60 year-old residents of Rasht was 28-32.

Conclusion: This study is helpful in evaluating the patients who complain of hyposmia or anosmia and could be used for future studies.

Delayed Laryngotracheal Reconstruction with Titanium Plate: Report of 10 Cases

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Background: Subglottic stenosis is congenital or acquired narrowing of subglottic area. The management of subglottic stenosis is still a serious surgical challenge. Although different surgical techniques are employed to manage the condition, no standard treatment has been presented yet.

Study Design: A titanium mesh was used in the reconstruction of the anterior laryngotracheal wall in ten tracheostomized patients with laryngotracheal stenosis because of prolonged intubation. The anterior laryngotracheal wall was split, followed by excision of the scar tissue. After several weeks, in a second-stage performance, the titanium plate was fixed at the split edges.

Results: Finally, all the patients were decanulated. However, one patient developed respiratory distress because of granulation tissue and underwent a second trial of decanulation. In one patient, the titanium plate extruded.

Diet and Nutrition in the Etiology of Oral Cancer

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Epidemiological studies worldwide have implicated dietary and nutritional factors in the development of oral and pharyngeal cancer. Dietary information in these case-control studies generally was collected through food-frequency questionnaires. Consistently, these studies observed a protective effect of a diet high in fruit intake, reflected in a 20-80% reduction in oral cancer risk. A high intake of foods considered to be dietary staples in particular cultural groups, possibly indicating a generally impoverished diet, has been linked to excess risk. Indigenous dietary practices that in single studies were found to increase risk include a high intake of chili powder and wood stove cooking. Supplementation with various vitamins has been protective in a few studies. Chemoprevention trials generally have found that chemopreventive agents reduce the size of oral leukoplakia lesions or the frequency of second primary oral cancers. The most consistent dietary findings across multiple cultural settings are a protective effect of high fruit consumption and the carcinogenic effect of high alcohol intake.

Audiological Findings (Pure Tone Audiometry and High Frequency Tympanometry) in Cleft Lip and Palate Patients

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Keywords: Cleft Lip and Palate, Children, Pure Tone Audiometry, High Frequency Tympanometry.

Background: Cleft lip and palate are one of the most common congenital malformations, where the lip or palate tissues were not completed during fetal life and its prevalence is reported to be two in 1000 births. Studies have shown that some factors such as drug side-effects, alcoholism and genetic abnormalities (15%) might play a role in this condition. Because of the pharyngeal cavity and its relation with the auditory system, hearing disorders are not uncommon among cleft lip and palate patients.

Materials and methods: In this research, 20 children with cleft lip and palate were studied via audiological tests (Pure Tone Audiometry; PTA) and High Frequency Tympanometry (678 Hz). **Results:** Audiometric results indicate conductive hearing loss (58%), mixed hearing loss (22%) and near normal hearing (20%). High frequency Tympanometric findings represent Type B in 65% of cases, Type An in 10%, Type C in 20% and Type As in 10% of cases, respectively.

Conclusion: Hearing evaluation of cleft lip and palate patients is very important especially high frequency tympanometry (678Hz) with its high reliability than conventional tympanometry (226Hz) in diagnosing middle ear disorders. Early hearing impairment detection and then performing medical and rehabilitative approaches might prevent auditory disability in this group. Audiological test battery should be recommended as a non-invasive monitoring tool during the medical treatment process.

Hearing restoration in longitudinal fractures of Temporal bone

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Keywords: longitudinal fractures, Temporal bone, Hearing

Abstract: Hearing loss is an accompanying symptom in longitudinal fractures of temporal bone. Fortunately it is more commonly due to the mechanisms that end up in conductive loss and can be treated surgically at the time of operation for other main problems such as facial nerve deficits. We are reporting our 25 years of experience with surgical repair for the complications of longitudinal fractures of the temporal bone. The indications for surgical interventions were as follows: 1.Exploration, decompression and repair of facial nerve; 2.Control of CSF leakage and/or perilymphatic fistulas; 3.Restoration of hearing. This presentation will focus on hearing loss and its management. Most of the patients with longitudinal fracture of temporal bone seek treatment for the facial nerve paralysis or they are referred by other colleagues to solve the problem of CSF leakage or recurrent meningitis. The otologists are capable of doing modifications in their techniques to either preserve patients' hearing, or correct the mechanisms of hearing impairment, or prepare conditions for late reconstructive surgeries (second stage). The basic techniques used so far doing include preservation of posterior wall, facial recess approach and ossicular chain reconstruction. The aforementioned purposes are quite possible and should be individualized in every patient of temporal bone fractures.NMA

Development of MAIS and MUSS Questionnaires

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Keywords: Cochlear Implant, Questionnaire, MAIS, MUSS

Development of MAIS and MUSS questionnaires (Farsi version). The MAIS and MUSS, developed at the Indiana University School of Medicine, are parent report scales which allow the examiner to evaluate a child's skills in meaningful, real-world situations. Each scale utilizes 10 probes. The MAIS gathers auditory behavioral information, whereas the MUSS investigates speech production behaviors. Ten areas are to be probed in MAIS and MUSS in each list and then give the specific questions that are to be asked by the clinician. In many instances, additional queries are also given, which might help the parent answer more accurately and fully. It is important for the clinician to write the parents' response in its entirety, rather than simply marking an "X" on one of the five (5) possible responses. This is important for two reasons. First, we wish to be able to antidotally compare the child's progress over time, and the examples and reports given by the parents help us do that. In addition, the ability to evaluate interexaminer reliability requires that enough information be written down so that an independent examiner could also answer the questions, based on the parent's written responses. In this study, we tried to develop a Farsi version of these questionnaires (Farsi-MUSS and Farsi-MAIS) to help prepare appropriate medical and rehabilitative approaches.

Soundwave Software as an Alternative Method for Cochlear Re-Implantation: A Case Report

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Keywords: Clarion, Cochlear Implant, Re-Implantation

Application of the recently introduced software (Soundwave) in 2004 for programming of sound

processors of Clarion cochlear implant systems can be considered a beneficial method for preventing cochlear re-implantation in some special implants. A pre-lingually deaf girl was implanted on a 1.8-year-old individual with Clarion 1.2 in the Amir Aalam Hospital in February 1998, and programmed with Sclin 2000 software. She was re-implanted in October 2004 with Clarion CII after having the implant crashed in an accident. One year later, the patient was referred to the clinic with a sudden inaudibility sound complaint, with the device unable to be detected by Sclin 2000 software. Therefore, she was a candidate for another re-implantation. In an attempt to do two sessions of programming, we changed the scenario through the software maneuvering. To do this, we used Soundwave software instead of Sclin 2000. Interestingly, the implant was detected with Soundwave software, and that caused a defense against the patient's re-implantation. Maybe the specific radio frequency (RF) of this new software involved for detecting of implant.

Application of Electrically Evoked Stapedius Re ex Test (ESRT) and Neural Response Telemetry (NRT) in Cochlear Implant Programming

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Keywords: ESRT, NRT, Cochlear Implant, Nucleus

Different measurements of objective, subjective and combined natures have been used for programming speech processors. The aim of this study was to evaluate Electrically Evoked Stapedius Re ex Test (ESRT) and Neural Response Telemetry (NRT) as objective tests for programming speech processors in implanted children. Thirteen pre-lingually deaf patients who had been implanted with Nucleus Freedom cochlear implant system in the Amir Aalam Hospital during the period of November 2008 to

July 2009 participated in this assessment. We found that both ESRT and NRT alterations followed a parallel progressive decrease over the first year of implantation. Meanwhile, both of them showed a significant difference when compared to the first measurement ($P < 0.05$). The thresholds of ESRT and NRT were determined intra-operatively and in three stages after the implantation (3, 6 and 12 months post-operatively). It seems that the changes of the thresholds of ESRT and NRT can be a considerable factor as suitable objective measurements for programming, especially for the "objective offset method".

Prevalence of Late Sensorineural Hearing Loss in Children with History of Severe Hyperbilirubinemia

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Keywords: Hyperbilirubinemia, Hearing Loss, Auditory Brain Stem Response, Auditory Neuropathy

Background and Objectives: Severe hyperbilirubinemia in the neonatal period is a risk factor for hearing loss, and its role is known as a major risk factor for neonatal non-syndromic auditory neuropathy. In this study, the prevalence of hearing loss in term neonates with a history of hyperbilirubinemia was evaluated with ABR test and the results were compared with that of healthy neonates.

Methods and Materials: In a cohort study, in the Pediatric Hospital of Tabriz, the hearing loss rate in 102 children who had only severe neonatal Hyperbilirubinemia as deafness risk factor was compared with that of 100 matching healthy neonates without any known deafness risk factors. All subjects were evaluated with Auditory Brain stem Response.

Results: All neonates were full term. Fifty-eight of the case group children and 61 of the

control group children were boys and 58 of the case group children and 61 of the control group children were girls ($P = 0.550$). Twenty-three neonates with hyperbilirubinemia had an abnormal auditory brain stem response. Seven neonates of the case group patients had mild hearing loss, eight neonates of the case group patients had moderate hearing loss and eight neonates of the case group patients had severe hearing loss. The frequency of abnormal auditory brain stem response in neonates with hyperbilirubinemia was significantly higher than that of the control group neonates ($P < 0.001$).

Conclusion: The mean of bilirubin in the case group neonates was 35.30 ± 5.02 . Six-point-nine percent of the case group had mild hearing loss, %7.8 of the case group had moderate hearing loss and %7.8 of the case group had severe hearing loss. The severity of the hearing loss in neonates with hyperbilirubinemia was significantly higher than that of the control group neonates. Twenty-two-point-five percent of the neonates with hyperbilirubinemia had an abnormal auditory brain stem response which was significantly higher than that of the healthy group. It is recommended to evaluate the hearing state in neonates with a history of neonatal hyperbilirubinemia with auditory brain stem response.

The Study of the Relationship Between Laterality of Tinnitus and the Thresholds of ASSR in Patients with Subjective Idiopathic Tinnitus

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Keywords: Auditory Steady-State Response, Subjective Idiopathic Tinnitus, 20Hz Modulation, 40Hz

Background and Aim: Tinnitus is a common symptom in many people but little is known about its origins. This study was aimed at comparing the Auditory Steady-State Response (ASSR) thresholds in normal cases and in patients with subjective idiopathic tinnitus (SIT) in order to diagnose its real origins.

Materials and Methods: This case-control study was conducted on 19 patients with tinnitus and 24 normal cases aged 18-40 yr. The patients underwent broad medical tests to rule out any background reasons for their tinnitus. ASSR thresholds were estimated in both groups at 20 and 40 amplitude modulations. The patients were selected from tinnitus patients in the Research Center in the Hazrat Rasoul Hospital, Tehran, Iran.

Results: The mean ASSR thresholds at 40HZ modulation were worse in tinnitus patients compared to those of the normal ones ($p < 0.05$), but no significant statistical differences were detected at 20HZ. These results were found in both situations, when we averaged both ears' thresholds and when we estimated the thresholds of the ears separately.

Conclusion: It seems that the origin of the responses of the modulation of 40Hz, primary auditory cortex, midbrain regions and subcortical areas, in these patients is involved or the origin of their tinnitus is related to some kind of problems in these areas, although more investigation is needed at 20Hz.

The Positive Role of Side Lying Position on Changing the Parameters of Transient Evoked Otoacoustic Emissions (TEOAEs)

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Keywords: Transient Evoked Otoacoustic Emissions, Body Position

Introduction: Various factors can affect otoacoustic emissions (OAEs). Among the non-

pathological factors, the "body position" during the response recording is one that has been investigated less than other factors. Despite the studies in this field, few researches have investigated the effect of the body position on TEOAEs, especially in side-lying position. The goal of the present study is to investigate the effects of this variable on transient evoked otoacoustic emissions (TEOAEs) and to evaluate the related existing assumptions, and if there are any significant differences; the best position was determined and added to the TEOAEs protocol. **Methods:** The cross-sectional study was performed on 32 adults aged 25-18 years old, after entering a qualifying study. After performing the basic tests and certainty of the health of the auditory system, the TEOAEs test was performed in sitting, supine and side lying (Ipsi and Contra) positions to compare the total response level, whole wave reproducibility and the signal-to-noise ratio in frequencies of 1 to 5 kHz, and the results were analyzed using the repeated measurement ANOVA analysis.

Results: Changing the body position has a significant effect on the total response level and whole wave reproducibility, while this effect on signal-to-noise ratio is just found at 1 kHz. The side-lying position (contra) is the best position for the test of TEOAEs and can be considered in the executive protocol of the TEOAEs test too. The results of this study do not confirm any phenomena made in this regard.

The Comparison of OAE (DPOAE & TEOAE) Amplitude Between Before and After of ABR Assessment

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Keywords: DPOAE, TEOAE, ABR, Amplitude, Order of Tests

Evoked otoacoustic emissions (OAEs) are sounds generated within the inner ear in response to

stimuli. OAEs provide a sensitive measure of the functional integrity of the outer hair cell (OHC). OAEs and ABR are used in hearing assessments of young children and adults and have an important role in the diagnosis of hearing loss. The purpose of this study was investigating the order of carrying out of auditory tests. Fifteen children enrolled in this study with a mean age of about 2.53 ± 0.42 years old. At first, OAE assessments (DPOAE and TEOAE) were performed; then, ABR assessment and finally the OAE measurements were repeated. The results show the amplitude of OAEs was temporally decreased after ABR measurements. A practical outcome of this study is a recommendation for the reversal of the traditional order for carrying out auditory tests, with the OAEs measurements preceding the ABR assessment, thus ensuring that the OAEs responses are unaffected.

The Effect of Behavioral Relevance on Auditory Cognition

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Keywords: Auditory Event-Related Potentials, Early Blindness, Attention

Background and Aim: Following an early visual deprivation, the neural network involved in processing auditory information undergoes a profound reorganization, because blind individuals are forced by the nature of their disability to depend on non-visual modalities, including audition, for information about their external environment. In order to investigate this process, event-related potentials provide accurate information about the time course neural activation accompanying the perception and cognitive process. In this study, the latency and amplitude of auditory event-related potentials (P1, N1, P2, N2 and P3) were compared in sighted and early blind individuals in the age range of 18-25 years old. **Materials and Methods:** In this cross-sectional study, auditory event-related potentials

were measured in conventional oddball paradigms by using two tone burst stimuli (1000 & 2000 Hz) on 20 sighted subjects with a mean age of 20.65 years old and 19 early blind subjects with a mean age of 20.94 years old. The findings were analyzed with the Mann-Whitney nonparametric test and the SPSS 11.5 software.

Results: The mean latency of P2 and P3 waves in early blind subjects was significantly smaller than that of sighted subjects ($P < 0.05$). Moreover, mean amplitude P2 and N2 waves in blind individuals were significantly bigger ($P < 0.05$).

Conclusion: The plasticity changes in the early blind individuals enhance the speed of neural conduction, auditory processing and attention. It probably indicates the higher level cortical function because of sensory compensation.

The Effect of Cochlear Implant Surgery and the Subsequent Rehabilitation in the Development of Verbal and Non-Verbal IQ of 23 Cochlear Implanted Children in Shiraz (1387-1388)

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Keywords: Cochlear Implant, Verbal IQ, Non-Verbal IQ, Raven Test, WISC Test

Background: Children with profound sensorineural hearing loss are at risk of language delays that can impact their academic and social development. A suitable way to develop the speech and language of deaf children is cochlear implantation (CI). The main propose of this study is the evaluation of the child's development in such language skills as information, similarities, arithmetic, vocabulary and comprehension after CI surgery and rehabilitation.

Methods and Materials: The present study is a quasi-experimental study. For this reason, we performed the Raven test on all the CI children of the Fars CI Center, who were at least 6 years old and had finished their rehabilitation program about

three years before. After that, we selected 23 patients who had the selection criteria for answering the verbal part of Wechsler Intelligence Scale for Children III (WISC-III). For the statistical analysis, we used the SPSS software version 11.5.

Results: The verbal intelligence quotient (IQ) develops after the surgery and rehabilitation program of C.I. children. However, it is not the same as in normal children of the same age. The most important factors that affect this are the child's age and family education. Also, there is no significant relation between verbal and non-verbal IQs.

Conclusion: Although C.I. is a suitable way to increase the verbal IQ and cognitive development, for better results, it is recommended in children under three years of age.

The Effects of Alprazolam on Tinnitus: A Crossover Randomized Clinical Trial

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Keywords: Tinnitus, Alprazolam, Crossover Studies

Background: Tinnitus remains a phenomenon with an unknown pathophysiology for which few therapeutic measures are available. To date, there has been insufficient evidence to support the use of alprazolam in the treatment of tinnitus. We sought to evaluate the efficacy of alprazolam for relief of tinnitus.

Material and Methods: Thirty-six tinnitus sufferers participated in this crossover, randomized, triple-blind, placebo-controlled trial. The inclusion criteria included patients being between 21 and 65 years old, and a complaint of nonpulsatile tinnitus of more than one year. Patients with depressive or anxiety disorders were excluded, as were those using hearing aids. Participants received 1.5 mg of alprazolam daily

versus placebo in the control group in each period. Primary outcome variables included the Tinnitus Handicap Inventory (THI), a Visual Analog Scale (VAS), and the tinnitus loudness.

Results: Thirty patients completed the study. The average age of the patients was 47.58 ± 7.65 years. Alprazolam in comparison with placebo did not result in statistically significantly greater relief in the THI score and tinnitus loudness. There was a significant improvement in the VAS score in the alprazolam group compared with that of the placebo group ($p < 0.001$).

Conclusions: These results suggest that although alprazolam did not improve the THI score or the sensation level of loudness significantly, it had a desirable effect on the VAS. Further work is needed to determine the beneficial effects of alprazolam in distressed or depressed patients.

Comparison of Threshold, Amplitude and Latency of Vestibular Evoked Myogenic Potential (VEMP) in Migraine Patients with those in Normal Subjects

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Keywords: Vestibular Evoked Myogenic Potentials, Sacculae, Vestibular System, Migraine

Background and Aim: Patients with migraine commonly show vestibular symptoms. However, even in the absence of vestibular symptoms, neurotological tests may be abnormal interictally, suggesting subclinical vestibular dysfunction in migraine. To evaluate the vestibular system in these patients, in this study, vestibular evoked myogenic potentials (VEMPs) are assessed in two groups, i.e. migraine patients and normal participants. The aim of this study is comparing vestibular evoked myogenic potentials (VEMPs) in migraine patients and normal participants. Consequently, it is another step toward understanding vestibular changes in patients with migraine. **Material and Method:** Subjects

included 25 patients with migraine and 26 healthy volunteers. The range of age in participants was 20-53 years old. None of the subjects had neck diseases, hearing loss or a history of vestibular disease. The tone burst, (500 Hz) with an intensity of 95 dB nH, rarefaction polarity and a repetition rate of 5.1/sec, was delivered through an insert earphone and the vestibular evoked myogenic potential was recorded.

Results: The mean of the absolute amplitude and threshold values in migraine patients differed significantly from those in the normal group, and were less and more in migraine patients than in the normal group, respectively. The P13 latency mean was delayed in patients compared with in normal subjects. ($p < 0.05$) There was no statistical difference between the two groups in the mean of n23 latency and amplitude ratio. ($p > 0.05$)

Conclusion: Although the target place of the causal mechanisms in migraine that affect VEMP in central or peripheral vestibular structures or both are not conclusively obvious, the findings of the present study tend to lean towards central vestibular disorders in this disease.

The Effects of Military Noise Exposure on the Auditory System: A Tinnitus and Hypersensitivity to Sound Study

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Keywords: Soldier, War, Military Noise, Hearing Loss, Tinnitus, Hypersensitivity to Sound

Introduction: Tinnitus and hypersensitivity to sound are abnormal perceptions of sound, and military noise is an important etiology of these auditory disorders. We studied hearing loss, tinnitus and hypersensitivity to sound in a group of soldiers. **Methods:** Samples were 250 men that were referred from the Devotee Foundation Commission of Tehran with the mean age of 41.0 5.3 years and an average of 2.4 1.7 years' history of war. The study included basic auditory tests (pure tone, speech, and impedance audiometries) and completing a questionnaire of hearing

disorders (tinnitus and hypersensitivity to sound). **Results:** Nearly two-thirds of the subjects had normal hearing, and different degrees of hearing loss with more decrease of high frequencies. Tinnitus was shown in 78.0% of the subjects especially in subjective (98.8%) and continuous (76.0%) forms. Tinnitus had moderate and high loudness in most cases (84.3%) and no effective treatment has been done generally. Hypersensitivity to sound was revealed in 76.0% of the cases with higher annoyance with environmental sounds (78.9 %), and sensitivity to other sensory stimuli especially visual ones (27.6%) too. Hypersensitivity to sound in 38%, tinnitus in 35.0%, and hearing loss in 28.0% of the cases were the main problems. There was a significant correlation between hypersensitivity to sound and tinnitus ($p < 0.001$). **Conclusion:** Military noise can result tinnitus and hypersensitivity to sound even without hearing loss, which may lead to behavioral and social problems.

Postural Control Evaluation by Recording Saccular Response in Congenital Profound Hearing Impaired Children

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Keywords: VEMP, Profound Hearing Loss, Saccule, Balance Disorder, Cochlear Implant

Background: Vestibular Evoked Myogenic Potentials (VEMP) is a test of Saccular function. Studies showed a decrease of VEMP recording with an increase of sensory-neural hearing loss. Our study was done to determine the percentage of VEMP existence and to evaluate Saccular function in children with congenital sensory-neural hearing loss.

Methods: Thirty children (14 girls and 16 boys) with bilateral congenital sensory-neural hearing loss were studied. Children with visual impairment, mental disorders and/or learning difficulties were excluded from the study. After

conducting Romberg and Disdiadochokinesia as two screening tests of balance disorders, VEMP was recorded monaurally with 500-Hz-tone burst stimuli via air conduction and an insert receiver.

Results: All children passed the Romberg and Disdiadochokinesia screening tests. VEMP was recorded from 53.3% of the children with a mean threshold intensity level of 83.60 ± 44.4 dB HL (range: 75 to 95 dB HL). Repeating the test in supra threshold level revealed a significant increase of P1N1 amplitude ($p < 0.001$). ear side and sex had no effect on VEMP recording or the latency of P1 and N1 waves and P1N1 amplitude. In four cochlear implanted children VEMP was not recorded. Motor delay and developmental disorders were reported in neonatal history of eight children, six of whom had no VEMP.

Conclusion: About fifty percent of our children had no VEMP that could result from Saccular disorder and impairment of postural control and static balance. VEMP is a rather short, non-invasive and accessible test that can be used for the identification of vestibular and postural disorders. The results of this test accompanied with the behavioral evaluation of the balance function can be used for rehabilitation consultations and the design of therapeutic approaches.

Comparison of Epley and Semont Maneuver in the Treatment of Patients with BPPV

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Keywords: BPPV, Epley maneuver, Semont Maneuver

Background: Benign paroxysmal positional vertigo (BPPV) is one of the common diseases in patients that complain of vertigo especially during body or head movement. There are some acceptable procedures in the treatment of these patients, such as Epley and Semont Maneuvers. The aim of this study was to determine which procedure was more effective in the treatment of BPPV. **Materials and Methods:** This study was conducted among 38 patients (22 females, 16

males) with BPPV, and between the ages of 23 and 56 years old. The patients were randomly divided into two groups. Epley Maneuver was performed on the first group and the Semont procedure was performed on the second group. The efficacy of the treatment was evaluated with the Dix-Hallpike Maneuver after one week. **Results:** Of the patients that received the Epley Maneuver, 89% had no vertigo and nystagmus with the Dix-Hallpike test, and in the second group that received the Semont Maneuver, these results were 68%. The results showed more effectiveness of the Epley Maneuver in patients with BPPV. **Conclusion:** According to the results of our study, the Epley maneuver is a more effective procedure in the treatment of BPPV.

Temporal Bone Radiological Findings in Candidates of Cochlear Prosthesis

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Keywords: Cochlear Implantation, CT scan, Radiological Findings

Introduction: The purpose of this study is to evaluate the radiological findings of the temporal bone before cochlear implantation. **Methods:** In a cross-sectional study, 200 patients who were referred to the Khalili Hospital for cochlear implantation were randomly selected. The CT scan results of the temporal bone were reviewed by a radiologist in order to determine the anatomical problems. Then, the demographic data, the history of the disease and the anatomical problems were gathered via a questionnaire and were analyzed under the supervision of statistical specialist with descriptive methods on SPSS.

Results: 200 patients, with a mean age of 6.9 (SD=10.6) were evaluated. According to the radiologic evaluation, 164 patients were normal. On the other hand, we found two patients with severe inner ear anomaly and ten patients with large and dilated vestibules and loss of the bony partition of the cochlea. Other findings that were related to otitis media and mastoiditis as an

acquired disease of the ear were seen in 24 patients. According to patients' evaluation, it is necessary to say that some of the patients had more than one abnormal radiological finding. **Discussion:** Generally it seems that radiological evaluation before an operation is beneficial in detecting temporal bone abnormalities.

The Effects of the Size and Place of the Eardrum Perforation on the Amount of Hearing Loss

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Keywords: Tympanic Perforation, Hearing Loss, Chronic Otitis Media, Cholesteatoma

Introduction: Tympanic membrane perforation due depending on its size and location causes different degrees of hearing loss. However, there is not enough information about the severity of hearing loss in references. The degree of hearing loss varies considerably, depending not only on the size and the position of the perforation but also on the degree of fixation of the drum remnant and ossicles, the presence of chain disruption, and the status of the inner ear. If the pathology is confined to a small anterior perforation, the hearing may be normal. Large posterior perforations cause a greater degree of hearing loss. **Material and Methods:** We studied 203 patients admitted to the ENT department with a diagnosis of tympanic membrane perforation over a period of one year. Demographic data (age, sex), cause, location and size of the perforation were recorded, and the severity of hearing loss was analyzed with SPSS. **Results:** The patients with 36-40 decibel (dB) hearing loss had the most frequency (37.7%) and patients with hearing loss over 50 dB had the least frequency (0.5%). There was a statistically meaningful relationship between the severity of hearing loss and the site of the perforation (P value=0.000). Also, the severity of hearing loss and the size of the perforation had a significant

relationship (P value=0.000). There was not any meaningful relation between the cause of the perforation and the severity of the hearing loss (P value=0.245). **Discussion:** In our study, there was a relationship between the severity of hearing loss and the size and site of the perforation, but there was not any relationship between the cause of the perforation and the severity of hearing loss.

Evaluation of the Slope of Amplitude Growth Function Changes of the Electrically Evoked Action Potential in the Three Months after Receiving the Device in Children with Cochlear Implant

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Keywords: Electrically Evoked Compound Action Potential, Neural Response Telemetry, Cochlear Implant

Objective: In neural response telemetry, intracochlear electrodes stimulate the auditory nerve and record the neural responses. The electrical stimulation are sent to the auditory nerve by an electrode and the resulting response, called electrically evoked compound action potential, is recorded by an adjacent electrode. The most important clinical applications of this test are evaluating and monitoring the intra- and postoperative responses of the auditory nerve and helping the primary setting of the speech processor. The aim of this study was evaluating the potential's slope of amplitude growth function changes in the three months after receiving the device in pediatric cochlear implant recipients. **Materials and Methods:** This longitudinal study evaluated the potential's slope of amplitude growth function changes in four given electrodes in four sessions after receiving the device with approximately one-month intervals in all the children who were implanted in the Amir Alam

and the Hazrat-e-Rasoul hospitals from July to December, 2007. Friedman test used to analysis of results. **Results:** Electrically evoked compound action potential's mean slope of each electrode was more in later sessions relative to that in the first session, while there was a significant difference between the 1st and the other electrodes' responses in every session ($p < 0.05$). **Conclusion:** The reliability of the responses result in more certainty of the clinician to fit the speech processor for a long time. Better responses in apical electrodes may lead to develop an effective coding strategy.

Neuro-otologic Manifestations of Multiple Sclerosis

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Keywords: Multiple Sclerosis, Neuro-otologic Signs and Symptoms, Audiometry, Auditory Brain-Stem Response

Multiple sclerosis (MS) is a chronic neurologic disease with numerous neurologic sign and symptoms. A considerable number of patients with MS develop Sensory-Neural Hearing Loss in the course of the disease. The reports on the amount and type of hearing loss associated with MS vary considerably. Brainstem involvement also occurs in MS patients and abnormality of the auditory brainstem response (ABR) is a diagnostic criterion for MS. This study was designed to evaluate the Neuro-otologic signs and symptoms of MS and to observe the changes in audiometric and ABR tests in this disease. Pure Tone Audiometry (PTA) and ABR results of 30 MS cases (15 males and 15 females, mean age: 30.8 ± 7.4 years) were compared retrospectively with those of 30 matched healthy control subjects. The patients were also questioned and examined in order to discover Neuro-otologic signs and symptoms. The most common symptom was hearing loss followed by dizziness. The audiometric evaluation showed a statistically significant

hearing loss in almost all frequencies. ABR showed significant changes in wave latencies and amplitudes in most cases. The results confirm the effectiveness of PTA and ABR as alternative diagnostic means for MS in conjunction with other conventional tools.

Hearing Loss in Chronic Renal Failure Patientst Undergoing Hemodialysis

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Keywords: Ranal Failure, Hemodialysis, Hearing Loss

Background: End-stage renal failure patients, face multiple complications. One of them is the involvement of the auditory system. There are several proposed mechanisms for the occurrence of hearing loss in these patients. There is no study performed in Iran to determine the status of hearing loss and the results of audiometric tests in chronic renal failure patients.

Objective: To assess the prevalence, type and accompanying factors of auditory complications in end-stage renal disease patients. **Method:** Seventy chronic renal failure patients underwent clinical examinations and audiometric tests. Their medical records were reviewed to find any contributing factor with auditory complications.

Result: There was a higher prevalence of sensory neural hearing loss in CRF patients. The hearing loss was more obvious in higher frequencies. Its prevalence and severity increased with chronicity of the renal failure and hemodialysis. There was not any difference regarding the sex. The hearing loss did not disturbed speech discrimination score and acoustic re-ex. **Conclusion:** Sensory-neural hearing loss is common among CRF patients and deserves more attention than is paid to in current approaches.

Experimental Histopathologic Study On Preventing Effects of Mitomycin C and Fluorouracil on Myringotomy Closure in Rats

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Keywords: Mitomycin C, 5-Fluouracil, Myringotomy

Objective/Hypothesis: To compare the histopathologic effect of the topical use of Mitomycin C and 5-Fluouracil on preventing myringotomy closure in rats.

Study design: Clinical trial.

Methods and Material: The study was performed on 43 rats. The rats were divided in three groups. Groups A and B (the study groups) and Group C (the control group). After bilateral cold knife myringotomy, we applied Mitomycin C (MMC) 4 mg/ml in Group A, 5-Fluouracil (5 fu) 50mg/ml in Group B and normal saline in Group C. We examined the ears of all the rats with an otoscope on days 0, 1, 3, 5, 7, and then every fifth day for seventy days. Each day, the closed myringotomies of all the groups were examined.

Results: The mean durations of post-myringotomy opening were 37, 16 and 12 days respectively in the MMC, 5FU, and control groups. The MMC group had a significantly longer patency duration ($p < 0.0001$), but in histopathologic examinations, the fibrosis of the tympanic membrane in the MMC group was significantly higher than that of the other 2 groups ($p < 0.0001$).

Conclusion: Mitomycin C significantly prolonged the duration of myringotomy patency compared with 5-Fluouracil and saline but with adverse effect of tympanic membrane fibrosis.

The Comparison of Success Rate of the Tympanoplasty with and without Mastoidectomy

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Keywords: Tympanoplasty, Mastoidectomy, Chronic Otitis Media, Tympanic Membrane Perforation

Background and objectives: Tympanoplasty and mastoidectomy are surgical procedures performed in the cases of middle ear infection. Tympanoplasty is an operation for eradicating middle ear infection as well as the reconstruction of the hearing mechanism. When, according to preoperative examination, audiometry findings and intraoperative findings, there is any doubt in eradicating the pathology from the middle ear, the surgeon (otologist) decides whether or not to perform a mastoidectomy in addition to tympanoplasty. Mastoidectomy has been proven to be beneficial in eradicating the pathology in the presence of cholesteatoma and granulation tissue and recalcitrant chronic active infection; however, in the cases of simple perforation of the tympanic membrane without cholesteatoma or active infection, performing a mastoidectomy in addition to tympanoplasty is controversial. Theoretically, mastoidectomy improves middle ear aeration and the success of tympanoplasty.

Methods and materials: In the present study, 60 cases with middle ear infection and simple perforation of the tympanic membrane were randomly divided in two subgroups of 30 cases. One group underwent a tympanoplasty procedure and the other one, tympanoplasty with a mastoidectomy procedure. The success rate of the operation in the two subgroups concerning the tympanic membrane graft condition and hearing improvement was compared after two months.

Results: In the tympanoplasty group, three cases, and in the tympanoplasty-mastoidectomy group, two cases of postoperative perforation of the membrane were found. Graft success rate in the

former group was 90% and in the latter 93.3%. Statistically, the difference between the two groups in terms of hearing improvement and graft success rate is not significant.

Conclusion: Mastoidectomy with tympanoplasty is not necessary in simple perforation of the tympanic membrane for better graft acceptance and better audiometry results.

Balance Rehabilitation

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Keywords: Balance, Rehabilitation, Vertigo

Introduction: Vertigo is a clinical symptom of many disorders of the balance system. Benign Paroxysmal Positional Vertigo (BPPV) which is told to be idiopathic may be due to the collection of calcium elements in the gelatinous material of sensory end organs in semicircular canals of the inner ear in different age groups. Medical treatment is no more than a symptom therapy. In some references, physical maneuvers are discussed to be effective in a complete cure of the symptoms. In this study, the effects of physical exercise on the relief of signs and symptoms are evaluated.

Materials and Methods: In 2008 and 2000, a total of 112 patients with clinical diagnosis of BPPV, without any other clinical or laboratory findings were divided in two equal groups. The first group was trained in one hour by an experienced physiotherapist to do special maneuvers for 15 minutes TDS. The second group was treated with betaseric mg daily. The clinical results were evaluated by a third physician at the end of the first, third and sixth months.

Results: Age and sex distributions were the same. The disease was commoner in the fifth 10-day period in females and in the sixth 10-day period in males. Complete recovery appeared with rehabilitation in the first month in 62% of females and in 58% of males. The results in the third month were 78% and 82% respectively. In the sixth month, they were 90% and 92% respectively. No worsening or complication was detected in this

group. The results in the second group were 32% and 38% for females and males in the first month, 46% and 52% in the third month and 42% and 48% in the sixth month, respectively. Nausea and GI upset were detected in 32% of females and 18% of males. **Discussion:** Comparison of results between the two groups shows a significant difference and lower effectiveness of medical therapy in these patients. **Conclusion:** In clinical diagnosis of BPPV by physicians and R/O of the other causes of vertigo, rehabilitation may be recommended as an effective, inexpensive and low complication route of treatment.

Dexamethasone Eluting Cochlear Implant; a Marvelous Drug Delivery System

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Keywords: Cochlear Implant, Drug Delivery System, Dexamethasone, Eluting Electrode

Objective: Newly designed cochlear implants along with developments in the implantation techniques are now being used in patients with residual hearing. However, the operation still has disadvantages like initiating inflammatory response that may lead to further hair cell damage. In this study, the effect of dexamethasone loaded cochlear implant on attenuating inflammatory response was evaluated. **Methods and materials:** Thirty healthy adult male guinea pigs randomly assigned to one of the three surgical groups underwent cochleostomy through the basal turn approach. The case group was comprised of 12 cases that were implanted with a dexamethasone-loaded silicone elastomer shaped as a cochlear electrode. The first control group (12 cases) was implanted with a simple cochlear implant (non-eluting) and in the third group (6 cases) only cochleostomies were done. Inflammatory responses were compared between the groups by evaluating the inflammatory cell infiltration in the inner ear specimens on days 3 and 13. **Results:** The Mann-Whitney test revealed

a significant reduction of fibrocyte, eosinophil, macrophage and giant cell infiltration on day three, and a significant reduction of lymphocyte and macrophage infiltration and capillary formation on day thirteen in the case group in comparison with that of the first control group ($p < 0.05$). The Kruskal-Wallis test also demonstrated significant differences in the majority of inflammatory component infiltration between the three groups ($p < 0.05$). **Conclusion:** The study demonstrated that the electrode is perfectly capable of continuously delivering the loaded drug to the site of interest (cochlea), which had a significant effect on the down regulation of the inflammatory response following cochleostomy and cochlear implantation in the animals.

First Branchial Cleft Fistula Presenting with External Auditory Canal Stenosis and Middle Ear Cholesteatoma

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Keywords: Ear Canal Atresia, Congenital Choleatoma, Branchial Stula

True branchial cleft anomalies are duplications of the membranous part of the external auditory canal, and they manifest clinically as cysts, sinuses, or fistulas. This fault may lead to external auditory canal stenosis and atresia. Because of misdiagnosis, management is often inadequate, recurrence is common and iatrogenic injuries of the facial nerve have been reported. This report features a case of microtia and congenital cholesteatoma with first branchial fistula. External auditory canal stenosis complicated by middle ear and external canal cholesteatoma but branchial fistula, opening in the zygomatic root and a sinus in the helical root may be the cause of this feature. Clinical features are described and the embryological relationship between the first branchial cleft anomaly and external canal atresia is discussed.

Alport Syndrome: A Case Report

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Keyword: SNHL-Renal Disease

The Alport syndrome is characterized by autosomal, dominant, progressive nephritis and sensorineural hearing loss, proteinuria, hematuria beginning in the first or second decade of life a 12-year-old girl with binaural SNHL, moderate to severe, hearing aid users with renal disease, hematuria from the E.N.T. clinic of the Bahramee Children's Hospital is introduced.

CSF Otorrhea, Diagnosis and Management

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Keywords: CSF Otorrhea, Management, Fluorescein

The leaking defects in the temporal bone can be classified into two groups based on etiology: Secondary defects, which occur with trauma, surgery (iatrogenic), or neoplasms invading the skull base; and the less common primary (spontaneous) forms, in which two distinct populations of patients can be described: first, children with congenital malformations of the temporal bone, and, second, adults with no known primary or secondary temporal bone disease. In adults with spontaneous leakage, the location of the defect is most commonly found to be the floor of middle fossa (tegmen tympani or tegmen mastoidian). Increased intracranial pressure may be the predisposing background, and in the normal-pressure group, remnants of the arachnoid granulations may play the causative role. On the other hand, children with spontaneous CSF otorrhea most often have congenital inner ear anomalies associated with hearing loss. High-resolution CT scans are helpful to confirm the diagnosis. CSF leakage through the temporal bone may cause different problems. The most common presenting symptoms consist of serous otitis

media, persistent otorrhea after tympanostomy tube placement, and meningitis. There are different imaging methods to locate the leakage site including CT, CT with intrathecal Metrizamide, MRI and radio-isotope studies. In some cases, there might be questions about the precise site of leakage. Using intrathecal Fluorescein during the surgery and doing pressure rising maneuvers are very helpful in this regard. Once the defect is found, various repair methods can be employed, such as middle fossa craniotomy, transcanal vestibular obliteration, and closure of the Eustachian tube and the ear canal. The materials used to seal the defects are muscle, fascia, fat, bone dust and chips and pedicled grafts. We will discuss the different methods of diagnosing and managing CSF otorrhea in children and also the use of Fluorescein in these cases.

Correlation between Ages of Hearing Loss Diagnosis and Cochlear Implant Usage with Children's Progress in Aural Rehabilitation Programs

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Keywords: Hearing Loss, Cochlear Implant, Aural Rehabilitation

Objectives: Because speech language development happens in the early years of life, ages of hearing loss diagnosis and cochlear implant usage are two important factors affecting speech clarity and comprehension in severe to profound hearing loss children. **Methods:** This retrospective study was accomplished on 62 pediatric cochlear implant recipients with the mean age of 5.03 ± 2.08 , who had undergone cochlear implant surgery in Shiraz's Khalili Hospital from 2003 to 2009. We studied the correlation between the ages of hearing loss diagnosis and cochlear implant usage with children's progression rate in auditory rehabilitation programs. **Results:** Hearing loss had been diagnosed in 31.43% of the children before the age of 6 months, in 60.0% between the

ages of 6 to 24 months and in 8.57% after the age of 24 months. The cochlear implant surgery had been performed in 19.35% of the children before the age of 24 months and in 80.65% after the age of 24 months. Statistical analyses revealed a significant correlation between children's progression in continuous sessions of aural rehabilitation programs with the ages of hearing loss diagnosis and cochlear implant reception ($p < 0.0001$). There was also a significant correlation between parents' academic degrees and children's progress in auditory rehabilitation programs. Besides, a significant difference was shown between the progress rate of the aural rehabilitation programs of both groups of children with and without behavioral problems ($p < 0.0001$). **Conclusion:** To determine cochlear implant candidacy, attention should be paid to other important factors such as social status, parents' contribution level and children's behavioral characteristics; besides, considering audiologic, medical and radiographic results is essential. By designing prospective studies and determining appropriate criteria to measure auditory, language and speech skills, accessing more detailed information is possible.

One-Stage Operation in Adhesive Otitis Media

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Keywords: Adhesive Otitis Media, Tympanoplasty, Hearing

Objective: To evaluate the efficacy of one-stage cartilage tympanoplasty in the treatment of adhesive otitis media. **Methods:** From February 2009 to May 2010, 20 patients with adhesive otitis media were treated in the Imam Hospital of Kermanshah University. All the patients underwent cartilage tympanoplasty with or without ossicular reconstruction. The air-bone gap changes, hearing improvement and patient discomfort were evaluated at one month and one year after the operation. **Results:** All the patients

showed a dry ear within six weeks after the operation. Tympanic membrane healing was achieved in all cases. With the average preoperative air-bone gap (at 0.25, 0.5, 1.0, 2.0 and 4.0 kHz) of 37.45 dB, the patients showed an obvious decrease of the air-bone gap at three months after the operation and finally the average preoperative air-bone gap (at 0.25, 0.5, 1.0, and 2.0 kHz) of 24.00 at one year. Symptomatic improvements were achieved in these cases, including improving ear fullness, total tinnitus relief (1/20 cases), and alleviated tinnitus (10/20 cases). The tympanic membrane appeared normal in fourteen cases. **Conclusion:** Tympanic membrane reconstruction with ossicular reconstruction in adhesive otitis media is feasible for treatment of secretory otitis media and significant CHL, but the surgical indications should be carefully controlled.

Postauricular Cutaneous Mastoid Fistula

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Keywords: Cutaneous Mastoid Fistula

Introduction: Postauricular cutaneous mastoid stulae are rare. There are only eight reported cases in the literature. The underlying causes of these cases were chronic suppurative otitis media (CSOM), including tuberculous otitis media. **Case Report:** A 62-year-old woman with right-sided discharging postauricular lesion. She had a 20-year history of ear discharge. She also had a history of 2-3 times drainage of a postauricular abscess, and from one year before, she had begun to experience discharge from behind the right pinna. She had no history of tuberculosis. On physical examination, a 1-cm x 8-mm fistula with pearly white tissue at the opening was seen in the postauricular area. The surrounding skin featured a scar from the previously drained abscess. An otoscopic examination revealed the presence of an attic cholesteatoma with granulation tissue and a scarred tympanic membrane. Computed tomography demonstrated a soft-tissue density

in the middle ear cavity that extended into the mastoid cavity and toward the cutaneous postauricular area. The postauricular cutaneous mastoid fistula is seen at presentation. Exploration of the right mastoid was undertaken and fistula closed.

Mastoid Cavity Obliteration with Inferiorly Pedicled Periosteal-Pericranial Flap and Bone Pate

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Keywords: Mastoid Cavity Obliteration, Inferiorly Pedicled Periosteal Pericranial Flap, Bone Pate

Objective: To study the outcome of mastoid cavity obliterations where inferiorly pedicled periosteal-pericranial flaps were used.

Study Design: A prospective longitudinal study with a minimum follow-up of 18 months.

Methods and Materials: Between 2004 and 2009, 63 mastoid cavity obliterations were performed on 59 patients. Of these, 24 were revision surgery and the remainder were primary surgeries. All the patients underwent open cavity tympanomastoidectomy, where the mastoid cavity was obliterated with inferiorly pedicled periosteal-pericranial flap and bone pate.

Results: A total of 63 consecutive ears underwent open cavity tympanomastoidectomy with mastoid obliteration; 55 (87%) had a very small dry healthy mastoid cavity, five ears (8%) had occasional otorrhea, which was relatively easily managed by topical therapy, and three ears (5%) had small granulation tissue that was treated with silver nitrate.

Conclusion: Obliteration using the inferiorly pedicled periosteal-pericranial flap and bone pate is an effective method to manage patients with pre-existing cavities and also those not previously operated.

Otoacoustic Emissions and the Efferent System

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Keywords: Otoacoustic Emissions, Medial Olivocochlear Bundle, Contralateral Suppression of Otoacoustic Emissions

This is a review of ten articles about the applications and results of otoacoustic emissions and contralateral suppression of otoacoustic emissions in different clinical populations like neuropathy, central auditory processing disorder and acoustic tumors. This article helps to understand the advantages of this simple test.

Caloric Test

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Keyword: Caloric Variables, Directional Preponderance, Unilateral Weakness, Bilateral Weakness

This article is review of six comprehensive researches about caloric test results, interpretation and variables. The caloric test is a neuro-otologic test for vestibulo-ocular re-ex which can evaluate each labyrinth separately. This review will help understand what happens in caloric test.

First Stage Hearing Reconstruction in Chronic Suppurative Otitis Media: Experience From 216 Surgical Cases

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Keywords: Chronic Otitis Media, Conductive Hearing Loss, Ossiculoplasty

Introduction: Chronic suppurative otitis media (COM) and its complications are one of the most common and challenging otologic problems. Ossicular chain erosion or fixation and its ensuing conductive hearing loss (CHL) as a common and

disabling complication of COM could be managed effectively during the first or second surgical stages. This study evaluates the long-term results of early hearing reconstruction with auto or homologous ossicular graft for the reconstruction of CHL in COM patients. **Method and Materials:** In this retrograde prospective analytic study, 1153 cases of COM over a period of 13 years (1375-1388) were evaluated and 216 (18.7%) patients with different kinds of first-stage ossiculoplasty were included. The hearing statuses of the patients were evaluated by PTA, SDS, SRT and tympanometry preoperatively and in months 3, 6 and 12 after the surgery. **Results:** Of the 216 patients, 123 were men and 93 were women, ranging in age from 15-65 years. All the patients had different kinds of ossicular chain erosion or fixation with 25-50 (mean 35±5) dB CHL. The different kinds of ossiculoplasty in decreasing order of frequency were incus interposition (124 cases, 57.4%), incus imposition (35 cases, 16.25%), bony wedge between eroded long process of incus and stapes head (24 cases, 11.1%), incus columella (14 cases, 6.4%), malleus columella (10 cases, 4.6%) and stapes mobilization along with incus interposition or imposition (9 cases, 4.1%). Postoperative hearing improvement from 15-40 (mean 20±5 dB) could be found in 165 (76.3%) of the patients and 51 (29.6%) other persons needed the second stage intervention for the correction of the remaining CHL. **Conclusion:** We recommend first stage ossiculoplasty with auto or homologous ossicles as a rapid, safe and highly cost-effective method for the correction of CHL in COM patients with acceptable long-term results.

The Effect of Acoustic Re-Ex on Contralateral Suppression of Transient Evoked Otoacoustic Emissions

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Keywords: TEOAEs, Contralateral Suppression of TEOAEs, Acoustic Re-Ex, Interaural Attenuation

Abstract Aim: Contralateral suppression of Transient Evoked Otoacoustic Emissions (TEOAEs) evaluates the auditory efferent system. In this test, an important confounding variable called acoustic re-ex exists. In recent years, the application of this test has been growing, especially in children suspect to central auditory processing disorder (CAPD). Therefore, the magnitude of the influence of this confounding variable should be cleared. **Method:** This research (descriptive-analytic) was performed on 39 normal hearing adults of both sexes in an 18-26 year-old range. Tests were performed for the determination of Interaural-Attenuation (IA), acoustic re-ex, TEOAEs and contralateral suppression of TEOAEs. **Results:** TEOAEs amplitudes were significantly larger in females and contralateral suppression of TEOAEs were significantly larger in males (P-value=0.00). The magnitude of TEOAE suppression was different in various frequency bands. The activation of the acoustic re-ex significantly increased the magnitude of suppression (P-value=0.00) and made a low-frequency shift in the frequency-band of maximum suppression. **Conclusion:** To achieve a higher accuracy in clinical findings, clinicians should always use suppressant levels lower than the acoustic re-ex threshold. It is recommended that different norms for males and females be used in contralateral suppression of TEOAEs.

Otoacoustic Emissions in Sudden Sensorineural Hearing Loss: Changes of Measures with Treatment

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Keywords: Otoacoustic Emissions (OAEs), Idiopathic Sudden Sensorineural Hearing Loss, Response to Treatment.

Objective: To distinguish changes of OAEs parameters in the treatment course of idiopathic sudden sensorineural hearing loss (ISSNHL). **Materials and Methods:** In a prospective study from August 2005 to January 2009, twenty-six patients with ISSNHL underwent conventional

audiometry/tympanometry and two types of OAEs (TEOAEs and DPOAEs) before and after completion of standard drug therapy. The changes in pre- and post-treatment parameters were compared with each other and with normal contralateral ears. **Results:** In TEOAEs, the mean overall correlation (reproducibility) and the mean overall strength in the involved ears were 10.96 ± 23.36 and 0.99 ± 3.45 dB before the treatment respectively, which reached 22.88 ± 36.55 and 1.85 ± 5.3 after the treatment ($P > 0.05$). A significant difference was found between the "correlation score" (the average of correlations at 3-4 involved frequencies) before and after the treatment: 6.52 ± 18.19 vs. 21.67 ± 37.8 ($P < 0.034$). The difference between pre- and post-treatment overall correlation and correlation score in the "response group" was significant ($P < 0.031$). In DPOAEs of the involved ears, the mean DP1 level and the DP1 signal-to-noise ratio changes were not significant with the treatment ($P > 0.05$). **Conclusion:** Evoked OAEs, especially TEOAEs, are objective, rapid, and sensitive tools in the treatment course.

The Relationship Between Allergic Rhinitis and Chronic Otitis Media

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Keywords: Allergic Rhinitis, Suppurative Chronic Otitis Media, Skin Prick Test

Introduction: Allergic inflammation in upper airways can act as a predisposing factor for infectious ear diseases. There is some evidence of the role of allergic rhinitis (AR) in chronic otitis media with effusion, but its role in establishing chronic suppurative otitis media (CSOM) has not been clearly demonstrated. **Objective:** The assessment of the relationship between AR and chronic otitis media in patients admitted to the Amirmomenin Hospital, Rasht, Iran. **Materials and Methods:** Sixty-two adult patients with established CSOM as the case group and 58 patients with minor head and neck traumas as the

control group were evaluated for the presence of AR. All the cases and the control group were over 15 years old and underwent skin prick test for 24 common regional aeroallergens. AR was defined as positive symptoms and signs of allergy and positive skin prick test to at least one allergen. **Results:** AR was diagnosed in 15 (26.20%) and 8 (13.80%) of the patients and the controls, respectively ($P=0.065$). With regard to the age mean difference between the two groups, by logistic regression equation, the age factor was corrected and subsequently, the difference for AR prevalence in the two groups was significant ($\chi^2=0.026$, $OR=3.27$, $CI=1.15-6.57$). Indoor allergens, especially mites and molds, were the most prevalent allergens in both groups, but outdoor allergens like grass pollen had a low prevalence. **Conclusion:** The study shows a significant difference in the prevalence of AR in the CSOM patients compared to the controls.

A Report of Surgical Complications in a Series of 262 Consecutive Pediatric Cochlear Implantations in Iran

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Keywords: Complication, Cochlear Implantation, Deafness

Introduction: Cochlear implantations have become a routinely performed and successful surgical intervention in both adults and children. Cochlear implantation is associated with rather low complication rates, regardless of the individually chosen cochlear implant device. (1-3) Pediatric cochlear implants provide children with severe and profound hearing loss with greater access to sound and improvement in their auditory skills, speech understanding, and oral linguistic development (3, 4). In fact, several researchers have confirmed the effects of cochlear implantation on speech perception of profoundly deaf children. (4, 5) However, studies about cochlear implant surgery in children present several additional risks that are

not present in adult patients. (6, 7) Children younger than 6 months of age have an increased risk of respiratory failure and bradycardia from anesthesia. In children with other medical comorbidities, there is an increased risk from anesthesia in children of up to 1 year old. Up to now, different reports have detailed possible medical, surgical or audiological complications of cochlear implantation (7-9), but there are few studies that demonstrate the difference in the complications rate in children in various age groups. (10-13)

Speech Perception and Speech Intelligibility in Children after Cochlear Implantation in Different Age Groups

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Keywords: Deaf, Cochlear Implant, Speech Perception

Introduction: Universal infant hearing screening combined with better assessment techniques has resulted in much earlier diagnosis of deafness in infants and many more infants with congenital hearing loss being identified as young as 2-4 weeks of age. We decided to evaluate the influence of age on speech recognition and development of hearing abilities in a large, relatively homogeneous group of young and older-age prelingually deaf children. **Method:** A total of 262 patients with prelingually profound hearing loss were enrolled in this study. One-hundred and twenty-nine of the cases were boys (49.2%) and 133 were girls (50.8%). They were followed up in the same cochlear implant center and were evaluated before the implantation and 12 months after the device was switched on. All the patients' auditory and speech conceptions were evaluated by means of Categories of Auditory Perception Scale (CAP) and Speech Intelligibility Ratings (SIR), and the results were compared in different candidate groups. **Result:** The mean CAP score after the surgery for the 1+ group was 5.17 ± 1.45 , in the 2+

group it was 4.56 ± 1.92 , in the 3+ group it was 4.38 ± 2.02 , in the 4+ group it was 4.36 ± 2.31 , and in the 5+ group it was 4.31 ± 1.38 . (Table 3) The mean SIR score after the surgery for the 1+ group was 2.58 ± 1.38 , in the 2+ group it was 2.46 ± 1.59 , in the 3+ group it was 2.51 ± 1.31 , in the 4+ group it was 2.63 ± 1.03 , and finally in the 5+ group it was 2.80 ± 1.31 . (Table 4) **Discussion:** Indisputably the principle purpose of cochlear implantation is verbal/auditory perception and as this study demonstrated, this can be achieved with better outcomes when cochlear implantations are performed in patients below 12 months of age. Consistent with the existing literature, we found that the earlier a child with hearing loss is implanted, the better the likely outcome. Although it is better to perform cochlear implantation as early as less than 12 months of age, some preoperative complications which are more prominent at younger ages should be considered.

The Risk Factors of Hearing Loss among Iranian Deaf Children

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Keywords: Hearing Loss, Cochlear Implantation, Population

Introduction: In order to determine the etiology and rate of deafness, studies on the prevalence and causes of deafness have to be done over several time periods in several geographical areas. The main aim of the present study was to demonstrate the causes of profound bilateral severe sensorineural hearing loss among some Iranian children candidates for cochlear implantation. **Material and Methods:** Our study was designed to collect information about profound hearing impaired cases referred from all over the country through the ENT services to the Baqiyatallah Cochlear Implantation Center. A total of 310 children with a diagnosis of profound hearing impairments attending the Baqiyatallah Cochlear Implantation Center and ranging in age from 6

months to 4 years were admitted to this study. **Results:** Risk factors were obvious in 218 (70.3%) of all patients with profound hearing loss but was unknown in 92 (29.7%) patients. As it is shown in Table 1, 103 (33%) children had one or more close deaf relatives in their family, so they were considered hereditary deafness cases, followed by prematurity 32 (10.3%), syndromic cases 25 (8%), maternal TORCH infection 12 (3.9%), severe hyperbilirubinemia 9 (3%), eruptive infections 9 (3%), meningitis 8 (2.6%), asphyxia 6 (2%) and oto-toxic drug 6 (2%). **Conclusion:** The present study was an attempt to identify various causes of the identifiable causes of severe to profound hearing impairment in an/the Iranian population. Relevant literature has been reviewed.

Consanguineous Marriage Among Parents of Iranian Deaf Children

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Keywords: Consanguinity, Deaf, Cochlear Implant

Abstract: There was little data about the association of consanguinity and profound hearing loss in Iran. The aim of the present study was to document the causes of profound bilateral sensorineural hearing loss among Iranian patients candidate for cochlear implantation. **Method:** Our study was designed to collect data about profound hearing impairment cases referred from all over the country by the ENT services to the Baqiyatallah Cochlear Implantation Center. A total of 310 children with a diagnosis of profound hearing impairment who attended the Baqiyatallah Cochlear Implantation Center between January 2007 and April 2009, ranging in age from 6 months to 4 years were included in this study. We used SPSS (Version 15) and the Chi-square test to assess whether there was any statistical difference between the frequency of marital consanguinity of the parents in deaf students and that rate in the normal population. **Result:** A total of 203 (65%)

children had parents married with their relatives. From the 203 (65%) patients' parents that had consanguineous marriages, 132 parents were first cousins, who included the children of two brothers (patrilateral parallel cousins) 37 (11.8%), the children of two sisters (multilateral parallel cousins) 38 (12.2%), or the children of a brother and a sister (cross-cousins) 57 (18.3%). Fifty-four (17.4%) of the parents were second cousins and the remaining 17 (5.2%) parents were beyond second cousins. **Conclusion:** Our data demonstrated 65% consanguineous marriages among parents of deaf children. That is statistically different from the percentage of consanguineous marriages among Iranian population (38%), which indicates an obvious relation between severe hearing loss in the offspring and consanguineous marriages.

Infectious Complications in Pediatric Cochlear Implantation

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Keywords: Hearing Loss, Cochlear Implantation, Infectious Complications

Background: There are few studies demonstrating the different complication rates in children in various age groups. The aim of the current study is to report the complications encountered in various age groups of consecutive children undergoing implantation in our center. **Method:** We performed a prospective analysis of all the profoundly deaf children who underwent cochlear implantation from March 2006 to July 2009 at the "Baqiyatallah Cochlear Implantation Center". All the patients were younger than five years old at the time of implantation. The patients were reviewed for demographic information, type of hearing loss, cochlear implant device, and complications. The patients were excluded from the study if there was insufficient information. **Result:** Major infectious complications (meningitis) were detected in one case (0.4%) (n = 1). A summary of the complications based on the

patients' age is given in Table 1. Minor complications occurred in 49 (18.7%) of the cases. The most common postoperative complications in our cases consisted of otitis media in five cases and wound infection in two (0.8%) cases. **Conclusion:** In the present study our results designate that infectious complication rate was not significantly different among various age groups. Indeed, cochlear implantation in children continues to be reliable and safe in experienced hands, with a low percentage of severe complications, as long as the patient is monitored closely, and the family has appropriate expectations. Moreover, pre-operative vaccination against Haemophilus and Pneumococcus, as the most common agents in this group of patients, should be given as part of the general treatment.

Etiology of Hearing Perception Disorders in Incoming Schoolchildren

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Keywords: Hearing Perception, Screening, Pathology, Disorders Etiology

During the years 1385-1388, as the incoming schoolchildren took health booklets as part of a general evaluation process, the properties and pathologies of disorders of hearing perception and some of its lateral indexes were checked. In summary, 43,306 children were checked each year, of whom nearly 2.233 percent were suspected of hearing problems. Six-hundred and fifty-two of the suspected children were evaluated with especial evaluation tests and by expert clinicians and ear and hearing pathologists. Over 31.5% of these abnormal hearing children needed medical referral and treatments, but nearly 79% of the children with medical needs did not take any of these treatments and the parents were unaware of these problems. It is notable that these primary hearing screening tests have a low discrimination index that confirmed hearing and ear problems must be more than this distribution amount, and naturally unawareness of hearing perception disorders is

much more than this index. Other lateral researches show that most of pre-school age children have never undergone hearing evaluations. On the contrary, experience in other health evaluations had much over performance index for example eye and vision inspections. **Summary:** The results show many hearing perception disorders in children have remained as uncontrolled and undiagnosed diseases, which necessitates the general spread of ear and hearing evaluations for children to improve the existing situation.

Management of Otologic Cerebrospinal Fluid Leakage Using Free Autologus Muscle Graft

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Keywords: Cerebrospinal Fluid (CSF) Leakage, Muscle Graft

Cerebrospinal fluid (CSF) leakage is a rare but grave condition that needs meticulous and well-timed intervention. Autologous materials, such as temporalis fascia, temporalis muscle, fascia lata, cortical bone, cartilage, and fat, are widely available. We have presented a simple and effective method for the management of the small to moderate (up to 15mm) dural defects occurring during the surgeries of the skull base. We have used a free muscle graft in a sand clock fashion (dumbbell-shaped) through the defect. This procedure enables the surgeon to close the defect and cease the leak even in the anatomically difficult areas, which are not uncommon when the surgical operation is on the skull base.

Associations between HLA-C Alleles and Meniere's Disease

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Keywords: Genetics, HLA, Meniere's Immunogenetics

Objective: Both genetic and environmental factors seem to play roles in the etiology of the Meniere's disease (MD). Several genes may be involved in the susceptibility to MD, including Human Leukocyte Antigens (HLA). The associations between MD and HLA alleles had been previously studied in other populations, and certain HLA alleles had been shown to be predisposing. The aim of this study was to determine the association between HLA-C allele frequencies and MD in an Iranian population. **Methods:** HLA-Cw allele frequencies were determined in patients with MD (N=22) and non-related healthy controls (N=91) using PCR-SSP. **Results:** We found that the frequency of HLA-Cw*04 was significantly higher in our patients compared to that in the controls [P = 0.0015, OR; 20, 95% CI (3.7-196.9)]. **Conclusions:** Our results revealed HLA-C is a predisposing factor in MD in an Iranian population.

SOM Prevalence

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Keywords: OME, Prevalence, 3-6-Year-Old Children

Introduction: Unlike acute otitis media, which is a systemic and symptomatic disease with severe Otagia, otitis media with effusion is an asymptomatic and silent disease. OME is the most common cause of conductive hearing loss and has adverse effects on speech development and cognitive skills. **Methods:** This cross-sectional study was designed to determine the prevalence of OME in 1001 three-six-year-old children in different kindergartens of Kerman, who were evaluated by multistage randomized sampling. They were examined by otoscopy and pneumatic otoscopy; then, suspicious cases were referred to the Kerman Shafa Hospital for tympanometry and acoustic re-ex for further confirmation. Data were analyzed with the SPSS software. **Results:** Of a total of 1001 patients, OME was diagnosed in 57

children (5/7%). More than 50% of the children were asymptomatic. Among the symptoms, periodic ear pain and turning up the volume of TV were more common. **Discussion:** With improved knowledge about the diagnosis and treatment of OME, especially in younger children, hearing problems or cognitive and linguistic skills retardation may be avoided by general information.

Tympanosclerosis Surgery: Hearing Results

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Keywords: Tympanosclerosis, Chronic Otitis Media, Stapes Fixation, Ossicular Reconstruction

Background: There is some evidence supporting mobilizing fixed ossicles, but there are concerns regarding re-fixation and recurrence of conductive hearing loss. Disagreements about the pathophysiologic process and illusive hearing results after the treatment lead to controversies about the management of this disease. Overall, surgeons adopt one of the following strategies for hearing loss in tympanosclerosis: (1) no manipulation of risky sites and use of amplification instead, (2) mobilization, or (3) stapedectomy.

Methods: This study is a retrospective analysis of clinical records, operative notes and audiologic data of patients (1992-2009). Audiometric findings are reported according to the recommendations of the Committee on Hearing and Equilibrium 1995 Guidelines for the Evaluation of Results of Treatment of Conductive Hearing Loss.

Results: The mean follow-up period was 28.27 months (0-170). The air conduction threshold was significantly decreased after the surgery (49.3 to 40.4 dB). Sixty-two ears (31.6%) achieved none of the above criteria and were considered poor postoperative results. The hearing results were significantly worse in patients with ossicular involvement. At the first stage, we do not attempt

to mobilize the fixed stapes, and we do our best to prepare a mobile incudo-malleus complex for the second stage. The pure tone average was significantly improved in patients with incudomallal fixation, stapes fixation, or total ossicular fixation. The surgery was considered successful in 65.3% of IM fixed patients, 100% of pure stapes fixed patients, and 62.7% of all in the ossicular fixation group. Interestingly, 41.2% of the patients had their bone conduction level improved after the surgery; however, in 11.3% of the patients, a bone conduction decrease of more than 10 dB occurred.

Conclusion: Surgery is a safe and efficacious method of treatment for tympanosclerosis, which not only can eliminate otorrhea, and life limiting consequences of this disease, but also can significantly improve hearing. If, after the surgery, no hearing improvement is achieved, at least hearing aids can be used with an intact tympanic membrane.

Clinical Application of Tissue-Engineered Replacement for ear Ossicles: PORP- and TORP-Shaped (Hydroxyapatite-Based Scaffolds) Cultured with Human Mesenchymal Stromal Cells

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Keywords: Partial Ossicular Replacement Prosthesis (PORP), Total Ossicular Replacement Prosthesis (TORP), Ossicles, Human Mesenchymal Stromal Cells (hMSC), Bone Tissue Engineering, Poly Propylene Fumarate (PPF)

Background: Ossiculoplasty is the standard procedure to treat conductive hearing loss. Depending on the type of the defects, partial or total replacement of the ossicular chain is required. Different biomaterials have been used to substitute the missing ossicles to find the best material. This study was designed to evaluate the feasibility of hydroxyapatite PORP and TORP as a scaffold with

human mesenchymal stromal cells (hMSCs) and their use as replacement prosthesis during ossiculoplasty. **Material and methods:** This study was conducted in three male patients (two canal wall down due to cholesteatoma and one incus erosion due to chronic otitis media) between April 2008 and June 2009. All the pre- and postoperative audiometric evaluations (pure tone air and bone conduction thresholds) were performed in the same center and by the same audiologist before, three months, six months, and one year after the operation. **Results:** The hMSCs were positive for CD10, CD44, CD166, CD106, HLAABC, CD90, CD54, and CD105, but were negative for CD34, CD45, CD117, and CD31. Hearing was acceptable and no signs of rejection were seen after at least one year of follow-up. **Conclusion:** The idea of tissue-engineered ear ossicles can be a feasible and interesting option for the replacement of the ear ossicles. However, the final outcome needs longer follow-ups.

Ear Surgery Results on Bone Conduction Threshold Improvement

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Keywords: Ear surgery, Bone Conduction, Hearing Threshold Improvement

Introduction: Sound transmission into ear happens through bone conduction (BC) and air conduction (AC). Bone conduction threshold depression is not always by means of sensory-neural hearing loss, and is sometimes an artifact caused by middle ear pathologies and ossicular chain problems. In this research, we tried to study the results of ear surgeries on bone conduction improvement. **Methods:** This is a clinical trial study which was performed in the Al-Zahra Hospital in Isfahan. The ear surgeries were performed on 83 patients in four categories: stapedectomy, tympanomastoid surgery and ossicular reconstruction, both partial and total (PORP, TORP). Audiometric evaluations were performed in all the patients at preparation time

and at least three months after that. Bone conduction thresholds were assessed at frequencies of 250, 500, 1000, 2000, 4000 Hz before and after the operation. The results in each group were analyzed using the statistical t-test. **Results:** In stapedectomy group, the average of BC threshold at all frequencies improved, and it was statistically significant at the frequency of 2000 Hz. In the tympanomastoid group, the improvement in the average of bone conduction at the frequency of 500, 1000, and 2000 Hz was statistically significant. In the PORP group, improvement was seen in the BC threshold averages at all frequencies, and it was statistically significant in 4000 Hz. In TORP group, the results showed BC threshold improvement at all frequencies. **Conclusion:** BC depression is not exactly equal to sensory-neural hearing loss and irreversible. The middle ear pathologies and ossicular chain problem could have an effect on it. By resolving the middle ear pathology, the better the AC and BC threshold improve, the fewer hearing problems the patients would face.

Implantable Hearing Aids (Vibrant Sound Bridge)

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Fewer than one in eight eligible adults actually use a traditional hearing aid. This can be partly explained by the limitations of traditional hearing aids, which are: 1. Insufficient gain: our gain expectation from different kinds of hearing aids is for ITE 55-65, for ITC 45-55 and for CIC 35-50. 2. Acoustic feedback certainly for completely in the canal hearing aids and in patients with mastoid bowl cavity following the tympanomastoid surgery. 3. Distortion of the sound limited amplification below 100-200 Hz and above 5000-6000 Hz by traditional hearing aid makes this problem and produces a fake or artificial output. 4. Poor appearance. 5. Occlusion effects, which predispose the users to have a feeling of pressure on the canal skin, increases the risk of otitis

externa, causes autophony, blocks pathway for sound entry and finally disrupts external auditory canal resonances. In contrast, when we focus on advantages of implantable hearing aids, it makes us sure that although in some circumstances traditional hearing aids are still the choice, in many cases, implantable hearing aids offer the best options. For example, they increase gain and dynamic ranges of amplification, reduce feedback, and improve the appearance and the freedom of the patients from ear canal occlusion. For these reasons, there is an increasing demand for this type of surgery. There are two basic types of transducers which have been incorporated in these devices, piezoelectric and electromagnetic. Vibrant Sound Bridge uses the latter transducer. We can briefly enumerate the indications of VSB as follow: 1. Patients with moderate to severe sensorineural hearing loss. 2. Patients with mixed hearing loss. 3. Patients with conductive hearing loss. 4. Patients undergoing subtotal petrosectomy: New Application for the Vibrant Sound bridge Device and Its Implication for Lateral Cranium Base Surgery. 5. Persons who cannot use conventional hearing aids for medical reasons or who are dissatisfied with other hearing devices. 6. Persons who cannot tolerate foreign bodies in the ear canal for medical reasons, e.g. ear canal eczemas. 7. Persons requiring a free ear canal for their professions (physicians, musicians and singers) may benefit from a middle ear implant as well. It should be emphasized that during candidacy evaluation the patient must meet the following criteria: 1. Stable hearing loss. 2. Absences of retro cochlear or central involvement. 3. Being 18 years of age or older. 4. No skin conditions preventing the attachment of the audio processor. 5. Speech understanding of at least 50% on an open-set word test. Our results over the last three years have shown that among our patients it makes ; No alteration in hearing thresholds Provide a significant functional gain especially for the high frequency hearing loss Low side effects, mostly transient Good correlation between questionnaires and audiological findings High level of patient's satisfaction Fortunately so

far ,Performance does not deteriorate with time. In this presentation, surgical steps will be demonstrated in details with different video clips.

Clinical Study of Clival Chordomas in Five Patients

Seyed Hadi Samimi Ardestani MD, Mohammad Reza Majidi MD

Objective: To study the clinical characteristics and disease extension in a group of patients with clival chordomas. **Methods:** Retrospective case series. **Results:** Five patients were included in this study (four men and one woman). The mean age of the patients was 47.2 ± 22.8 (15-76 years). The primary presenting signs included visual loss and 6th nerve palsy, 11th and 12th nerve palsy and hearing loss, 3rd nerve palsy and ptosis, neck mass and headache. All the patients had clival involvement and one patient also had cervical spine involvement. All the patients underwent endoscopic surgical resection followed by radiotherapy. The mean duration of hospital stay was 16.4 ± 17.9 days. **Conclusion:** Since clival chordomas have a diverse range of clinical presentations, precise clinical examination along with a high index of suspicion and use of appropriate imaging can lead to proper diagnosis.

New Aspects of Glomus Tumors Management

Masoud Motasaddi Zarandy MD, Masoomeh Saeedi MD

Glomus tumors develop from neural crest tissue. They can develop sporadically, as part of an inherited syndrome or in association with other tumor syndromes like MEN2-vHL and NF1. There is still considerable debate over the best management for patients with glomus tumors. To determine the best management for these tumors, careful and individual consideration of these factors are essential: size of tumor, patient's age,

general health, preexisting symptoms, multicentricity, type of genetic mutation, capacity of malignant degeneration, and available surgical skills. There are four different treatment modalities at our disposal: 1. Surgery 2. Radiotherapy 3. Combination of surgery and radiotherapy and 4. Wait and see, scan,... In this presentation, our experience will present, and try to modify our approach based on new findings in genetic researches and new surgical techniques as well as modern technologies which are available in radiotherapy.

Radiographic, Audiometric and Clinical Findings of the Iranian Patients with the Congenital Inner Ear Anomalies

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We conducted a retrospective study to determine the clinical, radiological and audiometric characteristics of the patients with congenital inner ear anomalies in an Iranian population.

Methods: The medical records of the patients presented to the Cochlear Implant Ward of the Amir-Alam Hospital from 2000 through 2010 were reviewed. High resolution temporal bone CT scans and MR images of the patients suspicious of having any types of the inner ear anomalies were reevaluated by a neuro-otolaryngologist and an oto-radiologist. Audiometric evaluations included pure tone audiometry, auditory brain stem response (ABR), and otoacoustic emission (OAE) extraction. **Results:** In our series, 15 children (29 ears) had detectable congenital malformations of the inner ear in their imaging. The abnormal CT or MRI findings included complete labyrinthine aplasia or Michel aplasia (three patients, six ears), enlargement of the vestibular aqueduct or LVA (seven patients, thirteen ears), cochlear anomalies (six patients, 11 ears), Labyrinthine anomalies (six patients, 11 ears), internal auditory canal anomalies (two patients, three ears, one case with bilateral wide IAC and one ear with a narrow IAC

and one case had a bilateral defect in the fundus of the IAC and the risk of Gusher syndrome). The hearing impairment was sensorineural in 25 ears (86%) and mixed in 4 (14%). SNHI was severe-profound in all 29 ears and the audiograms were downsloping or showed a high-frequency SNHL. **Conclusion:** In this series, typically LVA was seen in association with another inner ear anomaly. Except for two ears diagnosed as Mondini's dysplasia, cochlear anomalies were associated with labyrinthine anomalies. In the six ears investigated as Michel aplasia, there were at least three different patterns of the facial nerve course. The patients with bilateral LVAs generally had asymmetrical SNHI. In Michel aplasia, ABR and OAE indicated profound sensorineural hearing loss.

The Effectiveness of Topical Mitomycin in the Treatment of Granulation Tissue after Canal Wall Down Mastoidectomy

Karimi MD, Rabiee MD, Amiri MD, Amali MD, Motiee MD

Introduction: Otorrhea and granulation tissue in Canal Wall Down mastoidectomy (CWD) are the common problem in cholesteatoma removal and lead to many discomforts for both the patient and the physician. The main aim in CWD is creating a dry cavity; therefore, topical antibiotics and acetic acid in variable saturation are used. In this study, we evaluated the effectiveness of topical Mitomycin and chemical cautery with acetic acid. **Method and Material:** The study population consists of 50 patients with cholesteatoma who had undergone CWD in the Valiasr Hospital. All the patients were divided randomly into two study groups, mitomycin and acetic acid (12.5%). All the information about the surgeries and any related variables were collected, and after 3 weeks the first visit planned, extension of granulation tissue and dryness of cavity evaluated and topical drugs used in blind fashion. Mitomycin in 4% and acetic acid in 12.5% saturations were applied. Other visits were

performed after one month and then three months later.

Results: After three months, both methods were effective in the treatment of granulation tissue, but after four weeks, the effectiveness of mitomycin was significantly more than that of the acetic acid. ($p < 0.05$)

Discussion: Based on our findings, it is clear that topical mitomycin is very effective in the treatment of granulation tissue after CWD mastoidectomy in patients with cholesteatoma and results in achieving a dry cavity.

Trigeminal Neuralgia

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Keywords: Trigeminal Neuralgia, Evidence-Based Guidelines, Radiofrequency Treatment, Pain Management, Interventional Treatment

Trigeminal neuralgia is a common cause of facial pain. It has a significant impact on the quality of life and the socioeconomic functioning of the patient. The aim of this review is to provide recommendations for the medical management of trigeminal neuralgia based on current evidence. Based upon the analyses of the literature combined with our experience in pain management, symptoms, assessment, differential diagnosis, and treatment possibilities of trigeminal neuralgia are described and discussed. Recommendations for pain management are given and are displayed in a clinical practice algorithm. Treatment should be multidisciplinary. Various treatment options and their risks should be discussed with the patient. The first treatment of choice is carbamazepine or oxcarbazepine. In younger patients, the first choice of invasive treatment is probably microvascular decompression. For elderly patients, radiofrequency treatment of Gasserian ganglion is recommended and the technique is described in detail.

Combination of Intratympanic Dexamethasone and Systemic Prednisolone in the Treatment of Poor Prognosis Sudden Sensorineural Hearing Loss (SSNHL)

A.Tajadini MD

Objective: To investigate the efficacy of adding intratympanic dexamethasone to systemic prednisolone in the treatment of sudden sensorineural hearing loss (SSNHL) patients with poor prognosis

Design: Prospective clinical trial study

Methods: Patients with SSNHL who met one of these criteria were included in the study: 1. Patients with severe or profound hearing loss, 2. Patients older than 40 years of age, and 3. The interval between the onsets of sudden deafness and the initiation of therapy was more than two weeks. They were randomly divided into two groups on the basis of therapy. One group received systemic prednisolone (1mg/kg/day for 10 days) and acyclovir (2 gr/day for 10 days) and the other received systemic prednisolone and acyclovir and intratympanic dexamethasone (0.4 ml of 4mg/ml dexamethasone). Intratympanic injections were performed in the supine position; twice a week, for two weeks (an overall of four injections). Hearing evaluation was performed two weeks after the treatment. The response to therapy was defined as improvement of more than 15 dB in PTA or 20% improvement in SDS.

Results: Seventy-seven patients fit the criteria for inclusion in the study. Forty-four patients (57.14%) showed an improvement in the hearing evaluation (35.06% in the intratympanic dexamethasone and systemic prednisolone group, and 22.08% in the other group). A statistically significant difference was noted in the patients who received a combination of IT injection and systemic prednisolone (p value:0.001).

Conclusion: Combination of intratympanic dexamethasone and systemic prednisolone is more effective than systemic prednisolone in the treatment of poor prognosis sudden sensorineural hearing loss.

Comparison of Remnant Cholesteatoma Rate in the Canal Wall Down Tympano-mastoidectomy with the Endoscopic Controlled Intact Canal Wall Tympano-Mastoidectomy

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Keywords: Endoscopically Controlled Intact Canal Wall Tympano-mastoidectomy, Canal Wall Down Tympano-mastoidectomy, and Remnant Cholesteatoma

Background and aim: Canal Wall Down (CWD) tympano-mastoidectomy has been the standard surgical treatment for cholesteatoma. This technique is associated with long-term morbidity for the patients. The objective of this study is to compare the rate of remnant cholesteatoma in CWD Vs that of the Endoscopic Controlled Intact Canal Wall (ECICW) technique in patients with cholesteatoma in the middle ear and mastoid.

Methods: In a randomized clinical trial, 40 patients diagnosed with middle ear and mastoid cholesteatoma referred to the Amir-Alam Hospital

were evaluated. They were candidates for tympano-mastoidectomy. They randomly underwent either the ECICW technique (n=20) or the CWD technique (n=20). After the surgery, follow-up checkups in months 3, 6, and 9 were performed. Then, 12 months after the primary surgery under local anesthesia and sedation, the patients underwent a second-look surgery and when possible ossicular reconstruction. During the second look, the middle ear and the mastoid cavity were carefully evaluated for the existence of remnant cholesteatoma in the form of pearls, the rate of which was recorded in both groups.

Results: Based on the findings of the current study, the frequency rate of remnant cholesteatoma was not statistically significant in either the ECICW or the CWD group (p value>0.05). The difference between the mean intervals from stages I to II based on month in neither the CWD nor the ECICW group was statistically significant.

Conclusion: The results of ECICW are comparable with those of CWD for the control of cholesteatoma, while ECICW is associated with fewer complications. Further studies with a larger sample size and follow-up for a longer time are recommended.

Frequency of Acne and its Exacerbation in Facial And Periorbital Area After Septorhinoplasty in the Amiralmomenin Hospital, Rasht, Iran

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Keywords: Rhinoplasty, Acne, Skin and Soft Tissue Complications, Acne Exacerbation

Introduction and Aim: The high prevalence of rhinoplasty in the community, controversies about its cutaneous complications and lack of structured studies in this regard point out the necessity of performing this study. The aim of this study was to determine the frequency of acne after rhinoplasty.

Materials and Methods: In the 110 patients (30 males and 80 females, mean age: 26.3 ± 6.8) who participated in this study, the degree of acne before rhinoplasty was measured by a dermatologist based on the Global Acne Grading System (GAGS). Then, they underwent serial visits one and three months after the surgery to measure acne scores and to determine its severity. The software used for the data analysis was SPSS ver. 17.

Results: The prevalence of acne exacerbation was 27% in the first post-surgical visit. In the first post-surgical visit, 42.9% of those who had no acne before the surgery developed mild acne, and 14.5% of those who had mild acne developed acne. In the second post-surgical visit, 91.7% of those who had moderate acne in the first visit turned into mild acne and 80% of those who had severe acne in the first post-surgical visit changed into moderate acne without any specific therapy. There was a significant difference both in the exacerbation rate of acne in the first postsurgical visit versus the pre-surgical visit and in the decrease rate of acne in the second versus the first postsurgical visit ($p < 0.0001$ in both of them).

Conclusion: Rhinoplasty has a significant relationship with acne exacerbation. The severity of acne decreases gradually during a 3-month period after the surgery and almost reaches the baseline. To determine the exact course and risk

factors of this complication, further studies are needed.

Frequency of Minor Skin and Soft Tissue Complications in Facial and Periorbital Area After Septorhinoplasty in the Amiralmomenin Hospital, Rasht, Iran

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Keywords: Rhinoplasty, Skin and Soft Tissue Complications, Hyperpigmentation, Nasal Tip Paresthesia

Introduction and aim: Irregularities in the skin of nasal dorsum are very common and inevitable in rhinoplasty. The high prevalence of this surgery in the community and lack of structured studies in this regard point out the necessity of performing precise and comprehensive studies. The aim of this study was to determine the frequency of minor cutaneous and soft tissue complications of rhinoplasty. **Materials and Methods:** One-hundred and ten patients (30 males and 80 females, mean age: 26.3 ± 6.8) participated in this study. Before the surgery, all of them were checked for having each of the expected complications, and they underwent serial visits one and three months after the surgery to monitor skin and soft tissue complications. The software used for data analysis was SPSS ver. 17. **Results:** Acne exacerbation was seen in 27% of the cases in the first post-surgical visit. Nasal tip paresthesia was the most frequent complication in both postsurgical visits (28.6% in the first and 36.7% in the second visit), followed by eyebrow loss (18.5%), complaint of increased yawning (18.5%), hyperpigmentation (12.7%) in the first visit, and hyperpigmentation (19.3%), complaint of increased yawning (10.1%) and surgical site scar (7.3%) in the second visit respectively. The frequency of complications was highest in the younger than 25-year-old age group. **Conclusion:** The most frequent complications were: nasal tip paresthesia, eyebrow loss, hyperpigmentation and complaint of increased

yawning (perhaps due to changes in the nasal valve). To determine the course and risk factors of these complications, further studies are needed.

Long Term Comparison of Various Types of Grafts in Rhinoplasty

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Keywords: Graft, Rhinoplasty, Surgery

In this study various grafts used in rhinoplasty in the Amiralam and some private hospitals have been compared. Grafts included septal cartilage, parietal bone, iliac crest, costal cartilage, auricular cartilage, and mastoid bone. Two groups of patients were evaluated by clinical examination and photography. The first group consisted of 50 rhinoplasty patients in whom various types of grafts had been used 3-18 years before by the author and who had visited the author for other reasons. The second group were 20 of the author's own rhinoplasty patients who had consulted him for revision surgeries within 2-8 years of their primary surgeries. Patients operated by other surgeons were not included in this study. Complications such as complete absorption, atrophy, displacement and warping were noted. The results show that the routine use of grafts even columellar strut in patients is not advised, and that definite indications for the use of grafts should be present and the choice of auto graft (bone or cartilage) should be preferred. **Each graft Conclusion:** Septal cartilage is the best choice among various grafts, but it can usually be used in primary rhinoplasty; its size and volume are often limited. Mastoid bone is easily available. Embryologically, it is of the membranous bone type, so its absorption is little. It can be harvested as large a size as needed, and its use is also recommended.

Body Dysmorphic Disorder

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Keywords: Body Dysmorphic Disorder, Psychiatric Disorder, Rhinoplasty

Background: In our country, nowadays, the number of people who are seeking cosmetic rhinoplasty surgery is increasing dramatically. These patients belong to a variety of socioeconomic statuses. Unfortunately, they do not always undergo a comprehensive psychiatric evaluation, especially in terms of body dysmorphic disorders, which comprises a considerable percentage of disorders. **Aim:** In this study, psychiatric disorders, especially body dysmorphic ones, were compared between people who are seeking cosmetic rhinoplasty surgery and those of people who are not. **Methods:** The cross-sectional study was conducted on 300 students of "Azad University" in Kerman in 2007. They completed SCL-90 (a standard questionnaire) including 90 multiple ranked choice questions, which assesses nine major measures, such as somatization, obsession, interpersonal sensitivity, depression, anxiety, hostility, phobia and paranoia disorders. The two-hundred and twenty-five cases (response rate = 225) were divided into two groups: the cases group, who were seeking cosmetic rhinoplasty (105 cases), and the controls (150 cases). The survey compared body dysmorphic disorders and nine psychiatric measures in the cases with the normal people (the controls), according to the SCL-90 questionnaire. **Results:** Of the 255 people who were evaluated (169 females, 66.3%, and 86 males (33.7%), aged 21+ 2.6 years), 14 people suffered from body dysmorphic disorders, yet there was not a significant difference between the cases and the control group ($P= 0.07$). the depression measure (15.73+10.91) and the phobia measure (4.85+4.36) ranked as the highest and the lowest levels of the disorders respectively. Noticeably, we found significant differences between all psychiatric measures between the cases and the controls

except for the depression measure. Regarding severe disorder cases, most healthy interviewees fell in the phobic category (129 cases, 50.6%), while the somatization category comprised 39 cases (15.3%). As for non-healthy students suffering from severe disorders, 10 people were categorized in the psychosis group and one in the phobia, anxiety and depression category. In contrast to the healthy students (who were not evaluated as body dysmorphic cases), non-healthy ones (body dysmorphics) ranked the highest in all the nine psychiatric measures except for depression and paranoia disorders ($P < 0.05$). In addition, all body dysmorphic cases were scaled non-healthy in terms of obsession, psychosis and somatization measures. **Conclusion:** Although we could not find any significant body dysmorphic differences between the cases and the controls (9.5 respectively), regarding higher rate of almost all nine psychiatric measures in the study people, seeking cosmetic surgery, we suggest a comprehensive standard psychiatric evaluation before rhinoplastic surgery.

Abbe Flap in Cleft Lip

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Keywords: Cleft Lip, Abbe Flap, Tight Lip

The goal of reconstructive surgery of secondary cleft lip deformity is to restore both the function and the appearance of the lip. These methods have been described since 1756 by Hierzel and Verbos et al. Abbe described his technique of the repair of conspicuous deformity in a man born with a cleft lip and palate. Since that time, Abbe flap reconstruction has been used more frequently to repair the following resection malignancies. The Abbe flap is an axial flap consisting of skin, muscle and mucosa with a pedicle containing the inferior labial artery. However, the design and operative technique vary according to the

location and destination of the flap, its shape and size, splitting of the ap and the pedicle management. (Shulte et al., 2001) The Abbe flap is used for lateral upper and lower lip deformities involving one-third to two-thirds of the lip, when the oral commissure is intact. Abbe (lip switch) flaps can also be used when there is a full thickness defect of the upper lip involving the philtral columns with central lip defects. (Culliford et al., 2008)

Patients and Methods: Twelve patients

(5 males and 7 females) with secondary cleft lip and nasal deformity received reconstruction using Abbe flap and simultaneous rhinoplasty (rhinoplasty was not performed in two patients under 10 years old) from 2004 to 2008. The age of the patients ranged from 6 to 34 years at the time of the operation, with a mean of 19 years. On the upper lip, the prolabium and lip scars were outlined for excision, continuing up to the bilateral marginal incisions in the nostrils depending on their situation of asymmetry. The width and length of the flap were chosen proportional to that of an anatomically normal philtrum in each patient. Approximately 14 mm in length and up to 9 mm in width on its cutaneous portion.

Discussion: Fortunately, the majority of CLP patients had satisfactory results with the initial surgery. However, there were some cases with structural malrelations and malformations following the surgical procedure. The fracture of premaxilla during bilateral complete cleft lip by the surgeon or anesthetist during difficult intubations was the most important reason of necrosis or severe scar of prolabium that must be prevented. Abbe flap will treat the tight upper lip restricting use of orthodontic appliances and will eliminate the restriction of the alveolar tissue expansion. It is designed to replace the entire philtral column and it is lengthening.

Study on Cardiovascular Changes in the Presence of Adrenalin During Septal Surgery

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Keywords: septoplasty, Adrenalin, Lidocain, Ahythmia

Background: Nowadays septum surgery is one of the most common surgeries which are used for the correction of nasal septum deviation and improvement of breath qualification. At the beginning of the septum surgery, to decrease bleeding and to facilitate the raising of the mucosal flap diluted adrenalin should be injected. The injection of adrenalin in septum surgeries under general anesthesia changes the blood pressure and heart rate. The goal of this study is to research the cardiovascular changes in the presence of adrenalin during septal surgeries and to find the amount of adrenalin causing the fewest changes in the heart rate and blood pressure.

Method and Materials: In a clinical trial, 100 patients undergoing septoplasty at the Tabriz Imam Khomeini Hospital were evaluated. These patients were randomized into two groups. The patients in Group A were injected with 1/200000 dilution of adrenalin, and those in Group B were injected with lidocain and 1/80000 dilution of adrenalin. The changes of blood pressure and heart rate and the amount of bleeding were compared in the two groups.

Result: Fifty patients were enrolled in each group. The two groups were comparable for the age, sex, duration of the operation, previous history of septum surgery, complications in other previous surgeries and drugs used during anesthesia. The percentage of blood pressure changes in the form of hypertension was significantly higher in Group A (14% vs 2%, $P=0/03$). There was no significant difference between the two groups in the heart rate changes. The amount of bleeding was significantly higher in Group A than in Group B ($P=0/04$).

Conclusion: The current study showed that use of 2% lidocain with adrenalin 1/80000 is superior to adrenalin 1/200000 considering the amount of bleeding and blood pressure changes.

Extended Osteocartilaginous Spreader Graft for Reconstruction of Deviated Nose

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Keywords: Deviated Nose, Medial Osteotomy, Rhinoplasty, Spreader Graft

Background: The deviated nose is a challenging problem for the correction of which different approaches may be used. This study introduces a technique using an extended osteocartilaginous spreader graft from a/the quadrangular septum and the perpendicular plate of the ethmoid. After performing medial osteotomy on the concave side, the nasal bone is lateralized and an extended osteocartilaginous spreader graft is inserted between the nasal bone and the septum to prevent further retraction of the concave side due to the fibrotic scar tissue. On the contralateral side, a low lateral osteotomy is performed as routine. **Methods:** The study was designed as a prospective follow-up of fifty-nine patients with deviated nose, who underwent corrective surgeries and were followed for six months to four years. The results were categorized as excellent, fair, and poor according to physical examinations, post-op photography, and patients' satisfaction.

Results: Forty-eight patients (81.3%) had excellent results. Fair improvement was detected in eight patients (13.6%), while only three patients (5.1%) were classified as poor results.

Conclusion: An extended osteocartilaginous spreader graft accompanied with medial osteotomy and lateralizing the nasal bone on the concave side is a new technique with a high success rate for the correction of deviated noses.

Augmentation Rhinoplasty with Combined Usage of Medpor Graft and Irradiated Homograft Rib Cartilage in Saddle Nose Deformity

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Keywords: Alloplast, Medpore, Irradiated cartilage, Implant, Rhinoplasty, Saddle Nose

Abstract Objective: We used the irradiated homograft rib cartilage as an augmentation tip support and Medpore alloplast for the reconstruction of the dorsum in saddle nose deformity patients. Then, the safety and efficiency of this method were evaluated to check whether it can be proposed as a new technique for these patients.

Subjects and Methods: Thirty-two patients who suffered from saddle nose deformity due to past trauma or aggressive rhinoplasty underwent reconstruction using a Medpore prosthesis for the dorsum reconstruction and irradiated rib cartilage as a columellar strut during the same technique. After at least one year follow-up, the patients' satisfaction and their aesthetic indexes were evaluated and compared with preoperative results. **Results:** More than 84% of the patients were satisfied with the results of the surgery and only one patient had the complication of the infection, which resulted in the removal of the prosthesis. Moreover, there were statistically significant differences between most of the preoperative and postoperative aesthetic indexes.

Conclusion: Despite the superiority of autogenous material in nose reconstruction, lack of such materials in revision rhinoplasty poses a challenge for surgeons. This study can propose the safety and efficiency of the Medpor alloplast for the reconstruction of the dorsum and irradiated rib cartilage for the tip for at least a short period of time.

Using Rigid Splint in Septoplasty

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Keywords: Septoplasty, Splint, Rhinoplasty, Adhesion

Rigid and soft splints are used in septorhinoplasty for fixation, prevention of adhesion, straightening of the septum, and repair of septum perforation. Recently surgeons have been using the soft splint, which has a channel through which the patient can breathe after septorhinoplasty with tampon. **Instructions:** One of the most important problems in septoplasty is the return of the deviation of the septum in the long term; i.e. if the septum has a convexity or concavity, despite the septoplasty, it tends to move to the previous situation. The reason is that the septum is not completely dissected, and this deviated part is stitched to the upper part or the perpendicular plate of the ethmoid and in long time moves this deviated section. In septoplasty, we dissect the septum in lower –infront back part, and we keep the upper part. We create the swimming door if a deviation exist in this part in long term may be move to previous deviation. In septoplasty, after the dissection, the surgeon may be morselization or cut the septum and suture and fix the septum with tampon after eliminate the tampon till to 3-6 month septum maybe deviate. We using rigid splint in long term (6-12 months) and has good results in keeping septum straight mode.

Drop Nose

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Keywords: Septal Deviation, Deviated Nose Saddle, Nose, Shortening of Columella

Drop nose the drop nose in the upper and lower sections causes poor breathing and deformity of the nose. In this lecture we discuss the causes and the method of operation. Nasal tip depression and deformation of the labial angle for any defund as saddle nose. This angle is 95-100 degrees in men and 95-115 degrees in women. Apart from the role

that this angle has in breathing, it also has an important role in making individuals look younger. This nasal tip depression can cause some minor disorders in breathing functions. Causes: Several causes can make this angle deformation. The most important causes are strokes and disorders in the nose tip organization and the loss of important tip support, such as reaching septum caudal or removing a lot of septum in SMR

Reconstruction of Head and Neck Defects: A Review of Fifty-Two Cases

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Keywords: Facial Defect, Reconstruction, Flap, Skin Graft

Achieving the best aesthetic and functional outcomes is challenging in many ways in an area as intricate as visible to scrutiny as the head and neck. Defects in this area may be secondary to tumor resection, trauma (gunshot, animal bite) and burns. Reconstruction options include: primary wound closure, secondary intention healing, skin grafting, local and regional flaps and microvascular free flaps. This article reviews six years of experience of reconstructing head and neck defects in Western Azarbayjan, in the northwest of Iran, including 24 cases of primary wound closure, 21 cases of local or regional flap use, nine cases of skin grafting and two cases of secondary intention healing. Besides, a concise overview of the practical knowledge of managing these defects and epidemiological aspects of skin malignancy in that area of Iran will be presented.

Rhinomanometry: The Comparison of Rhinomanometry Between Twenty Septorhinoplasty Patients Before and After the Surgery

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Keywords: Rhinoplasty, Septal Deviation

Complaints of shortness of breath after the surgery are one of the most common problems between patients and surgeons. At this time for reviewing of decreasing and increasing breath by nose those things that patients say are used for surgery. Rhinomanometry is an experiment which by comparison and measuring breath after and before surgery gives another solution to surgeon and patients. Rhinomanometry measure the simultaneous air pressure that is register in certain place and also measure the relation of air pressure and internal air flow from nose to Nasopharynx. When air flow in the nose that in its passing way there is a different between nasal cavity and Nasopharynx so the air owed from the posterior hole (high pressure) to inferior hole (low pressure).

The Suborbicularis Fat: Anatomy and Implications for Surgical Rejuvenation

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Periorbital rejuvenation has increasingly relied on augmentation with fillers. Numerous techniques have been described, including augmentation of the sub-orbicularis oculi fat. Cadaver studies showed presumptive evidence that sub-orbicularis oculi fat consists of two distinct regions. Knowledge of this anatomy is important for precision in facial rejuvenation. Recent studies confirm the presence of two distinct regions of sub-orbicularis oculi fat. A medial component extends along the orbital rim from the medial limbus to the lateral canthus. A lateral component extends from the lateral canthus to the temporal fat pad. The lateral component terminates superiorly at the lateral orbital thickening. Deep cheek fat abuts the medial sub-orbicularis oculi fat, thus

creating a deep fat system in continuity across the face of the maxilla and along the orbital rim. This anatomy helps to define midface adipose tissue as a system of superficial and deep fat, of which medial and lateral sub-orbicularis oculi fat are a part. A working hypothesis of facial aging continues with the concept that loss and/or ptosis of deep fat compartments leads to changes in shape and contour. Folds, in contrast, occur at transition points between thick and thinner superficial fat compartments. This anatomical knowledge will be helpful in achieving the goal of site-specific augmentation and facial rejuvenation.

Evaluation of Decline of Nasal Packing Time in Severity of Pain after Septoplasty Surgery

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Keywords: Nasal Packing, Septoplasty, Postoperative Pain

Background: Nasal packing after septoplasty in nasal septal deviation is used by most surgeons. There is some controversy about the duration of nasal packing after the surgery. The aim of this study was to evaluate the severity of pain in patients with 24 and two hours of nasal packing time. **Material and Methods:** This randomized clinical trial study was performed on 64 patients, who were randomly grouped into two groups: the control group with 24 hours of nasal packing and the case group with two hours of nasal packing. The severity of pain was evaluated with VAS scaling in both groups after two hours and then in the case group, the nasal packing was removed. The pain was also assessed also at other times (4, 6, 12, and 24 hours after the surgery). Then findings were analyzed using the chi-square test. **Results:** In the case group, the VAS result was 5.76, while that of the control group was 6.17 after two hours. Also the results at other times showed less pain in the case group ($p < 0.05$). In neither group was there severe bleeding or re-packing after the removal of packing. **Conclusion:** The results of our study showed that the decline of time in nasal packing cases had a significant effect on reducing the pain after septoplasty without increasing the side effects.

The Effectiveness of Septoplasty in the Improvement of the Nasal Symptoms

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Keywords: Septoplasty, Epistaxis, Mucocilliary Clearance, Headache

Abstract Introduction: Nasal septum has many functions that include dividing the nose into two separate chambers, supporting the nasal dorsum, and the maintenance of the nasal form. Traumatic deviation or developmental anomaly of the nasal septum can induce nasal obstruction and many other symptoms. With septoplasty, we can improve many such symptoms. Although septoplasty is a common procedure, there have been very few studies on the outcomes of nasal septal surgery. The clinical impact of septal deviation is controversial. **Methods and Materials:** We evaluated all the patients that underwent septoplasty in this study in the ENT Ward of the Imam Hospital. We studied the improvement of patient symptoms (nasal obstruction, recurrent epistaxis, snoring, sinusitis symptoms, and headache). Data were collected from physical examinations and questionnaires before and six weeks after septoplasty. **Results:** Eighty-four patients were included in this study. All the patients had nasal obstruction, snoring was present in 50 patients, and sinusitis symptoms were present in 41 patients. Recurrent epistaxis was seen in 24 patients, and headache in 36 patients. After septoplasty, the nasal obstruction was present in nine patients, snoring in 13 patients, sinusitis symptoms in 12 patients, recurrent epistaxis in one patient, and headache in 20 patients. **Conclusions:** After data analysis with the S.P.S.S. software, we found that septoplasty is effective in the improvement of patients' symptoms.

Diagnostic Efficacy of Different Methods in the Assessment of Adenoid Hypertrophy

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Keywords: Adenoids, Adenoid Hypertrophy, Adenoidectomy, Nasal Obstruction, Lateral X-Ray, Nasal Endoscopy

Abstract Objective: This study was designed for the better understanding of the role of different methods of nasal endoscopy in the assessment of adenoid hypertrophy and comparing them with lateral neck radiography and patients' symptoms. **Subjects and Method:** from August 2007 until January 2009, in the otolaryngology ward of a tertiary referral center, 89 patients who were suffering from symptoms related to chronic mouth breathing participated in this study. The history of the symptoms related to adenoid hypertrophy was obtained from them. In addition, all the patients underwent nasal endoscopy and lateral nasopharynx X-ray imaging. The clinician who performed the nasal endoscopy was blinded to the information about the clinical data and X-rays and vice versa. Then, the relationship between the symptoms and each diagnostic procedure was evaluated.

Results: The patients had a mean age of 9.47 ± 4.68 years. In the evaluation of the relationship between symptoms grading and grading in lateral neck radiography, this relationship was significant for snoring. Also, there was a significant relationship between the endoscopic size of adenoid and the number of the episodes of acute otitis media. The sum of symptoms grading had a significant relationship with the size of the adenoid in lateral neck X-rays, but not in the nasal endoscopy.

Conclusion: The results of the present study indicated that both radiography and nasal endoscopy could define the relationship between adenoid hypertrophy and associated symptoms and are therefore complementary. Between the two, despite the popularity of nasal endoscopy, radiography can serve as a better planning tool.

The Fungi Flora of Healthy Nasal Mucosa in Kerman

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Keywords: Fungi, Normal Nasal Flora, Kerman

Environmental fungi, molds and yeasts can infest the nasal cavity through the inhaled air. There is some evidence that they could be the main cause of Chronic Rhino-Sinusitis (CRS), but little is known about the normal fungal flora in the human nose. The objective of this study was to assess the normal fungal flora of the nose in adults in Kerman. We conducted a cross sectional study. Nasal swabs were used to sample the nasal cavity flora of 100 adults, 46 men and 54 women between 17 and 60 years old, currently living in Kerman, Iran. Of the 100 healthy people, one or more types of fungi were detected in 31(=31%) persons; Candidiasis in 12 persons, Aspergillus in eight persons, Streptomyces in eight persons, and Penicillium, Nocardia and Mucor in a few persons. Only in four persons, was more than one type of fungi detected. There was no significant relation between age, sex, education or smoking with the presence of fungi.

Microscopically Guided Sinus Floor Elevation: A New Minimally Invasive Technique

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Keywords: Microsurgery, Sinus Maxillaries, Surgical Microscope

The accidental perforation of Schneider's membrane during external sinus floor elevation is the most serious complication of this technique in oral implantology. Using specially developed microsurgical instruments under optical magnification of surgical microscope reduces the bony size of external access of sinus floor elevation.

Intracranial Angiofibromas: Controversies in Management and the Personal Experience

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Introduction: Juvenile nasopharyngeal Angiofibromas (JNA) is a benign but locally invasive tumor of the nasopharynx that is found primarily in the teenage male. Although surgery is the mainstay of the treatment of these tumors, the management of more aggressive tumors with extensive intracranial extension has been a matter of discussion. Our literature study gained an overview of various options in the management of these lesions. As a referral center for angiofibroma, we present our experience and controversies on a considerable group of patients in whom the sphenoid sinus, sella turcica and clivus were extensively eroded, and the tumor had spread deeply into the cranial fossa while presenting personal experience on some of our extreme cases. **Methods:** Extensive intracranial extensions of angiofibromas were reviewed from the literature. One-hundred and fifty-one patients were found to have angiofibroma with intracranial extension. Various approaches were employed in gaining access to these lesions, which included surgery, radiotherapy, chemotherapy or a combination of these modalities. **Results:** The surgical approach was the sole treatment modality in 85 patients. The surgical excision of tumors was performed through various approaches ranging from minimally invasive endoscopic approaches to the most radical craniotomy approaches. Forty-six patients were managed by radiotherapy alone. Nineteen patients were treated by the combined surgery and radiotherapy approach. One patient was managed by chemotherapy followed by radiotherapy. **Conclusion:** There is a wide spectrum of intracranial extension of angiofibroma with different involvements and the approaches have been used differently by many surgeons, so it is difficult to compare the results of surgical reports of all of the different series because applying various approaches also depends on the dura involvement or perforation, cavernous sinus involvement and feeding vessels of tumor. In

addition, recurrence rates in all cases were obviously much higher for more extensive stages by any approach.

The Comparison of Histopathological Characteristic of Polyps in Asthmatic and Nonasthmatic Patients

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Introduction: Considering the different clinical aspects of polyps in asthmatic and nonasthmatic patients, we aimed to explore their histopathological characteristics. **Material and Methods:** Twenty-five asthmatic patients and 25 nonasthmatic patients with polypoid chronic rhinosinusitis (29 males, 21 females; mean age 41.3-13.27; range 15-78 years) were enrolled in the study to be compared on the basis of histopathological characteristics. They were compared according to the following seven light microscopic findings: basement membrane thickness, goblet cell hyperplasia, subepithelial edema, submucous gland formation, eosinophilic infiltration lymphocytic infiltration and polymorphonuclear infiltration. **Results:** Basement membrane thickening, goblet cell hyperplasia and eosinophilic and lymphocytic infiltration were more prominent in the asthmatic compared with the nonasthmatic group ($p < 0.05$), whereas polymorphonuclear infiltration was more prominent in the nonasthmatics ($P < 0.05$). No statistically significant differences were found between the two groups with regard to submucosal gland hyperplasia or subepithelial edema. **Conclusion:** Asthmatic patients present histopathological characteristics of a marked chronic inflammatory reaction, which might explain the negative effect on chronic rhinosinusitis outcomes and the severity of the disease in this group.

Intranasal Steroid in Adenoid Hypertrophy, Clinical and Radiographic Comparison in Two Age Groups

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Keywords: Adenoid Hypertrophy, Intranasal Steroid, Surgery, Treatment

Introduction: Adenoid hypertrophy is one of the most common causes of nasal obstruction, which leads to high morbidity. Moreover, adenoidectomy is one of most common surgeries in children.

Object: The evaluation of intranasal steroid as an alternative to surgery to reduce the adenoid size and the symptoms. **Material and Method:** In a clinical trial study, we evaluated 51 patients, 2-11 years old, with adenoid hypertrophy. After adjustment with inclusion and exclusion criteria, a questionnaire was filled, and examination and radiography were performed. All the patients underwent a three-month medical therapy with mometasone intranasal steroid, one puff in each nostril twice a day. After the three-month treatment and after the three-month medical sessions, all the patients were evaluated. A comparison was also made between 2-4-year-olds and 5-11-year-olds. **Result:** No significant difference between sex, age, clinical problems and radiologic findings was noted prior to the treatment. Nasal speech, daily somnolence, open mouth breathing, and nasal congestion had a significant statistical difference (<0.001) after a three-month therapy, but this difference did not continue up to three months after the treatment session. Twenty-two patients (43.1%) had a good response, ten (19.6%) had a minor response and 19 (37.3%) had no response. Pearson's correlation coefficient was 0.63, which showed a significant correlation between radiologic and clinical responses. **Conclusion:** As a good response and tolerance that was noted in intranasal steroid, it may be a good alternative to adenoidectomy. However, this response may be not permanent and

needs better evidence to become a standard treatment.

Evaluation of Flixonase (Fluticasone) Nasal Spray and Cromolyn Na Nasal Spray in the Treatment of Allergic Rhinitis

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Keywords: Flixonase, Cromolyn Na, Allergic Rhinitis

This study was undertaken to evaluate the efficacy of a two-week course of flixonase nasal spray vs. cromolyn Na nasal spray in patients with symptoms of allergic rhinitis referred to our clinic. This study reviewed randomized studies with symptoms of allergic rhinitis patients who received a total daily dose of nasal spray flixonase 200 mcg bid (n=68) compared with patients with allergic rhinitis who received a total dose of cromolyn Na 200 mcg bid (n=50). The patients were visited after seven days and after 14 days and the efficacy of flixonase and cromolyn Na was evaluated by the change in the nasal symptoms including: nasal discharge, nasal obstruction, and sneezing. After two weeks of treatment, the nasal symptoms of blockage, discharge, and sneezing were significantly better in the group treated with flixonase nasal spray (66/2 0/0-77/9 0/0- 79/40/0) respectively ($p<0.05$) but after the treatment with cromolyn Na nasal spray, far fewer benefits in the nasal symptoms were seen (20/0-20/0-20/0) respectively. After two weeks of the treatment, no deleterious changes consequent to the therapy were observed in the nasal symptoms. After seven days, the improvement rate in the group of flixonase was 50% (n=24) in nasal discharge, 53% (n=20) in blockage and 44% (n=18) in sneezing. In the treatment of allergic rhinitis, 200 mcg bid flixonase is very effective with a fast onset of action.

How We Passed the Learning Curve of Endoscopic Pituitary Surgery: Hints in Anatomy, Radiology and Surgery

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Keywords: Endoscopic, Pituitary, Learning Curve, Surgery

Background: Conventional transsphenoidal pituitary surgeries are increasingly replaced by the endoscopic endonasal approach. Looking at how we have been passing the procedure's learning curve, it revealed to us so many important hints that we found worth mentioning.

Methods: We reviewed the data sheets and movies of our first thirty (of a total of 103 patients) endoscopic endonasal transsphenoidal pituitary surgeries. Details of various parts of the approach with pre- and postoperative images and follow-up data were reviewed and modifications in each part according to later cases were noticed.

Results: With more practice, the size of the dural opening, the ability to address suprasellar or lateral extensions and increased while risk of intra-operative CSF leak and post-operative DI decreased. Teamwork along with 3- and 4-handed surgery improves. However, the rate of complications does not change. The practical key points to achieve these results along with technical improvements were discussed. The key principles and critical equipment used in the procedure with anatomical and surgical hints were emphasized.

Conclusions: Besides scientific knowledge that should be obtained in the field of anatomy, the ability to interpret the imaging studies properly helps avoid complications. Another need is the ability to work and use endoscopy in teamwork, which is the most basic difference from microsurgery.

The Key Methods to Increase the Success Rate of Endoscopic Repair of Cerebrospinal Fluid Rhinorrhea

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Keywords: Cerebrospinal Fluid Leakage, Cerebrospinal Fluid Rhinorrhea, Endoscopic Sinus Surgery

Background: The endoscopic approach is the procedure of choice for the repair of cerebrospinal fluid (CSF) rhinorrhea. New methods using different grafts, synthetic substances, and several layers of grafts or flaps have been applied in order to improve the success rate of CSF leakage repair, but the best method is not identified.

Materials and methods: The study was designed as a prospective follow-up of the patients with CSF rhinorrhea who had undergone endoscopic repair during a five-year period at three referral hospitals of Tehran University of Medical Sciences. The main variables were: repair with grafts versus flaps, the number of layers and different kinds of grafts, insertion of grafts in underlay or overlay techniques, and the use of supportive methods in diagnosis and treatment including lumbar drain or intrathecal fluorescein injection. The effect of these factors on the success rate of the procedures was statistically analyzed.

Results: Forty-four patients were included in the study. The follow-up period was six months to four years. Three patients underwent repeated surgery due to the failure of the primary stage. The overall success rate was improved and the main factors contributing to this improvement were determined.

Conclusion: Endoscopic repair of CSF rhinorrhea is an evolving approach with a high success rate. There are some new points in this field which deserve more attention to increase the success rate and decrease the morbidity.

Practical Anatomy of Anterior and Middle Skull Base Region; Carotid Artery and Cavernous Sinus

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Keywords: Anatomy, Endoscopic, Skull Base, Carotid Artery, Cavernous Sinus

The anatomically complex region of skull base forms the floor of the cranial cavity and separates the brain from other facial structures and otolaryngologists from neurosurgeons. With the introduction of endoscopic approaches to the skull base, these two disciplines joined as a team to better address the pathologies of this area and reduce the complications of surgeries. Therefore, there is a need to get familiar with the anatomy from both endocranial and exocranial views. This approach helps the surgeon to better understand the spatial relationship of vital structures. In this presentation, different anatomical landmarks of the anterior and middle skull base are discussed both from endoscopic and intracranial views simultaneously, with cadaveric dissection and intraoperative pictures. Emphasis has been placed on the carotid artery and its course in the skull base and cavernous sinus.

Juvenile Nasopharyngeal Angiofibroma Regression of Postsurgical Remnant

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Keywords: Angiofibroma, Regression, Endoscopic Surgery

Juvenile Nasopharyngeal Angiofibroma (JNA) generally occurs in male adolescents. Surgery is the first line of treatment, which is performed preferably endoscopically, nowadays. Our knowledge is limited regarding the origin and natural history of the tumor, but it seems that angiofibroma should be considered a vascular

malformation or hamartoma rather than a neoplasm. As it matures gradually, the vascular tissue regresses and the fibrotic part grows. This may be the reason why the tumor becomes stable or even why residual mass after surgical procedure regresses. We reviewed a few cases with full pre- and postoperative imaging, in which postoperative residue showed no growth in the long time. The symptoms of the patients, the common sites of recurrences and the surgical indications for JNA revision surgery are all discussed, respectively. In our experience, the most important indications for the revision surgery of JNA are the presence of symptoms such as visual disturbances or nasal obstruction, and tumor growth when you follow the patient with imaging. The main concept of this type of regression with complementary information in this regard can change management strategies for juvenile nasopharyngeal angiofibroma.

Endoscopic Endonasal Removal of a Huge Epidermoid of Petroclival Region with Intradural Invasion

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Keywords: Epidermoid, Intradural Invasion, Petrous, Clivus, Endoscopic

Background: Epidermoid tumors comprise one percent of intracranial tumors. When the tumors are intradural, they typically occur in the posterior fossa at the cerebellopontine angle. Extradural tumors are most often found in the petrous bone. Epidermoid tumor of midline clivus is even rarer. Huge extradural tumors with intradural invasion demand a wide approach, proposing a challenge for the surgeon. **Case Presentation:** A case of huge petroclival lesion completely replacing the clivus and left petrous apex, extending from C1-C2 articulation inferiorly to tuberculum sella superiorly was presented. The lateral extension of the tumor was the styloid process and it had an obvious intradural invasion medial to internal

auditory meatus producing an intra-axial mass at the level of upper pones. The patient presented with one month headache, nausea, vertigo and unilateral total deafness. The endoscopic endonasal approach was chosen and using image guidance, total tumor resection was achieved. Following through its dural defect, the intra-axial part of the tumor was also safely resected and the dural defect was successfully repaired. **Conclusion:** The endoscopic endonasal approach adjunct with image guidance as a minimally invasive approach can provide a safe and wide access to this challenging region obviating the need for a demanding and sophisticated surgery.

Causes of Headache in Patients with Primary Diagnosis of Sinus Headache

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Keywords: Sinus Headache, Migraine, Tension Type Headache

Objectives/Hypothesis: Headache is a common symptom in the general population. Although it could be a symptom of acute sinusitis, chronic sinusitis is not considered as a usual cause of headache. In addition, vascular pain may be associated with related autonomic symptoms in the sinonasal region. These can be confusing and lead to an incorrect diagnosis of sinusitis. **Study Design:** A prospective cross-sectional study. **Methods:** Fifty-eight patients with diagnosis of "sinus headache" by primary care physicians were evaluated. Exclusion criteria were: previous diagnosis of migraine or tension-type headache; evidence of sinus infection during the past six months; and the mucopurulent secretions during the physical examination. After comprehensive otorhinolaryngologic and neurologic evaluations, an appropriate treatment was started according to the final diagnosis and the patient was visited monthly over a period of six months. **Results:** The final diagnoses were migraine, tension type

headache, and chronic sinusitis with recurrent acute episodes in 68%, 27%, and 5% of the patients, respectively. Seventy-three percent of the patients with tension type headache and 66% of the patients with migraine had received recurrent antibiotic therapy. Sinus endoscopy had been performed in 26% of patients. Therapeutic nasal septoplasty had been performed for 16% of the patients with a final diagnosis of migraine, and 13% of the patients with tension type headache. **Conclusion:** Many patients with self-described or primary care physician labeled "sinus headache" have no sinonasal abnormalities. Instead, most of them meet the IHS criteria for migraine or tension headache.

Comparison Results of Resection with Outfracture of Inferior Turbinate During Septoplasty

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Keywords: Inferior Turbinate, Septoplasty, Turbinectomy, Hypertrophy

Background: Chronic nasal obstruction is a common disorder. Inferior turbinate hypertrophy and septum deviation are the most common causes of nasal airway obstruction. Medical treatment often produces insufficient improvements. In these cases, surgical reduction of the inferior turbinates can be proposed. There are numerous available surgical techniques in use to address inferior turbinate hypertrophy. The aim of our study is to compare the efficacy of the resection of the inferior turbinate with outfracture of the inferior turbinate during septoplasty. **Materials and Methods:** In a clinical trial study in the period 2008-2009, the study group consisting of 100 patients with septum deviation and inferior turbinate hypertrophy were assigned into two groups of 50, who underwent simultaneous resection of the inferior turbinate and the outfracture of the inferior turbinate during

septoplasty. Anterior and posterior rhinoscopy and GRI-NSQ inventory were used to assess treatment outcomes at the end of week two and month three after the surgery. **Results:** The cure and improvement rate of nasal obstruction were 82% in both groups and there was no significant difference between them (P value: 0.907). Early complications in neither group had a significant difference, with the exception of postoperative bleeding (P value<0.000), which was lower in the outfracture (4%) than in the resection (24%). In GRI-NSQ inventory, the results in the group with outfracture were better than those in the group who underwent resection of the inferior turbinate. **Conclusion:** Based on our study, both techniques have the same efficacy in reducing the symptoms and signs of nasal obstruction, but because the postoperative complications in outfracture are fewer than in resection, the outfracture of the inferior turbinate is a better choice in surgery for the patients with inferior turbinate hypertrophy due to septal deviation.

The Effect of Functional Endoscopic Sinus Surgery on Pulmonary Improvement of Controlled Asthmatic Patients with Chronic Sinusitis

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Keywords: Sinusitis, Asthma, FESS, Sinus Surgery, United Airways

Abstract Objective: The relationship between asthma and sinusitis has been proposed in many reports, but the role of sinus surgery in their treatment is still controversial. Therefore, the effect of functional sinus surgery in patients with controlled asthma was evaluated. **Subjects and method:** Fifty-six patients with a history of sinusitis in whom maximum medical treatment had failed and also those with a history of asthma who were in a stable condition at the time of surgery and were candidates for endoscopic sinus surgery

were selected. All those who underwent functional endoscopic sinus surgery were re-evaluated at least one year later for the pulmonary and sinus status. The patients' characteristics were prospectively recorded during the study period from January 2007 to November 2009. Finally, the results of the assessments were analyzed. **Results:** Of the 56 studied patients, 35 (62.5%) were female and 21 (37.5%) were male. Preoperative imaging, evaluated according to Lund Mac Kay score, had a mean score of 19.5 ± 5 . The average effect of FESS in asthma improvement was 69.6%. Asthma improvement had a significant relationship with the duration of asthma and sinusitis before the surgery. **Conclusion:** Functional endoscopic sinus surgery can effectively treat sinusitis in asthmatic patients. Earlier intervention in the course of pulmonary disease may warrant a better outcome.

Endoscopic Management of Rhinogenic Headache in Patients Resistant to Medical Treatment

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Keywords: Headache, Rhinogenic Headache, Contact Point Headache, Endoscopic Sinus Surgery

Abstract Objective: The existence and the best treatment for contact point headache are a controversial issue. Therefore, this study tried to evaluate the response of the patients with a rhinogenic headache who were resistant to medical treatment to endoscopic sinus surgery. **Subjects and Methods:** Thirty patients who suffered from a unilateral headache for at least one year were evaluated in this research. The existence of the contact point was confirmed in CT scan and in nasal endoscopy. Moreover, a positive Lidocain test was another important factor in selecting the patients. Endoscopic surgery was the common method of surgery in patients. After one year, the

headache and nasal obstruction were assessed according to VAS (visual analogue scale) and compared to the preoperative VAS. **Results:** In thirty patients who entered this research, the average headache and nasal obstruction scores according to VAS were 7.4 ± 1.4 and 7.9 ± 2.5 , respectively. These values consequently decreased to 4.8 ± 2.3 and 3.73 ± 1.7 one year after surgery, respectively. The overall response rate was 93.3% and no major complications were seen in this series. **Conclusion:** If there is strong clinical suspicion and meticulous selection criteria, provided that other causes of headache have been ruled out, endoscopic management of the rhinogenic headache can be effective.

Endoscopic Frontal Sinusotomy Draf Type III Procedure: A Solution for Difficult Frontal Sinus Cases

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Keywords: Draf III, Frontal Sinusotomy

Refractory recalcitrant frontal sinusitis is a challenge for rhinologists. Patients usually present with a range of complaints such as persistent frontal headache, proptosis or frontal swelling. There is a history of previous multiple sinus surgeries. Nasal endoscopic exam shows significant pathology in the frontal recess with scar formation. PNS CT scan may reveal total or localized frontal sinus opacification with or without orbital invasion. The posterior wall of the frontal sinus may be eroded. In this clinical setting, treatment options are limited. Routine frontal sinusotomies including Draf type IIa procedure have failed. The osteoplastic flap approach has been stated as a golden standard for these cases. Endoscopic frontal sinusotomy Draf type III procedure has been proposed as a viable and effective solution for these cases. It seems that Draf type III procedure could manage the majority of difficult frontal sinus cases and obviate the need

for doing osteoplastic flap approach and its associated complications. In this presentation, we preliminarily/primarily report two cases of Draf type III procedure. Preoperative considerations, operative techniques and postoperative results will be discussed. High quality videos will fully illustrate the surgical steps.

Atrophic Rhinitis a Simple Surgical Technique Treatment

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Keywords: Atrophic Rhinitis, Ozena, Partial Closure

Summary: Atrophic rhinitis or ozena is a chronic nasal disease of unknown etiology, which is characterized by progressive nasal mucosal atrophy with resorption of underlying bone, enlargement of the nasal cavity and formation of thick foul smelling, greenish nasal crusts. Anosmia or decrease olfaction is usually present. The diagnosis was confirmed by physical examination, biopsy and imaging studies. Primary atrophic rhinitis is the classic form of the disease and the precipitating factors are hormonal, chronic sinonasal infections, dietary, hereditary, developmental, immunological and environmental. Secondary forms of atrophic rhinitis result from sinonasal surgery, trauma, radiation and granulomatous diseases. The pathologic pattern of atrophic rhinitis is not specific. The normal respiratory mucosa is replaced by a cuboidal or squamous type of epithelium. (Squamous metaplasia) **Material and Methods:** Between 1996 and 2005, thirty patients of primary atrophic rhinitis were treated surgically by a simple technique of partial closure by nasal vestibular skin flap, (a new technique) in Shafa and other hospitals in Kerman, Iran. The results were analyzed statistically. **Results:** Excellent results were obtained in all the patients, with complete resolution and improvement of symptoms such as nasal crusts, foul smelling, epistaxis, headache, hoarseness and olfaction. This simple surgical

technique can be performed under local anesthesia without hospitalization, at low costs and without any complications such as deformity or flap failure.

Endonasal Transpterygoid Approach for Wide Excision of Nasopharynx

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Keywords: Endonasal, Nasopharyngectomy, Transpterygoid

Nasopharynx is a space that is located in the back of the nose. Superiorly it is related to the sphenoid sinus through the body of sphenoid bone. Posteriorly the nasopharynx is related to lower part of clivus (basilar part of occipital bone), foramen magnum and anterior arc of atlas. Laterally torus tobarius and Rosenmuller fossa could be seen. The Eustachian tube is a major structure in the lateral wall of nasopharynx. Anteriorly nasopharynx is open to the nose through posterior choana and related to inferior turbinates. A variety of lesions could affect nasopharynx. Angiofibroma and benign salivary gland tumors are among benign tumors in this area. Adenoid cystic carcinoma, adenocarcinoma, sarcomas, chordomas, and nasopharyngeal carcinoma are different malignant pathologies that primarily involve nasopharynx. Sinonasal carcinomas and malignant mucosal melanoma of the nose may extend to nasopharynx. Surgery is a treatment option in nasopharyngeal lesions. It is recommended for benign lesions. In certain malignant lesions it is a primary treatment modality, such as in chordomas or chondrosarcoma. In malignancies being primarily treated with chemoradiation, surgery could be performed in recurrent cases. A variety of surgical approaches have been proposed to deal with nasopharyngeal lesions. Anterior approaches include transmaxillary midfacial degloving, Lefort I osteotomy and maxillary swing. Inferior approaches include transoral with and without

transpalatal exposure and transcervical transmandibular. Lateral approaches include pre- and postauricular infratemporal fossa. As nasopharynx is located in the center of the skull base in the vicinity of the posterior and middle cranial fossa, all these approaches have been developed to pass the musculoskeletal structures and open a window through which the surgeon could expose the nasopharyngeal lesions. The emergence of endonasal endoscopic approaches to benign and malignant lesions of nose and sinuses provided a new treatment option to deal with nasopharyngeal lesions. Multiple series of endoscopic nasopharyngectomy have been reported which have mainly focused on patients with recurrent nasopharyngeal carcinoma. The results in terms of local control and survival are promising and are comparable with those of re-radiation. Now this approach is mainly recommended in T1-T2 lesions. The endonasal transpterygoid approach has opened a new corridor to central skull base lesions. Removing those parts of the sphenoid bone that provide maximal exposure of vital neurovascular structures in this area enables surgeon to manage these lesions under more control. In this presentation we preliminarily/primarily report three cases of endoscopic nasopharyngectomy. Preoperative considerations, operative techniques and postoperative results will be discussed.

Extended Endoscopic Sphenoid Sinus Anatomy: A Study in Sixty Cadavers

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Keywords: Endoscopic Endonasal Approach, Sphenoid Sinus, Pituitary Gland, Skull Base Surgery

Introduction: Sphenoid sinus is a very critical area in sinus and skull base surgeries. Many authors have tried to define sphenoid sinus

characteristics, but the difference between races necessitates this investigation in different populations. **Material and Methods:** Sixty adult fresh cadaveric heads were dissected between March 2007 and December 2008 in Tehran Forensic Medicine Center. The distance between the nasal spines, the posterior wall of sphenoid, the pituitary gland, and the distance between anterior and posterior ethmoid artery and the optic nerve were measured using a flexible ruler through direct measurement in millimeters. Dehiscence in the carotid artery and optic nerve was documented. **Results:** In dissecting sixty cadavers (120 sphenoid sinuses), the carotid artery was dehiscent in 24 (20%) sphenoid sinuses. The rate of optic nerve dehiscence was 15 (12.5%). The mean distance between the anterior wall of the sphenoid sinus and the anterior nasal spine was 73.3 ± 1.3 mm (ranging from 58.3 to 87 mm), and the mean distance between the anterior part of the middle of the pituitary gland and the anterior nasal was 81.1 ± 1.6 mm. **Conclusion:** Dehiscence of vital organs is more common in Iranian cadavers, which should be considered in surgical treatments of these pathologies.

New Strategies in the Endoscopic Treatment of Skull Base Tumors

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Endoscopic transnasal surgery of the skull base has become a feasible option for the treatment of lesions in this area. Current expanded endonasal approaches provide access to the anterior, middle and posterior cranial fossae. Piecemeal resection of malignant tumors does not seem to compromise oncologic results, as long as clear margins are controlled with frozen section. Internal debulking, capsular mobilization, extracapsular dissection of neurovascular structures, coagulation and removal of the capsule are sequentially performed with a/the bimanual technique. The tumor type, size, shape, vascularity, extradural locoregional extension, vessel encasement, dural invasion and intradural extension are not absolute

contraindications to the technique. When a lesion cannot be completely removed through exclusive endoscopic approach, a combination of endonasal and open approaches can be considered. The first key element in our philosophy is that the approach should provide adequate visualization of the tumor. The second element is that the tumor should be completely removed according to oncologic principles. Complete tumor removal may be achieved, either with an en bloc resection or by a piecemeal removal as long as the microscopic analysis of all margins is negative. We frequently use frozen section study intraoperatively for margin control. Third, every attempt should be made to preserve major neurovascular structures. Fourth, the skull base reconstruction must separate the cranial cavity from the sinonasal tract. The final element is minimizing morbidity, the preservation of function, the quality of life and cosmesis. In cases of malignancy, a radiation oncologist is in close association with the surgical team. We regard postoperative radiation in advanced stages, aggressive histology and close or positive margins. Some benign pathologies such as inverted papilloma need aggressive resection and margin control. Tumor embolization especially in vascular tumors helps the surgeon in decreasing the bleeding.