7:00-7:40
Breakfast 7

A HEMATOLOGIST LOOKS AT BLEEDING IN THE SURGICAL PATIENT

Rajiv K. Pruthi
Mayo Clinic, Mayo Foundation, Rochester, MN, USA

Purpose: Preoperative assessment of hemostasis and interpretation of abnormal screening tests of hemostasis. Methods: Using a case based approach, an overview of preoperative hemostatic assessment and an approach to the laboratory assessment of bleeding will be presented. Results and Conclusions: The three components of hemostasis include vascular, platelet and plasma coagulation factors. Each component has a procoagulant, anticoagulant and fibrinolytic function The best preoperative assessment of hemostasis is a thorough personal history and physical examination. Bleeding disorders can be congenital (e.g hemophilia, von Willebrand disease) or acquired (e.g. acquired von Willebrand disease, aspirin etc). Inquiry into a family history of bleeding disorders and a through inquiry into medication use is useful in the preoperative assessment of hemostasis. Clinical suspicion of a bleeding disorder should dictate the need for a screening test. The preoperative predictive value of the skin bleeding time test is debated and may in future be replaced by an in vitro method for assessment of platelet function. Although the aforementioned screening tests of hemostasis detect majority of hemostatic problems, diagnosis of the most common bleeding disorder, von Willebrand disease, requires specific functional and antigenic assays for von Willebrand factor (vWF).

For the patient with an unexpected post-operative bleeding, immediate attention should be directed towards the surgical site to exclude a “surgical bleed”. Once excluded, screening tests of hemostasis should be considered. Management of bleeding include judicious use of appropriate clotting factor concentrates, plasma or cellular components.

7:00-7:30
Breakfast 9

AROMA THERAPY- WHAT IS IT? WHAT CAN IT DO?

Boleslaw Samolinski
Otolaryngology Department, The Medical University of Warsaw, Warsaw, Poland

Introduction: Aroma therapy of 7 oils extracted from natural herbs are often used to reduce rhinitis symptoms.

The aim of study was to estimate the effect of aroma therapy on clinical course of hay fever.
Material and Method: 25 hay fever patients were included into the study. They were divided into two groups: I. 15 patients in out of season time, II. 10 fully symptomatic individuals during natural exposure time. In the first group physical examination, score symptoms, anterior active rhinomanometry and acoustic rhinometry were performed: 1) before study, and after 2) nasal control solution deposition, 3) nasal provocation with grass pollen extract (5000 IU/ml, mix grass – no 015), 5) a few minutes of aroma oils inhalation and 6) intranasally administered oxymetazoline. Second group was investigated in the same way but without nasal provocation test. The intervals between each tests were 10 to 15 minutes. The clinical efficacy, rhinomanometric and acoustic rhinometry finding were compared.

Results:
In the first group: Patient’s symptoms score showed positive effect of inhalation aroma oils on artificially provoked nasal hay fever picture in following symptoms: nasal blockage (r=0.0156), secretion (r=0.001), sneezing (r=0.016), itching (r=0.011). There were no significant differences in conjunctivitis (0.091) and dyspnea (p=0.31). The general evaluation made by patients were positive (p=0.011) as those made by physicians (p=0.007).

The objective methods (acoustic rhinometry and rhinomanometry) did not confirm clinical findings. Conclusion: The aroma therapy is effective in alleviation of hay fever symptoms for a few minutes. The influence of this treatment on nasal blockage was not confirmed by objective methods.

9:20-9:45
Plenary 4

PRIMARY RHINOPLASTY

Fausto López Infante
Cirugia Reconstructiva Funcional de la Nariz, Mexico

We emphasis the need for making the correct diagnosis. We correct the mechanisms that produced the pathology, all in the desire to reconstruct the most normal functional and aesthetic results.
I present the results and video.

10:45-11:00
Symposium 20

SNORING AND NASAL BREATHING: CONTRIBUTING FACTORS

Carlos V. Magrina
Clinica Quiron, Barcelona, Spain.

Purpose: A clinical study was undertaken to assess the relationship between nasal obstruction and snoring and its contributing factors.
Methods: From June 1998 to Oct 1999, 50 patients (44 men and 6 women) whose chief complaint was snoring and also had functional nasal obstruction were enrolled in the study. The mean age of the patients was 38, 2 years with a mean body mass index of 26.4 (Kg/cm2). Study protocol exams included among other parameters: Endoscopy imaging of upper airway, both anterior and acoustic rhinomanometry, standard pulmonary function test, a home polysomnography study and a snoring score. A bipolar radiofrecuency volumetric tissue reduction was performed on each inferior turbinate in two stages. Being one side, a week apart from the other one. Follow up was performed at 1, 3, 6 and 9 months. No treatment of any kind was applied on the soft palate. All patients underwent a dietitian weight control program.
Results: Snoring was relieved in 46% of patients, improved in 36%, no improvement in 16% and worse in 2%.
Conclusions: Simple snoring is clearly triggered by nasal obstruction. Among the group of patients with no improvement, 80% had the highest body mass index and did not follow any dietary instructions and weight control. Worsening of snoring was found on one patient with the only striking finding of having the highest lung capacity measurements. Smoking habits did not show any statistical significanceon snoring, among those three groups. It may be concluded that nasal obstruction & weight lead to simple snoring.

11:30-11:45
Symposium 20

SLEEP APNEA: DOES SURGERY HELP ?

V. Jahnke
Humboldt University, Campus Virchow-Klinikum, Berlin, Germany

Surgery does help in selected cases of obstructive sleep apnea (OSA). Indications must be based on otorhinolaryngologic examination and polysomnography. Our procedure of choice for mild and moderate OSA (40 - 170 apnea episodes of > 10 sec. per 7 hours sleep with 02 desaturation below 90 %) is Laser-assisted Uvulopalatoplasty (LAUP) with or without tonsillectomy; in 57 % of cases septoplasty and turbinate reduction were indicated, in 17 % sinus surgery. Polysome-grams of 178 LAUP patients 6 months - 5 years postoperatively revealed more than 50 % reduction of preoperative apnea, its duration and oxygen desaturation in 77 % of the cases.
Uvulopalatopharyngoplasty (UPPP) is rarely indicated any more. Radiofrequency thermal ablation (Somnoplasty™) is reserved for snoring without sleep apnea. With Sleep-in™ tongue base suspension we obtained good results as an alternative to genioglossus and hyoid advancement. Permeant tracheostomy was never indicated in our OSA patients.
In spite of the lack of predictable success and sufficient objective long-term results, LAUP for OSA can result in successful clinical outcome.

10:50-11:05
Symposium 21

CSF LEAKES: THE MAYO CLINIC SERIES

Holger G. Gassner
Dept. of Otorhinolaryngology, Friedrich – Alexander University Erlangen- Nuremburg, Germany

A persistent cerebrospinal fluid (CSF) leak is potentially lethal and surgical treatment is often required. CSF leak repair is an infrequently performed procedure and only limited information is available on the long term success of the surgical techniques that are employed. The Mayo Clinic experience with 95 consecutive cases that underwent various types of repair surgery for CSF rhinorrhea is presented. Factors like the choice of sealing material, etiology, location of defect(s), surgical approach and technique are extracted and studied for their association with the long term success and failure of surgical repair. The majority of cases are amenable to endonasal endoscopic repair. Free grafts or pedicled osteo-mucoperiosteal or chondro-mucoperichondrial flaps show the best long term results. The benefit of fibrin glue remains unresolved. The occurrence of delayed failure has to be considered when evaluating reports of CSF rhinorrhea after surgical repair.

11:05-11:20
Symposium 21

CSF LEAKS: IDENTIFICATION AND TREATMENT THAT WORKS

Gerald Wolf
ENT University Hospital, Graz, Austria

Our experience on the diagnostic approach of CSF-leaks of the frontal and lateral skull base by the combination of Sodium Fluorescein and diagnostic endoscopy of the nose by rigid Hopkins telescopes are reported.
Preparation and intrathecal application of sodium fluorescein such as endoscopic findings of stained CSF are described.
The surgical technique to close leaks of the frontal skull base-instrumentation, indications, advantages and limitations- such as results of the endoscopic endonasal approach are presented.
After having used this method for more than 25 years, we discuss our experiences and give instructions how to avoid complications.

11:20-11:25
Symposium 21

TRANSNASAL ENDOSCOPIC REPAIR OF CRANIONASAL FISTULAE: A REFINED TECHNIQUE WITH LONG-TERM FOLLOW-UP

Charles W. Gross
University of Virginia, Charlottesville, VA, USA

Although the management of cranionasal fistulae has historically plagued otolaryngologists, recent reports of endoscopic techniques for repair of these lesions offer promising results. We present our series of 42 patients whose cranionasal fistulae were managed endoscopically between December 1989 and August 1995. Follow-up ranged from 5 to 68 months, thereby including long-term results from our previously reported series of 29 cases. Resolution of cerebrospinal fluid rhinorrhea was achieved in 35 (83.3%) of 42 patients with one endoscopic procedure, and 3 patients had successful closure at a second surgery. All five cephaloceles were successfully treated with one procedure. We have refined our technique to include specific indications for the use of free grafts depending on the location and size of the cranionasal fistula.
LARYNGOSCOPE, 106:1080-1083, 1996

10:30-10:35
Symposium 22

CO_2 LASER TURBINOTOMY IN THE TREATMENT OF VASOMOTOR RHINITIS

Ranko Risavi, Ivica Klapan, Sasa Janjanin
ENT Dept. Medical Faculty, Zagreb, Croatia, Europe

Purpose of the study: To evaluate the efficacy of CO_2 laser turbinotomy in the treatment of different types of vasomotor rhinitis.

Methods: This study had a group of 185 patients (103 females and 82 males), aged 16 to 55; 94 with non-allergic vasomotor rhinitis. Ninety-one had perennial vasomotor rhinitis caused with HD and DDP. All subjects had difficulties in nasal breathing, blocked nose, and were treated medically. We performed CO_2 turbinotomy with Sharplan 1020 laser power setting up to 15W, power density of 150 W/cm2; combined with surgical microscope and endotracheal anesthesia. Using CO_2 laser turbinotomy incisions were made in both upper and lower quadrants of inferior turbinate and along the free edge of the middle and the back part of the inferior turbinate. Histological analysis was made prior to intervention, at 48 hours and 3 weeks after treatment.

Results: Allergy to HD and DPP was manifested in 91 (49.1%) of patients with perennial rhinitis, while RAST was positive in 54/91 (59.3%) of those patients. Treatment was monitored by means of endoscopy, the saccharin test and rhinomanometry, 3 and 12 months after intervention. This method was combined with septoplasty and FESS when medically justified. Treatment was successful in 165 patients (89.2%) and showed markedly improved breathing.

Conclusions: This method is remarkably successful in the treatment of perennial rhinitis, used alone or combined with another surgical method. It is considerably more successful in non-allergic vasomotor rhinitis, with lower RIST and RAST values. It is not advisable in the treatment of seasonal allergic rhinitis.

11:00-11:15
Symposium 22

LASER DACRYOCYSTORHINOSTOMY : LITERATURE REVIEW, OWN PRACTICE AND COMPLICATIONS

Ph. ELOY, B. Bertrand
Department of Otorhinolaryngology, Cliniques Universitaires de Mont-Godinne, Catholic University of Louvain – 5530, Yvoir, Belgium

Dacryocystorhinostomy consists of diverting the lachrymal flow into the nasal cavity through a fistula created at the level of the lachrymal groove between the lachrymal sac and the nasal fossa. For many years, laser surgical systems have been proposing to be an additional surgical tool that make the surgery easier, cleaner and more effective.

PURPOSE of THIS STUDY : To compare the outcomes of DCR performed with the diode laser through a transcanalicular approach (TLDCR) or an endonasal approach (ELDCR).

PATIENTS : From June 1997 to February 2000, 29 TLDCR have been performed in 26 patients (22 females and 3 males). The mean age was 61 years old (range : 19 - 79). There were 19 dacryocystitis and 10 dacryostenosis. On the other hand, from November 1999 to April 2000, 20 ELDCR have been carried out on 20 patients (14 females and 6 males). The mean age was 46 years old (range : 2.5 – 86). There were 10 dacryocystitis and 10 dacryostenosis.

RESULT : In the group of TLDCR, 19 out of 29 were deemed to be a success (65.5%). There were 4 failed cases in the group of dacryostenosis and 6 in the group of dacryocystitis. In the group of ELDCR, the overall success rate was 17/20 (85%). There were 2 failed cases in the group of dacryostenosis and 1 in the group of dacryocystitis.

CONCLUSIONS : Dacryocystitis is a much better indication for DCR than dacryostenosis. Transcanalicular approach has worse postoperative outcomes than endonasal approach.

11:30-11:45
Symposium 22

NASAL POLYPOSIS – LITERATURE REVIEW, OWN PRACTICE AND COMPLICATIONS

Marius Plouzhnikov
I.P. Pavlov Medical University of St. Petersburg, St. Petersburg, Russia

Overview is made of current methods of surgical treatment of nasal polyposis with special stress upon LITT, i.e., Laser Interstitial Thermotherapy. The technique is presented in detail in models and clinically. Indications and results are discussed. It is shown that LITT is easily tolerated by patients and from the surgical point of view in a number of cases it offers decisive advantages over the methods of conventional management.

12:50-13:05
Luncheon 7

MEDICAL LEGAL ASPECTS OF RHINOPLASTY

Geoffrey W. Tobias
Otolaryngology Dept. Mt. Sinai, New York, NY, USA

This discussion will elucidate upon several aspects of the patient-doctor relationship that can lead to generation of legal suits in the vase of Rhinoplasty. Informed consent, surgical issues, and office communication will be discussed. In addition patient selection and two specific lawsuits will be reviewed. Prevention and anticipation are the keys to reducing the incidence of these problems.

14:20-14:35
Symposium 23

ENDOSCOPIC FRONTAL SINUS RESULTS

Lanny Garth Close
Columbia University College of Physicians & Surgeon, New York, NY, USA

The author reviews embryology and anatomy of the frontal recess and sinus, providing the participants with an anatomically based approach to this difficult area. Indications, techniques and results of endoscopic frontal sinusotomy are then reviewed. Following this, the author will describe in detail his modification of the Lothrop approach to the frontal sinus, emphasizing the limited applications for this technically challenging procedure.

14:50-15:05
Symposium 23

FRONTAL SINUS SURGERY – OPEN TECHNIQUE

Robert M. Meyers
University of Illinois, Deerfield, IL, USA

This presentation focuses on those cases in which endoscopic technique to the frontal sinus either results in failure of resolution of symptoms and/or is not applicable because of other reasons, such as anatomic variations. In these cases, the open approach to the frontal becomes safer. This presentation highlights easy identification of the frontal sinus margins by (1) inserting a light through a trephine opening; (2) forehead crease incision; (3) removing and ultimately replacing that portion of the frontal bone necessary to remove for exposure; and (4) reconstruction of the nasal frontal ducts, either by use of thin silastic sheeting as a duct stent or a more radical approach in which the ducts are connected in the midline so that a wide trough is created from the frontal sinus into the nose. This technique is particularly applicable in cases where the mucosa cannot be completely removed either from the periorbita or the dura and requires a frontal sinus outflow tract drainage as obliteration would be contraindicated.

15:05-15:20
Symposium 23

EXTERNAL FRONTAL SINUS APPROACH AND RESULTS

Richard L. Goode
Stanford University, Stanford, CA, USA

At this time the preferred approach by many endoscopic sinus surgeons to surgical correction of chronic frontal sinusitis is an endoscopic approach from below, opening and widening the frontal recess. The goal is to produce an adequate opening into the frontal sinus while maintaining enough normal mucosal lining so that post-operative obstruction with scar does not occur. This is an excellent method but may be technically difficult, particularly for surgeons who do occasional frontal recess surgery. The use of a small external trephine opening into the frontal sinus, particularly in cases of unilateral frontal sinus disease, has merit. The exposure from above allows removal of irreversible disease within the frontal sinus, plus facilitates surgery on the recess from below by knowing exactly where the sinus opening is without the need for operative imaging. The performance of an inter-sinus septectomy for ventilation and drainage is part of this procedure. The trephine also allows for later irrigation or aspiration of the sinus. Evaluation of this procedure has resulted in a five-year success rate of slightly under 90%. The technique, its ramifications and complications will be described in the paper.

14:45-15:00
Symposium 24

ORBITAL EXENTERATION: A DILEMMA IN SINONASAL CANCER

V. J. Lund
Institute of Laryngology and Otology, University College London, London, United Kingdom

Aim: To examine the pathology of orbital involvement in sinonasal malignancy and to develop a management algorithm.

Method and Materials: In a cohort of 960 cases of sinonasal neoplasia the pathology of orbital involvement is considered and the accuracy of pre-operative imaging and intra-operative frozen section assessed. The prognostic impact of orbital involvement on craniofacial resection in a group of 209 patients is presented.

Results and Discussion: The orbit is invaded directly via weakness in the bony walls but disease may spread extra- or intra-periosteally through the orbital apex into the middle cranial fossa. Metastatic periosteal spread despite a diagnostic accuracy of 98% from detailing imaging. Orbital involvement is one of the three most important prognostic factors determining survival after craniofacial resection. In selected cases orbital periosteum may be resected allowing preservation of the eye but if frozen section confirms intra-periosteal disease, the eye must be sacrificed to achieve cure. This may be done with preservation of the lids (orbital clearance) as opposed to orbital exenteration which is generally required in anteriorly placed lesions involving the skin. Th patient may be rehabilitated using a variety of techniques such as primary osseo-integration.

15:00-15:15
Symposium 24

SKULL BASE TUMORS: CAN YOU SAFELY REMOVE THEM WITH ENDOSCOPES?

Heinz Stammberger, W. Köle, W. Anderhuber
University ENT Department, Graz, Austria

Endoscopic surgical approaches for malignant lesions are very controversial. From 1989 – June 2000 we treated 48 patients with invasive/destructive tumors of the paranasal sinuses and the anterior skull base endoscopically. These included 7 patients with juvenile angiofibromas and 39 with various, malignant tumors, one with large invasive macroadenoma of the pituitary and one case of craniopharyngioma. The age range was 3 months to 82 years. The first patients were approached endoscopically for palliation Recently we use for cure, endoscopic surgery for selected malignancies. Histologically, patient with various carcinoma differentiation were operated (n = 20), as well as patients with malignant melanoma (n = 50) esthesioneuroblastoma (n = 9), clivus chordoma (n = 3), immature teratoma (n = 1) and leiomyosarcoma (n = 1). Our first results appear to indicate, that outcome is at least equal to standard external approaches, however significantly better overall quality of life. In experienced hands, endoscopic surgery in this region can be either radical. Endoscopic techniques lend themselves very well to cooperation with specialties like neurosurgery. In individual cases, gamma-knife therapy has proven an extremely helpful adjunctive. With this combined approach, all 9 patients with esthesioneuroblastomas are alive and free of disease with mean observation time of 34.0 months. We will continue to use this procedure in selected cases as a reliable alternative to external approaches. However we recommend, that these techniques are only applied at centers, where all other surgical approaches can be performed, should need for this arise.

14:01-14:08
Free Paper
Session 27

ASTHMA AND RHINOSINUSITIS: THE ROLE OF FESS

Fabricio Romano, Josiane Nigro, Carlos Nigro, Richard L. Voegels
University of São Paulo Medical School, São Paulo, Brazil

Purpose: The association between asthma and nasal diseases has been described by many authors. The purpose of this study was to evaluate pulmonary symptoms of patients with chronic rhinosinusitis who underwent endoscopic sinus surgery and also had asthma that is difficult to control clinically.

Methods: A retrospective study was performed of 40 consecutive patients with asthma and chronic rhinosinusitis treated with endoscopic sinus surgery.

Results: We found a predominance of women (3:1) in this group, with ages ranging from 15 to 66 y (mean, 41 y). Twenty-seven patients (67.5%) experienced a significant improvement of their asthmatic conditions after surgery. The improvement was even more significant among patients with nasal polyposis (74.2%) or with Fernand-Widal triad (100%). None of our patients referred to worsening of pulmonary symptoms after the surgical procedure. Follow-up after surgery ranged from 1 to 6 y.

Conclusion: Our results are in accordance with those found by others. Endoscopic sinus surgery seems to be effective in improving the pulmonary condition of patients with severe asthma and chronic rhinosinusitis and, therefore, it should be considered in the treatment of such patients.

14:08-14:16
Free Paper
Session 27

LYMPHOCYTES FROM PATIENTS WITH CHRONIC RHINOSINUSITIS PRODUCE LARGE QUANTITIES OF IL-5 AND IFN-G IN RESPONSE TO FUNGAL ANTIGENS

Seung-Heon Shin, Gerald J. Gleich, Hirohito Kita
Mayo Clinic and Mayo Foundation, Rochester, MN, USA

Purpose: The sinus mucosal abnormalities that characterize chronic rhinosinusitis (CRS), including persistent eosinophilic inflammation and increased numbers of T cells producing interleukin (IL)-5 and other cytokines, suggest an ongoing Th2 or Th2-like immune response. We hypothesized that fungal antigens may play a role.

Methods: Peripheral blood mononuclear cells (PBMC) were isolated from 18 CRS patients and 12 normal volunteers and stimulated with extracts from 5 different fungi (Alternaria, Aspergillus, Candida, Cladosporium, and *Penicillium*). After 72-h incubation, the cell proliferation response was examined, and supernatants were analyzed for the amounts of cytokines produced (IL-4, IL-5, and interferon-γ [IFN-γ]).

Results: When cultured with fungal antigens, PBMC from normal individuals proliferated and produced IFN-g, but produced no or little IL-5. Likewise, when stimulated with fungal antigens, PBMC from CRS patients proliferated similarly to normal PBMC. In contrast, they produce large quantities of IL-5 and 10-fold more IFN-g than normal PBMC. IL-5 production by patients' lymphocytes was most frequently seen with Alternaria (89%), followed by *Candida* (72%), *Cladosporium* (38%), and *Aspergillus* (25%). Neither normal nor patient PBMC produced detectable levels of IL-4.

Conclusion: Lymphocytes from CRS patients are activated by environmental fungal antigens and produce IL-5 and IFN-γ. Thus, fungi colonized in the nasal and sinus cavities may persistently stimulate CRS patients' lymphocytes, resulting in chronic eosinophilic inflammation of the upper airways.

14:20-14:28
Free Paper
Session 27

CHANGES OF NASAL NO LEVEL AFTER LOCAL ADMINISTRATION OF SALINE, TASP-V, AND HISTAMINE

B. N. Landis, M. Beghetti, P. Riemensberger, J. S. Lacroix
University Hospital Geneva, Geneva, Switzerland

Purpose: The aim of this study was to investigate whether intranasal application of saline, TASP-V, and histamine in control and rhinitic patients was followed by changes in nasal NO production.

Methods: We investigated a group of healthy subjects (n = 7) and a group of patients suffering from chronic rhinitis (n = 8). Each person was tested with saline only, TASP-V (72 μg), and histamine (100 μg), each diluted in saline. Nasal NO production was measured before and every 2 min after the administration of 200 mL of each agent studied. Nasal NO measurement was done with the chemoluminescence method (Exhalizer CLD 77 AM, Dürnten, Switzerland) and the recommended breath-holding technique.

Results: A significant (P < 0.0001) decrease in nasal NO level was recorded in all patients studied in the first 2 min after application of saline. This decrease (8 ± 2.4%) lasted for 4 to 6 min. TASP-V- or histamine-evoked changes in the nasal NO level were similar to those evoked by saline alone in all patients studied.

Conclusion: The vehicle saline significantly changed the nasal NO production during 4 to 6 min after application. TASP-V and histamine do not act via nasal NO production.

14:28-14:36
Free Paper
Session 27

A COMPARISON OF ENDOSCOPIC CULTURE TECHNIQUES FOR CHRONIC RHINOSINUSITIS

Pongsakorn Tantilipikorn, Michael A. Fritz, Jirayu Tanabodee, Donald C. Lanza, David W. Kennedy
Chiangmai University, The Cleveland Clinic Foundation, and The University of Pennsylvania, Cleveland, OH, USA

Purpose: Recent evidence suggests that endoscopically obtained specimens from the middle meatus give comparable results to antral puncture for acute rhinosinusitis. The best method for obtaining middle meatal specimens remains somewhat controversial, because it has been theorized that specimens obtained with a swab are easily contaminated. This study compares endoscopically obtained specimen culture results from 2 different methods: swab and aspiration. Specifically, this study seeks to determine whether or not the culture contamination rate is higher using the swab versus an aspiration technique.

Methods: One hundred consecutive culture specimens from 81 chronic rhinosinusitis patients were compared. Fifty specimens were obtained by a swab technique (Group I) and another 50 by aspirating pathologic material into a sterile suction trap (Group II). The groups did not differ in terms of age, sex, comorbid medical conditions, or prior medical therapy. Cultures were considered contaminated if they yielded normal nasal flora or if rare or few Staphylococcus coagulase-negative colonies grew after no bacteria were identified by Gram stain.

Results: Sixty culture specimens were positive, with a total of 72 isolates. S aureus, S coagulase negative, and Pseudomonas aeruginosa were the 3 most common organisms in both groups. Gram-negative bacteria were noted in 26 of 72 isolates (36%). Although the contamination rate of the suction aspiration group was less than for the endoscopic swab group, this did not approach statistical significance.

Conclusions: Endoscopically guided aspiration of pathologic material is no better than properly obtained swabs in directing antimicrobial therapy for chronic rhinosinusitis.

14:48-14:56
Free Paper
Session 27

MAXILLOFACIAL SARCOIDOSIS ARISING IN THE SETTING OF CHRONIC SINUSITIS

Mark Williams and Daniel J. Lee
Johns Hopkins Bayview Medical Center, Baltimore, MD, USA

Purpose: Presentation of a rare case of maxillofacial sarcoidosis.

Methods: Patient case review.

Results: Sarcoidosis is a multisystem, chronic granulomatous disorder of unknown etiology. It commonly affects the lung and skin, but can involve virtually any organ. Otolaryngologic manifestations include pharyngitis or tonsillar hypertrophy, cervical adenopathy, supraglottic involvement, or sinonasal obstruction. We present a case of a 46-y-old African-American woman with a known diagnosis of sarcoidosis. She underwent bilateral endoscopic sinus surgery for chronic sinusitis refractory to medical management. No sarcoid involvement was seen in these specimens. One y later, she presented with blurred vision and facial pain of the left side. Imaging studies, including a computed tomographic scan and magnetic resonance imaging, revealed a soft tissue process involving the left maxillary sinus, lateral orbital wall, anterior zygomatic arch, and malar eminence extending to the left frontal bone with extradural meningeal involvement. Biopsies performed via a Caldwell-Luc approach confirmed sarcoidosis involving the left maxillofacial bone. Her symptoms improved with high-dose oral steroids.

Conclusions: This is a rare case of sarcoidosis infiltrating the maxillofacial bone, arising in the setting of chronic sinusitis and systemic sarcoidosis and, to our knowledge, is the first case of maxillofacial sarcoidosis reported in the English-language otolaryngologic literature. This entity should be considered in the differential diagnosis of a patient with refractory facial symptoms despite medical and surgical management of sinus disease, especially with a known diagnosis of sarcoidosis.

15:00-15:08
Free Paper
Session 27

CHRONIC RHINOSINUSITIS, OUTDOOR AIR POLLUTION, AND SOCIOECONOMIC FACTORS: AN ECOLOGICAL STUDY IN THE CITY OF COLOGNE, GERMANY

Christof Wolf, Christoph Kassel, Hans E. Eckel, Michael Damm
University of Cologne, Cologne, Germany

Purpose: Chronic rhinosinusitis (CRS) is one of the most prevalent chronic diseases. It is hypothesized that air pollution, in addition to individual risk factors, contributes to the development of CRS. Our study evaluated the strength of the association between outdoor air pollution (OAP) and CRS in Cologne, Germany.

Methods: The patients' registry of the Ear, Nose, and Throat Department of the University of Cologne was reviewed to identify patients treated for CRS with functional endoscopic sinus surgery between 1990 and 1999 (n = 1,200). Patients were assigned to the 85 administrative city districts. Indicators of OAP (SO_2, NO_x, and dust) were linked to these areas. To control for socioeconomic confounding, data reflecting the socioeconomic composition of these districts were collected. The data were analyzed with a geographical information system and regression models.

Results: Significant spatial variation of patient density throughout the city was demonstrated. Inner city districts and areas near industrial plants were marked by higher patient rates. Our data show OAP levels far below critical values. Nonetheless, variation across the city was observed. Regression analyses controlling for socioeconomic status showed weak and inconsistent statistical effects of OAP on the prevalence of CRS.

Conclusions: OAP, as measured by levels of the classic pollutants SO_2, NO_x, and dust, has declined considerably in the past decades. These pollutants do not seem to have important effects on the development of CRS today. Nevertheless, the observed systematic spatial variation of chronic sinusitis points to the possibility that other environmental factors may contribute to the cause of CRS.

15:08-15:16
Free Paper
Session 27

BLINDNESS: ORBITAL COMPLICATION OF SINUSITIS: A CASE REPORT AND LITERATURE REVIEW

Ramzi T. Younis and Vinod K. Anand
University of Mississippi Medical Center, Jackson, MS, USA

Purpose: Blindness is a rare complication of sinusitis. We add another case to the literature to alert physicians to this serious complication.

Method: Retrospective chart review was performed of 43 patients admitted to the University of Mississippi Medical Center with orbital complications of sinusitis since January 1, 1985. One patient was diagnosed on admission with left orbital abscess and blindness.

Results: This is a 20-year-old African American man who was admitted with a 3-day history of progressive left eye swelling along with a several-hour history of no light perception. On admission, he was noted to have left orbital abscess and left blind eye. The diagnosis and management are discussed.

Conclusion: Complications of sinusitis or orbital complications should include blindness. Increased awareness along with immediate and optimal diagnostic and therapeutic intervention is mandatory to avoid this serious and irreversible outcome.

15:20-15:28
Free Paper
Session 27

TREATMENT STRATEGY FOR CHRONIC PARANASAL SINUSITIS COUPLED WITH NASAL ALLERGY

Shingo Kataoka, Keiko Ogasawara, Jun-ichi Iwamoto, Hideyuki Kawauchi
Shimane Medical University, Izumo City, Japan

Purpose: The treatment of patients with chronic paranasal sinusitis coupled with nasal allergy is difficult and these patients usually visit ENT clinicians often and for long periods. We have designed a clinical treatment protocol for these patients, using a low dose of macrolide series of antibiotics and antiallergic drug and obtained a better result. The theoretical treatment strategy based on pathogenesis is discussed.

Method: Forty-one patients with chronic paranasal sinusitis coupled with nasal allergy were precisely diagnosed and treated with a low dose of macrolide series of antibiotics (200 mg/kg per d) and 300 mg of IPD for more than 4 wk. These patients were evaluated by subjective symptoms and objective local findings and images such as plain radiograph and computed tomographic scan.

Results: Global improvement rating was comfortably 83%. Histopathology of nasal mucosae with immunostaining was done in these patients and nasal discharge was sampled for a quantitation of eosinophilic cationic protein. As a result, in good responders, clinical symptoms, ECP concentration in nasal discharge, eosinophil infiltration, interleukin-4 positive cells infiltration, and adhesion molecule expression in capillary endothelia were interestingly down-regulated.

14:01-14:08
Free Paper
Session 28

UNUSUAL LEECH PRESENTATION

S. Abolhassan Jazayeri and Shahryar Nazari
Khatam Ol Anbia Hospital, Zahedan, Iran

Purpose: Leeches, which can be swallowed accidentally from contaminated waters, can produce different symptoms depending on attachment site after ingestion. We want to mention the possibility of simultaneous attachment of 2 leeches in 2 sites of the aerodigestive tract.

Methods: A 5-y-old boy presented to the ear, nose, and throat clinic with on and off oronasal bleeding and hemoptysis of 2 weeks' duration. On nasal examination, a black mobile tissue was detected. Oral examination showed a tail of a large leech in the nasopharynx.

Results: The leech was removed by special forceps via the oral cavity. Feeling the presence of some foreign body in the throat by the child led us to do a second examination under general anesthesia because the boy did not allow further manipulation. Laryngoscopy showed another leech in the hypolarynx, which was removed by forceps.

Conclusions: In patients with oronasal bleeding, hemoptysis, or hematemesis in endemic areas for leeches, more than 1 leech presentation in different sites should be considered.

14:08-14:16
Free Paper
Session 28

PREVALENCE OF HABITUAL SNORING AND THE ASSOCIATION BETWEEN SNORING AND ANTHROPOMETRY-CEPHALOMETRY ANALYSIS IN THE KOREAN POPULATION

Jae Hoon Park, Hyun-Gug Kang, Sang Duck Lee, Chol Shin
Hana Nose Institute, Seoul, South Korea

Purpose: To study the prevalence of habitual snoring and the association between snoring and anthropometry-cephalometry analysis in the Korean population.

Methods: A total of 4,224 subjects (male, 2,277; female, 1,947), aged 17 to 85 y (mean age: male, 45.3 y; female, 44.0 y), were recruited and interviewed by well-trained investigators.

Results: A total of 352 male subjects (15.5%) and 162 female subjects (8.32%) habitually snored. The snoring group had greater values than the nonsnoring group for age, weight, and body mass index (BMI). BMI (P < 0.001, PR = 1.18, confidence interval [CI]: 1.12-1.25), gonion angle (P < 0.001, PR = 0.09, CI: 0.96-0.98), and abdominal girth (P < 0.001, odds ratio [OR] = 1.04, CI: 1.02-1.05) in male subjects and BMI (P = 0.003, PR = 1.10, CI: 1.03-1.17), gonion angle (P = 0.032, PR = 1.10, CI: 0.96-0.99), neck girth (P < 0.001, OR = 1.12, CI: 1.04-1.21), and abdominal girth (P < 0.001, OR = 1.03, CI: 1.01-1.05) in female subjects were independently selected as significant factors in snorers by the stepwise variable selection method in multiple logistic regression analysis.

Conclusion: We found that BMI, gonion angle, and abdominal girth were the significant factors affecting the severity of snoring in the Korean population.

14:20-14:28
Free Paper
Session 28

UPDATE ON MANAGEMENT OF NEONATAL NASAL OBSTRUCTION

Harvey Coates
Princess Margaret Hospital for Children, Nedlands, Western Australia

Purpose: To outline current practice in the diagnosis, examination, investigations, and treatment of neonatal nasal obstruction.

Methods: A systematic review of the major causes of nasal obstruction in the neonate and management of these conditions, including choanal atresia and other congenital abnormalities, inflammatory conditions, trauma, and iatrogenic and neoplastic causes.

Results: The neonate is not necessarily an obligate nasal breather, and there are reviews in the literature indicating this fact. However, when there is severe obstruction to the nasal airflow, which may occur with bilateral choanal atresia or severe nasal obstruction, this can be life threatening to the infant. A systematic approach to the management of neonatal nasal obstruction is necessary which addresses the specific cause(s) of the obstruction, both apparent and underlying.

Conclusions: Neonatal nasal obstruction can be a serious and life-threatening condition in the presence of significant obstruction. The most common conditions causing nasal obstruction are inflammatory and infectious and usually are managed conservatively. The more uncommon conditions may require surgical management.

14:28-14:36
Free Paper
Session 28

NASAL IRRIGATION, AN ADJUNCT FOR NASAL HEALTH: A CLINICAL STUDY AND REVIEW OF THE LITERATURE

Terence M. Davidson, Lance Tomooka, Claire Murphy
UCSD and VA San Diego Healthcare System and
San Diego State University, San Diego, CA, USA

Purpose: Perform a clinical study to determine the value of twice daily, hypertonic pulsatile nasal irrigation to alleviate or reduce rhinitis symptoms.

Methods: Two hundred eleven patients with sinonasal disease including allergic rhinitis, aging rhinitis, atrophic rhinitis, and postnasal drip were prospectively prescribed nasal irrigation in a study approved by our Institutional Review Board. Twenty control patients were included. Patients rated nasal-specific symptoms and completed a self-administered Quality of Well Being Questionnaire (QWB) before intervention and at follow-up.

Results: Patients who used nasal irrigation for the treatment of rhinitis experienced significant improvements in 23 of 30 nasal symptoms and in QWB-measured health status.

Conclusions: Nasal irrigation is effective in improving symptoms and the health status of patients with rhinitis.

14:40-14:48
Free Paper
Session 28

BOTULINUM TOXIN A INJECTION TO CONTROL REFRACTORY UNILATERAL RHINORRHEA

Berrylin J. Ferguson, Donald G. Keamy, Jr., Ricardo Carau
University of Pittsburgh Medical Center, Pittsburgh, PA, USA

Purpose: To report a case of successful resolution with botulinum toxin A (BTA) intranasal injection of unilateral rhinorrhea refractory to multiple other modalities. A 45-year-old woman had unilateral rhinorrhea following cranial base resection of a meningioma in 1992. Rhinorrhea was beta2-transferrin-negative and more profuse in warm, humid conditions. The patient's rhinorrhea continued unabated despite trials of ipratropium bromide 0.06% (Atrovent), submucosal cautery of the inferior and middle turbinates in November 1994, and endoscopic vidian neurectomy in July 1995.

Method: Injection of 7 to 10 units BTA (Botox; Allergan Inc., Irvine, CA, USA [at a dilution of 25 Units/mL]) per session in several sites along the middle and inferior turbinates in June 1999, September 1999, and March 2000.

Results: Rhinorrhea resolved within 3 to 4 days of the injection and relief persisted for 3 to 6 months. Recurrence of rhinorrhea occurred before each repeat treatment. There were no adverse side effects noted.

Conclusion: This is the first report of resolution of rhinorrhea refractory to multiple other modalities with BTA intranasal injection, in a case presumably secondary to sympathetic disruption. A small prior series showed a more short-lived response in patients with intrinsic bilateral rhinorrhea by using a lower dosage of BTA. Pharmacotherapy of rhinorrhea is less invasive and less expensive than repeated BTA injections. Nevertheless, in the patient refractory to other modalities, it should be explored.

14:48-14:56
Free Paper
Session 28

FUNCTIONAL DIAGNOSIS OF RHINITIS MEDICAMENTOSA

Lj. Janos˘evic´, S. Janos˘evic´, J. Dotlic´
University Medical School of Belgrade, Belgrade, Serbia, Yugoslavia

Purpose: The authors' experience on application of an originally designed methodologic approach for functional diagnosis of rhinitis medicamentosa was evaluated in the study.

Method: The recommended procedure was based on detecting the presence or absence of rebound effect by the method of computerized rhinomanometry before (at rest) and 15, 30, and 60 min after nasal mucosa provocation with local vasoconstrictor, preferably adrenaline, a strong and rapidly acting vasoconstrictor of short duration, followed by secondary hyperemia some hours afterward. The procedure was tested for its clinical utility and statistical significance in the group of 440 patients who abused nasal vasoconstrictor drops or sprays regularly (more than once a day, more than 3 days per week, and longer than 3 mo in a row, on average 9 mo, ranging from 4 mo to 8 y). Forty healthy subjects were the controls.

Results: The characteristic rhinomanometric finding in the affected individuals was nasal respiratory function impairment of 50% and more after local administration of vasoconstrictor in relation to the nasal respiratory function at rest. This aggravation occurs either immediately after the latent period (primary paradoxical reaction) or after the short period of decongestive effect (secondary paradoxical reaction).

Conclusions: The authors suggest these 2 rhinomanometric patterns be considered the criteria for functional diagnosis of rhinitis medicamentosa in the following way: the first finding for clinically overt disease and the second for the developing pathologic condition.

15:00-15:08
Free Paper
Session 28

FACIAL PAIN IN A NASAL CLINIC

Nick Jones
University Hospital, Nottingham, United Kingdom

Purpose: To establish the etiology of headaches and facial pain in a nasal clinic.

Methods: This is a retrospective study of data collected by one rhinologist on 973 consecutive patients, 404 of whom had facial pain. They were followed up for a mean of 2 y 2 mo.

Results: Forty-two percent had headaches or facial pain. Sixty percent had evidence of nasal disease, and of these 18% had pain as one of their symptoms, but in only 12% was pain due to nasal disease. There were 6% with incidental nasal disease and pain from another cause. Of the 404 with pain, 66 had tension-type headache, 107 tension-type faceache, 64 had pain due to nasal disease, 51 migraine, 35 atypical facial pain, 23 cluster headache, 3 paroxysmal hemicrania, and the remainder a range of conditions from trigeminal neuralgia to a meningioma of the skull base. Of the 144 with purulent disease at endoscopy, 62% had no pain. However, of the 54 patients with pain and purulent disease at endoscopy, only 17% had pain that was not related to their nasal disease. One hundred twelve patients had pain but were normal at endoscopy and computed tomography. After medical treatment, none had nasal disease as a cause of their pain.

Conclusions: Most patients who had headache in this series had symptoms that were not due to sinusitis. It was exceptionally unusual for anyone with frontal discomfort or headaches without any nasal symptoms to have sinus-related pain. The majority of patients with pain behind the eyes, under the bridge of the nose, or either side of the nose and sometimes the cheeks had an extension of tension-type headache with similar qualities, and often there were frontal headaches as well. These patients usually respond to low doses of amitriptyline.

15:08-15:16
Free Paper
Session 28

UPPER AIRWAY FUNCTIONAL CHARACTERISTICS OF PATIENTS CLASS II DIVISION 1 MALOCCLUSION OF ANGLE

E. P. Jorge, A. Arrais, J. Abrão, J. B. Paiva, J. G. Moura
University of São Paulo (FOUSP) and University Federal of São Paulo (UNIFESP), São Paulo, Brazil

Purpose: The aim of this study was to evaluate the functional characteristics of patients who have a Class II Division 1 malocclusion of Angle with predominancy of mouth breathing.

Methods: Thirty subjects from Brazil (21 female and 9 male), with ages ranging from 14 y 6 mo to 25 y 7 mo, all with permanent dentition and who had not received orthodontic treatment. In this group of patients, by means of video-endoscopy, the upper airway was evaluated.

Results: Analyzing the data from active anterior rhinomanometry, we found that the average of the total nasal resistance without the vasoconstrictor was 0.81 mm H_2O/L per min, whereas with the vasoconstrictor it was 0.61 mm H_2O/L per min.

Conclusions: Our results showed that: a) the total nasal resistance was above the normal parameter in 23 patients (76.66%); b) the obstructive factors can be multiple and localized in the oropharynx, nasal cavities, and nasopharynx; c) 100% of the sample showed turbinate hypertrophy; and d) moreover, it was possible to identify the etiologic factors and the location of the obstruction in the upper airway in all patients.

14:01-14:08
Free Paper
Session 29

SEROLOGIC AND PATHOLOGIC FINDINGS IN PATIENTS WITH COCAINE-INDUCED MIDLINE DESTRUCTIVE LESIONS: A COMPARISON WITH WEGENER GRANULOMATOSIS

P. Nicolai, M. Trimarchi, F. Facchetti, U. Specks
University of Brescia, Brescia, Italy

Purpose: To evaluate the antineutrophil cytoplasmic autoantibody (ANCA) test profile and histopathologic findings in patients with cocaine-induced midline destructive lesions (CIMDL) (Group A) compared with those in patients with Wegener granulomatosis (WG) (Group B).

Methods: From January 1991 to December 1999, 18 patients with CIMDL (9 males; age, 22-66 y) and 21 with WG (9 males; age, 30-65 y) were observed. Sera were tested for ANCA by indirect immunofluorescence (IIF) and solid-phase assays for antibodies to proteinase 3 (PR3), myeloperoxidase (MPO), and human leukocyte elastase (HLE).

Results: In Group A, 12 patients (67%) were ANCA positive by IIF (8 p-ANCA, 4 c-ANCA); 4 patients with p-ANCA were negative in anti-PR3 and anti-MPO tests. Anti-HLE antibodies were found in 2 cases. Four patients with the p-ANCA pattern and all patients with the c-ANCA pattern had a positive test for anti-PR3 antibodies. None of the patients had anti-MPO antibodies. In Group B, 19 patients were ANCA positive by IIF (90%) (15 c-ANCA and 4 p-ANCA pattern); 14 patients (67%) with a c-ANCA pattern had a positive test for anti-PR3 antibodies. Four patients (19%) had a positive test for anti-MPO antibodies. Giant cells or granulomas, microabscesses, and deep necrosis were found in, respectively, 40%, 86%, and 86% of WG patients but were never detected in cocaine abusers.

Conclusions: ANCA testing alone does not allow unequivocal distinction between CIMDL and WG. However, if the IIF pattern and target antigen specificity do not correlate as in WG, suspicion of CIMDL should be raised.

14:08-14:16
Free Paper
Session 29

CLINICAL AND RADIOLOGIC FINDINGS IN PATIENTS WITH COCAINE-INDUCED MIDLINE DESTRUCTIVE LESIONS: A COMPARISON WITH WEGENER GRANULOMATOSIS

P. Nicolai, M. Trimarchi, R. Maroldi, G. Gregorini, F. Facchetti, K. Russell, U. Specks, T. J. McDonald
University of Brescia, Italy and Mayo Clinic and Mayo Foundation, Rochester, MN, USA

Purpose: To evaluate clinical and radiologic features of patients with cocaine-induced midline destructive lesions (CIMDL) compared with those of patients with Wegener granulomatosis (WG).

Methods: From 1991 to 1999, 18 patients with CIMDL (age, 22-66 y) and 21 with WG (age, 30-65 y) were observed. Diagnosis was made from physical and endoscopic evaluation, routine blood and urine analysis, urine cocaine metabolites, and repeated biopsies of the nasal mucosa. Imaging studies (computed tomography in 10 patients and magnetic resonance imaging in 22) were obtained in 16 patients from both groups.

Results: Septal perforation was present in 18 patients (100%) with CIMDL and 3 (14%) with WG. Thirteen patients (72%) with CIMDL had partial destruction of the inferior turbinate, which was never observed in WG patients. Hard palate destruction was observed in only 5 CIMDL patients (28%); in 3 of them the lesion extended to the soft palate. Imaging detected septal perforation in 16 patients (100%) with CIMDL and 2 (12%) with WG (sensitivity 100%, specificity 87.5%, positive predictive value 88.9%, negative predictive value 100%). Erosion of inferior or middle turbinates or both was demonstrated only in CIMDL (68% and 63%, respectively). Moreover, a correlation (0.88) was demonstrated between septal erosion and cocaine abuse. Systemic disease manifestations and response to immunosuppression were absent in CIMDL patients but found in WG patients.

Conclusions: Clinical and radiologic findings suggested a more destructive localized disease process in CIMDL than WG. Nasal biopsy and serologic analysis are always needed to corroborate the diagnosis. Systemic symptoms and treatment response may also help to distinguish the 2 entities.

14:20-14:28
Free Paper
Session 29

POST-TRANSPLANT LYMPHOPROLIFERATIVE DISORDER OF THE NASOPHARYNX

Hannah Vargas and Steven M. Parnes
Albany Medical Center, Albany, NY, USA

Purpose: Post-transplant lymphoproliferative disorder (PTLD) occurs in 2% to 10% of patients. Epstein-Barr virus and immunosuppressive treatments appear to be risk factors. Some patients have multiorgan involvement and sepsis, but many present with a mononucleosis-like syndrome: fever and cervical adenopathy. PTLD is a newly recognized disease. Few reports exist documenting head and neck involvement. The purpose of this report is to familiarize the otolaryngologist with this entity.

Methods: We present a patient who underwent organ transplant who presented with symptoms of chronic sinusitis and nasal obstruction. She was found to have PTLD of the nasopharynx. The sinusitis cleared after adenoidectomy and a decrease in immunosuppressive medication.

Results: Review of our cases and the literature reveals several findings. Head and neck manifestations of PTLD are not uncommon in the transplant patient. In many cases, such as ours, the diagnosis may be made by an otolaryngologist. In general, those patients who present within 1 year after transplantation have the mononucleosis-like syndrome and, thus, head and neck symptoms. The histologic spectrum of the tumors also leads to a difficult diagnosis microscopically, especially on small biopsy or cytologic material.

Conclusions: PTLD is increasing. The diverse presentation of PTLD requires a keen familarity with this disorder for prompt recognition and subsequent management. Many of these patients present with head and neck manifestations. We recommend that any transplant patient with symptoms such as nasal obstruction and chronic sinusitis, possibly from Waldeyer ring enlargement, be examined until PTLD can be definitely excluded.

14:28-14:36
Free Paper
Session 29

THE INFLUENCE OF THE SURGICAL TREATMENT OF NASAL POLYPOSIS ON COEXISTING BRONCHIAL ASTHMA

Rumen Benchev
Central Clinical Hospital, Sofia, Bulgaria

Purpose: To assess the influence of the surgical treatment of nasal polyposis (NP) on the course of coexisting bronchial asthma (BA).

Methods: The study compared the severity of BA and the use of corticosteroids for its management before and after the surgical treatment of NP in a prospective patients series. One hundred forty-five patients with NP were operated on; 37 (25%) had BA and 26 (70%) of them had allergy. Patients were divided into 3 groups: light BA, 6 cases; moderate BA, 21 cases; and severe BA, 9 cases. Nine patients were treated with oral corticosteroids (OCS) and 29 with inhaled corticosteroids (ICS). All patients underwent surgical treatment and application of intranasal corticosteroids postoperatively.

Results: One year after the surgery, 15 patients had the light form of BA; 15, moderate BA; and 7, severe. The use of OCS was stopped in 4 cases, reduced in 3, and remained the same in 2. The patients using ICS reduced their doses.

Conclusions: The surgical treatment of NP improves the course of coexisting BA and reduces the steroid need.

14:48-14:56
Free Paper
Session 29

TH1- AND TH2-CYTOKINES IN NASAL POLYPS OF ALLERGIC AND NONALLERGIC SUBJECTS

Michael Damm, Chrisof Wolf, Matthias Mahn, Susanne Wend
University of Cologne, Cologne, Germany

Purpose: An allergic inflammatory mechanism has been supposed in chronic rhinosinusitis (CRS). This study evaluates and compares TH1- and TH2-cytokines and cellular infiltrates in polyps of patients suffering from CRS with allergy and without allergy.

Methods: Subjects were 32 patients with CRS undergoing functional endoscopic sinus surgery (FESS). Allergy skin tests and allergen-specific IgE measurements were performed preoperatively to distinguish patients without allergy (n = 16) from those with allergy (n = 16). Tissue specimens of nasal polyps were obtained during FESS. Concentrations of TH1-related cytokines (interleukin [IL]-2, IL-12, interferon [IFN]-g), TH2-cytokines (IL-4, IL-5, IL-6, IL-13), and the growth factor granulocyte-macrophage colony-stimulating factor of tissue homogenates were measured by enzyme-linked immunosorbent assay and related to the total protein contents.

Results: Histologic examinations of all biopsy specimens showed an eosinophilic-dominated chronic inflammation (GM-CSF). IL-4 and GM-CSF were detectable in only 30% of all polyp samples. All other cytokines were detected in the majority of polyp specimens (nonallergic group: IL-2, 60.8; IL-5, 29.3; IL-6, 0.5; IL-12, 38.5; IL-13, 23.4; IFN-g, 3.4; allergic group: IL-2, 38.6; IL-5, 12.3; IL-6, 5.1; IL-12, 28.0; IL-13, 17.1; IFN-g, 3.7; median of cytokine concentration related to total protein contents [pg/mg]). Mann-Whitney U test revealed no significant differences in TH1- and TH2-cytokine levels between allergic and nonallergic subjects.

Conclusion: Our results suggest an allergy-independent inflammatory mechanism of polyps in CRS. However, the pathophysiology of nasal polyps remains unclear.

15:00-15:08
Free Paper
Session 29

NASAL POLYPOSIS: ENDOSCOPIC CENTRIPETAL DISSECTION

Alexandre Felippu
Instituo Felippu de Rhinologia-Otolaringologia e Cirurgia da Base do Cranio, São Paulo, Brazil

The author presents in detail another surgical concept for the management of nasal polyposis, using the endoscope, based on the accurate understanding of the anterior skull base anatomy. The anatomic limits of the surgery, such as the anterior skull base and the orbit's internal wall, should be dissected first, and the abnormality itself should be removed afterward, as a unique piece, reducing risks and improving safety. Several surgeries and cadaver dissections are presented.

15:08-15:16
Free Paper
Session 29

TOTAL SEPTAL RECONSTRUCTION IN SEVERELY DEFORMED NOSES

Tae Young Jang, Seung Won Park, Dong Hak Jung, Kyu Sung Kim
College of Medicine, Inchon, South Korea

Purpose: Caudal, dorsal, or caudal and dorsal septal deformities cause blockage of nasal passages and result in external deformities of the nose. These septal deformities are not corrected by submucosal resection and standard swing-door septoplasty, and the surgical correction of these nasal deformities is a difficult challenge. We evaluated the validity of total septal reconstruction for functional and aesthetic results.

Methods: This retrospective study reviewed patient records in 15 cases of total septal reconstruction for severely deformed noses from January 1998 to December 1999. All cases were approached externally, followed up in 3 mo to 1 y, and analyzed with photography, rhinologic examination, nasal breathing evaluation, and evaluation of patient satisfaction of the external appearance of the nose.

Results: All patients noted marked improvement of nasal blockage. Except for one who developed saddle nose deformity, the patients obtained aesthetic improvement of the nose.

Conclusions: Total septal reconstruction in rhinoplasty is a technique for obtaining satisfactory aesthetic and functional results in severely deformed noses.

15:20-15:28
Free Paper
Session 29

PRELIMINARY RESULTS OF ENDOSCOPIC SURGERY FOR 28 ADENOCARCINOMAS

M. Jorissen
ENT Department, Leuven, Belgium

Purpose: Paranasal sinus malignancy remains one of the most, if not the most, controversial indications for endoscopic sinus surgery, and results for adenocarcinoma are not available.

Methods: From 1993 to 1999, 29 patients with an adenocarcinoma of the sinuses were treated by endoscopic sinus surgery followed by radiotherapy. Only primary cases were included. Recurrences referred to us were not included.

Results: All but 1 patient were male; mean age was 63 y. En bloc resection was only rarely possible. In the majority of cases, the tumor was first isolated and removed; thereafter, a complete sphenoethmoidectomy with specific attention to the surrounding tissues of the tumor insertion site was performed en bloc. Only occasionally, piecemeal removal was done because of the extent of the tumor. Distant metastases were not identified. Four patients (14%) developed a recurrence after 5, 14, 14, and 38 mo. One recurrence was contralateral. One of these 4 patients died of disease 55 mo after initial diagnosis. One patient died of a heart attack 3 mo after surgery during radiotherapy. In 24 patients (83%), there is no evidence of disease. Follow-up ranges from 5 to 62 mo (mean, 24 mo).

Conclusion: There is no major indication that the results are significantly inferior to those of more radical external approaches. Endoscopically, en bloc resection is almost never possible, but removal in 2 pieces is realistic in most cases.

14:01-14:08
Free Paper
Session 30

THE ROLE OF CCR-2 IN ALLERGIC ASTHMA

YongBok Kim
HanGang Sacred Heart Hospital, Hallym University, Seoul, South Korea

Purpose & Methods: Interest in CCR-2 in allergic asthma has increased. To evaluate the role of CCR-2, mutant mice deficient in CCR-2 (CCR-2 -/-) and intact mice were sensitized with ovalbumin (OVA) with alum and challenged by inhalation of 1% OVA or saline aerosol.

Results: Airway hyperreactivity to methacholine inhalation was increased in CCR-2 -/- mutant mice sensitized and challenged to OVA compared with immunized and challenged CCR-2 +/+ mice. This increase in airway reactivity was accompanied by an increased number of eosinophils in bronchoalveolar lavage fluid, increased histologic evidence of inflammation, with increased inflammatory cuffing around small pulmonary arterioles and bronchioles, and increased goblet cell hyperplasia in bronchial mucosa. OVA-specific serum IgE and IgG1 levels were elevated in OVA-challenged CCR-2 mutants. Antigen-stimulation of lymphocytes isolated from OVA-sensitized CCR-2 mutants and intact mice revealed a Th2-phenotype in CCR-2 -/- lymphocytes (interleukin-5), which differed from the Th1 phenotype in lymphocytes from OVA-sensitized CCR-2 +/+ mice. Unexpectedly, serum membrane cofactor protein-1 levels were 8-fold higher in CCR-2 -/- mutants than in CCR-2 +/+ mice sensitized to OVA, but OVA challenge had no additional effect on circulating membrane cofactor protein-1 in either genotype.

Conclusion: These experiments demonstrate an enhanced response in airway reactivity and in lung inflammation in CCR-2 -/- mutant mice compared with comparably sensitized and challenged CCR-2 +/+ mice. These observations suggest that CC chemokines and their receptors are involved in immunomodulation of atopic asthma.

14:08-14:16
Free Paper
Session 30

CORRELATION BETWEEN OTITIS MEDIA SECRETORIA AND ALLERGIC RHINITIS IN CHILDHOOD

G. Kopaceva and G. Orovcanec
University Hospital, Skopje, Macedonia

Purpose: Otitis media secretoria (OMS) is a common illness in childhood. It is manifest by middle ear effusion behind an intact eardrum, without symptoms of acute inflammation. Eustachian tube (ET) obstruction may be an important factor in OMS not only because infection may provoke nasopharyngeal inflammation and OMS but also for other reasons.

Methods: At the ENT-clinic in Skopje, 357 children with allergic rhinitis were examined from 1998 to 2000. Diagnostic procedures included detailed otorhinolaryngology examination, allergological anamnesis, prick skin tests, tympanometry, tonal liminal audiometry, and stapedial reflex.

Results: In 125 children, dysfunction of ET or OMS was diagnosed.

Conclusion: We suggest that there is a correlation among allergic rhinitis, OMS, and ET dysfunction.

14:20-14:28
Free Paper
Session 30

FACTORS IN DEVELOPMENT OF ALLERGIC RHINITIS: 8TH STUDY WITH 2,900 PATIENTS

Seung Eun Lee, Joong Saeng Cho, Chang Il Cha
National Medical Center, Seoul, South Korea

Purpose: Allergic rhinitis (AR) has been referred to as “the most IgE-mediated allergic disease,” with prevalence estimates in temperate country ranging up to 20%. The incidence of AR is on the rise. Some factors, like genetic, environmental, and individual immunologic factors, can contribute to development of the disease. This study was designed to study the relationship between the development of AR and genetic and environmental background.

Methods: We analyzed 2,900 patients who were diagnosed as having AR and they were divided into 4 groups by stage of growth development: preschool (< 6 y old), prepubertal (7 to 10), puberty (11 to 20), and adult (> 20). These patients were studied for the family history, the way of feeding and weaning, and the difference of environment around patients.

Results: The rate of positive results on the skin test decreased in those > 20 y old and was high in patients with family history. The AR developed more frequently in patients with artificial feeding and weaning than in those breast-fed. There were more patients who lived in apartments than in individual houses. The distance from residence to roadway was closely related to development of the disease.

Conclusion: The change of immunologic system and environment of the individual could decrease the incidence after age 20 y. Other factors may be involved in the development of AR, such as artificial feeding and weaning, living style, and distance between residence and roadway.

14:28-14:36
Free Paper
Session 30

MUCIN GENE EXPRESSION IN HUMAN HYPERTROPHIC NASAL MUCOSA: ALLERGIC VS. NONALLERGIC

Anshul Sama, Tracy Severn, J. Pearson, J. A. Wilsom
North Riding Infirmary, Middlesbrough, United Kingdom

Purpose: The rheologic properties of mucus are critical to its ciliary clearance and dependent on the integrity and type of mucin present. Nine human mucin (MUC) genes have been identified and our previous study has shown that MUCs 2, 3, 4, and 5AC are expressed by human nasal mucosa. The aim is to investigate the differences in the quantity and type of mucin present in nasal mucosa harvested from allergic and nonallergic individuals.

Methods: Patients listed for nasal turbinectomy had preoperative skin prick allergy tests for 12 allergens. Human inferior nasal turbinate mucosa was snap frozen in liquid nitrogen and stored at -80°C. The tissue was homogenized and total RNA extracted by acid guanidinium thiocyanate phenol-chloroform extraction. mRNA was isolated from the total RNA by oligod (T) cellulose chromatography and separated by electrophoresis on 1% agarose/formaldehyde gels. The mRNA was immunoblotted onto nitrocellulose sheets and probed with 48 basic pairs of 3-,5-digoxigenin-labeled oligonucleotide probes to the tandem repeat sequences of MUCs 2, 3, 4, 5AC, 5B, 6, and 7.

Results: Turbinate mucosa was harvested from 4 allergic and 4 nonallergic patients. The only significant difference between allergic and nonallergic groups was for MUC5B (0.139 ± 0.035 and 0.031 ± 0.012, $P = 0.014$).

Conclusion: We describe the first evidence of MUC6 expression in airways, albeit at a low level. MUC5B mRNA is up-regulated in allergic hypertrophic mucosa but MUC5AC is unchanged.

14:40-14:48
Symposium

A SURVEY OF MITES IN THE DWELLINGS OF ATOPIC POPULATION IN CHINA

Min Yin, Lei Cheng, Akira Miyoshi, Masatoshi Takaoka
Nanjing Medical University, Nanjing, China

Purpose: The study of house dust mite allergy is rare in China. This paper is to study the quality and quantity of mites in the dwellings of an atopic population.

Method: Eleven houses of those who showed hypersensitivity to mites in our epidemiologic survey on nasal allergy were chosen randomly in Lili Town of Wujiang City, Jiangsu Province, China. The dust was collected from bed, sofa, and by the dust collector at a rate of 3.3 m^2/100 s in May 1999. The samples were weighed. We identified the kinds and the quantity of mites by microscope.

Results: Eleven kinds of mites were identified in which *Pyrglyphidae* predominated and constituted 70.74%, including *Hirstia domicola* 41.83%, *D ptronyssinus* 27.03%, and D farinae 2.32%. The living mites were 15.92%.

Conclusion: *Pyrglyphidae* was the main allergen to house dust mite allergy. *H domicola* has not been reported ever in other studies in China. The link between *H domicola* and nasal allergy is worthy of study.

14:48-14:56
Free Paper
Session 30

SPECIFIC FEATURES OF NASAL SEPTUM STRUCTURE DEVELOPMENT IN CHILDREN

A. M. Talishinskiy and R. Sh. Talishinskiy
Azerbaijan Medical University, Baku, Azerbaijan

Purpose: To define age-specific structural development features of the nasal septum in children.

Methods: We studied 34 samples of nasal septum from autopsies of children aged 3 to 14 y. Anteroposterior and superoinferior dimensions and area of the nasal septum and its components were measured.

Results: The size and area of the nasal septum and its anatomic components undergo age-specific changes, which are not regular. In 5 y olds, height and area of the nasal septum increase, which is determined by the growth of the superoinferior and diminishing of the anteroposterior dimensions of the nasal septum cartilage, with enlargement of the vomer's length and its horizontal and vertical sizes as well as the area of the perpendicular lamina. In 7 y olds, with increase of the sagittal size and area of the nasal septum, the height and the area of the nasal septum cartilage as well as the length, height, and area of the vomer increase. Growth of the perpendicular lamina slows down. In 12 y olds, nasal septum again increases its height and augments its area. These changes are combined with the increase of the nasal septum cartilage's vertical diagonal, longitudinal, and vertical dimensions of the vomer as well as the length of the perpendicular lamina of ethmoid bone.

Conclusions: At age 5, 7-8, and 11-12 y, vertical sections during corrective surgery are expedient. Horizontal resection at 5-14 y may alter the development of the cartilage in the vertical direction and promotes creation of the low nasal septum. Complete vertical or horizontal resection of the vomer may cause alteration of its growth. At 4, 5, 9, 11, and 12 y, it is expedient to perform fenestrated resection of the defect during the surgical operation or to replace lamina toward the median line in case of its oblique placement.

15:00-15:08
Free Paper
Session 30

THE ONE-STAGE RHINOPLASTY SEPTAL PERFORATION REPAIR

Hossam M. T. Foda
Alexandria Medica, Sidi Gaber, Egypt

Purpose: Combined septal perforation repair and rhinoplasty were performed for 40 patients who had large septal perforations (2-4 cm) and external nasal deformities.

Methods: The external rhinoplasty approach was used for all cases, and the perforation was repaired using bilateral intranasal mucosal advancement flaps and a connective tissue interposition graft.

Results: The perforation was totally closed in 36 cases (90%), with complete resolution of the preoperative symptoms in 32 (80%). Cosmetically, 38 patients (95%) were very satisfied with their aesthetic results.

Conclusion: The exposure provided by the external approach was helpful in septal perforation repair.

15:08-15:16
Free Paper
Session 30

SIMULTANEOUS OPEN RHINOPLASTY AND ALAR BASE EXCISION: IS THERE A PROBLEM WITH THE BLOOD SUPPLY OF THE NASAL TIP AND COLUMELLAR SKIN?

Sameer A. Bafaqeeh and Mohammad M. Al-Qattan
King Abdulaziz University Hospital, Riyadh, Saudi Arabia

Purpose: In a prospective study, 15 consecutive patients who underwent simultaneous open rhinoplasty and alar base excision were included to investigate whether there is a problem with the blood supply of the nasal tip and columellar skin.

Methods: Fifteen consecutive, noncleft Saudi patients underwent simultaneous open rhinoplasty and alar base excision and had a minimum follow-up of 1 y. During the surgical procedure, there was transection of the columellar arteries and external nasal arteries and frequently of the alar branches of the angular artery.

Results: None of the patients had any evidence of ischemia of the nasal tip or columellar skin, and there was primary wound healing with a thin-line transcolumellar scar in all patients.

Conclusions: Simultaneous open rhinoplasty and alar base excision are safe as long as certain surgical principles are applied. Techniques to avoid injury to the lateral nasal artery and nasal tip plexus are discussed.

14:08-14:16
Free Paper
Session 31

HOW I DO IT: ENDOSCOPIC INFERIOR TURBINOPLASTY

B. S. Gendeh
Hospital National University of Malaysia, Kuala Lumpur, Malaysia

Purpose: Different turbinate reduction procedures are available for treatment of vasomotor rhinitis not responding to appropriate medical therapy. Conventional inferior turbinectomy (nonendoscopic) is the most widely performed procedure. With the advent of nasal endoscopes, inferior turbinoplasty has been gaining popularity. The purpose of this study was to compare the postoperative complaints and hospital stay of conventional versus endoscopic inferior turbinate reduction techniques.

Methods: A total of 36 patients (22 males and 14 females; mean age, 30.6 y) underwent turbinate reduction procedures from January 1998 to May 2000, with a postoperative follow-up ranging from 3 to 6.7 mo (mean, 3.8 mo).

Results: There was a significant difference between the conventional (n = 15) and the endoscopic (n = 21) technique with regard to nasal discomfort (P = 0.05) and dry throat (P = 0.02). The average hospital stay in hours with the endoscopic technique was almost half that for the conventional technique.

Conclusions: Because of the improved visualization, minimal postoperative complaints, and reduced hospital stay, the technique of endoscopic inferior turbinoplasty is currently the procedure of choice at our center. In septoplasty, when an endoscopic instrument is not needed, the standard turbinate reduction procedure is still performed.

14:20-14:28
Free Paper
Session 31

INFERIOR TURBINATE INFUSION: A NEW ACCESS TO SYSTEMIC CIRCULATION

Shahriar Nazari, Shahram Amini, Ahmad Mehrazin
Zahedan University of Medical Science, Zahedan, Iran

Purpose: In emergency situations such as burns, major trauma, and shock, rapid access to circulation is lifesaving. Intraosseous and intraperitoneal routes are substitutes for peripheral veins. We have designed this study to evaluate the efficacy of inferior turbinate (IT)as a rapid and safe route to circulation.

Methods: In 24 volunteer euthyroid patients who needed technetium 99 pertechnetate (99Tc) scan for thyroid assessment, two 21-gauge Branul angiocatheters were inserted: 1 in IT and 1 in antecubital vein. NaCl 0.9% was infused to both sites. Infusion speed was measured at min 1, 5, and 10; then 8 to 10 mCi of 99Tc was infused through IT and time 99Tc tracer reached heart was measured and compared with 6 control cases. Patients answered a questionnaire and were examined by the otolaryngologist.

Results: At min 10, the mean speeds of antecubital vein and IT infusion were 13.59 + 0.86 and 13.12 + 0.88 mL/min, respectively (P = 0.07). The tracer reached the heart after 4.33 + 0.51 and 4.37 + 0.49 s through peripheral vein and IT, respectively (P = 0.85). There was no significant difference between time of tracer to heart and infusion speed in both routes after min 10. There was no significant nasal obstruction, bleeding, or obvious changes in IT.

Conclusion: Because of rich sinusoidal lakes, IT can be used as a route for infusion of liquids and drugs in special conditions (as far as we know, it is the first report of IT infusion in literature).

14:28-14:36
Free Paper
Session 31

CHANGES OF NASAL FUNCTION AFTER TEMPERATURE-CONTROLLED RADIOFREQUENCY TISSUE VOLUME REDUCTION FOR THE TURBINATE

Seung Jun Oh, Dong-Young Kim, Myung-Whun Sung, Yang-Gi Min
Seoul National University College of Medicine, Seoul, Korea

Purpose: To compare nasal functions after treatment with radiofrequency tissue volume reduction (RFTVR) and laser vaporizing turbinoplasty (LVT) by using subjective symptom scores and objective tests.

Methods: Twenty-four patients with nasal obstruction secondary to inferior turbinate hypertrophy were prospectively evaluated from March 1999 through October 1999 at Seoul National University Hospital. Sixteen patients were treated with RFTVR and 8 patients with LVT. Preoperative and postoperative nasal functions were investigated by a visual analog scale of symptoms, butanol threshold test, saccharin test, acoustic rhinometry, rhinomanometry, and ciliary beat frequency.

Results: At 8 weeks postoperatively, the severity and the frequency of nasal obstruction improved subjectively in 81.3% and 93.8% of the RFTVR group and in 87.5% and 87.5% of the LVT group, respectively. Significant improvement of nasal symptoms began from 2 to 3 days after the operation in the RFTVR group, whereas there was significant improvement of nasal symptoms at 8 weeks after operation in the LVT group. However, objective nasal functions including nasal volume and total nasal resistance were significantly improved at 8 weeks postoperatively in both groups. Among patients complaining of hyposmia, 55.6% of the RFTVR group and 63.6% of the LVT group showed improved olfaction. Saccharin transit time and ciliary beat frequency were preserved after RFTVR.

Conclusions: RFTVR for the turbinate may be useful as an alternative approach for the treatment of chronic turbinate hypertrophy.

14:40-14:48
Free Paper
Session 31

THE NASAL TURBINATE RESPIRATORY AND OLFACTORY FUNCTIONAL ENTITY

M. Poupart, J. C. Pignat, L. Mougey, J. Y. Champagne, R. Morel, B. Gay
Hopital de la Croix-Rousse, LMFA Insa Lyon, France

Purpose: The nasal turbinate must not be considered as a single respiratory functional entity helping the access of the odoriferous molecules to the olfactory membrane.

Methods: Whereas the nasal permeation helps the respiratory function, the nasal obstruction paradoxically enhances the olfactory function, and the nasal cycle could be necessary for the simultaneous standing of these 2 functions.

Result: Our study through a nasal model 10 scale authorized us to bring positive arguments for this hypothesis.

Conclusion: The turbinate could be for olfaction what the ossiculum is for audition: transmissional organ.

14:48-14:56
Free Paper
Session 31

RADIOSURGERY OF THE LOWER TURBINATES: EVALUATION BY HIGH-RESOLUTION RHINOMANOMETRY

Klaus Vogt
Private Practice, Rendsburg, Germany

Purpose: To quantitatively evaluate radiosurgery (RS) of the lower turbinates and high-resolution rhinomanometry (HRR) as a method for selection of patients and effective control.

Method: A total of 57 patients with nonallergic hyperreactivity ("vasomotor rhinitis," imidazoline abusus, etc) have been treated by RS of the lower turbinates. RS was performed if the rhinomanometric pattern showed a high difference between the curves before and after decongestion by imidazoline. RS was performed with an Ellman Surgitron (Medici-H, Prague, Czech Republic), using a bipolar submucosal double electrode. The patients were controlled by HRR before and for more than 6 wk after treatment.

Results: The average increase of the "maximum possible flow" in 150 Pa pressure was 50% before decongestion and 30% after decongestion.

Conclusions: RS of the lower turbinates is a powerful, economical treatment for nonallergic nasal hyperreactivity. The permanent decongestive effect is comparable to the treatment by an Nd:YAG laser, but postoperative complaints from patients are remarkably less because of the minimally injured mucosal surface. HRR is a safe diagnostic procedure for selection of patients with primary mucosal problems of the turbinates. RS not only reduces congestion of the mucosa but also of the noncongesting structures of the turbinates.

15:00-15:08
Free Paper
Session 31

APPLICATION OF A DIODE LASER IN OTOLARYNGOLOGY

Vijay Anand and Jason Newman
The New York Presbyterian Hospital, New York, NY, USA

Purpose: Recently, a lightweight, portable, 980-nm wavelength diode laser with a fiberoptic delivery system (CeramOptec) has been introduced to the field of otolaryngology. Our goal is to determine the usefulness and effectiveness of this laser.

Methods: We used the diode laser for several clinical applications, both in the operating room and in the office. Our applications included 14 turbinate reduction procedures, 1 nasal polypectomy, 1 ablation of oral papillomas, and 1 photocoagulation of nasal telangiectasias.

Results: Our preliminary results with this laser demonstrate clinical improvement of nasal congestive symptoms in the turbinate dysfunction patients and control of epistaxis in the telangectasia patient. We have no incidence of operative or postoperative complications. The flexible fiber delivery system is compatible with hollow instruments, allows for coaxial vision, and is ideally suited for intranasal use.

Conclusion: Portability and functional diversity make this laser an attractive alternative to some of the more conventional lasers, such as the CO_2, Argon, and Nd:YAG.

15:08-15:16
Free Paper
Session 31

COMPARISON BETWEEN CO_2 AND DIODE LASER TURBINECTOMY

Pedro Paulo Cintra and Wilma T. A. Lima
Universidade de São Paulo, São Paulo, Brazil

Purpose: We describe an evaluation of the techniques to reduce the bulk of inferior turbinates with the diode laser and the CO_2 laser as well as a comparison between the techniques.

Methods: Sixty patients with turbinate hypertrophy were submitted to the submucous diode laser reduction and CO_2 with a follow-up of 6 mo following an established protocol concerning pain, bleeding, and subjective evaluation of the nasal obstruction preoperatively and postoperatively.

Results: The procedures showed a low level of bleeding and no packing was necessary. The patients were pleased concerning the nasal obstruction postoperatively.

Conclusion: The primary goal of the inferior turbinectomy is to reduce the patient complaint of nasal obstruction with less discomfort, morbidity, and complications during and after the procedure. The laser reduction showed good results in a 6-month follow-up.

15:08-15:16
Free Paper
Session 31

DECOMPRESSION OF THE ORBIT BECAUSE OF MUCOCELE OF THE FRONTAL SINUS AND PNEUMATOSINUS OF THE LEFT MINOR SPHENOID WING

Frauke Hilterhaus and W. Draf
ENT Clinic, Fulda, Germany

A 54-y-old woman suffering from headache and a low-grade exophthalmus on the left side had undergone sinus surgery 3 times in another hospital. Magnetic resonance and computed tomographic scan show a mucocele of the left frontal sinus and a space-occupying lesion of the left minor sphenoid wing.

In the first part, the opening of the frontal sinus is shown after coronal incision with removal of the mucocele and frontal sinus obliteration.

The second part of surgery consists of the lateral approach to the orbit and the minor sphenoid wing for removal of the other space-occupying lesion. It proved to be a pneumatosinus into the left minor sphenoid wing.

The patient is shown immediately and 2 mo after operation.

14:00-15:30
Mini-Course 35

AESTHETIC JUDGMENT TRAINING FOR RHINOPLASTY SURGEONS

Steven L. Neal
Mayo Clinic, Mayo Foundation, Rochester, MN, USA

Most rhinoplasty surgeons are unaware of the extreme separation of skill categories which are both required to master rhinoplasty. In fact, training in our country in backwards.
This course is designed to make surgeons aware of the distinct nature of each skill category. It consists of didactic and hands-on exercise to stimulate the often neglected hemisphere of the brain where we perceive beauty and form. Emphasis is on three-dimensional visualization to help novice or advanced surgeon in mastering rhinoplasty.

14:00-14:40
Mini-Course 36

EXTERNAL (SKIN) CANCER OF THE NOSE PART 1: HOW DO YOU DIAGNOSE AND TREAT

Authors: H. Randle, M. Lutz
Mayo Clinic, Mayo Foundation, Jacksonville, FL, USA

Various benign and malignant tumors, infectious and inflammatory dermatoses of the nasal and perinasal skin will be discussed. In addition, an in-depth review of the importance of histologic subtypes of basal and squamous cell carcinomas and the selection of treatment will be reviewed along with the use of Mohs micrographic surgery for selected cases. The high risk features of unusual tumors, such as atypical fibroxanthoma and angiosarcomas will also be covered.

14:05-14:30
Mini-Course 37

MANAGEMENT OF THE CROOKED NOSE

Russ Kridal
Houston, TX, USA

The crooked nose presents a challenging problem for rhinoplasty surgeons. The septum must be addressed first, as often a deviated septum can cause the tip or the dorsum to deflect off to the side. In many noses, separation of the upper lateral cartilage from the septum is absolutely necessary with the occasional use of spreader grafts to move a dorsal septal deflection over to the side. Osteotomies are usually additionally necessary whether or not the nasal bones are fractured in order to further mobilize the septum and allow it to be placed back into the midline with structure techniques. In some noses, deflections will not be straightened out by actually changing the anatomy and onlay camouflage grafts are necessary. Additionally, crooked noses often have had damage to the upper lateral cartilage and valve grafts may be necessary to restore breathing as well as symmetry.

14:55-15:20
Mini-Course 38

OVER PROJECTION TIP AND ALAR BASE NARROWING

Fausto López Infante
Cirugia Reconstructiva Funcional de la Nariz, Mexico

The over projected tip is seen in 2 cases, 1; in the high dorsum nose and, 2; in normal dorsum (Pinocchio nose). In the first case almost always can be corrected just descending the dorsum without pyramid alteration and the second case is easily resolved with dome division and cartilage resection. Crushed cartilage is introduced, between the skin and the lobular cartilage.
We always make the incision of skin and cartilage at the same time, in the dome or medial to the dome, but never resect skin.
To narrow the nasal base we do resect skin from the vestibule and in a triangular shape to avoid the rounding of the nostrils.

14:40-15:20
Mini-Course 39

PERSONAL TECHNIQUES THAT WORK

M. Eugene Tardy, Jr.
University of Illinois Medical School at Chicago, Chicago, IL, USA

All septorhinoplasty patients ar carefully screened for appropriate expectation and reliability. Exhaustive preoperative diagnostic visual, photographic and airway evaluations precede surgical planning. Approaches to the nasal tip (non-delivery, delivery or external) depend upon the precise anatomy encountered and the changes in tip refinement, projection, rotation and orientation desired. Dissection and exposure takes advantage of favorable tissue dissection anatomical planes within the nose. Airway restoration commonly precedes aesthetic correction. Atraumatic surgical maneuvers utilizing small instruments, microsteotomes and delicate 15c blades minimize bleeding and intraoperative swelling. The liberal use of cartilage grafts in both primary and secondary cases enhances long-term outcomes.

16:20-16:35
Symposium 25

EMPTY NOSE AFTER TURBINATE SURGERY

De-Yun Wang, MD, PhD.
Department of Otolaryngology, The National University of Singapore, Singapore

Nasal obstruction is defined as discomfort manifested as a feeling of insufficient airflow through the nose. It is one of the most common clinical symptoms which can be caused by multiple factors, including anatomic variations of the nose and various local and systemic diseases. The obstructing inferior turbinate (turbinate hypertrophy) caused by various pathogenic mechanisms such as IgE or non-IgE mediated mucosal inflammation is known to be the most common cause of nasal obstruction. The treatment strategies include symptom relief that is often a primary concern by both patient and physician, and treatment of the underlying diseases (i.e., allergy or infection). It is often noted in patients with chronic turbinate hypertrophy that medical management is not always satisfactory, but it does respond well with surgical treatment. A total or partial inferior turbinectomy is often performed to relieve nasal obstruction by decreasing the soft tissue mass in the nasal cavity. However, the indications for turbinectomy have been complicated by the controversies over the benefits of improving nasal patency and the possible adverse effects causing a significant loss of nasal function, especially disturbance in respiration and the defensive function against infection. The concept of the “Empty Nose Syndrome” has been introduced indicating the possible adverse effects secondary to inferior turbinectomy. It includes signs and symptoms of nasal mucosal atrophy, nasal crusting, bleeding, recurrent infections, pain, disturbances in olfactory, nasal odor and depression. The average interim between surgery and symptomatic atrophy was in 8.1 years (Moore et al.). However, pathogenic mechanism underlying the clinical manifestations of the “Empty Nose Syndrome” is not fully understood. More comprehensive research is needed to assess the relationship between the type of turbinectomy and development of the adverse effects. It will provide valuable information for clinicians on the decision whether to perform turbinectomy.

16:50-17:05
Symposium 25

MEDICAL TREATMENT OF NASAL ATROPHY

Vladimir Kozlov
Yaroslavl Medical Academy, Yaroslavl, Russia

So called “Syndrome of Empty Nose” (SEM) is usually developed after too aggressive endonasal sinus surgery, especially after removing ethmoid cells, medial and inferior turbinates. Patients with SEN suffer from headache, postnasal drip, intensive crust formation and nasal blockage. In most cases of SEN traditional treatment with simple irrigation of the nasal cavity, antibiotics and decongestants is not effective. To treat SEN we developed the sinus catheter (SC) YAMIK-5. SC YAMIK-5 sinus by means of creating a controlled pressure in the nasal and paranasal sinuses cavities together with irrigation enable to evacuate pathological contents from PNS and to introduce medicinal substance into PNS.
24 patients with SEN aged from 28 to 63 were treated with SC YAMIK-5. All patients had been operated on before more then three times because of severe nasal polyposis. YAMIK procedures were performed two times in a week during 3-4 weeks. For irrigation an antiseptic or antibiotic solution were used. Most of the patients felt better after the first two procedures. After two weeks of treatment the patients remarked decreasing of crust formation in the nasal cavity, decreasing of nasal discharge and also pointed out that secretion in the nose became more liquid. During endoscopic control we find disappearances of polypous degeneration of the mucous membrane in the nasal cavity and sinuses. After four weeks of YAMIK treatment all patients improved their life condition. The results were stable during 4-6 months. After that a new course of treatment is indicated.
Conclusion: Sinus catheter YAMIK-5 together with pumping machine AMEDA is the best choice I treatment of “Empty Nose Syndrome”.

16:05-16:20
Symposium 26

THE DEVELOPMENT OF THINKING ABOUT EUTHANASIA IN THE NETHERLANDS

Egbert H. Huizing
University Medical Center, Utrecht, The Netherlands

The Netherlands has a long-standing history of controversial social and intellectual issues. Man has the freedom to choose to terminate his life or have his life terminated in the circumstances of disease in its terminal stage. It is respected that some doctors and nurses are willing to help with self-inflicted death and active euthanasia. Similarly, it is respected that some doctors and nurses refuse on moral grounds to participate in these acts. Before the 1980's euthanasia was performed secretly and the cause of death was registered as 'natural'. Both acts were illegal and prosecuted (often without punishment). In 1892, we started using a euthanasia-protocol in our ORL department. This was soon followed by a local arrangement between the hospital and the Department of Justice at Utrecht. Euthanasia remained illegal but was no longer prosecuted if the protocol was followed. In 1991, a general regulation was accepted, and in 1993 a law passed. The requirements of euthanasia are the following: the patient's request must be explicit, voluntary, repeated and if possible in writing; his disease must be untreatable and his suffering must be 'unbearable', 'deteriorating', 'with loss of human dignity, and without hope for improvement. The doctor must consult an independent colleague and the family (unless the patient does not want this).He makes a written record of the case. Only doctors are allowed to perform euthanasia. After euthanasia has been performed, the department of justice is informed. The doctor will be discharged and not prosecuted if it appears that the procedure has been carried out according to the regulation. In other words, euthanasia is still illegal but will not be prosecuted provided that all requirements are strictly fulfilled.

16:20-16:35
Symposium 26

THE PRACTICE OF EUTHANASIA IN THE NETHERLANDS

A.F. van Olphen
University Medical Centre, Utrecht, The Netherlands

Introduction
Euthanasia is illegal in the Netherlands and is considered murder. Nevertheless if a doctor performs euthanasia according to hospital rules which agree with legislation concerning euthanasia, the doctor will not be prosecuted.

Voluntary active euthanasia is defined as providing means and/or acting on request of the patient to shorten life. The patient should take actions to achieve this by himself. If the patient is incapable the doctor may do this for him.

Prerequisites
1. The wish to end life must be fully voluntary. Any outside influence is unacceptable.
2. There must be an unendurable and incurable somatic suffering with no chance of an improvement.
3. A committee of caregivers must be formed to discuss these issues.
4. All procedures must be documented.

Procedure
The committee follows a strict protocol in agreement with the rules of euthanasia. Once the committee comes to a unanimous decision, the head of the department and the board of the hospital are informed in writing. If there is no unanimous decision an advisory committee of the hospital assists the committee in the directions of caring for the patient.

Euthanasia
The necessary drugs are given systematically. Oral drugs these are given by the physician and taken by the patient. The doctor administers intravenous drugs. The choice of drugs is made by the hospital advisory committee. After euthanasia an unnatural death is reported to the coroner.

16:50-17:05
Symposium 26

PHYSICIAN-ASSISTED DEATH: ETHICAL CONSIDERATIONS

C. Christopher Hook
Mayo Clinic, Mayo Foundation, Rochester, MN, USA

Physician-Assisted Death (PAD) is one of the most contested issues in medical ethics.
Arguments supporting PAD include:
Autonomy: It is each person's right to control the time and circumstances of death
Equivalence: We allow patients refuse life-sustaining therapy to end their lives, why then can't they request more direct means?
Compassion: One of medicine's goals is treating suffering., and this may require ending the patient's life
Arguments opposing PAD include:
Professional Integrity: Since Hippocrates, it has clearly been understood that killing is beyond the role of the physician. Crossing that line will erode the trust placed in the medical profession
Sanctity of Life: Direct killing is always wrong. We may be bound to accept a patient's refusal of treatment to respect personal integrity, but we must never overtly kill
Slippery Slope: Though motivated by compassion, allowing PAD will lead to consequences that we do not desire, including unrequested killing of patients. PAD cannot be controlled by guidelines.
Data from the Netherlands and Oregon provide strong support for the professional integrity and slippery slope arguments, and erode support for the autonomy argument. Life-Terminating Acts without Explicit Request account for 0.7% of all deaths in the Netherlands, and 20% of all acknowledged cases to shorten life (J. Med Ethics 25:16-21,1999. In Oregon, the supposed safeguards are being bypassed by doctor-shopping patients and family members who find, or are referred to by Compassion-in-Dying, an MD who will write the prescription regardless of the circumstances. (NEJM 342:598-604, 2000)

16:01-16:08
Free Paper
Session 32

KTP/532 LASER IN REVISION ENDOSCOPIC SINUS SURGERY

S. K. Kaluskar
Tyrone County Hospital, Omagh, United Kingdom

Purpose: Functional endoscopic sinus surgery is now a well-established procedure throughout the world. The majority of studies suggest improvements in more than 85% of patients. At the same time, there is a failure rate of 2% to 24% and need for revision endoscopic sinus surgery. The problems in revision endoscopic sinus surgery are: 1) Distorted surgical anatomy and excessive scar tissue usually needs general anesthesia, resulting in excessive bleeding); 2) chronically congested and edematous mucous membrane further resulting in excessive bleeding; and 3) higher incidence of serious complications due to poor visualization of surgical landmarks.

Methods: The KTP/532 laser does not require an aiming beam. The physical characteristics of the KTP laser allow selective absorption by tissue blood pigments (ie, hemoglobin and melanin) and hence it is an excellent coagulator.

Results: The emerging laser beam of the KTP laser is a divergent beam. This creates many temperature gradients, with the quartz fiber delivery system enabling the surgeon to cut, vaporize, and coagulate the vascular tissue of the nose and sinuses simultaneously. The vaporization mode of the KTP is particularly useful in the presence of polyps in the nasal cavity obscuring the important surgical landmarks. These polyps can be bloodlessly vaporized to gain access to the middle meatus and uncinate process.

Conclusion: This presentation discusses the most common anatomic sites of residual or recurrent disease and how to tackle these difficult areas with the KTP laser, without risking serious complications.

16:08-16:16
Free Paper
Session 32

LASER-ASSISTED OUTPATIENT SEPTOPLASTY FOR NASAL OBSTRUCTION

Y-V. Kamami, L. Pandraud, A. Bougara
Saint-Cloud Hospital, Paris, France

Purpose: For 5 years the authors have developed and practiced extensively laser-assisted outpatient septoplasty (LAOS).

Methods: From 1995 to 1999, 1,346 patients (947 men, 399 women; mean age, 46.4 y; range, 7-93 y) underwent this operation. Laser-septoplasty and inferior turbinate partial turbinectomy were done in all patients. The operation is performed in about 5 min, while the patient is positioned in an upright sitting position, with a specially designed nasal tip connected to the snoring handpiece. The protruding spur was resected horizontally, superficially, and minimally using a combination of a scanning device and of the Superpulse mode. A minimal "char-free," "blood-free," and "pain-free" transmucoperichondrial debulking of the convex and angulated side of the cartilage is achieved.

Results: One month later, repeat rhinometry showed a surgical success rate of 91% for the nasal obstruction and an improvement for nasal discharge, sneezing, recurrent headaches, and chronic rhinosinusitis. Nine percent of patients experienced slight or no improvement. Crusting occurred in 82% of patients, with a mean duration of 11 days (range, 0-30 days). Healing and regrowth of the septal mucosa is usually complete within 3 to 4 weeks. There were 18 cases of benign delayed bleeding, which were easily controlled. There were 8 cases of slight postoperative discomfort and 1 case of postoperative rhinosinusitis. There were 7 cases of nasal adhesions.

Conclusions: LAOS appears to be a safe, simple, quick, and predictable procedure on anterior septal spurs.

16:20-16:28
Free Paper
Session 32

LASER CO_2 TURBINOPLASTY

G. Morello-Castro, A. Morello, R. Bonells, G. Castro
Rovira I Virgili University and Entinstitute, M-C, Barcelona, Spain

Purpose: The hypertrophied inferior turbinates are responsible for nasal obstruction in patients with chronic rhinitis. Several methods have been applied to solve this problem. Laser methods have produced good results.

Methods: We present the management of 150 patients with hypertrophy of the inferior turbinate mucosa, using CO_2 laser. Laser (CO_2)-assisted partial turbinectomy is done in 1 session for both sides. During local anesthesia, the turbinate is resected horizontally on its medial and inferior side by about 30% of its bulk, using a specially designed handpiece and nasal endoscope with 12 watts power. Rhinomanometry was performed preoperatively and postoperatively.

Results: Objective results showed improvement in 94% of the cases.

Conclusion: Different surgical methods have been applied to treat turbinate hypertrophy. We believe that this approach for the management of inferior turbinate hypertrophy offers a treatment modality capable of achieving excellent results in hypertrophy of the inferior turbinates with minimal morbidity.

16:28-16:36
Free Paper
Session 32

LASER & RADIOSURGERY IN ASTHMA-RELATED SINUS DISEASES

Suresh R. Soni
Allergy Asthma & Laser Sinus Endoscopy Hospital, Ahmedabad, Gujarat, India

Purpose: Asthma and allergic rhinitis are global diseases. Over 160 million people are suffering from asthma and allergic rhinitis due to airborne allergy, and it increases daily because of air pollution. Physicians treat asthma and allergic rhinitis patients with antihistamines, decongestants, and steroid bronchodilator, either oral or inhaled.

Methods: I examined endoscopically all asthmatic patients who also suffered from allergic rhinitis.

Results: I found the majority of patients suffering from blockage of nose, due to deviated nasal septum, hypertrophy of inferior and middle turbinates (choncha, bullosa), chronic sinusitis and antrochoanal polyp or ethmoid polypi, or adenoid infection in children. When I treat the nasal problem with laser and radiosurgery and then the routine conventional method, which helps produce minimal blood loss, precise surgery, prompt healing, and fewer postoperative complications result.

Conclusions: The majority of asthmatic patients (60%-70%) benefit. The frequency or severity of attacks is reduced or intake of bronchodilator is reduced, and for those who are steroid dependent, remarkably the steroid dose is decreased. All asthmatic with allergic rhinitis patients should be examined endoscopically and their nasal pathology must be corrected first.

16:40-16:48
Free Paper
Session 32

ENDOSCOPIC TRANSPHENOID HYPOPHYSECTOMY

Carlos Cuilty-Siller, Jorge Guajardo, Luis Carlos de Leon
Hospital Santa Engracia Frida Kahlo, Garza Garcia, NL, Mexico

Purpose: This study assesses the benefits of the endoscopic transsphenoidal approach to the sella turcica, eg, improved visualization of the sphenoid sinus and related anatomic structures, including the sella turcica.

Methods: Twenty patients underwent endoscopic removal of pituitary tumors from September 1997 to June 2000. Computed tomography, magnetic resonance imaging, and rigid nasal endoscopy were performed before surgery to determine extent of tumor and to plan surgery. The sphenoid sinus ostium is identified and opened medially and inferiorly until adequately exposed. A part of the perpendicular plate of the ethmoid bone is removed, preserving the contralateral mucoperiosteum. The intersinus septum is removed to expose the floor of the sella turcica. The tumor is removed under endoscopic visualization followed by obliteration of the capsule and sphenoid sinus with muscle and fat. A pack is placed anterior to the face of the sphenoid sinus for 5 d; the patient is discharged within 48 h.

Results: Complications included 1 transoperative cerebrospinal fluid leak. No postoperative complications or dysfunction of the pituitary was observed in our patients. The visual field was normalized in all 4 patients with preoperative visual deficit. Follow-up endoscopic examination has been performed in 19 patients.

Conclusions: Endoscopic visualization enables improved evaluation of the sphenoid sinus, minimizing the risk of injury. With this technique, enough surgical exposure for the neurosurgeon can be achieved with minimal surgical dissection since only a portion of the sphenoid sinus is removed. Visualization within the tumor's capsule significantly decreases the chance for tumor recurrence.

16:48-16:56
Free Paper
Session 32

ENDONASAL ENDOSCOPIC MANAGEMENT OF CSF LEAKS

Paolo Castelnuovo
University of Pavia, Pavia, Italy

Purpose: Endonasal approach to repair cerebrospinal fluid (CSF) leaks has become a well-established surgical procedure.

Methods: In our department from 1996 to 1999, 38 patients were treated. Average follow-up is 2 y (range, 1-3 y). At presentation the main common symptom was nasal rhinorrhea; 9 cases had a history of recurrent meningitis. Twenty CSF leaks (52%) were of traumatic origin, 11 (29%) spontaneous, and 7 (19%) iatrogenic. The most frequent site of the skull base defect was the cribriform plate (48%), followed by the anterior ethmoid (19%), sphenoid (13%), and posterior ethmoid (7%). Four cases presented multiple defects. When possible, the defect was closed with a free mucoperichondral flap from middle turbinate (32%).

Results: Eleven (35%) patients required combined grafts, and for sphenoidal leaks, abdominal fat was preferred. The success rate at the first attempt was 87%. Four patients had rhinorrhea after the first surgical procedure and they needed a second operation. The success rate after the second attempt is 100% at 1-y minimum follow-up.

Conclusion: In our experience, endoscopic approaches to the management of CSF leaks are highly effective and safe. The optimal surgical procedure is chosen according to the precise location and extent of the defect.

17:00-17:08
Free Paper
Session 32

ENDOSCOPIC TRANSNASAL PITUITARY TUMOR REMOVAL

Mohamed Elshazly and Amr Safwat
Cairo University, Cairo, Egypt

Purpose: The cumulative experience with the use of the endoscope in sinonasal surgery has encouraged its use in pituitary surgery.

Methods: From October 1996 to February 2000, 60 patients, 36 males and 24 females with an age range of 13 to 78 y, were operated on for tumors of the pituitary glands. The tumors were microadenoma in 8 patients and macroadenoma in 52, of which 14 were purely intrasellar, 36 were sellar with suprasellar extension, and 2 were sellar with parasellar and intracavernous sinus involvement. Thirty-two adenomas were secreting: 28 were prolactinomas and 4 were growth-hormone secreting adenomas. All patients were approached via the transnasal transsphenoidal route, using the 0° and the 30° nasal endoscopes. In suprasellar extension we have used the intrathecal injection of air in the subarachnoid space to delineate and to push the tumor down. The average stay at the hospital was 48 h, with minimal postoperative morbidity, pain, and edema.

Results: Total tumor removal was accomplished in 54 patients. Among the 28 patients with prolactinomas, all improved clinically and 22 had a normal prolactin level. One patient died of bleeding from the posterior circulation at the end of the operation. A second died of hypothalamic injury.

Conclusion: The 0° and the 30° endoscopes provide an excellent panoramic view of the sella turcica, allowing better inspection of the blind spots that cannot be visualized by the microscope and consequently more radical tumor excision, especially with macroadenomas.

17:08-17:16
Free Paper
Session 32

ANTERIOR SKULL BASE: ENDOSCOPIC AND MICROSCOPIC APPROACHES

Alexandre Felippu
Instituto Felippu de Rhinologia-Otolaringologia e Cirurgia da Base do Cranio, São Paulo, Brazil

The author presents in detail the technical aspects of microscopic and endoscopic approaches used in the treatment of tumoral and inflammatory diseases of the anterior skull base. Emphasis is placed on diseases such as cerebrospinal fluid leak, cephaloceles, hypophysis tumors, angiofibroma, fibrous dysplasia, internal carotid pseudoaneurysm, optic nerve compression, osteoma, inverted papilloma, mucoceles, fungal infection, and complicated paranasal sinus diseases.

16:08-16:16
Free Paper
Session 33

EFFECT OF TOPICAL CORTICOSTEROID TREATMENT ON CELLULAR INFILTRATION, IL-5 EXPRESSION, AND EOSINOPHILIC APOPTOSIS IN NASAL POLYPS

Luo Zhang, Dingfang Bu, Bing Zhou, Demin Han
Affiliated Beijing Tongren Hospital of Capital University of Medical Sciences, Beijing, China

Purpose: The thesis will focus on the effect of topical steroid treatment and how this adds to knowledge of the actions of medical treatment.

Methods: Sixteen patients treated with budesonide, 400 µg/d, during the preceding 6 to 8 wk were the study group, whereas 16 patients without treatment were the control group. Histologic sections were immunostained for CD3, CD4, CD8, CD20, CD45RO, EG2, and interleukin (IL)-5. Other sections were stained by terminal dUTP nick end labeling (TUNEL) assay and routinely stained with hematoxylin and eosin and carbon chromotrope 2R.

Results: Topical corticosteroids reduced the proportion of activated eosinophils and CD3, CD4, and CD8 positive cell numbers in samples. Correlations were reported between IL-5 mRNA expressing cells and numbers of chromotrope 2R positive cells and activated eosinophils, supporting a link between IL-5 and eosinophils in nasal polyposis in vivo. Evidence supports a role for IL-5 in initiation and maintenance of chronic eosinophilic inflammation in nasal polyps and suggests that successful treatment is associated with inhibition of IL-5 production at the protein or mRNA level. Corticosteroids induce apoptosis in eosinophils in nasal polyps in vitro. That is not reflected by a similar response to budesonide at 6 to 8 wk in vivo but may still play a part in regression of polyps with other forms of administration.

Conclusion: The report indicates that glucocorticoids suppressed IL-5 production at the gene expression level, which is suggested to be one of the most important mechanisms by which glucocorticoids inhibit eosinophil functions in the treatment of nasal polyposis.

16:20-16:28
Free Paper
Session 33

PREVALENCE AND NATURAL COURSE OF NASAL POLYPOSIS

Lars Malm
University Hospital, Malmö, Sweden

Purpose: Literature quoting prevalence figures for nasal polyposis is sparse. It appears that between 0.1% and 2% of the adult population have nasal polyps at some time in their lives. After their debut, nasal polyposis is a lifelong condition. The way different symptoms change with time is common knowledge among ENT surgeons, but few reports concerning these phenomena can be found.

Methods: Until the end of the 1980s almost all first-time discovered snared polyps from patients in the city of Malmö were sent to the Department of Pathology for diagnosis. After that, for economic and diagnostic reasons, fewer specimens of what looked like benign bilateral polyps were sent for diagnosis. A questionnaire was filled out in 1995 by those patients who had polyps sent for diagnosis during the years 1980, 1985, and 1990.

Results: Calculation of mean age at onset, mean life span, and number of inhabitants in the city of Malmö yields a prevalence of 0.5% to 1%. More or less continuous nasal congestion was still experienced by 59% of those from 1990, by 38% of those from 1985, and by 25% of those from 1980. Subjective hyposmia was not reduced much over the years; among those from both 1985 and 1980, 46% had disturbing hyposmia. Asthma was more common with increasing age and appeared in 32% among those with a first polyp in 1980.

Conclusions: Nasal polyposis is a common disease. The symptoms of most patients with bilateral eosinophilic nasal polyps are decreasing with increasing age. Asthmatic symptoms are, however, increasing.

16:28-16:36
Free Paper
Session 33

EVALUATION OF THE ROLE OF FUNCTIONAL ENDOSCOPIC SINUS SURGERY FOR TREATMENT OF NASAL POLYPOSIS

Yashwant Maru and Kusum Patidar
M.Y. Hospital and M.G.M. Medical College, Indore, M.P., India

Purpose: Nasal polyposis remains a significant challenge for the treating physician. Multiple factors including infections, allergy, trauma, chemicals, metabolic disorders, and psychogenic factors have been implicated as possible etiologies of nasal polyposis.

Surgical management of nasal polyps dates back to before the time of Hippocrates (463-370 BC), who used a sponge method to remove them. Since that time, many modifications have been made in surgical and medical management plans.

Methods: The functional endoscopic sinus surgery (FESS) technique provides a tool by which a clinician can accurately diagnose, meticulously and atraumatically perform surgery, and precisely provide postoperative care and follow-up for nasal polyposis. In addition to this, FESS can be applied to a wide spectrum of rhinologic disorders, including chronic and acute recurring sinusitis, mucocele, retention cyst, eustachian tube dysfunctions, and adjuvant surgery to allergic disorders, including bronchial asthma and allergic bronchitis. In this series, 320 patients who had chronic sinonasal disease with nasal polyposis were selected for study. The role of FESS in the management of these patients is discussed. All patients were evaluated clinically, radiologically, and endoscopically and managed by FESS using Messerklinger's technique. Postoperative follow-up was 6 to 18 mo.

Results: Eighty-nine percent of patients were asymptomatic after operation.

Conclusion: The overall results were encouraging.

16:40-16:48
Free Paper
Session 33

NASAL POLYPI IN ALLERGIC FUNGAL SINUSITIS

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King Fahad National Guard Hospital, Riyadh, Saudi Arabia

Purpose: To evaluate the morphologic behavior of nasal polypi, the nature of the disease, and the natural course of allergic fungal sinusitis (AFS).

Methods: A prospective study was done from 1990 to 1997 of 20 patients suffering from nasal polypi with a diagnosis of AFS. All the patients were immunocompetent. Blood sera of each patient were tested for eosinophilia, serum-specific IgE, IgG, total IgE, and RAST. The radiologic assessment was done by computed tomography and magnetic resonance imaging with intravenous iodinated contrast medium. Polyps, inspissated debris, and concretion from the nose and involved sinuses were sent for biochemical assays and histologic and mycologic studies. Histologic studies of the polyps were done with formalin-fixed, paraffin-embedded, hematoxylin-eosin-stained sections. Representative sections were also stained with Gomori methenamine silver stain. The culture was done in mold in inhibitory agar and Sabouraud dextrose agar.

Results: The most commonly involved sinuses were maxillary and ethmoid. The computed tomographic scan showed high attenuation material with a thin surrounding zone of lower attenuation and expansion and erosion of the sinus walls and nasal cavity. Histologically, the polyps were characterized by distended, dilated mucous glands with myxoid stroma, thick inflammatory exudates, and more sulfated mucin. Bone erosion was comparable with mucocele of the sinuses and results from pressure necrosis and inflammatory mediators.

Conclusion: The polyps in AFS have distended mucous glands and intense inflammatory exudates surrounding them. They erode the bone, compress the adjacent structures, and have great propensity to recur.

16:48-16:56
Free Paper
Session 33

CAUTERIZATION OF THE POSTERIOR NASAL NERVES (SPHENOPALATINE) IN THE TREATMENT OF NASAL POLYPOSIS

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Purpose: From January 1994 to January 1999, 145 patients were treated with combined medicamentous therapy and endoscopic surgery. Endoscopic ethmoidectomy or sphenoethmoidectomy with resection of the posterior one-third of middle nasal turbinate was performed. Because of intensive bleeding from the posterior nasal artery, we had to cauterize it to stop bleeding and noticed fewer incidences of polyp recurrence. For that reason, January 1998 we started with obligatory cauterization of posterior nasal nerves. We present our data and experience with this technique.

Method: One hundred seven patients with regular follow-up were divided into 2 groups regarding cauterization of posterior nasal nerves. The first group without cauterization had 56 patients with a computed tomographic (CT) staging score of 14.85 (Princeton International Symposia, 1993) and the second group had 51 patients with a CT score of 14.74. All anamnestic, local endoscopic, and CT data were analyzed and correlated statistically.

Results: In the first group endoscopic recurrence was 51.8% and in the second group, 33.4% ($P = 0.026$). Median breathing score (Visual Analogue Scale) for the first group was 7.87 and for the second group 8.17.

Conclusion: Cauterization of posterior nasal nerves reduces recurrence of nasal polyposis. A possible mechanism is regrowth and remodeling of the nerves with subsequent normalization of neuroimmunomodulation. We recommend the cauterization as an obligatory procedure and suggest further clinical and experimental trials regarding impaired neuroimmunomodulation as the cause of nasal polyposis.

17:00-17:08
Free Paper
Session 33

SPONTANEOUS CHANGES IN THE NASAL VALVE SITE DEPENDENT ON THE NASAL CYCLE

Tomasz Gotlib, Boleslaw Samolinski, Magdalena Arcimowicz
Medical University of Warsaw, Warsaw, Poland

Purpose: The site of the nasal valve is generally regarded as being at the anterior end of the inferior turbinate. It is known that the position of the nasal valve may change with pharmacologic decongestion. These changes depend on decongestion of the sinusoid system found in the anterior portion of inferior turbinate. Physiologic spontaneous changes in nasal airway patency, occurring in about 70% of healthy adults, are known as the nasal cycle. The aim of this study is to evaluate spontaneous changes in nasal valve site associated with the nasal cycle.

Methods: Rhinometric evaluation of nasal cavities was performed for each nasal passage every 15 min during a 4-h session in a group of 10 healthy volunteers. Anatomic nose adapters were used, and a special method of controlling the first deflection of the acoustic rhinometry curve was applied.

Results: The nasal cycle was detected in 8 patients. MCA was located at a mean distance of 2.3 cm from the nostril, and in most of examined nasal cavities it was not changing position more than 0.2 cm during the cycle. MCA was moving anteriorly more than 0.2 cm, and MCA was changing position posteriorly from approximately 2.3 to 3.2 cm from the nostril. After pharmacologic decongestion, mean MCA moved anteriorly, and it was located at a mean distance of 1.9 cm from anterior nostril.

Conclusion: The site of MCA during the decongested phase of nasal cycle is different from the MCA site after pharmacologic decongestion.

17:08-17:16
Free Paper
Session 33

RHINOCEREBRAL MYCOSES: MANAGEMENT AND FOLLOW-UP

A. K. Gupta and S. B. S. Mann
Pgimer, Chandigarh, U.T., India

Purpose: We studied the clinicopathologic profile and response to therapy in rhinocerebral mycoses.

Methods: Thirty-four proven cases of paranasal mycoses with intracranial extension were diagnosed on the basis of history and clinical and radiologic examination. The fungal elements were confirmed by direct microscopy, fungal culture, and serologic tests.

Results: The mean age was 35 y (18-65 y), with a male predominance (1.8:1). Twenty-eight cases (82.4%) were of aspergillosis and 6 (17.6%) of mucormycosis. The aspergillosis group was categorized into invasive (21), noninvasive destructive (11), and noninvasive aspergillus granuloma (2). Rhinorrhea with nasal polyposis (67%) and proptosis (50%) were the common presentations. Heterogeneous density mass with occasional calcification was seen on computed tomographic scan. Most cases had bilateral involvement of all the sinuses. Extracranial approach was used in 64.7% and combined intracranial-extracranial in 35.3%. During surgery, bony destruction was seen in posterior table of frontal sinus (29.4%), roof of sphenoid sinus (26.5%), cribriform plate (23.4%), and fovea ethmoidalis (20.6%). Mucormycosis was treated with amphotericin B and debridement, invasive fungus with itraconazole, and noninvasive fungus with ketoconazole. All cases were followed up from 6 to 36 mo. Cases treated with conservative approach (extracranial) had a higher recurrence rate (20.6%) than those treated by wide exposure (2.9%) ($P < 0.05$). Prognosis was directly proportional to the extent of disease.

Conclusions: *Aspergillus flavus* is the most common pathogen (61.8%). Noninvasive destructive variety has better prognosis than invasive, and a wider exposure with postoperative itraconazole increases the cure rate.

17:20-17:28
Free Paper
Session 33

EPSTEIN-BARR VIRUS DETECTION AND PROGNOSTIC FACTORS OF NASAL NK/T-CELL LYMPHOMAS

Yasuaki Harabuchi, Nobuyuki Bandoh, Haruhiro Yamaguchi, Miki Takahara, Masayoshi Nagamine, Yoshifumi Kobayashi, Akikatsu Kataura
Asahikawa Medical College, Asahikawa, Japan, and Sapporo Medical University, Sapporo, Japan

Purpose: We examined the phenotypes and presence of Epstein-Barr virus (EBV) in the primary lymphomas arising in the nasal cavity in relation to clinical features.

Methods: In 44 patients with primary lymphomas arising in the nasal cavity, we examined various factors such as age, symptoms, and laboratory data. Ulcerative/destructive lesions occupying nose or midfacial tissues were classified into 3 grades according to the size. Histologic features were classified into 2 types, monomorphous proliferation type and polymorphic reticulosis type. The phenotype was determined by immunoperoxidase staining. EBV studies were assisted by the expression of EBV-encoded small nuclear early region (EBER)-1 RNA and of latent membrane protein (LMP)-1.

Results: Phenotypically, there were 35 (80%) patients with NK/T cell lymphoma, 5 (11%) with T-cell lymphoma, and 4 (9%) with B-cell lymphoma. The cases with young age, B-cell symptoms (54%), ulcerative/destructive lesion (74%), elevated low-density lipoprotein (LDH) levels (57%), polymorphic histology (63%), and EBER-1 expression (91%) were found more frequently in NK/T-cell lymphomas, but there was not a significant difference of prognosis among phenotypes. In NK/T-cell lymphomas, the 9 patients without ulcerative/destructive lesion showed favorable prognosis (90% of 3-y survival rates). However, 15 NK/T-cell lymphomas with large ulcerative/destructive lesion, which had more cases with B-cell symptoms, elevated LDH levels, and LMP-1 expression, showed significantly poorer prognosis (0% of 3-y survival rates).

Conclusion: Most lymphomas arising in the nasal cavity are NK/T-cell lymphoma associated with EBV.

16:01-16:08
Free Paper
Session 34

ETIOLOGIC FACTOR IN SPONTANEOUS CSF RHINORRHEA

Mohamed Hassab
Alexandria Faculty of Medicine, Alexandria, Egypt

Purpose: Spontaneous leakage of cerebrospinal fluid (CSF) from the nose is the least common and the least understood type of CSF rhinorrhea. It is the purpose of this paper to present a review of a case series of 13 patients with spontaneous CSF rhinorrhea managed over a 4-year period, highlighting the underlying etiologic factors detected.

Methods: These 13 patients were submitted to clinical, endoscopic, and radiologic evaluation. Eleven of these patients underwent surgical management.

Results: In 7 patients, the underlying etiology could be identified from the endoscopic and radiographic findings. In the remaining 6 patients, the cause of the CSF rhinorrhea could be identified only after endoscopic surgical exploration of the sinonasal region. In this group of patients, small meningoceles were found to be the source of the CSF leakage and were all amenable to endoscopic surgical repair.

16:08-16:16
Free Paper
Session 34

ENDOSCOPIC ANATOMIC LANDMARKS FOR SKULL BASE SURGERY: TRANSNASAL APPROACH

P. Herman and P. Tran Ba Huy
Hopital Lariboisiere, Paris, France

Purpose: Even though navigational devices may contribute to avoiding surgical misorientation and lowering the rate of morbidity in skull base surgery, a need still exists for anatomic landmarks when the operative field extends out of the sinus.

Methods: In the last 5 years, active collaboration with neurosurgeons allowed the development of endoscopic surgery for the diagnosis and removal of skull base tumors. Video preoperative data were cross-examined with preoperative and postoperative data from computed tomography and magnetic resonance imaging. This allowed identification of constant landmarks in the base of the skull.

Results: The maxillary nerve (cranial nerve V, division 2) passes within and from the foramen rotundum to the infraorbital canal, the roots of the pterygoids, the foramen ovale, the foramen lacerum, the horizontal segment of the internal carotid artery and the C5 segment, and the anterior and posterior clinoid processes.

Conclusion: Development of transnasal endoscopic surgery requires knowledge of basic extrasinus landmarks that help prevent injury to the dura mater, optic nerve, internal carotid artery, and apex of the orbit.

16:20-16:28
Free Paper
Session 34

MAGNETIC RESONANCE IMAGING CISTERNOGRAPHY FOR DIAGNOSING CEREBROSPINAL FLUID FISTULAS

Sabine V. Hesse and Vinod K. Anand
University of Mississippi Medical Center, Jackson, MS, USA

Purpose: To evaluate the role of magnetic resonance imaging (MRI) cisternography in accurately localizing cerebrospinal fluid (CSF) fistulas.

Methods: A retrospective chart review was done of patients presenting with CSF rhinorrhea of various etiologies for which MRI cisternography was used as a diagnostic tool (n = 10). The fistula site, etiology, and number of episodes of meningitis were noted. Radiologic findings were correlated to intraoperative findings in patients who underwent surgical repair (n = 9). The MR protocol consists of T2-weighted fast-spin echo sequences with fat suppression in all 3 orthogonal planes. MRI cisternography is then compared with computed tomography (CT) cisternography; the parameters evaluated include sensitivity and accuracy for both high and low flow fistulas, degree of invasiveness, morbidity to the patient, and a cost analysis of the procedures.

Results: The etiologies of the fistulas included 2 encephaloceles, 2 nontraumatic, 3 traumatic, and 3 of iatrogenic origin. Nine of 10 patients had clinically evident leaks manifesting as intermittent clear rhinorrhea. MR examination identified CSF fistulas in 9 of 10 cases. Of the 9 patients with positive MR studies, 1 patient refused surgical repair. Eight of 9 patients who underwent surgical endoscopic repair had fistulas confirmed intraoperatively. The patient with a negative MR eventually underwent surgical exploration based on clinical symptoms; intraoperative findings with fluorescein injection could not demonstrate a leak, thus confirming the MR result.

Conclusion: MRI cisternography has a 100% accuracy in localizing CSF fistulas. MR has a higher sensitivity and accuracy than CT cisternography without the risk of an invasive procedure and is more cost effective.

16:28-16:36
Free Paper
Session 34

RHINO-CRANIOTOMY FOR RHINO-CEREBRAL DISEASE

M. Jalisi
College of Physicians and Surgeons Pakistan, Karachi, Pakistan

Purpose: To demonstrate that wide-field exposure is needed for total clearance of extensive nasal disease involving anterior cranial fossa.

Methods: This is achieved through a combined ENT-neurosurgical approach composed of lateral rhinotomy and frontal craniotomy. The study is retrospective, based on hospital records.

Results: Results are analyzed comparing the outcomes of this approach with those of microclearance through other lesser and limited approaches.

Conclusions: 1. Wide-field exposure is needed for total clearance of extensive pathology. 2. Bicoronal within-the-hairline incision gives good cosmesis. 3. Bleeding vessels as well as dural tears are handled with ease.

16:48-16:56
Free Paper
Session 34

EVALUATION OF THE EFFECTS OF HERBAL MEDICINES ON PATIENTS WITH ALLERGIC RHINITIS

Joong Saeng Cho and Young Ho Song
Kyung Hee University Hospital 1, Seoul, South Korea

Purpose: The purpose of this study was to evaluate the effectiveness of manhuangbujaseshintang (MBST) and soshihotang (SST) in patients with allergic rhinitis.

Methods: Eligible males and females were 18 to 65 y old. The patients were divided into 2 groups. MBST group patients received orally MBST for 1 or 2 wk, and the SST group patients received SST. The efficacy measures included relief of combined nasal symptoms (symptom severity index [SSI]) and percentage improvement from last dose of baseline to day 14 and end point (day 28). The patients wrote their symptom severity in a patient diary (nasal obstruction, rhinorrhea, sneezing). The nasal cavity volume was measured by acoustic rhinometry (AR). The nasal patency of each subject was evaluated with the sum of the volume of the right and left nasal cavities. Changes in volume after antigen challenge were expressed as the percent change from the value before the challenge. AR was performed before administration of medicine, day 14, and day 28.

Results: SSI was significantly decreased from treatment wk 2 in the MBST group. In the SST group, patients who took the medicine for 2 wk showed significant decrease in SSI from treatment wk 2, and patients who took it for 1 wk showed significant decrease on treatment wk 4. Both groups showed significant increase in the percent improvement from last dose of baseline to wk 2 and wk 4. Two-week administration of MBST and SSI showed better effect than 1-wk administration. The percent volume change after antigen challenge was remarkably decreased in patients who took MBST and SSI for 2 wk.

Conclusion: The herbal medicines MBST and SSI were effective for the patients with allergic rhinitis.

17:00-17:08
Free Paper
Session 34

ALLERGOLOGIC EVALUATION OF FUNGAL HYPERPLASTIC RHINOSINUSITIS

C. Corradini, G. Paludetti, M. Del Ninno, D. Schiavino, E. Nucera, A. Buonomo, G. Patriarca
Catholic University of the Sacred Heart, Rome, Italy

Purpose: Allergic fungal sinusitis is a rare form that affects mainly immunocompetent young adults whose complaint is generally allergic rhinitis or recurrent nasal polyposis despite medical or surgical treatment.

Methods: From February to May 2000 11 patients aged between 24 and 64 y underwent an allergologic evaluation: 3 were affected by the so-called ASA triad syndrome and 8 by simple nasal polyposis. In all patients a nasal lavage was performed for microscopic examination by fluorescence. All samples were cultured and were prepared for scanning electron microscopy examination. A prick test was performed with the main inhalant allergens and 12 fungal allergens. The IgE total serum level, the specific fungal IgE, and the eosinophilic cationic protein were investigated by means of an immunofluorine enzymatic method. Finally, a nasal provocation test (NPT) with a pure solution and with progressively diluted solutions (1/100, 1/10) of fungal allergens extracted from each individual nasal secretion was done.

Results: Nasal secretions of 10 of 11 patients showed the presence of fungi. Prick tests and NPT were negative in all patients. Total IgE levels (200 KU/L, average 23.59 KU/L), specific IgE levels for the tested fungi (0.35 KU/L, normal 0.35 KU/L), and eosinophilic cationic protein levels (20 µg/L, average 8.92) were within normal ranges in all patients.

Conclusions: Presence of fungi in the nasal secretions of patients affected by nasal polyposis does not seem to be correlated to an allergic or hyperergic status for the isolated fungus.

17:08-17:16
Free Paper
Session 34

REFINEMENTS IN ENDOSCOPIC DCR: HOW I DO IT

P. THULASI DAS
Chennai Kaliappa Hospital 43, Chennai, Tamilnadu, India

Purpose: Although the endonasal dacryosystorhinostomy (DCR) had been described by Caldwell in 1863, the transnasal procedure became popular after the introduction of endoscopes. Apart from obviating a scar on the face, endoscopic DCR is simple, repeatable, and less morbid. The greatest advantage of endoscopic DCR over its external counterpart is that it can be used to drain an acute abscess and to do a rhinostomy at the same time, which is impossible in an external DCR.

Method: Simple instruments are used in our technique, which makes the surgery cost effective. Refinements such as uncinectomy with through-cutting instruments have improved results in our hands.

Results: We have recorded 94% success in a series of 502 cases spanning a period of 11 y. The use of stents is completely avoided in our series.

Conclusion: Our technique of endoscopic DCR and further refinements are fully described in this presentation.

17:20-17:28
Free Paper
Session 34

OUTER LATERAL OSTEOTOMY: OUR EXPERIENCE

R. Zivkovic, M. Stankovic, S. Zivaljevic, D. Milisavljevic
The University Clinic of Ear, Nose and Throat, Nis, Serbia, Yugoslavia

Purpose: The aim of our study was to assess advantages of the outer lateral osteotomy versus classic osteotomy.

Methods: We present data on 880 patients who were operated on using lateral osteotomy and 300 patients for whom we used the classic osteotomy in the University Clinic of Ear, Nose and Throat, Nis, Serbia, Yugoslavia, in the last 15 y.

Results: We report the list of advantages obtained by using the outer lateral osteotomy: accuracy in the work, periosteum is not separated, very fast healing, lesser damage of nasal fronto-orbital part, osteotomy under control, very often medial osteotomy is not needed, precise planning of the osteotomy level, thoroughly in control of forming nasal dorsum, fragments that are cut are connected to periosteum.

Conclusion: We can freely conclude according to our results that outer lateral osteotomy is much better than is classic osteotomy, and we perform it regularly at our clinic.

16:01-16:08
Free Paper
Session 35

NEW HORIZONS IN THE TREATMENT OF CSF LEAKS AND DURA LESIONS: HOW TO IDENTIFY AND REPAIR THEM?

Cem Meco, Gerhard Moser, Gerhard Oberascher
Landeskliniken Salzburg, Salzburg, Austria

Purpose: Cerebrospinal fluid (CSF) rhinorrhea and anterior skull base dura lesions present a diagnostic and therapeutic challenge. Frequent causes are trauma, iatrogenic (functional endoscopic sinus surgery, intracranial surgery), neoplasm, infections, congenital, or spontaneous. We present the most accurate approach.

Methods: The following diagnostic tools have been used in an algorithmic way. CSF leakage identification: Noninvasive methods: 1. The standard is the b2-transferrin test (experience with over 2700 analyzed samples). 2. Magnetic resonance tomography-cisternography. Invasive test: Endoscopic and laboratory sodium fluorescein test (experience with over 600 tests). Imaging: 1. High-resolution computed tomography (fractures, bony lesions). 2. Magnetic resonance imaging (brain herniation, meningoencephaloceles).

Results: The goal is to find the site and identify the amount of bony and dura injury/lesion. We classify the anterior skull base into 3 compartments: I - frontal sinus, IIa - cribriform plate, IIb - fovea, III - sphenoid sinus. This classification assists in the topodiagnosis. We also have developed 5 diagnostic patterns which help surgeons indicate surgery or not. With this algorithm it was possible to identify and repair all CSF leaks and dura lesions.

Conclusions: We are in the ideal situation to have CSF tests and imaging methods that enable us to identify nearly every CSF leak or skull base dura lesion. Controversy remains concerning indication of dura repair (especially in trauma) and surgical approaches. According to the severity of the lesion, endonasal, transfacial, extracranial-extradural, and intracranial approaches have to be applied. The minimal invasive endonasal (endoscopic-microscopic) surgery is favored.

16:08-16:16
Free Paper
Session 35

TRANSTREPHINATION ENDOSCOPIC SINUS SURGERY OF LATERAL FRONTAL MUCOCELE: REPORT OF A CASE

Mohsen Naraghi
Tehran University of Medicine, Tehran, Iran

Purpose: An approach is presented to treat frontal mucoceles without involvement of the ostiomeatal complex (OMC).

Methods: A 38-y-old man presented with diplopia and downward orbital displacement of 4-mo duration. Computed tomography (CT) scan revealed a left-sided frontal mucocele localized to lateral portion of left frontal sinus not associated with pathology at OMC and medial portion of sinus. The patient underwent endoscopic sinus surgery extranasally. After introducing a 30° 4-mm endoscope through the trocar into the medial side of the frontal sinus, the laterally seated mucocele was exposed. Then the medial wall of the mucocele was removed by forceps introduced through another trocar.

Result: At follow-up visit both clinical and CT findings showed complete resolution of mucocele; diplopia and orbital downward displacement were improved.

Conclusion: Transtrephination endoscopic sinus surgery could be a minimally invasive treatment method for some frontal sinus mucoceles.

16:08-16:16
Free Paper
Session 35

TRANSNASAL ENDOSCOPIC OBLITERATION OF PARASELLAR ARACHNOID CYST: REPORT OF A CASE

Mohsen Naraghi and Hooshang Saberi
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Purpose: Transnasal endoscopic obliteration of a parasellar arachnoid cyst to alleviate the associated symptoms of chronic headache and cerebrospinal fluid (CSF) rhinorrhea.

Methods: A 40-year-old man presented with complaints of intractable headaches and intermittent CSF rhinorrhea of 5 years' duration. Computed tomography revealed a left parasellar nonenhancing mass extending to the medial temporal region. Magnetic resonance imaging showed the cystic lesion, with signal characteristics similar to those of CSF. He underwent endoscopic surgery of the sphenoid sinus. After introducing a 0° 4-mm nasal endoscope into the left nasal cavity, the bare arachnoid was visible just behind the ostium. Anterior wall of the sphenoid sinus was removed. Then by pushing the cyst wall, the exposed cavity was filled with fascia lata and muscle and secured by fascia, cartilage, and posterior septal flap. The postoperative course was uneventful.

Results: The CSF leakage stopped and headaches were improved. Postoperative imaging revealed total obliteration of the cyst cavity.

Conclusion: Endonasal endoscopic obliteration of sellar and parasellar arachnoid cysts could be a minimally invasive alternative to the conventional approaches.

16:20-16:28
Free Paper
Session 35

DIABETES INSIPIDUS AFTER PITUITARY SURGERY: INCIDENCE AFTER TRADITIONAL VERSUS ENDOSCOPIC TRANSSPHENOIDAL APPROACHES

Samir Shah and Gady Har-El
State University of New York--Health Science Center at Brooklyn, Brooklyn, NY, USA

Purpose: To examine the incidence of short- and long-term postoperative diabetes insipidus (DI) after endoscopic transnasal pituitary surgery and compare it to the incidence after traditional transseptal surgery.

Method: Retrospective review of charts of 68 patients who underwent transnasal surgery for management of pituitary lesions. Forty-seven had traditional sublabial, transseptal, transsphenoidal surgery and 21 patients had a direct transnasal, transsphenoidal endoscopic procedure.

Results: The incidence of immediate postoperative DI was 34% in the traditional group and 19% in the endoscopic group. Short-term (greater than 2 wk) DI that required treatment occurred in 2 patients (9.5%) in the endoscopic group and 6 patients (19%) in the traditional group. Long-term (greater than 6 mo) incidence of DI was 4.7% in the endoscopic group and 8.5% in the traditional group.

Conclusions: We found decreased incidence of immediate and short-term DI after transnasal endoscopic pituitary surgery compared with the traditional sublabial transseptal approach. However, the incidence of long-term DI is similar in the 2 groups.

16:28-16:36
Free Paper
Session 35

TRANSSPHENOIDAL APPROACH TO PITUITARY FOSSA: RHINOLOGIST'S EXPERIENCE

Imtiaz A. Siddiqui, Iqtadar H. Bhatti, Ahmed Irfan
Jinnah Postgraduate Medical Centre, Karachi, Pakistan

Purpose: To focus the interest of rhinologists on the surgery of pituitary fossa as an extracranial midline skull base surgical procedure.

Method: This is an ongoing study of 121 patients who underwent a transsphenoidal approach to pituitary fossa for pituitary neoplasms since 1985. Patients with midline pituitary neoplasms were selected from both sexes and all age groups. They underwent a transsphenoidal sublabial approach to pituitary fossa removal of an abnormality by a rhinologist and neurosurgeon.

Result: The rhinologist's experience in these cases is presented. Of 121 cases, 120 were symptom and sign free postsurgically, with 1 death due to anesthetic complication.

Conclusion: This is an extracranial surgical procedure to eliminate pituitary fossa neoplasms limited to midline.

16:40-16:48
Free Paper
Session 35

BENIGN TUMORS OF THE NOSE AND PARANASAL SINUSES

Magid El-Shennawy
Faculty of Medicine, Cairo University, Cairo, Egypt

Purpose: True neoplasms of the nasal cavity are uncommon and comprise less than 0.3% of the tumors of the body. Consequently, benign tumors are rare but they have a wide variability.

Method and Results: Some of these tumors, although benign, may press on important structures, such as the orbit, and may affect vision or may cause disfigurement of the face, which may be of great importance to the psychic status of the patient. In this article, the author presents 25 years' experience in managing cases of benign tumors of the nose and sinuses, including papilloma, osteoma, fibrous dysplasia, neurilemoma, hemangiona, chordoma, and nasal gliomas.

Conclusion: A clinicopathologic correlation is also included.

16:48-16:56
Free Paper
Session 35

JUVENILE ANGIOFIBROMA: NEW NEURORADIOLOGICAL AND SURGICAL ASPECTS

W. Draf, B. Kratzsch, B. Schick
Head, Neck, and Facial Plastic Surgery, Fulda, Germany

Purpose: Preoperative embolization was a great step forward to ease surgery and to improve the results of juvenile angiofibroma. Other tools to reduce the number of foreign blood units are the cell saver and own blood donation. It is still a challenge to tailor the surgical approach individually according to the principle "surgery as extensive as necessary, but as small as possible."

Methods: With this presentation, the authors reflect on their experience with 40 cases of stepwise improvement in this direction.

Results: The endonasal micro-endoscopic approach has now stood the test of time, creating minimal morbidity.

Conclusions: Further technical details, indications, and results will be presented.

17:00-17:08
Free Paper
Session 35

RADIOFREQUENCY VOLUMETRIC TISSUE REDUCTION FOR THE TREATMENT OF TURBINATE HYPERTROPHY ASSOCIATED WITH MULTISYMPTOM RELIEF

Berrylin Ferguson and Miriam Lango
University of Pittsburgh, Pittsburgh, PA, USA

Purpose: The effect of nasal congestion on obstructive sleep apnea (OSA) is controversial but certainly affects compliance with continuous positive airway pressure (CPAP) and bilevel positive airway pressure (BiPAP) therapy. Our purpose was to examine the effect of in-office radiofrequency reduction of hypertrophied turbinates on sinonasal symptoms in patients with and without OSA.

Methods: Thirty adults (5 with OSA requiring CPAP or BiPAP) with nasal airway obstruction were enrolled in a prospective observational study. All underwent turbinate somnoplasty in the office between January 1999 and May 2000. Patients were evaluated with sinonasal and general quality-of-life questionnaires before and 4 to 6 wk after treatment. Patient discomfort was assessed following the procedure by an analogue scale.

Results: Reduction of inferior turbinates performed in the office was well tolerated and was followed by a short period of increased nasal congestion which resolved over 2 to 7 d. Subsequently, patients noted improvement compared to baseline in nasal congestion (24/30), facial pain (15/30), headache (17/30), fatigue (12/30), and general sinonasal symptoms (27/30); 1 patient noted worsening of nasal congestion; 2 noted increased fatigue. In the subgroup with OSA, 3 of 5 noted relief of nasal congestion; 1 reported improved compliance with CPAP. The 2 patients with OSA who failed to improve after reduction of inferior turbinates subsequently improved with outpatient septoplasty (1) and microdebridement of the inferior turbinates (1).

Conclusion: Reduction of the inferior turbinates is efficacious in patients with and without OSA. Not only is congestion improved 80% of the time but a high rate of improvement is seen in facial pain, headache, and fatigue.

17:08-17:16
Free Paper
Session 35

THE PREVALENCE OF NASAL POLYPS IN CHILDREN WITH PRIMARY CILIARY DYSKINESIA

S. Ganesan, M. S. Medcalf, J. P. Harcourt, I. S. Mackay
Charing Cross Hospital, London, UK

Purpose: Primary ciliary dyskinesia (PCD) is a genetically determined disorder characterized by absent or impaired ciliary motility. The disease is associated with sinobronchial disease as well as subfertility, otitis media with effusion, and in 50% of cases with dextrocardia. Other conditions that have genetic abnormalities within the respiratory mucosa, such as cystic fibrosis and Young syndrome, have an increased incidence of nasal polyps. In the literature, nasal polyposis has been described in association with PCD in 13% to 40% of patients. Chronic rhinosinusitis is a common clinical feature of this disorder and it would be expected that polypoid mucosal change would be a common finding. However, it has been the impression of one of us (I.S.M.) that patients with PCD do not generally suffer with nasal polyposis. The aim of this prospective study was to determine the prevalence of nasal polyps in children with a known diagnosis of PCD.

Method: During a multidisciplinary clinic for the management of patients with PCD, 43 children (aged 2-17 y) with PCD were examined by an otolaryngologic surgeon with a headlight and mirror, otoscope, and rigid endoscope. A detailed history was taken in relation to the nasal symptoms and any previous polypectomies.

Results: Only 1 patient was found to have nasal polyposis (grade II in the right nasal cavity and grade I on the left side), making up 2.3% of the series.

Conclusion: We therefore conclude that PCD is not commonly associated with nasal polyposis in large series of pediatric patients.

16:00-16:08
Free Paper
Session 36

INTERNET-BASED RHINOLOGY

Mohan Bansal
VH Dave Homo Medical College ENT Hospital,
ST Stand Anand/Gujarat, India

Purpose: This paper presents internet-based technology and practice in rhinology and associated fields. Most of the topics are related to internet-based medical literature search, physician education, patient education, and telemedicine. Some controversial aspects such as security, confidentiality, validity, professional liability, web only publishing, and ethical and legal issues are highlighted.

Methods: Most of the information was obtained from internet and published literature.

Results: E-mail has been used to distribute literature reviews for journal clubs as well as extensively researched resident presentations. On-line mailing lists provide a valuable example of the internet as a telemedicine tool. Clinicians with an on-line presence receive requests for assistance from patients around the world. Organizations, journals, educational resources, academic departments, patient oriented, corporate, index sites, and individual and group practices are some of the categories of web sites. Today, literature searches are used not only for research and manuscript preparation but also are done to assist in patient care and clinical problem solving. Grateful Med allows users to perform effective searches using MEDLINE and other databases. Internet-based continuing medical education (CME) modules offer definite advantages over the conventional CME programs. These courses include audio, video, text, interactivity, and instant feedback. Patients can obtain the latest information on support groups, therapeutic modalities, recent research, and strategies for individual coping.

Conclusions: Internet-based rhinology can play an important role.

16:20-16:28
Free Paper
Session 36

BIPOLAR ENDOSCOPIC SPHENOPALATINE COAGULATION AS A TREATMENT FOR INTRACTABLE ALLERGIC RHINITIS

H. M. Abd Al-fattah, R. I. Abd Aal-Fattah, J. Al-Fadali, A. S. Medani
University of Alexandria, Alexandria, Egypt

Purpose: Manifestations of allergic rhinitis (AR) are due to a primary immunologic response, which leads to a battery of neurovascular reactions.

Methods: Twenty patients with intractable AR underwent bipolar sphenopalatine coagulation (BESC) of the neurovascular bundle with a radiofrequency generator (Ellman) by a specially designed double-barrel suction. The results were evaluated at 1 and 6 mo.

Results: Subjectively, clinical scoring improved compared with preoperative levels ($P = 0.01$). Objectively, using nonparametric statistics, morphometric analysis of the middle turbinate mucosa showed the dramatic diminution of the epithelium, lamina propria, and seromucinous gland volumes compared with the preoperative levels. Quantitatively, cellular responses improved, but not to a statistically significant extent as regards lymphocytes and plasma cells. On the other hand, eosinophils diminished significantly postoperatively.

Conclusions: BESC is a minimally invasive procedure that can be done as a day case, with almost no complications. It is quite promising and effective as a treatment for intractable AR. It diminished mucosal hyperreactivity without affecting the immunologic cells.

16:28-16:36
Free Paper
Session 36

PRESERVATION OF MUCIN FOR THE DIAGNOSIS OF EOSINOPHILIC FUNGAL RHINOSINUSITIS (RFRS)

Barb Griffith, Barb Pehler-Williams, Karman McGill
Mayo Clinic, Mayo Foundation, Rochester, MN, USA

Purpose: Eosinophilic Fungal Rhinosinusitis (EFRS) was an underdiagnosed disease due to a low sensitivity of the culture methods, incorrect handling of the surgical specimen as well as lack of suspicion of the examining pathologist. The fact that the disease is located in the mucin means that the mucin must be preserved under all circumstances. The purpose of this paper is to describe the current techniques used to collect specimen to increase the ability to diagnose EFRS.

Methods: Two hundred and ten consecutive surgical cases with chronic rhinosinusitis (CRS) were used to test new protocols used in the operating room to preserve ans collect mucin samples for further examination by the designated mycologists or pathologist. This includes direct suctioning of mucin using a trap for cultures before the injection of anesthetics, manual removal of mucin and polypoid tissue with forceps, using non-absorbant sheets for handling of the mucin and performing the surgery without a microdebrider.

Results: Using the principle of maximum mucus preservation resulted in an overall diagnosis of EFRS in 93% of consecutive CRS cases. This is a significant increase from the 5% incidence of EFRS reported previously from our institution.

Conclusion: Appropriate handling of the specimen enables the alerted pathologist and mycologist to apply proper stains and culture techniques to detect fungi and eosinophilic mucin in the majority of surgical CRS patients.

16:40-16:48
Free Paper
Session 36

CEMENTIFYING FIBROMA: CLINICAL AND SURGICAL MANAGEMENT

Ashok K. Gupta, S. B. S. Mann, R. K. Vashishta
Postgraduate Institute of Medical Education & Research, Chandigarh, India

Purpose: Cementifying fibroma is a rare clinical entity originating from peridontal membrane, which is a specialized fibrous connective tissue surrounding roots of teeth. We describe one patient who presented with proptosis.

Method: A 14-y-old child reported with gradually increasing proptosis since 1 1/2 y and nasal obstruction of 6 months' duration. Examination revealed a pink soft tissue mass in the left side of the nose. Plain radiographs of paranasal sinuses showed soft tissue density in fronto-ethmoid region and maxillary sinus. Contrast-enhanced computed tomographic scan showed sinus with ballooning of lamina papyracea. The tumor was excised by a lateral rhinotomy approach.

Result: Histopathologic results showed numerous psammoma bodies with woven bone surrounded by proliferating fibroblasts.

Conclusion: Cementifying fibroma of ethmoid sinus should be considered as a rare entity in the differential diagnosis of proptosis and complete excision at an early stage should be considered for complete cure.

16:48-16:56
Free Paper
Session 36

SEPTOPLASTY AT THE LEVEL OF THE NASAL VALVE IN CHILDREN

Todor Karchev and Mihail Madjunov
Sofia, Bulgaria

Purpose: We perform surgical treatment only of severe post-traumatic septal deviations in children.

Method: At the area of maximum septal deviation, which usually coincides with the vertical line of the nasal valve, a triangular fragment from the septal cartilage is resected. The base of this fragment is along the inferior border of septal cartilage (at a distance of about 1 cm back from the anterior nasal spine), while the top is oriented toward the K-area in the nasal dorsum. After the resection, 2 fragments of the septal cartilage are formed: anterior and posterior. The size of the resected fragment should allow close approximation of the anterior and posterior fragments of the septal cartilage in the midline. Fixation is by Silastic splints, which are individually molded and sutured through the septum, to provide safety immobilization of the septum for 3 to 4 wk after the operation.

Results: During the last 20 years, more than 200 children (5-14 y) were operated on. The late observations show that in only 3 cases was a relative retardation of the nasal growth noted. Reoperation due to reappearance of the impaired nasal breathing, after age 18 y, was performed in 2 additional cases.

Conclusion: On the basis of our experience, we consider that septoplasty at the level of the nasal valve is a reliable method for surgical management of severe, mainly post-traumatic, septal deformities in children.

17:08-17:16
Free Paper
Session 36

POSTADENOIDECTOMY INFLAMMATORY PSEUDOTUMOR

Usamah Hadi, Mohamad Bitar, Ghazi Zaatari
American University of Beirut Medical Center, Beirut, Lebanon

Purpose: The nasopharynx in children is the site of masses, both malignant and benign. Hypertrophied adenoids is considered the leading cause of benign tumor of the nasopharynx.

Methods: Multiple postadenoidectomy complications have been alluded to in the literature. Among these are bleeding, nasopharyngeal stenosis, torticollis, and C1-C2 subluxation. The appearance of nasopharyngeal mass postadenoidectomy presents a real challenge to the otolaryngolologist. The differential diagnosis of such a condition varies depending on the clinical, radiologic, and pathologic parameters.

Results: In our case, the diagnosis of a postadenoidectomy inflammatory pseudotumor was confirmed radiologically as well as by histopathologic evaluation. Although benign and rare, inflammatory pseudotumor in the head and neck area has been reported in the nasal sinuses, oral cavity, larynx, cervical column, and central nervous system.

Conclusion: With an unknown etiology, management of such a condition has been subject to considerable debate. Being the first case to be reported in the literature, following an adenoidectomy, we will elaborate on our experience in diagnosing and managing this entity in the nasopharynx.

17:08-17:16
Free Paper
Session 36

THE EFFECT OF TOPICAL CAPSAICIN TREATMENT IN NASAL POLYPOSIS

T. Baudoin, L. Kalogjera, Z˘. Ferenc˘ic´, Z˘. Bukovec
University Hospital "Sestre milosrdnice," Zagreb, Croatia

Purpose: Neurogenic inflammation is a possible mechanism involved in growth of sinonasal polyps. We investigated the effect of capsaicin treatment on sinonasal polyposis in nonallergic patients.

Methods: Ten patients (6M, 4F, 7 previously operated, 8 after ineffective topical steroid treatment) were treated with topical capsaicin application on 5 consecutive days. For 3 days the dosage of 0.5 mL of 30 mmol/L capsaicin solution was sprayed in each nostril, and on the last 2 days, 100 mmol/L was applied. All patients had computed tomographic (CT) scans before treatment and 3 wk after the last capsaicin application. We staged sinonasal polyposis after the Lund-Mackay system. Punch biopsies of the polyps were performed before the application, 30 min after last application, and 3 wk after last application. Specimens were stained with hematoxylin and eosin and Giemsa and immunohistochemically with IgE and IgA monoclonal antibodies. Eosinophilic infiltration and mast cell infiltration were observed as well as immunoactivity of immunoglobulins in 10 high-power fields. Control specimens were nasal polyps from the operated patients who were not treated with capsaicin.

Results: Eosinophilic infiltration gradually decreased in second and third biopsies, but a statistically significant decrease was observed in the third biopsy only. No statistically significant decrease was found in mast cell infiltration. IgA activity significantly decreased in second and third biopsies compared with control polyps. IgE activity decreased in second and third biopsies, but a statistically significant decrease was found in the third biopsies only compared with control polyps. We found a significant reduction of polyps.

Conclusion: Topical capsaicin therapy in sinonasal polyposis leads to the reduction of polyps.

16:40-17:20
Mini-Course 41

EXTERNAL SKIN CANCER OF THE NOSE PART II: RECONSTRUCTIVE AFTER RESECTION

David A. Sherris
Mayo Clinic, Mayo Foundation, Rochester, MN, USA

After resection of malignancies, the patients present the otolaryngologists with a variety of disorders from the simplest to most complex. This presentation will present various reconstructive options we have found successful for many disorders of the nose. The presentation of the defects and proposed flap or graft reconstruction will be organized in a subunit of the nose format. At the end of the session, the participants should have a good idea of some of the options for treatment of nearly any defect of the external nose. Special attention will be paid to the flaps most useful in nasal reconstruction including the bilabe flap, the melolabial flap, and the paramedian forehead flap.

16:00-16:05
Mini-Course 43

LONG-TERM RESULTS: RHINOPLASTY

Devinder S. Mangat
Cincinnati, OH, USA

This panel will present three surgeons each with a Rhinoplasty practice that spans 20-30 years. They will discuss Rhinoplasty with particular attention to continued post-op changes in the nose over many years and the importance of conservation techniques. These experienced surgeons will share the techniques that avoid the over operated look, techniques that prevent severe post-op changes and ways to correct some undesirable results.