

MIDDLE SECTION MEETING PROGRAM

FRIDAY, JANUARY 17, 2003

2:30 - **Registration** - University Place Conference Center Lobby
5:30

4:00 - **Speaker Ready Room** - Room 138
10:00

6:00 - **Welcome/President's Reception**- Bistro Lobby
7:30

SATURDAY, JANUARY 18, 2003

7:00 - **Speaker Ready Room** - Room 138
5:00

7:00 - **Business Meeting (Members Only)** - President's Room
7:50

7:00 - **Continental Breakfast** - Conference Center Lobby
7:50

7:00 - **Registration** - University Place Conference Center Lobby
4:00

8:00 - **Scientific Sessions** - Auditorium, Room 126
5:00

8:00 **Welcome and Introduction of Roger L. Crumley, MD*, President**
Richard T. Miyamoto, MD*, Indianapolis, IN

8:05 **Presidential Address**
Roger L. Crumley, MD*, Irvine, CA

8:15 **Introduction of Guests of Honor, Christian Helmus, MD*, Grand Rapids, MI, Shokri Radpour, MD*, Indianapolis, IN, David J. Lim, MD, Los Angeles, CA, Marion Downs, MA, Denver, CO**
Richard T. Miyamoto, MD*, Indianapolis, IN

8:30 **Where Are We With Newborn Hearing Screening?**
Marion Downs, MA, Denver, CO

8:40 **Presentation of Resident Awards**
George L. Adams, MD*, Minneapolis, MN
Richard T. Miyamoto, MD*, Indianapolis, IN

MODERATOR: MYLES L. PENSAK, MD*, CINCINNATI, OH

8:45 **INVITED PAPER - TRIOLOGICAL SOCIETY THESIS**
Revision Tympanoplasty Utilizing Fossa Triangularis Cartilage
Gary F. Moore, MD*, Omaha, NE

8:53 **Laser Doppler Vibrometer Assessment of Stapes Footplate Motion in PORP and TORP Reconstruction**
Samuel C. Levine, MD*, Minneapolis, MN
Daniel S. Schneider, BA, Minneapolis, MN
Kai M. Kroll, MS, Minneapolis, MN

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to compare clinical and in situ results of PORP and TORP reconstruction.

OBJECTIVES: To determine stapes footplate displacement related to PORP and TORP movement in situ. **STUDY DESIGN:** In situ to the measurement using fresh human temporal bones. **METHODS:** A canal wall of mastoidectomy and extended facial recess was performed on 8 human temporal bones. Several commercially available prostheses were positioned and the facial nerve was removed. Auditory stimulation using 94 dB, from 250 Hz to 10 KHz were performed. A single point laser Doppler interferometer was used to measure the displacement of the stapes footplate during stimulation. **RESULTS:** Stapes displacement was similar in both PORPs and TORPs. A relatively high degree of variability was observed. **CONCLUSIONS:** In situ testing could not identify the difference between PORP and TORP. Clinical differences cannot be accounted for based completely on mechanical findings.

9:01 **Predictive Factors in Pediatric Stapedectomy**
James A. Merrell, BS, Columbus, OH
Meredith N. Merz, MD, Chicago, IL
Edward E. Dodson, MD, Columbus, OH
D. Bradley Welling, MD*, Columbus, OH

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to demonstrate knowledge of the various etiologies of pediatric stapes footplate fixation and will be able to recommend appropriate treatment options. Additionally, the participants should be able to differentiate the

likely outcomes of surgery based upon the underlying pathoetiology.

OBJECTIVES: The objective of this study was to investigate predictive factors in the outcome of pediatric stapedectomy postoperative hearing. **STUDY DESIGN:** Retrospective case series. Procedures were performed in a tertiary academic otologic practice. **METHODS:** Outcome of 51 stapedectomies in children less than 18 years of age were analyzed according to the AAO-HNS Committee on Hearing and Equilibrium guidelines (1995). Factors evaluated include patient age, underlying diagnosis (tympanosclerosis, otosclerosis, congenital fixation), type of footplate graft and prosthesis utilized, associated craniofacial abnormalities and revision surgery. **RESULTS:** The mean post-operative air-bone gap in children with tympanosclerotic footplate fixation (25 dB + 11dB) was significantly worse than patients with an underlying diagnosis of congenital stapes fixation (14.9 dB + 9dB), or otosclerosis (13 dB + 3dB) at p=0.024. Revision stapedectomy was also associated with a poorer outcome, but patient age, prosthesis and graft type did not contribute to the outcome in a statistically significant manner. **CONCLUSIONS:** Pediatric patients with stapes fixation resulting from tympanosclerosis, in our experience, showed poorer outcomes from stapedectomy than patients with congenital or otosclerotic fixation.

9:09 Tympano-Ossiculoplasty Utilizing the Titanium Total Ossicular Replacement Prosthesis

Brian A. Neff, MD, Warren, OH
Franklin M. Rizer, MD*, Warren, OH
William H. Lippy, MD*, Warren, OH
Arnold G. Schuring, MD*, Warren, OH

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to demonstrate an understanding of indications and technique used for tympano-ossiculoplasty with Titanium TOP. We will also explain initial hearing results and compare them to previous hearing results for the porous polyethylene TOP.

OBJECTIVES: Since 1994, titanium prostheses have been used in Europe as a biocompatible implant for ossicular reconstruction. More recently, the titanium ossicular prosthesis has become more widely available in the United States as a newer means of surgical hearing restoration. We will review the hearing results of patients who have undergone tympano-ossiculoplasty using a titanium total ossicular replacement prosthesis (TOP). We will compare these results to our previously published results using the porous polyethylene TOP. **STUDY DESIGN:** Retrospective review in a tertiary otologic practice. **METHODS:** Retrospective chart review of 13 patients who underwent tympano-ossiculoplasty with titanium TOP. We will compare their hearing and operative results with previously collected data on 133 patients who underwent tympano-ossiculoplasty with porous polyethylene TOP. **RESULTS:** Thirteen patients underwent tympano-ossiculoplasty with titanium TOP. Among these patients, seven cases involved revision of a previously placed ossicular prosthesis. Hearing results showed that 11 of 13 (85%) patients had closure of the postoperative air-bone gap to within 10dB, and the average air-bone gap improvement was 18dB. Follow-up time ranged from 6 weeks to 14 months. This initial evaluation compares favorably with the results that we obtained using a porous polyethylene TOP in which 67% of 133 patients closed the air-bone gap to within 20dB. To date, we have had no cases of prosthesis extrusion while utilizing interposed tragal cartilage; however, follow-up is too short to critically evaluate this factor. **CONCLUSIONS:** We have recently begun using the titanium TOP which has resulted in improved postoperative hearing results when compared with the porous polyethylene TOP. In the future, longer follow-up and increased patient numbers will strengthen our conclusions.

9:17 Ossicular Reconstruction With Titanium Prosthesis

Angela D. Martin, MD+, Rochester, MN
Stephen G. Harner, MD*, Rochester, MN

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to 1) to evaluate management of conductive hearing loss with chronic ear disease, and 2) to discuss use of titanium implants for ossicular reconstruction.

OBJECTIVES: To examine hearing results of patients with titanium total ossicular replacement prostheses (TORP) and partial ossicular replacement prostheses (PORP) utilized in chronic ear surgery. **STUDY DESIGN:** Retrospective chart review was performed. **METHODS:** Sixty-seven subjects underwent ossicular reconstruction with a titanium TORP (n=31) or PORP (n=36) at a tertiary referral center between December 1999 and June 2002. The ossiculoplasty was either alone or in combination with other chronic ear surgery. Cartilage grafts were used universally. Twenty three percent were primary operations; the majority was revision procedures. Follow-up ranged from 3 months to 2 ½ years. **RESULTS:** Average postoperative air-bone gap (ABG) was 21 dB with closure of the ABG to within 20 dB in 58% of cases. Hearing results were better for primary versus revision cases, for PORPS versus TORPS, and for intact canal wall (ICW) procedures versus canal wall down (CWD) procedure. Prosthesis extrusion occurred in one patient (1.5%). **CONCLUSIONS:** Titanium is a satisfactory material for use in ossicular reconstruction due to its reliable hearing results and low rate extrusion rate.

9:25 DISCUSSION

9:35 Report of American Board of Otolaryngology Regarding Maintenance of Certification and Subspecialty Certification

David E. Schuller, MD*, Columbus, OH, President, American Board of Otolaryngology

9:45 Introduction of Honored Guest Speaker, David J. Lim, MD, Los Angeles, CA

Richard T. Miyamoto, MD

KEYNOTE ADDRESS: OTITIS MEDIA RESEARCH: AN UPDATE

David J. Lim, MD, Los Angeles, CA

10:30 Break/Poster Presentations/Visit with Exhibitors - Lobby, Rooms 132-134

11:00 PANEL: FUNGAL SINUSITIS

MODERATOR: Edward C. Weisberger, MD*, Indianapolis, IN

PANELISTS: James A. Stankiewicz, MD, Maywood, IL
David Sherris, MD, Rochester, MN
Abideen Yekinni, MD, Indianapolis, IN
Martin J. Citardi, MD, St. Louis, MO
Jens Ponikau, MD, Rochester, MN

12:15 Lunch - Bistro

MODERATOR: GUY J. PETRUZZELLI, MD, MAYWOOD, IL

1:30 Outcome Analysis of Endoscopic Sinus Surgery in Patients With Nasal Polyps and Asthma

Pete S. Batra, MD, Chicago, IL
Robert C. Kern, MD*, Chicago, IL

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to discuss the sinonasal and asthma results in patients with nasal polyposis and steroid-dependent asthma undergoing endoscopic sinus surgery. They should be able to compare the results in the subsets of aspirin-sensitive and aspirin-tolerant patients.

OBJECTIVES: To investigate the efficacy of endoscopic sinus surgery (ESS) in the management of chronic sinusitis and asthma in patients with nasal polyps and steroid-dependent asthma. **STUDY DESIGN:** Retrospective chart review. **METHODS:** The study included 17 patients with (1) nasal polyps, (2) steroid-dependent asthma, and (3)+/- aspirin sensitivity that underwent ESS between 1995 and 2000. Chronic sinusitis was evaluated using pre- and postoperative Lund-Mackay scores and overall sinonasal symptomatology. Asthma was evaluated utilizing pre- and postoperative pulmonary function testing and steroid usage. **RESULTS:** Thirteen of the 17 (76.5%) reported improved sinonasal symptoms postoperatively. The postoperative Lund-Mackay scores were statistically lower for the patients ($p < 0.0001$). The group experienced improvement in postop FEV1 ($p < 0.014$). Twelve of 17 (70.6%) experienced reduction in systemic steroid usage ($p < 0.048$). The aspirin-sensitive patients did not have a statistical improvement in postop FEV1 ($p > 0.08$) and sinonasal symptoms ($p > 0.16$) compared to aspirin-tolerant group. **CONCLUSIONS:** ESS has a beneficial effect on the sinonasal and asthma symptomatology in patients with nasal polyps and asthma utilizing objective measures. Subset of aspirin-tolerant patients have statistically better outcome for sinonasal symptoms and pulmonary function testing than aspirin-sensitive patients.

1:38 Quality of Life Assessment in Patients With Nasal Airway Obstruction

David T. Book, MD+, Milwaukee, WI
John S. Rhee, MD, Milwaukee, WI
Mary L. Burzynski, RN, BSN, Milwaukee, WI
Timothy L. Smith, MD, MPH*, Milwaukee, WI

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to discuss the impact of nasal airway obstruction on patient quality of life.

OBJECTIVES: Quality of life (QOL) assessment of patients with nasal obstruction has not been well studied. The objectives of this study were to determine the QOL of patients with nasal obstruction, to identify baseline variables predictive of patients' QOL, and to examine the relationship of QOL scores with patient and examiner assessments of nasal obstruction. **STUDY DESIGN:** This was a preliminary, cross-sectional portion of a larger, prospective investigation. **METHODS:** Forty-one individuals met the criteria for inclusion. Participants were required to have a surgically treatable diagnosis of septal deviation, nasal valve collapse, and/or turbinate hypertrophy. QOL assessment was performed utilizing the Rhinoconjunctivitis Quality of Life Questionnaire (RQLQ) and the Rhinosinusitis Disability Index (RSDI). Demographic data along with patient and unblinded examiner assessments of nasal obstruction on a visual analogue scale (VAS) were recorded. **RESULTS:** Both instruments demonstrated good internal consistency as measured by Cronbach's alpha. Demographic variables, previous nasal surgeries, and comorbidities were not significantly correlated with QOL scores with either instrument. VAS scores of patients and examiners were significantly correlated with each other, but not with QOL scores. **CONCLUSIONS:** Patient and examiner assessments of nasal obstruction do not appear to correlate with existing QOL measures. No baseline demographic variables were predictive of QOL. A disease-specific instrument for nasal obstruction may be necessary to further evaluate this disease process.

1:46 Mandible Fracture Patterns

Robert E. King, MD, Maywood, IL
Guy J. Petruzzelli, MD, PhD, Maywood, IL

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to demonstrate a working knowledge of current mandible fracture patterns as they occur in a major trauma center, including anatomic and patient characteristic correlations.

OBJECTIVES: Mandible fractures are among the most frequently seen injuries in the trauma center setting. Recent shifts in the mechanism and age distribution of patients sustaining these injuries are well documented. This study attempts to define current, predictable patterns of fracture based upon patient characteristics and mechanism of injury. **STUDY DESIGN:** A retrospective, chart review of patients suffering mandibular fractures over a 7 year period was performed. **METHODS:** The charts of 134 patients with 225 mandible fractures treated by the Otolaryngology-Head and Neck Surgery, Plastic and Reconstructive Surgery and Oral-Maxillofacial Surgery services of our institution were retrospectively reviewed. Patients were categorized based on age, mechanism of fracture, and anatomic location of fracture. Multivariate analysis of data was performed to determine significant relationships among groups. **RESULTS:** Violent crimes such as assault and gunshot wounds accounted for the majority of fractures (50%) in this study, with motor vehicle accidents less likely (29%). Overall, para symphyseal fractures were most frequent (35%), while angle and body fractures were also common (15% and 21% respectively). There was a statistically significant association of motor vehicle accidents with para symphyseal fractures (45%), and gunshot wounds with body fractures (36%) while assault victims had a higher than predicted frequency of angle fractures (27%) and fewer para symphyseal fractures (19%). Patients aged 17-30 were more likely to suffer from gunshot wounds while older adults (age 31-50) were more likely to be assault victims. Patients over age 50 suffered fractures from falls at a higher than expected rate. While children and young adults seemed to suffer more para symphyseal fractures and older adults body fractures, these correlations failed to show statistical significance. Para symphyseal fractures were most frequently associated with fractures at other sites within the mandible, ipsilateral body fractures being the most common. **CONCLUSIONS:** Updated data on the association of patient age and mechanism of injury with fracture pattern can guide treating physicians in anticipating and diagnosing traumatic mandible fractures.

1:54 Hyperbaric Oxygen for the Treatment of Osteoradionecrosis of the Mandible

Todd A. Anderson, Minneapolis, MN
Timothy A. King, MD, Minneapolis, MN
Cheryl D. Adkinson, MD, Minneapolis, MN
Robert H. Maisel, MD*, Minneapolis, MN

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to have a better understanding of the efficacy of hyperbaric oxygen treatment for osteoradionecrosis of the mandible.

OBJECTIVES: The aim of this study is to document the experience of 106 patients with osteoradionecrosis (ORN) of the mandible treated with hyperbaric oxygen (HBO) at Hennepin County Medical Center in Minneapolis, MN. **STUDY DESIGN:** Retrospective review at a tertiary care center. **METHODS:** A database of 106 patients with ORN of the mandible was utilized. Wound healing was evaluated at the completion of HBO therapy, at one month and one year. Average

age, radiation dose, time to ORN development, tumor type and stage and gender were also analyzed. **RESULTS:** The group consisted of 74 males and 32 females (average age of 60.8 years). There were 93 cases of squamous cell carcinoma and 13 other cancer types. Average radiation dose was 6764 cGy with a subsequent time of 4.9 years to onset of ORN. Subjective response rating of wound healing at completion of HBO showed 42% of patients were excellent, 45% were good, 10% were fair. At one month, 95% of the patients had follow-up. Of these, 67% were healed (33% not healed). At one year, 61% of the patients had follow-up. Of these, 75% were healed (25% not healed). Deceased patients numbered 8 of the 34 patients lost to follow-up. **CONCLUSIONS:** HBO therapy has a positive impact on the treatment of ORN of the mandible considering that the wide majority of patients had either an excellent or good response in terms of wound healing. These favorable results were confirmed by the follow-up at one-month and one-year.

2:02 An Approach to Restoration of the Native Orbital Aesthetic Subunit in Complex Craniofacial Defects

Douglas B. Chepeha, MD, Ann Arbor, MI
Steven J. Wang, MD, Ann Arbor, MI (*Presenter*)
Lawrence J. Marentette, MD, Ann Arbor, MI
Carol R. Bradford, MD, Ann Arbor, MI
Mark E. Prince, MD, Ann Arbor, MI
Theodoros N. Teknos, MD, Ann Arbor, MI

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to demonstrate an approach to reconstruction of the orbital aesthetic subunit using revascularized free tissue transfer.

OBJECTIVES: Restoration of the orbital defect in complex craniofacial resections has been approached with large soft tissue flaps. Although safe and technically simple, the aesthetic appearance of the orbit can be compromised if the bony orbital defect is not addressed in the reconstructive approach. This study describes an approach using free tissue transfer for restoration of the native orbital aesthetic subunit. **STUDY DESIGN:** Prospective case series with retrospective outcomes review. Population: 19 patients between 1996 and 2001. M:F 13:5, Age 7-79 years (mean 52). **METHODS:** Nineteen patients included in this study had orbital defects which could be classified into one of the following three categories: 1) orbital exenteration cavities only (N=5), 2) orbital exenteration cavities with resection of less than 30% of the bony orbital rim (N=8), and 3) radical orbital exenteration cavities with resection of overlying skin and malar eminence (N=6). Group 1 was reconstructed with revascularized fasciocutaneous forearm transfer; group 2 with osseocutaneous forearm; group 3 with osseocutaneous scapula. **RESULTS:** Sixteen of 19 patients achieved a closed orbital reconstruction with restoration of the orbital aesthetic subunit. In four cases there was compromised vascularity of the flap; two patients had successful reanastomosis performed, one patient underwent successful leech therapy, and one patient received a revascularized forearm for partial loss of scapular skin. Two patients developed osteomyelitis resulting in eventual removal of the bony portion of the flap. **CONCLUSIONS:** Patients with complex craniofacial defects involving the orbit can undergo free tissue transfer and have successful restoration of the native orbital aesthetic subunit without an orbital prosthesis.

2:10 DISCUSSION

MODERATOR: JACK L. GLUCKMAN, MD*, CINCINNATI, OH

2:20 Vascularized Radial Forearm Free Tissue Transfer for Internal Lining in Nasal Reconstruction

Eric J. Moore, MD, Rochester, MN
Lance A. Manning, MD, Rochester, MN (*Presenter*)
Scott E. Strome, MD, Rochester, MN
Jan L. Kasperbauer, MD*, Rochester, MN
David A. Sherris, MD, Rochester, MN

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to compare the advantages and disadvantages of various options for internal lining in nasal reconstruction and to discuss the situations in which radial forearm free tissue transfer might be indicated to reconstitute nasal lining.

OBJECTIVES: Reconstruction of large nasal defects requires replacement of external lining, structural support, and internal lining. In many defects, the internal lining can be replaced by septal and turbinate mucosal flaps, epithelial turn-in flaps from areas adjacent to the nose, or by skin grafting the undersurface of the forehead flap. In very large defects, these options may not provide enough internal lining to adequately cover the interposed structural grafts and prevent external flap contracture. Vascularized radial forearm free tissue supplies a large amount of thin skin that can be utilized for internal nasal lining. The technique and methods used to maximize the cosmetic and functional result are discussed. **STUDY DESIGN:** Retrospective review of three cases of large nasal defect reconstruction utilizing vascularized radial forearm tissue for internal lining and delayed paramedian forehead flap for external lining. **METHODS:** The pre-operative, peri-operative, and post-operative course of these patients was critically analyzed. **RESULTS:** Three patients had complete nasal reconstruction utilizing radial forearm free tissue for internal nasal lining. **CONCLUSIONS:** Radial forearm free tissue transfer can provide adequate internal nasal lining in the reconstruction of large nasal defects.

2:28 Adenocarcinoma of the Nose and Sinuses

Laura J. Orvidas, MD, Rochester, MN
Jean E. Lewis, MD, Rochester, MN
Kerry D. Olsen, MD*, Rochester, MN

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to describe the presenting symptoms, evaluation and appropriate therapy for the treatment of adenocarcinoma of the sinonasal cavity.

OBJECTIVES: Adenocarcinomas of the sinonasal cavity are unusual tumors whose clinical behavior is variable. As successful treatment requires an adequate understanding of this neoplasm, we reviewed all cases of sinonasal adenocarcinoma at our institution between 1990 and 2000 in an attempt to establish recommendations for treatment of these tumors. **STUDY DESIGN:** Retrospective case series. **METHODS:** Retrospective review of 19 cases at a tertiary care center. **RESULTS:** Nineteen patients (14M, 6F) with adenocarcinoma of the sinonasal cavity were identified. Mean age at diagnosis was 61 years (range 24-79) and epistaxis (42%) was the most common presenting symptom. The nasal cavity was the most common site of involvement (n=14) with 3 patients having intracranial extension. Eleven tumors (58%) were high grade (grade 3 or 4). All but one patient (95%) underwent an attempt at surgical excision, and 10 (53%) recurred or had residual disease after initial treatment. Of these 10, 8 died of disease, six within 18 months of treatment. No patient with very well differentiated adenocarcinoma (grade 1) died of their tumor. **CONCLUSIONS:** Nasal adenocarcinomas are unusual tumors with generally aggressive behavior and a poor prognosis. Some low-grade variants appear to carry a much more favorable prognosis and, depending on the extent of the tumor, can be treated with a less aggressive procedure.

2:36 Management of Neck Metastasis With Carotid Artery Fixation

Stephen B. Freeman, MD, Indianapolis, IN
Richard W. Borrowdale, MD, Indianapolis, IN
Ronald C. Hamaker, MD*, Indianapolis, IN
Tod C. Huntley, MD, Indianapolis, IN
Darren G. Kest, DO, Indianapolis, IN

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to demonstrate aggressive management of neck metastasis adherent to the internal or common carotid artery using sound oncologic principles.

OBJECTIVES: Carotid artery involvement with neck metastasis has presented the head and neck oncologists with treatment challenges that have been fraught with complications and failures. When disease has recurred or persisted after chemotherapy and radiation, the surgeon is called on to resect the remaining disease using sound oncologic principles. **STUDY DESIGN:** Our 12-year experience of treating patients with recurrent or residual neck metastasis adherent to the internal or common carotid artery was reviewed. **METHODS:** Angiography was used in all patients who demonstrated fixation of the carotid artery on examination or imaging, followed by balloon test occlusion and SPECT scanning. If there was insufficient collateral cerebral circulation, the carotid artery was reconstructed with a vein graft. Radical resection of the soft tissue including the carotid artery was done followed by 20 Gray of electron beam delivered directly to the deep tissue. **RESULTS:** Fifty-six charts were reviewed. The majority (46) had their carotid artery reconstructed at time of resection, the remaining had the artery either the artery ligated or occluded with coils preop. Strokes occurred in nine patients and two experienced carotid rupture. The overall 2-year survival was 24% with 1/3 of all patients dying from distant metastasis. **CONCLUSIONS:** The combination of carotid artery sacrifice and intraoperative radiation with aggressive surgical resection offers the patient with recurrent or residual cancer adherent to the carotid artery a 24% chance at surviving 2 years. There is significant risk of stroke even if the carotid artery is reconstructed.

2:44 Staging of Sleep-Disordered Breathing: A Guide to Appropriate Treatment

Michael Friedman, MD*, Chicago, IL
Hani Z. Ibrahim, MD, Chicago, IL (*Presenter*)

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to stage patients with OSA and to use that stage to direct appropriate treatment.

OBJECTIVES: Early studies by Friedman et al have demonstrated the value of staging OSA patients in predicting success for uvulopalatopharyngoplasty (UP3) based on short-term follow up. The goal of this study is to test the value of this staging system in a prospective study. **STUDY DESIGN:** This is a prospective study of patients who were treated with two different protocols based on a clinical staging system. **METHODS:** Patients with symptoms of sleep-disordered breathing were assessed by polysomnography and were staged according to the previously described staging system. Patients with Stage I disease regardless of the severity of disease were treated with UP3 only. Selected patients with Stage II and Stage III disease were treated with UP3 in addition to a staged tongue based reduction with radiofrequency technique. The staging system is based on palate position, tonsil size, and Body Mass Index (BMI). **RESULTS:** Follow up at six months showed significant improvement compared to a group of patients who had been treated with UP3 only. The overall success rate improved from 40% to 66%. **CONCLUSIONS:** Clearly patients with Stage I disease had the best success rate, but selective protocol based on clinical staging improves the overall success rate. In addition, it can eliminate as surgical candidates those patients on whom the procedure is likely to fail.

2:52 DISCUSSION

3:02 Break/Poster Presentations/Visit with Exhibitors - Lobby, Rooms 132-134

3:30 A Pilot Study of Recovery After Pediatric Tonsillectomy: Effects of Surgical Technique and Standardized Pain Management

Gustavo A. Diaz-Reyes, MD+, Chicago, IL
Philamena M. Behar, MD, Buffalo, NY
Mark R. Nagy, MD, Buffalo, NY
Christopher P. Poje, MD, Buffalo, NY
Michael P. Pizzuto, MD, Buffalo, NY
Linda S. Brodsky, MD*, Buffalo, NY

EDUCATIONAL OBJECTIVE: To compare the recovery from pain after tonsillectomy done with four different techniques before and after the introduction of a standardized pain medication protocol.

OBJECTIVES: Recovery after tonsillectomy remains difficult despite advances in surgical technique and pain control. The purpose of this study was to assess the effects of suturing the anterior pillars together and a standardized protocol for the management of pain encountered after pediatric tonsillectomy. **STUDY DESIGN:** This study was carried out at a tertiary care children's hospital, department of pediatric otolaryngology with the subjects including 97 of the enrolled 193 children, ages 2-17 years. **METHODS:** A pre and post study model was used, taking advantage of physician variability in doing tonsillectomy. During the first part of the study, five pediatric otolaryngologists performed surgery using two different techniques: hot knife cautery dissection (HKD) and bipolar cautery dissection (BPD) and non-standardized dosing of acetaminophen with codeine (T&C) for pain given as needed. During the second part of the study, 2 pediatric otolaryngologists with different dissection techniques also sutured together the anterior pillars (+S) at the completion of hemostasis. All patients had a mandatory 48 hours of 15 mg/kg of acetaminophen and 1 mg/kg of codeine, every four hours. Using an age appropriate pain assessment tool, throat and ear pain were recorded thrice daily for ten days. **RESULTS:** Recorded over 10 days, HKD children consistently had a significantly higher pain rating; BPD+S had the least. HKD+S and BPD+S patients recovered rapidly and had an average pain score of 3.3 by day 3 as compared to 5.2 in patients who did not undergo suture. The smaller numbers of patients who reported ear pain showed no identifiable pattern. The use of a standardized medication protocol showed a trend towards better pain control. **CONCLUSIONS:** Surgical technique, particularly the use of suturing the tonsillar pillars together, has a significant effect on pain control after tonsillectomy. A standardized pain medication protocol may also confer additional effects. The results of this study warrant a randomized, controlled comparison study to establish the true effects of the surgical techniques and use of standardized protocols for pain management on post-tonsillectomy recovery in children.

3:38 Branchial Cleft Anomalies: A Review of 47 Cases

Aaron G. Benson, MD+, Chicago, IL
Roberto Barretto, MD, Chicago, IL
John Maddalozzo, MD, Chicago, IL

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to describe the embryogenesis, relevant anatomy, clinical

presentation, and treatment of branchial cleft anomalies.

OBJECTIVES: This is a retrospective review of all branchial cleft anomalies resected by a single surgeon at Children's Memorial Hospital in Chicago, Illinois between 1995-2001. Items reviewed included: gender, age, presenting symptoms and physical exam, type of anomaly, location of anomaly, and complications. These values are compared to similar studies performed at other institutions. **STUDY DESIGN:** Retrospective chart review. **METHODS:** Forty-four patients with 47 branchial cleft anomalies (BCA) were treated between 1995-2001 by a single surgeon. Charts were retrospectively reviewed to determine the incidence of different anomalies and analyze the method of diagnosis and management. Diagnosis relied on a thorough understanding of anatomy and a high clinical index of suspicion. CT scanning was used occasionally to supplement the history and physical examination. **RESULTS:** Ten first arch type I (21%); 4 first arch type II (9%); 29 second arch (61%); and 4 third arch (9%) anomalies were present. Of these, 25 were cysts, 15 were sinuses, and 7 were fistulas. There were 7 total complications. Three of these patients subsequently developed recurrences. This accounted for an overall 7% recurrence rate (3/47) which compares favorably to the recurrence rate reported in other studies of this size. **CONCLUSIONS:** We concluded that a precise history and physical examination along with a high index of suspicion is the cornerstone of diagnosing branchial cleft anomalies. With the use of meticulous operative technique and judicious CT imaging, a recurrence rate below 10% should be demonstrated.

3:46 Long Term Outcomes of Armstrong Beveled Bobbin Tympanostomy Tubes

Dean R. Lindstrom, MD+, Milwaukee, WI
Brian C. Reuben, MD, Brookfield, WI
Kenneth M. Jacobson, MD, West Allis, WI
Joseph E. Kerschner, MD, Milwaukee, WI

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to compare the outcomes and complication rates of Armstrong tympanostomy tubes in a pediatric population relative to previously reported outcomes of different tympanostomy tubes. Discuss expected outcomes and possible complications and rates of Armstrong bobbin tubes with patients.

OBJECTIVES: Scores of different tympanostomy tubes have been developed with different sizes, shapes, compositions, and coatings. Despite the frequency of ventilation tube placement, very few large studies have examined the outcomes of patients having this procedure. An ideal tube would be easy to insert and would extrude at a predictable interval without complications. This study was performed to assess our experience with the Armstrong beveled bobbin tube. **STUDY DESIGN:** A retrospective outcomes study of the Medical College of Wisconsin/Children's Hospital of Wisconsin experience with Armstrong bobbin tympanostomy tubes. **METHODS:** Patient age, diagnosis, operative findings, and time to tube extrusion were reviewed. Otorrhea, perforation, retained tube, and cholesteatoma rates were also assessed. **RESULTS:** 507 consecutive patients who had 1096 Armstrong tubes placed were reviewed. Follow up to extrusion was available for 756 tubes. The mean patient age at tube placement was 33.3 months, and the median age was 23 months. Mean and median times to extrusion were 16.22 and 15 months for the right side and 16.84 and 16 months for the left side. 88 episodes of right-sided otorrhea were noted in 81 patients. 72 episodes of left-sided otorrhea were noted in 67 patients. No cholesteatomas developed in conjunction with or after Armstrong tube placement. 13 persistent perforations were noted after Armstrong tube placement (1.7%). **CONCLUSIONS:** Armstrong beveled bobbin tympanostomy tubes are safe with complication rates similar or less than other series evaluating tube complications. The beveled design facilitates tube insertion. The Armstrong tube is an excellent tube for initial tympanostomy tube placement.

3:54 3RD PRIZE - LAWRENCE R. BOIES RESIDENT RESEARCH AWARD Adenoid Cystic Carcinoma—A Thirty-Three Year Experience

Manuel A. Lopez, MD+, Cincinnati, OH
Lyon L. Gleich, MD*, Cincinnati, OH
Arcot M. Arumugam, FRCS, Cardiff, Wales UK
Mona L. Ho, MS, Cincinnati, OH
Paul W. Biddinger, MD, Cincinnati, OH
Jack L. Gluckman, MD*, Cincinnati, OH

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to discuss and analyze factors that effect the outcome of adenoid cystic carcinoma patients.

OBJECTIVES: To assess time to recurrence and survival of patients with adenoid cystic carcinoma and the impact of demographics, tumor location, and therapy. **STUDY DESIGN:** A retrospective review of adenoid cystic carcinoma patients treated at the University of Cincinnati from 1968-2001. **METHODS:** The University of Cincinnati Head and Neck Database and pathology reports were utilized to gather information regarding patients treated for adenoid cystic carcinoma. Univariate and multivariate analyses were done to determine which factors had a statistically significant impact on recurrence and survival. **RESULTS:** 73 patients were treated including 31 men and 42 women. 79% of the tumors involved the minor salivary glands. There was local recurrence in 17 patients (23%) at a mean of 63 months from treatment. Distant metastasis occurred in 16 patients (22%) 81% involved the lungs. Mean time to metastasis was 38 months from treatment. Overall survival for the 73 patients was 2-year 86%, 5-year 76%, 10-year 58%, and 15-year 30%. Females had statistically significant better survival $p=.0267$. Margin status, age, major vs. minor salivary gland, and radiation therapy did not effect overall survival. **CONCLUSIONS:** Patients with adenoid cystic carcinoma have excellent short-term survival but poor long-term survival. Five and even ten year survival does not equate with cure. The frequent occurrence of late local recurrence and distant metastasis that is somewhat unique to this tumor impact long-term survival.

4:02 DISCUSSION

MODERATOR: CHARLES M. LUETJE, MD*, KANSAS CITY, MO

4:12 Tinnitus is a Predictor of Sudden Hearing Loss in Patients With Large Vestibular Aqueduct Syndrome

Bradford G. Bichey, MD, Indianapolis, IN
Richard T. Miyamoto, MD*, Indianapolis, IN
Michael K. Wynne, PhD, Indianapolis, IN

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to demonstrate knowledge about the typical patterns of hearing loss found in patients with large vestibular aqueduct syndrome. Participants should also understand the role of vestibular and tinnitus symptoms in predicting sudden hearing loss in these patients.

OBJECTIVES: This study details our experience with a group of twenty-four patients with Large Vestibular Aqueduct Syndrome (LVAS) and symptoms of sudden hearing loss identified at the Indiana University School of Medicine. The primary goals of this study were to determine predictors for sudden hearing loss in patients with LVAS. **STUDY DESIGN:** Through a retrospective case analysis, 69 patients were identified who had LVAS. **METHODS:** Patient records and

patient surveys were reviewed for details pertaining to each patient's degree of hearing loss, hearing loss progression, pattern of hearing loss and associated symptoms of tinnitus and vertigo. Out of this group, all patients were selected that had complaints of tinnitus, vertigo and/or sudden hearing loss. Twenty-four patients were selected. Comparisons using chi-square analysis and odds ratios were then made to determine the relationship between tinnitus and vertigo symptoms and the occurrence of sudden hearing loss in this group. **RESULTS:** Of the twenty-four patients selected, twenty-three had complaints of tinnitus and/or vertigo. Ten patients had complaints of tinnitus only. Nine patients complained of tinnitus and vertigo and four patients complained of vertigo only. In addition, fifteen patients had symptoms of sudden hearing loss and nineteen patients had bilateral LVAS. Analysis of the relationship between patients with tinnitus, vertigo, type of LVAS (bilateral vs. unilateral) and sudden hearing loss using multiple chi-square testing indicated that only tinnitus showed a significant correlation with sudden hearing loss in this group of patients ($p=0.0474$). Symptoms of vertigo as well as type of LVAS did not correlate with complaints of sudden hearing loss ($p=0.6161, 0.2549$). Results of computed odds ratios indicate significantly increased odds of sudden hearing loss in patients with complaints of tinnitus compared to patients without tinnitus (OR=11.20, 95%CI=1.01-125.21). The odds of sudden hearing loss correlating with symptoms of vertigo were not significant (95%CI=0.004-17.55). **CONCLUSIONS:** A significant portion of patients with LVAS will experience sudden step-wise hearing loss. Of the patients in this study that had sudden hearing loss, a large majority had associated complaints of tinnitus and/or vertigo. Results indicate a statistically significant correlation of tinnitus symptoms with sudden hearing loss. In addition, the odds of sudden hearing loss in patients with tinnitus were greater than eleven times that of patients without complaints of tinnitus. Complaints of vertigo in these patients did not appear to be correlated with sudden hearing loss. In patients with LVAS, symptoms of tinnitus can be used as one prognostic indicator for disease severity, specifically sudden step-wise hearing loss.

4:20 Audiometric Findings of Patients With Migraine-Associated Dizziness

Robert A. Battista, MD, Hinsdale, IL

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to recognize the audiometric patterns of patients with migraine-associated dizziness and how these patterns compare to audiometric patterns of patients with Meniere's disease.

OBJECTIVES: Sensorineural hearing loss (SNHL) has been reported in some patients with migraine-associated dizziness (MAD). Other symptoms of MAD (e.g. vertigo and tinnitus) also overlap with those of Meniere's disease. For this reason, there may be some ambiguity in the diagnosis of MAD. The objective of this study was to determine whether the audiometric findings of MAD could be used to better distinguish MAD from MD when diagnostic ambiguity exists between these two diagnoses. **STUDY DESIGN:** A retrospective chart review. **METHODS:** Consecutive patient records with the diagnosis of MAD seen over a four year period were reviewed. Audiometric results (0.25, 0.5, 1, 2, 3, 4, 8 kHz) were recorded for both ears. For each frequency, hearing was classified as normal (< 25 dB), mild (26-40 dB), moderate (41-55), moderately severe (56-70 dB), severe (71-90 dB) and profound SNHL (91+ dB). **RESULTS:** Seventy-two patients were identified. A mild, bilateral low-frequency (0.25 and 0.5 kHz) SNHL was found in two patients. The remainder of the patients (70) had normal audiograms. Two-year follow-up audiograms of the two patients with mild, bilateral low-frequency SNHL were unchanged in one while the second patient's audiogram improved to normal. There was no change in the audiograms of the remainder of the patients at two-year follow-up. **CONCLUSIONS:** Audiometric findings of patients with MAD are most often normal. When a hearing loss exists, the loss can be a mild, bilateral low-frequency SNHL. The SNHL, when present, rarely progresses. These audiometric findings may help to distinguish MAD from MD when diagnostic ambiguity exists between these two diagnoses.

4:28 Benign Paroxysmal Positional Vertigo. Video-Oculographic Findings and Results of a Modified Repositioning Maneuver

Claude P. Hobeika, MD*, Cincinnati, OH
Steven W. Sick, MS, Cincinnati, OH
Eric A. Koenig, MS, Cincinnati, OH

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to 1) better understand the clinical course of BPPV, and 2) learn about a modification of the Epley maneuver adapted to the physical condition of the elderly.

OBJECTIVES: Seventy consecutive patients presenting with symptoms typical of BPPV underwent complete neuro-otologic evaluation, including monitoring and recording of spontaneous, positional and positioning nystagmus with a goggle mounted infrared camera. Inquiry was made about symptoms suggestive of a migrainous process. Individuals 65 and older were subjected and prescribed a modified repositioning maneuver. They were rechecked at 3 months intervals. **STUDY DESIGN:** Seventy consecutive patients presenting with symptoms typical of BPPV underwent complete neuro-otologic evaluation, including monitoring and recording of spontaneous, positional and positioning nystagmus with a goggle mounted infrared camera. Inquiry was made about symptoms suggestive of a migrainous process. Individuals 65 and older were subjected and prescribed a modified repositioning maneuver. They were rechecked at 3 months intervals. **METHODS:** Seventy patients of all ages were include in the study. Results of neuro-otologic evaluation at initial visit and at follow up were compared. Persistence of nystagmus and/or abnormal eye motion after relief of clinical symptoms was studied in three age groups: under 50, 50 to 70, over 70. **RESULTS:** There is a correlation between a migrainous process and BPPV in women aged 55 and younger. Infrared camera monitoring and recording is a superior technique with definite benefits. Especially in the patients 70 and older a nystagmus often persists after the clinical symptoms have subsided. **CONCLUSIONS:** Migraine and BPPV are associated in the younger age group. Video recording is essential in diagnosis. The modified maneuver is successful.

4:36 Meniere's Syndrome Secondary to Temporal Bone Lesions Obstructing the Endolymphatic Sac and Duct

Ryan C. Cmejrek, MD+, Cleveland, OH
Cliff A. Megerian, MD, Cleveland, OH

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to 1) understand theories regarding the symptomatology of Meniere's Syndrome, 2) describe various lesions with potential to cause obstruction of the endolymphatic sac and/or duct, and 3) relate Meniere's symptomatology to endolymphatic sac obstruction in certain cases of Meniere's Syndrome.

OBJECTIVES: Meniere's Syndrome is felt in most cases to result from idiopathic endolymphatic hydrops. Potential etiologies include the overproduction or under-resorption of endolymph. Endolymphatic hydrops resulting from sac or duct obstruction has been well described in the animal model, but is not well described in humans. The goal of this study is to demonstrate a series of three patients, initially diagnosed with classic Meniere's Syndrome, who were ultimately diagnosed with temporal bone lesions obstructing the endolymphatic sac and duct, likely producing endolymphatic hydrops. **STUDY DESIGN:** Chart review and case series. **METHODS:** The charts of three patients with intractable vertigo and presumed Meniere's Syndrome were retrospectively reviewed. The clinical evaluation of these patients included CT, MRI, audiometry and ECOG. Similarities in their presentation, including a likely common pathophysiology are discussed. **RESULTS:** Each patient was found to harbor a different pathological lesion of the temporal bone which radiographically compressed or obstructed the endolymphatic sac and duct. Patient 1 had jugular megabulb and was ultimately treated with vestibular nerve section. Patients 2 and 3 had cholesterol granuloma and endolymphatic sac tumor, respectively, and were treated with surgical excision. All patients had satisfactory resolution of Meniere's symptomatology after surgical treatment. **CONCLUSIONS:** Obstruction of the endolymphatic sac or duct by mass lesion or vascular anomaly can lead to vestibulocochlear pathology and secondary Meniere's Syndrome. This clinical observation is likely due to endolymphatic hydrops caused by the obstruction.

tion and provides further evidence supporting endolymphatic obstruction as one etiology of classic Meniere's Syndrome.

4:44 Early Surgical Therapy for Necrotizing Otitis Externa

Sam J. Marzo, MD, Maywood, IL

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to discuss the differential diagnosis and management of necrotizing otitis externa and discuss the roll of surgical therapy in management.

OBJECTIVES: To highlight the importance of early surgical therapy in necrotizing otitis externa, to discuss the importance of antifungal therapy, and to review the differential diagnosis of ear canal inflammatory disorders. **STUDY DESIGN:** Retrospective case review at tertiary medical center. **METHODS:** A retrospective chart review of all patients diagnosed necrotizing otitis externa was performed. Four patients were identified. All required surgical therapy for definitive management. The records and management are reviewed. All patients were followed for at least one year or until death. **RESULTS:** All patients required surgical therapy. Three of the four patients had invasive fungus as pathogens. One patient had an occult squamous cell carcinoma. One patient is free of disease, two are dead of disease, and one is alive with disease. **CONCLUSIONS:** Necrotizing otitis externa can be secondary to an invasive fungal infection of the external auditory canal and can harbor an occult malignancy. Early surgical debridement may be necessary to arrive at a correct diagnosis. Modified radical mastoidectomy, parenteral antibiotic therapy, and other adjunctive measures such as hyperbaric oxygen therapy may be necessary for disease resolution.

4:52 DISCUSSION

5:00 Adjournment

6:30 - Banquet - Ballroom

10:00

SUNDAY, JANUARY 19, 2003

7:00 - **Speaker Ready Room** - Room 138
Noon

7:00 - **Business Meeting (Members Only)** - President's Room
7:50

7:00 - **Continental Breakfast** - Conference Center Lobby
8:00

7:00 - **Registration** - University Place Conference Center Lobby
11:00

8:00 - **Scientific Sessions** - Auditorium, Room 126
12:15

MODERATOR: RONALD C. HAMAKER, MD*, INDIANAPOLIS, IN

8:00 **INVITED PAPER: TRIOLOGICAL SOCIETY THESIS**
Regular Tracheostomy Tube Changes to Prevent Formulation of Granulation Tissue
Kathleen L. Yaremchuk, MD*, Detroit, MI

8:08 **Botulinum Neurotoxin for Pharyngeal Constrictor Muscle Spasm in Tracheoesophageal Voice Restoration**
Eric D. Blom, PhD, Indianapolis, IN
Ronald C. Hamaker, MD*, Indianapolis, IN (*Presenter*)

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to assess pharyngeal constrictor muscle spasm in laryngectomized individuals and eliminate it with botulinum neurotoxin injection.

OBJECTIVES: The purpose of this study was to evaluate the effectiveness of Botulinum Neurotoxin (Botox) for elimination of pharyngeal constrictor muscle spasm in tracheoesophageal voice restoration. **STUDY DESIGN:** A retrospective review of 62 patients between 1991 and 2002 who had Botox as the initial treatment for pharyngeal constrictor muscle spasm. **METHODS:** One hundred units of Botox properly diluted in 3cc of saline were instilled unilaterally under EMG guidance after fluoroscopic identification and marking of the contracted pharyngeal constrictor muscles. The patients were divided into three groups based on their response to the first Botox injection: Group I—complete relaxation of the pharyngeal constrictors resulting in fluent voice, phonation airflow pressure of 20-40cm H₂O and the ability to say 15-20 syllables uninterrupted, Group II—hypertonic or incomplete relaxation of the pharyngeal constrictors resulting in phonation airflow pressure of 45-70cm H₂O and the ability to say 7-8 syllables, Group III—failure to produce muscle relaxation. **RESULTS:** After the first injection of Botox 49 (79%) patients were in Group I or Group II (41 in I and 8 in II) and Group III consisted of 13 patients. Thirty four patients (55%) had Group I (28) or Group II (6) responses for greater than 6 months. A second Botox injection enabled 6 of the 13 failures to move into Group I. A total of 8 pharyngeal constrictor muscle myotomies (13%) were ultimately required in this group of 62. **CONCLUSIONS:** Botox relaxation of the pharyngeal constrictor muscles has proven to be effective and replaces secondary pharyngeal myotomy for the initial treatment of pharyngeal muscle spasm.

8:16 **1ST PRIZE – LAWRENCE R. BOIES RESIDENT RESEARCH AWARD**
Major Histocompatibility Gene Therapy—An Evaluation of the Importance of Antigen Haplotype and Beta2-Microglobulin
Frank N. Salamone, MD+, Cincinnati, OH
Lyon L. Gleich, MD*, Cincinnati, OH

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to explain the importance of using a foreign MHC and beta2-microglobulin for immunologic gene therapy.

OBJECTIVES: Alloantigen gene therapy with the genes for the class I major histocompatibility complex (MHC) HLA-B7 and beta2-microglobulin in HLA-B7 negative patients has potential efficacy in the treatment of head and neck cancer, although the mechanism of response is unclear. It is unknown if tumor regression is due to a response to HLA-B7 in HLA-B7 negative patients (i.e. due to "foreign" antigen) or simply to MHC over-expression. A mouse model was therefore used to test tumor inhibition comparing syngeneic H2-K transfection to alloantigenic H2-K transfection. We also evaluated the importance of the beta2-microglobulin gene. **STUDY DESIGN:** Prospective animal study. **METHODS:** The head and neck cancer cell line SCC-VII that grows in immunocompetent C3H mice, which are MHC haplotype H2-Kk, was used. Stable transfections were made with H2-Kb, H2-Kk, and beta2-microglobulin in the SCC-VII cells. To test the importance of MHC "foreignness", 6 mice were injected with SCC-VII cells, 6 with SCC-VII + H2-Kb + beta2-microglobulin transfected cells, and 6 with SCC-VII + H2-Kk + beta2-microglobulin transfected cells. To evaluate beta2-microglobulin 20 mice were injected with SCC-VII cells, 20 mice with SCC-VII + H2-Kb + beta2-microglobulin transfected cells, 12 with SCC-VII + H2-Kb, and 8 with SCC-VII + beta2-microglobulin. Tumor growth in all groups was compared statistically. **RESULTS:** MHC "foreignness" was a part of the anti-tumor response. Foreign MHC routinely abrogated tumor growth, while syngeneic MHC only slowed tumor growth. Beta2-microglobulin aids the H2-K tumor inhibition, but does not inhibit tumor without H2-K. **CONCLUSIONS:** The anti-tumor response is greater when the MHC gene used is "foreign." Beta2-microglobulin increases the efficacy of MHC gene therapy. Both these findings are important when designing clinical trials of immunologic based gene therapies for head and neck cancer.

8:24 **The Diagnostic Value of Fine Needle Aspirate and Frozen Section Histology in the Evaluation of Parotid Masses**
Sandeep D. Sule, MD, Detroit, MI
Adriane P. Concus, MD, Detroit, MI

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to discuss the usefulness of fine needle aspirate and frozen section in terms of surgical decision making.

OBJECTIVES: Fine needle aspirate and frozen section histology have been used in the histopathological evaluation of parotid masses for several decades. However, the use of these diagnostic tests is controversial. The objective of this study is to evaluate the value of fine needle aspirate (FNA) and frozen section biopsy in the surgical management of parotid masses. **STUDY DESIGN:** Retrospective chart review. **METHODS:** Patients were identified by searching the surgical database at Henry Ford Hospital using the ICD-9 codes for any parotid mass, as well as the CPT codes for any parotid surgery. Once identified, a retrospective chart review of patients diagnosed and treated for parotid masses between January 1995 and December 2001 was performed. The results of FNA

and frozen section were analyzed and compared with the corresponding histopathological diagnosis using sensitivity, specificity, positive predictive value, negative predictive value, and accuracy. **RESULTS:** 163 patients underwent parotid surgery at the Department of Otolaryngology at Henry Ford Hospital and data were available on all of these patients. Histopathological evaluation by surgery revealed 131 (80.3%) benign lesions and 32 (19.7%) malignant lesions. 123 patients underwent preoperative FNA and 22 patients underwent operative frozen section (18 for diagnosis, 4 for confirmation of margins). For 19 patients in whom frozen section was performed, a preoperative FNA was also performed. Cytological finding showed FNA sensitivity of 81.8% (18/22), specificity of 94.5% (69/73) in detecting malignant tumors. There were 28 nondiagnostic FNAs performed. The positive predictive value and negative predictive value of FNA were 81.8% and 94.5%, respectively. Frozen section showed a sensitivity of 91.7% (11/12), specificity of 100% (10/10), positive predictive value of 100% (11/11), and negative predictive value of 90.9% (10/11). FNA was not found to significantly influence the surgical procedure performed. Frozen section was found to be more accurate than FNA and better at guiding surgical procedure. **CONCLUSIONS:** Fine needle aspirate was not found to impact the surgical management of parotid masses. Frozen section is useful in guiding the extent of surgery and is more accurate than FNA in the diagnosis of parotid masses.

8:32 DISCUSSION

MODERATOR: JESUS E. MEDINA, MD*, OKLAHOMA CITY, OK

8:42 Changing Trends in the Etiology of Vocal Fold Motion Impairment

Albert L. Merati, MD, Milwaukee, WI
Nima Shemirani, BS, Milwaukee, WI (*Presenter*)
Saarvi S. Nalwa, MD, Milwaukee, WI
Timothy L. Smith, MD, MPH*, Milwaukee, WI
Robert J. Toohill, MD*, Milwaukee, WI

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to recognize the leading contemporary causes of vocal fold motion impairment and make comparisons to historical data.

OBJECTIVES: Vocal fold motion impairment (VFMI) continues to be a dominant clinical issue in laryngology. The objective of this study is to examine a contemporary population of patients with newly diagnosed VFMI and make comparisons to established historical data. **STUDY DESIGN:** Retrospective chart review. **METHODS:** 84 patients with newly diagnosed VFMI are identified from the first author's clinic over a one year period. Patient demographics, etiology, side of impairment, and nature of the impairment are determined from chart review. **RESULTS:** Of the 84 patients, 47 (56%) are female and 37 (44%) are male. The average age of all patients is 53.4 years. 75/84 (89.3%) of the VFMI were unilateral with 9/84 (11%) being bilateral. The left side was affected in 39/75 (52%) patients; the right side 36/72 (48%) of the time in unilateral cases. The immobility was complete in 46/75 (61.3%) of the unilateral cases, partial in the remaining 29/75 (38.7%). With regard to etiology, iatrogenic causes were the most prevalent, with 40/84 (47.6%) patients. Idiopathic cases comprised 31/84 (36.9%) of the patients. Neoplasms (6/84, 7.1%) and miscellaneous causes (6/84, 7.1%) accounted for smaller portions of the remainder. Of the iatrogenic VFMI cases, 11/40 (27.5%) followed cervical spine operations. Chest, intracranial, and thyroid surgery accounted for 6 (15%) patients each, as did endotracheal intubation (n=6, 15%). **CONCLUSIONS:** Compared to previous reports, the incidence of iatrogenic cases reviewed here is relatively high. Anterior cervical spine surgery has surpassed thyroidectomy and all other procedures as the most common cause of iatrogenic VFMI.

8:50 2ND PRIZE – LAWRENCE R. BOIES RESIDENT RESEARCH AWARD

Evaluation of PTH as a Functional Biological Marker of Rat Laryngeal Transplant Rejection

Marc E. Nelson, MD+, Cleveland, OH
Olivia Dan, BS, Cleveland, OH
Manjula Gupta, PhD, Cleveland, OH
Marshall Strome, MD*, Cleveland, OH

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to discuss the potential application of novel sequencing of immunosuppressive protocols in laryngeal transplantation.

OBJECTIVES: We are investigating short-term immunosuppressive protocols in a preclinical rat model that have lead to prolonged survival of the graft in preliminary trials. Rat allografts, by their heterotopic nature, do not allow direct examination or functional interpretation. The primary objective of this study was to identify a reliable functional biologic marker allowing monitoring of graft status. A secondary goal was to use this marker as an indicator of onset of rejection. **STUDY DESIGN:** We elected to study rat parathyroid hormone (PTH) as a functional marker of laryngotracheal complex rejection. Theoretically, a pulsed immunosuppressive regimen, administered when PTH levels begin to fall, could prevent rejection. **METHODS:** Eleven Lewis recipient rats underwent parathyroidectomy one week prior to laryngeal transplantation. PTH levels were drawn on various days following transplantation, then analyzed with an intact rat PTH assay. Animals were sacrificed on different days to allow for comparison of PTH levels with histopathologic signs of rejection. **RESULTS:** All animals had undetectable levels of PTH prior to transplantation. By 24 hours post-transplant, PTH levels were within normal range. At 72 hours, the PTH levels drop precipitously. Rejection of parathyroid glands parallels the early histologic changes of rejection seen in the other anatomical areas of interest in the laryngotracheal graft. **CONCLUSIONS:** This work represents the first time a hematologic marker has been identified which has predictive value for rejection of transplanted rat larynges. As such, it not only enables a 3-month experimental window with reasonable animal numbers, but opens the door for novel sequencing of immunosuppressive modalities.

8:58 Supraglottic Laryngomalacia in Adults

Michael H. Fritsch, MD*, Indianapolis, IN
Derrick T. Rogers, MD, Indianapolis, IN (*Presenter*)

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to 1) understand the various manifestations of adult supraglottic laryngomalacia, 2) explain to clinicians the impact on adult patients, and 3) describe the surgical treatment of the entity.

OBJECTIVES: Supraglottic laryngomalacia has been found to significantly impact the quality of life of adult patients. Sleep apnea, with its morbidity and possible mortality, may be found to result from a collapsing supraglottic larynx. Sleep apnea may be due solely to supraglottic collapse. There are several types of adult supraglottic laryngomalacia. Surgical treatment strategies depend on the exact type of collapse. This paper discusses the diagnosis and surgical treatment of this entity. The author's attempt is to make the clinician aware of a clinically correctible problem that may go unnoticed and result in an incomplete correction by conventional surgical means. **STUDY DESIGN:** A prospective study. **METHODS:** The larynx in adult patients undergoing conventional sleep apnea surgery (U.P.P.P. turbinate reduction, septoplasty) were examined by laryngoscopy prior to intubations and lidocaine administration. Some patients exhibited mild to severe supraglottic collapse. Laser treatment specifically tailored to the particular supraglottic problem was administered. Post-operative, subjective, clinical and sleep study confirmations of improvement, were used. **RESULTS:** Adult patients that were treated for supraglottic laryngomalacia had

improvement of their sleep apnea conditions. Conventional means of sleep apnea surgery applied as the sole treatment in these patients resulted in incomplete resolution. **CONCLUSIONS:** Adult patients undergoing conventional sleep apnea treatment should receive a laryngoscopy to rule out a diagnosis of supraglottic laryngomalacia. The exact form of malacia should be diagnosed and treated with a specifically applied laser supraglottoplasty to completely resolve the sleep apnea symptoms.

9:06 The Utility of Routine Chest Radiography Following Jet Ventilation in Elective Laryngotracheal Surgery

Albert L. Merati, MD, Milwaukee, WI
Keith A. Sale, MD, Kansas City, K
Robert J. Toohill, MD*, Milwaukee, WI

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to discuss the role of obtaining routine chest radiographs after performing jet ventilation for laryngotracheal surgery.

OBJECTIVES: Jet ventilation is a useful mode of airway management in laryngotracheal surgery. This objective of this study is to evaluate the utility of routine chest radiography following jet ventilation for these cases. **STUDY DESIGN:** Retrospective chart review. **METHODS:** 34 elective surgical procedures performed from 1998 to 2002 are reviewed for post-operative airway and pulmonary complications. Data were collected from clinical notes as well as the results of chest radiographs. Clinical indicators included the need for tracheotomy, reintubation, pneumothorax, pneumomediastinum, and atelectasis. **RESULTS:** A retrospective chart examination revealed no major complications. 31 of the 34 cases had post-operative chest radiography (CXR) performed on a routine basis. Atelectasis was present in 12 of 31 CXR (39%); no intervention was required in these cases. **CONCLUSIONS:** Routine post-operative CXR may not be useful following jet ventilation for elective laryngotracheal surgery. The safety of jet ventilation is discussed.

9:14 Identification of Thyroid Hormone Receptors in the Human Larynx

Sarah K. Vakkalanka, MD, Chicago, IL
Sanjay P. Keni, BS, Chicago, IL
G. Kenneth Haines III, MD, Chicago, IL
James A. Radosevich, PhD, Chicago, IL
Peter A. Kopp, MD, Chicago, IL
Kenneth W. Altman, MD, PhD, Chicago, IL

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to recognize the presence of thyroid hormone receptors in the human larynx, and understand the possible clinical relevance of such receptors.

OBJECTIVES: Thyroid hormone is essential for normal development, growth and function of the majority of tissues. Among the many clinical signs associated with hypothyroidism, alterations in the voice may occur even in mild thyroid failure suggesting that the larynx is a target tissue for thyroid hormone. The objective of our study is to further understand the effects of thyroid hormone on the larynx by first identifying the presence and locations of its receptors. **STUDY DESIGN:** Pathophysiologic investigation. **METHODS:** Two human cadaveric larynges (one male and one female) were harvested, formalin-fixed and paraffin-embedded. Sections were immunostained with antibodies reactive with the two identified thyroid hormone receptors TR-a and TR-b. The slides were examined under light microscopy. **RESULTS:** Both male and female specimens revealed consistent patterns of staining for thyroid hormone receptors. The staining pattern for TR-a included the fibrous connective tissue of the lamina propria, the cartilage and the glandular elements. The staining pattern for TR-b included the fibrous connective tissue of the lamina propria only. **CONCLUSIONS:** Thyroid hormone receptors are present in both the male and female human larynx. These findings infer a role for thyroid hormone within the human larynx, through both TR-a and TR-b.

9:22 DISCUSSION

9:30 PANEL: NEUROLARYNGOLOGY

MODERATOR: Charles N. Ford, MD*, Madison, WI
PANELISTS: Marshall Strome, MD*, Cleveland, OH
Robert W. Bastian, MD, Maywood, IL
Randal Paniello, MD*, St. Louis, MO

10:30 Break/Poster Presentations/Visit with Exhibitors - Lobby, Rooms 132-134

MODERATOR: RICHARD J. WIET, MD*, EVANSTON, IL

11:08 The Superior Petrosal Triangle as a Constant Anatomic Landmark for Subtemporal Middle Fossa Orientation

Robert S. Miller, MD, Cincinnati, OH
Myles L. Pensak, MD*, Cincinnati, OH

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to explain the relationship between the head of the malleus, the foramen spinosum, and the root of the zygoma and discuss the methodology for localizing the head of the malleus utilizing these landmarks.

OBJECTIVES: Anatomic landmarks including the arcuate eminence and the greater superficial petrosal nerve serve as orienting loci for middle fossa dissection. However, because of considerable variation amongst patients, these landmarks are not always readily identifiable. Herein, we expand on a previously described method to identify the head of the malleus (HOM) as a constant anatomic landmark to optimize exposure when employing a middle fossa approach. **STUDY DESIGN:** Anatomic study utilizing fresh and preserved human cadaver specimens. **METHODS:** Ten preserved human cadaveric temporal bones were employed to define the anatomic relationship amongst the root of the zygoma (ROZ), the posterior-lateral lip of the foramen spinosum (FS), and the bony tegmen over the HOM. Subsequently, 5 fresh whole human cadaveric heads (10 temporal bones) were dissected utilizing a surgically oriented anterior petrosotomy-middle fossa approach to evaluate the consistency of localizing the HOM. **RESULTS:** We defined the superior petrosal triangle as a stable anatomic relationship. Our cadaveric data demonstrated that the distance from the ROZ to the HOM was 18.7mm (SD 1.7mm), and the distance from the FS to the HOM was 19.2mm (SD 1.0mm). The intersection of an arc transcribed 19mm from the ROZ and an arc transcribed 19mm from the FS localized the HOM within 2.5mm (SD 2.4mm). **CONCLUSIONS:** The loci defined by the superior petrosal triangle represent a means to localize the bony tegmen over the HOM. Identification of the HOM as a landmark in middle fossa surgery when other landmarks are not recognizable will optimize patient safety and surgeon confidence during complex surgical procedures.

11:16 Electrophysiological Effects of Placing Cochlear Implant Electrodes in a Peri Modiolar Position in Young Children

Phillip A. Wackym, MD*, Milwaukee, WI

Wolfgang W. Gaggl, MSE, Milwaukee, WI
Christina L. Runge-Samuelson, PhD, Milwaukee, WI
Ruth M. Reeder, MA, Milwaukee, WI
Jennifer C. Raulie, MA, Milwaukee, WI
Jill B. Firszt, PhD, Milwaukee, WI

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to explain the electrophysiologic advantages of placing a cochlear implant electrode array closer to the modiolus.

OBJECTIVES: The purpose of this study was to intraoperatively record Wave V of the electrical auditory brainstem response (EABR) before and after placement of the electrode positioning system (EPS) (Clarion HiFocus I cochlear implant electrode array) as well as before and after stylet removal (Nucleus Contour cochlear implant electrode array). It was hypothesized that physiologic changes would occur after perimodiolar positioning of the electrode array and these would be evident from the EABR recordings. **STUDY DESIGN:** Consecutive young (one to three years old) pediatric cochlear implant recipients (n=16) had intraoperative EABRs recorded from three intracochlear electrodes that represented apical, medial, and basal locations. **METHODS:** Wave V amplitudes and thresholds were investigated relative to electrode location and pre- versus post-peri modiolar positioning. Evoked potential measures of threshold and amplitude were analyzed for statistical significance using ANOVA and Chi-square methods. **RESULTS:** Wave V thresholds of the EABR were consistently lower and amplitudes larger after peri modiolar positioning. The number of measures that were lower in Wave V threshold before and after peri modiolar positioning were significantly dependent on intracochlear electrode location. **CONCLUSIONS:** Placement of either the Clarion HiFocus I or Nucleus Contour cochlear implant electrode array in the peri modiolar position in young children resulted in less electrical current necessary to activate the central auditory system. Changes in electrophysiologic thresholds and amplitudes, measured with EABR, indicate that the electrode array is consistently placed closer to the modiolus with both electrode designs.

11:24 Patient Perception of Co-Morbidities Resultant from Acoustic Neuroma Management—A Cohort Study of 1940 Patients

John M. Ryzenman, MD+, Cincinnati, OH
Myles L. Pensak, MD*, Cincinnati, OH
John M. Tew, Jr., MD, Cincinnati, OH

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to discuss and be familiar with the quality of life issues and sentiments pertinent to patients with acoustic neuroma tumors.

OBJECTIVES: To analyze patients' perception of the most disabling aspects of their acoustic neuroma (AN) management experience, and how this may differ from a literature review of the physician's viewpoint regarding co-morbidities associated with AN treatment. **STUDY DESIGN:** Cohort study of 1940 acoustic neuroma patients. **METHODS:** A detailed questionnaire, mailed to 2372 members of the Acoustic Neuroma Association (ANA), queried preoperative and post-operative symptoms, complications and their long-term residual effects on physical and psychosocial function. Responses were received from 1940 patients (81.8%). In this questionnaire patients reported their "most difficult aspect of the AN experience". Patients' responses were stratified by tumor size, surgical approach, age and sex. Statistical analysis was performed utilizing the SPSS software. **RESULTS:** The most frequently reported "most difficult aspect of the AN experience" was hearing loss (25.9%) followed by facial weakness, eye problems and headache (17.9%, 10.8% and 10.5%). After hearing loss, men next reported balance, eye and facial weakness problems, whereas more women reported facial weakness, eye problems and headache. Loss of volitional mimetic function was a greater problem for patients of either sex who had larger tumors, were younger, or when the retro-sigmoid approach was employed. Balance dysfunction became more significant in patients 75 years or older, or those with small tumors. **CONCLUSIONS:** This large cohort study of AN patients and their perceptions regarding the impact of their treatment on their quality of life, illustrates why it is incumbent upon treating physicians to familiarize themselves with the sentiments of AN patients when counseling and recommending optimal management strategies.

11:32 Serum Antidiuretic Hormone Levels in Patients With Unilateral Meniere's Disease

Jin S. Lim, MD, Cleveland, OH
Mary E. Lange, RN-NP, Worcester, MA
Cliff A. Megerian, MD, Cleveland, OH

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to 1) discuss prior research evidence regarding the role of antidiuretic hormone (ADH) and Meniere's disease, 2) discuss the possible mechanism of ADH induced endolymphatic hydrops, and 3) discuss results of studies regarding ADH levels in patients with unilateral Meniere's disease.

OBJECTIVES: Prior studies have indicated a possible role of antidiuretic hormone (ADH) in the pathogenesis of Meniere's disease. This association has been suggested with various animal studies, as well as with a previous report noting elevation of serum ADH levels Meniere's disease patients. Goal of this report is to analyze ADH levels in a series of patients with unilateral Definite Meniere's disease in order to further investigate this relationship. **STUDY DESIGN:** Retrospective analysis. **METHODS:** ADH levels were obtained within one week of an acute episode of vertigo from 26 consecutive patients with a diagnosis of Definite Meniere's disease as defined by the 1995 guidelines from the Committee of Hearing and Equilibrium (AAO-HNS). These values were compared to each other, as well as to ADH levels from 31 healthy patients without Meniere's disease. Statistical analyses were performed using two-tail T- tests. **RESULTS:** The difference in ADH levels of patient with Meniere's disease compared to the control group was not found to be statistically significant ($p > 0.05$); mean of 3.37 pg/ml (SD 1.48 pg/ml) and 4.07 pg/ml (SD 2.82 pg/ml) respectively. Furthermore, no statistically significant difference in ADH levels was found between patients who underwent surgical versus medical management for their Meniere's disease ($p > 0.05$), mean of 3.92 pg/ml (SD 3.12 pg/ml) and 4.21 pg/ml (SD 2.66 pg/ml) respectively. **CONCLUSIONS:** Although previous reports have demonstrated a possible role of ADH in the pathogenesis of Meniere's disease, this study did not show a statistically significant elevation of ADH levels in patients with unilateral Meniere's disease. Prior to excluding an ADH-inner pathogenic relationship, ADH levels in patients with bilateral Meniere's disease should be investigated.

11:40 The Incidence of Benign Paroxysmal Positional Vertigo Within a Population of Meniere's Patients

Manali S. Amin, MD, Omaha, NE
Joe A. Ursick, BA, Omaha, NE
Gary F. Moore, MD*, Omaha, NE

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to discuss the incidence of BPPV within a population of patients with Meniere's Disease and explain the reasons why the incidence may be underestimated in a tertiary medical center.

OBJECTIVES: The study was designed to determine the incidence of Benign Paroxysmal Positional Vertigo (BPPV) in a population of Meniere's patients. **STUDY DESIGN:** Retrospective review. **METHODS:** All patients seen in the Otolaryngology clinics at the University of Nebraska Medical Center between August 1, 1999 and April 1, 2002 with a diagnosis of either Meniere's Disease or BPPV were identified. All of the charts were reviewed to determine the

coexistence of disease in a patient. Meniere's patients were further reviewed for symptoms and objective test results. **RESULTS:** A computer program used to identify patients by diagnoses identified 131 patients with a diagnosis of either Meniere's Disease (81) or BPPV (50). Of the 81 patients with Meniere's Disease, 23 patients were eliminated for insufficient information. Only those patients whose records included the initial diagnostic workup and subsequent follow-up were included. Review of the charts revealed no patients with both diagnoses. These findings differ from previous reports. **CONCLUSIONS:** The incidence of BPPV within a Meniere's population at a tertiary center may be grossly underestimated. First, patients may perceive all vertigo as an exacerbation of Meniere's disease rather than as a possible separate entity. Therefore, patients complaining of vertigo recurrence may be treated with an increase in diuretics and/or a short course of CNS suppression over the telephone. Given the spontaneous remission rates of BPPV, the medication changes may appear to resolve the vertigo further confounding the clinical picture. Finally, once a diagnosis has been established, rural patients may be unwilling to travel, and may instead seek care locally.

11:48 Videostroboscopic Evaluation of Superficial Laryngeal Neoplasms Treated With Photofrin-Mediated Photodynamic Therapy (PDT)

Joshua A. Gottschall, MD, Detroit, MI
Vanessa G. Schweitzer, MD*, Detroit, MI
Michael S. Benninger, MD*, Detroit, MI
Glendon M. Gardner, MD, Detroit, MI

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to understand the theory and applications of photodynamic therapy (PDT) with respect to preserving laryngeal function in the treatment of superficial laryngeal neoplasms.

OBJECTIVES: Photodynamic therapy has been demonstrated to be successful in the treatment of superficial laryngeal neoplasm (Tis-T1). PDT is a unique modality with specific tumoricidal activity with relative preservation of normal tissue architecture and function. To date, no objective measure of glottic function through evaluation of pre- and post-PDT videostroboscopy has been conducted. **STUDY DESIGN:** Retrospective review. **METHODS:** Seven patients were identified from 1996-2002 treated at Henry Ford Health System treated with Photofrin-mediated PDT for superficial laryngeal neoplasm (Tis-T1). Three patients had available pre- and post-PDT videostroboscopies with adequate follow up. In total, 14 studies were analyzed independently by 4 examiners experienced in grading videostroboscopy. Each exam was randomized, blinded and tested for intra-judge reliability. Grading was conducted for glottic closure, supraglottic activity, vertical level of approximation, vocal fold edge, amplitude, mucosal wave, non-vibrating portion, phase symmetry and phase closure. **RESULTS:** These data were reviewed with respect to 3 post operative time points and compared to baseline function. The first post operative videostroboscopy reflected worsened function as a result of post-PDT edema secondary to photosensitivity and tumor death. Subsequent exams reflect a rapid return to baseline and improvement of laryngeal function with respect to time. Each patient remains free of disease after a single treatment. **CONCLUSIONS:** Photodynamic therapy may prove valuable as first-line treatment of early laryngeal neoplasm due to relatively low toxicity and maximal functional preservation as compared to conventional treatment with radiation therapy and surgery. As more data and newer photosensitizing drugs become available, the role of PDT in early laryngeal neoplasm will become more apparent.

12:00 DISCUSSION

12:10 Introduction of Vice President-Elect, Myles L. Pensak, MD*, Cincinnati, OH

Richard T. Miyamoto, MD

12:15 Adjournment

POSTERS

1. Sebaceous Lymphadenoma Identified by FNA

James C. Banich, MD, Maywood, IL
Carol M. Bier-Laning, MD, Maywood, IL
Cesar V. Reyes, MD, Maywood, IL

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to understand the presentation, fine needle aspirate (FNA) and gross pathological findings of the rare parotid tumor sebaceous lymphadenoma.

OBJECTIVES: To describe the first reported FNA findings for sebaceous lymphadenoma, a rare parotid tumor. **STUDY DESIGN:** Case presentation. **METHODS:** An FNA was performed to assist in the diagnosis of a 60 year old male who presented with painless, bilateral parotid swelling noted for 5 months. The swelling was more pronounced on the right. Examination revealed bilaterally prominent parotid glands with diffuse firmness, but no discrete masses. There was no evidence of facial nerve dysfunction. Laboratory workup was negative for infectious and autoimmune etiologies. MRI revealed bilateral cystic parotid masses. An FNA of the right parotid was obtained to assist with preoperative counseling. **RESULTS:** Fine needle aspiration of the right parotid mass revealed sebaceous, lymphoid and salivary gland parenchymal cells. The aspirate itself was oily and sebaceous in character. The patient underwent a right superficial parotidectomy. The surgical specimen of the parotid mass confirmed the diagnosis of sebaceous lymphadenoma on tissue section. The contralateral parotid mass has not yet been excised. **CONCLUSIONS:** This report is the first to defines the FNA findings of the unusual benign parotid neoplasm sebaceous lymphadenoma. Though the definitive diagnosis of any parotid mass requires tissue generally obtained via parotidectomy, an FNA diagnosis can be useful in counseling a patient prior to definitive biopsy.

2. LeFort I Osteotomy Approach to Nasopharyngeal Lesions: A Review of the Literature and a Case Series Report

Richard D. Castellano, MD, Indianapolis, IN
Jason S. Isenberg, MD, Indianapolis, IN
Edward C. Weisberger, MD*, Indianapolis, IN

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to describe the risks and benefits of the LeFort I osteotomy approach to the nasopharynx compared to more traditional nasopharyngeal surgical approaches.

OBJECTIVES: This article discusses the utility of Lefort I osteotomies as an approach to nasopharyngeal tumors. The authors will discuss case presentations and outcomes achieved with this procedure. **STUDY DESIGN:** Retrospective, case series. **METHODS:** Medical records of approximately 7 patients undergoing resection of nasopharyngeal tumors via the LeFort I osteotomy approach will be reviewed. Demographic data, complications, benefits, and procedures done are analyzed. **RESULTS:** 7 patients underwent a LeFort I osteotomy approach. Benefits included reduced postoperative deformity, less blood loss, less operative time, and improved surgical exposure and access to the nasopharynx. Complications were included a trapped nasal packing requiring removal in the operating room. **CONCLUSIONS:** LeFort I osteotomies provide excellent access to the nasopharynx with fewer complications, less operative time, better cosmesis, less blood loss, and better patient tolerance.

3. Subglottic Stenosis Associated with Wegener's Granulomatosis

Michael B. Gluth, MD, Rochester, MN
Patrick A. Shinnars, MD, Rochester, MN
Jan L. Kasperbauer, MD*, Rochester, MN

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to demonstrate a working knowledge of how to approach the evaluation and treatment of subglottic stenosis in patients with Wegener's granulomatosis.

OBJECTIVES: Evaluate the outcomes of subglottic stenosis for patients with Wegener's granulomatosis. **STUDY DESIGN:** Retrospective chart review. **METHODS:** Review of all patients evaluated in an otolaryngology department between 1993 and 2001 for active symptoms attributed to subglottic stenosis that had undergone c-ANCA and p-ANCA testing and that had a clinical diagnosis of Wegener's granulomatosis. **RESULTS:** 27 patients were identified with Wegener's granulomatosis and subglottic stenosis. Among these, 11/27 (40.7%) underwent tracheotomy; 13/27 (48.1%) required multiple surgical procedures. A history of open laryngotracheal repair was undertaken in 7/27 (25.9%). CO2 laser resection and dilation was employed in 12/27 (44.4%). 3/27 (11.1%) had a tracheotomy at last follow-up. Patients were followed an average duration of 76.8 months (6.4 years) from the onset of symptoms attributed to SGS. All patients that underwent laryngotracheal reconstruction (LTR) had been successfully decannulated. **CONCLUSIONS:** Wegener's granulomatosis is a necrotizing vasculitis that can involve the subglottis. Our approach to airway management in these patients involves a tracheotomy if obstruction occurs during acute inflammatory activity. This is typically manifested as a red, friable subglottis. We recommend strictly minimizing airway manipulation during episodes of systemic disease activity. Once control of the disease process is obtained, consideration is given to either an endoscopic or open approach based on the extent of stenosis. Our experience suggests that both LTR and CO2 laser resection/dilation, in conjunction with other techniques, may be undertaken with safety and result in favorable outcomes.

4. Propofol Decreases Waste Anesthetic Gas Exposure During Pediatric Bronchoscopy

Michael S. Hauptert, DO, Detroit, MI
Debashish K. Bhattacharya, MD, Detroit, MI
Maria M. Zestos, MD, Detroit, MI
Shankar D. Rajan, MD, Detroit, MI
Arina M. Talpesh, MD, Detroit, MI

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to discuss risks and benefits of better anesthesia mix for pediatric patients undergoing direct laryngoscopy and bronchoscopy and demonstrate the effectiveness per NIOSH standards.

OBJECTIVES: An investigation concerning the impact of gas exposure and NIOSH recommendations and comparison of two options. **STUDY DESIGN:** A randomized prospective study compared anesthetic gas exposure during halothane anesthesia alone versus halothane/propofol anesthesia in 46 children undergoing elective direct laryngoscopy and bronchoscopy. **METHODS:** Children were anesthetized by halothane mask induction, maintained with oxygen, air and halothane using spontaneous ventilation with insufflation. All children received glycopyrrolate 0.01 mg/kg IV, lidocaine 1mg/kg IV, and lidocaine 4mg/kg LTA. Neither narcotics nor muscle relaxants were used. In the halothane group, the inspired halothane concentration was titrated as needed to maintain spontaneous ventilation and still patient. In the propofol group, the inspired halothane concentration was decreased to 1% after induction and propofol was titrated to 200-500 mcg/kg/min as needed to maintain spontaneous ventilation and a still patient. Trace anesthetic badge was placed 6 inches from the head. Badges remained in position from induction until emergence. Nominal data and ppm of halothane were analyzed using the student's T-test. **RESULTS:** No sig-

nificant difference in the age, weight or bronchoscopy time. There was a trend toward later emergence and less gas exposure in the propofol group. **CONCLUSIONS:** The addition of propofol anesthesia and the limitation of inhaled anesthetic gases reduce environmental exposure to waste gas in the operating room but prolong time to emergence.

5. **Surgical and Auditory Outcomes for the Modified Bondy Tympanomastoidectomy**

William C. Hofmann, MD, Indianapolis, IN
Michael H. Fritsch, MD*, Indianapolis, IN
Michael K. Wynne, PhD, Indianapolis, IN

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to define the modified Bondy procedure for tympanomastoidectomies, discuss the surgical outcomes related to this procedure, and describe the audiological outcomes after completing this procedure.

OBJECTIVES: The purpose of this paper is to define and describe the surgical and audiological outcomes of the modified Bondy tympanoplasty with mastoidectomy. **STUDY DESIGN:** The study used a retrospective chart review to identify the positive and negative outcomes associated with this procedure used to address the medical issues associated with cholesteatoma in the mastoid cavity, antrum, and the attic lateral to the head of the malleus. **METHODS:** A total of 23 patients met the subject selection criteria. Of these patients, a total of 24 procedures were performed (only one patient received this treatment for both ears). The retrospective case analysis provided the demographics and medical histories of the subjects. A review of the subjects medical records revealed the surgical outcomes. Pre- and post-surgical audiograms documented any changes in hearing sensitivity and/or auditory function. **RESULTS:** The pathological analysis revealed that 79% of the patients had granulation tissue in the middle ear and mastoid. After surgery, cholesteatoma was found in only two ears and required revision surgery. The majority (59%) of the patients had either closure of or significant improvement in their air-bone gaps. Only one patient experienced a significant deterioration of her hearing in the post-operative audiogram, although there was no indication of intraoperative problems during or immediately after surgery. **CONCLUSIONS:** The findings of this study is similar to the data presented in previous reports. The modified Bondy procedure has a low failure rate. When appropriate, the modified Bondy procedure can result in a successful means of controlling advanced chronic and improving hearing sensitivity.

6. **Airway Management After Maxillectomy: Routine Tracheostomy is Unnecessary**

Ho-Sheng Lin, MD, Detroit, MI
David S. Wang, BS, Stanford, CA
David J. Terris, MD*, Stanford, CA

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to have a better understanding of the indications for tracheostomy in patients undergoing maxillectomy.

OBJECTIVES: There is a paucity of data to guide the optimal management of the airway in patients after maxillectomy. The decision to perform a tracheostomy is often dictated by the surgeon's training as well as experience. We reviewed our experience with maxillectomy, with emphasis on postoperative airway issues. **STUDY DESIGN:** Retrospective analysis at a university hospital. **METHODS:** We identified 122 patients who underwent 131 maxillectomies between October 1990 and September 2001. Twenty-four of these were total (all 6 walls removed), 46 were subtotal (2 or more walls removed), and 61 were limited (only 1 wall removed). Reconstruction ranged from none to microvascular free flap, with split-thickness skin graft being the most common reconstructive option. **RESULTS:** Only 10 tracheostomies (7.6%) were performed at the time of maxillectomy. These included 6 tracheostomies in patients who underwent bulky flap reconstruction of a surgical defect, 1 in a patient with mucormycosis in anticipation of prolonged ventilatory support postoperatively and 3 at the surgeons' discretion due to concern for airway edema. Among the 121 maxillectomies without concomitant tracheostomy, 1 patient (0.8%), a 74 year-old male with oxygen-dependent COPD, required re-intubation on day 3 and again on day 10 after the surgery due to respiratory failure; fiberoptic examination confirmed the absence of upper airway compromise. **CONCLUSIONS:** The routine performance of tracheostomy in patients undergoing maxillectomy is unnecessary. The indications for tracheostomy include the use of a bulky flap for reconstruction, anticipation of prolonged postoperative ventilator support (especially in patients with severe COPD), and concern for postoperative airway edema.

7. **Primary Chordoma of Lateral Nasal Wall: A Case Report and Review**

Alastair G. Lynn-Macrae, MD, Chicago, IL
G. Kenneth Haines III, MD, Chicago, IL
Kenneth W. Altman, MD PhD, Chicago, IL

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to explain the etiology, diagnosis, treatment and prognosis of primary chordomas of the paranasal sinuses and nasal cavity.

OBJECTIVES: To report a case of a primary chordoma of the lateral nasal wall. To summarize the existing literature on primary chordomas of the paranasal sinuses and nasal cavities concerning etiology, diagnosis, treatment, natural history and prognosis. **STUDY DESIGN:** Case report and review. **METHODS:** A case report and review of the medical literature. We report a case of a primary chordoma of the lateral nasal wall. Pathological diagnosis was obtained using an intranasal endoscopic biopsy. As with our patient, a primary chordoma of the nasal cavity or paranasal sinuses may present with symptoms related to mechanical obstruction secondary to the tumor mass. **RESULTS:** Primary chordomas of the paranasal sinuses and nasal vaults were rarely reported in the literature. The few case reports that exist agree with our description of presenting symptoms, treatment and relatively good prognosis. **CONCLUSIONS:** Chordomas are malignant, non-epithelial neoplasms derived from notochordal tissue. A primary chordoma of the nasal cavities and paranasal sinuses is extremely rare in contrast to clival chordomas that often present as nasal masses after spreading anteriorly. Only a handful of cases of primary chordoma of the nasal cavities and paranasal sinuses have been reported in the literature.

8. **Quality of Life Assessment in Non-Melanoma Cervicofacial Skin Cancer**

John S. Rhee, MD, Milwaukee, WI
Timothy L. Smith, MD*, Milwaukee, WI
Mary L. Burzynski, RN, Milwaukee, WI
Marcy M. Neuburg, MD, Milwaukee, WI
Fausto L. Loberiza, MD, Milwaukee, WI
Barbara A. Matthews, PhD, Milwaukee, WI

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to understand the quality of life issues pertinent to skin cancer patients. Compare the utility of general v. disease-specific instruments.

OBJECTIVES: Quality of life (QOL) assessment of patients with non-melanoma skin cancer (NMSC) is poorly understood. The objectives of this study were

to determine the general QOL of patients with cervicofacial skin cancer, to identify baseline variables predictive of patients' QOL, to assess sun protective behaviors, and to assess the need for a disease-specific QOL instrument. **STUDY DESIGN:** This was a preliminary cross-sectional study of 121 consecutive patients (65 females, 56 males) presenting to a dermatologic Moh's surgery clinic with NMSC of the head and neck. **METHODS:** Quality of life assessment was performed prior to counseling or treatment and included The Medical Outcomes Study Short Form 36-item Health Survey (SF-36) and The Functional Assessment of Cancer Therapy-General (FACT-G). **RESULTS:** Both instruments demonstrated good internal consistency as measured by Cronbach's alpha, SF-36 (range 0.45-.91), FACT-G (range .61-.90). SF-36 scores were similar to normal external/historical norms. QOL correlated with patients' coexisting illnesses and medical risk factors. Skin protective behaviors, such as use of sunscreen and restriction of outdoor activities during peak sunlight hours were associated with better QOL. This relationship appears to be minimally influenced by patients' socio-demographic characteristics and disease-related variables (size, location, extent). **CONCLUSIONS:** Skin protective behaviors are associated with higher QOL in this population. General QOL instruments demonstrate minimal impact of NMSC on patients at initial diagnosis. However, general measures may not be sensitive to the impact of NMSC. The development of a more disease-specific instrument may be necessary to evaluate this disease process.

9. Dietary Antioxidant Intake in Early Stage Head and Neck Cancer Patients at Risk for Development of a Second Primary Cancer

David L. Steward, MD, Cincinnati, OH
Frida Wiener, BS, Cincinnati, OH
Grace Falciglia, PhD, Cincinnati, OH
Lyon L. Gleich, MD*, Cincinnati, OH

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to 1) discuss dietary antioxidant deficiencies in patients at risk for second primary cancer when compared with the general population and current recommendations, 2) explain the positive correlation between number of servings of fruits and vegetables and increased dietary intake of antioxidant nutrients, and 3) compare dietary sources of antioxidant nutrients to vitamin supplement sources.

OBJECTIVES: Analyze dietary antioxidant intake for patients at risk for development of second primary cancers. **STUDY DESIGN:** Prospective study. **METHODS:** 24 patients underwent three random 24 hour dietary recalls over a 15 day period within 6 to 60 months after successful treatment for stage I or II oral cavity squamous cell carcinoma. **RESULTS:** Our sample had a lower mean daily dietary intake of antioxidant vitamins A (Retinol Equivalent), C, and E (alpha-tocopherol) than age and sex matched historic control (p = NS, 0.01, and NS respectively). Mean number of daily servings of fruits and vegetables (F&V) was also less than control (p<0.01). A positive correlation was noted between servings of F&V and dietary intake of vitamins C, E, and total carotenoids (p=0.01). In comparison to daily recommended intake (DRI), 38%, 58%, and 96% of patients failed to meet at least 75% of the DRI for vitamins A, C, and E. Furthermore, 71% of patients failed to meet at least 75% of the recommended 5 daily servings of F&V. Vitamin supplement usage was 67% and when vitamin intakes were included in analysis over half of the patients exceeded 125% of the DRI for these vitamins. **CONCLUSIONS:** A significant percentage of these patients are deficient in dietary sources of antioxidant vitamins when compared with historic control and current recommendations. When vitamin supplements are included, many exceed recommendations. As the optimal mechanism for chemoprevention of second primary cancers remains unclear, physicians may consider recommending at least 5 daily servings of fruits and vegetables as an alternative to vitamin supplementation.

10. The Orbital Uncinate Process: Safe Endoscopic Management

Robert J. Tibesar, MD, Rochester, MN
Eric J. Moore, MD, Rochester, MN

EDUCATIONAL OBJECTIVE: At the conclusion of this presentation, the participants should be able to explain the variant anatomy of the orbital uncinat process. They should be able to identify the key radiologic and clinical features of this entity and discuss the precautions taken to prevent orbital complications during its endoscopic surgical management.

OBJECTIVES: The uncinat process of the ethmoid bone plays a critical role in the anatomy of the osteomeatal complex of the paranasal sinuses. It also serves as an important landmark for the endoscopic surgeon. Anatomic variations in the uncinat process can distort the osteomeatal complex and contribute to sinus disease. An uncinat process applied to the lamina papyracea is one such anomaly. This orbital uncinat process obstructs the maxillary sinus ostium and causes maxillary sinusitis. The clinical implications of this anatomic variant are relevant. Reported here are three patients with a unilateral orbital uncinat process. This study presents the unique anatomy, its radiologic identification, and a discussion of the orbital risks and treatment goals of this entity. **STUDY DESIGN:** Three patients with chronic unilateral maxillary sinusitis and ipsilateral orbital uncinat process managed with endoscopic sinus surgery were retrospectively reviewed. **METHODS:** Pre- and post-operative data, including computed tomography scans, office examination, and endoscopic surgical photography from these patients was evaluated. Additionally, anatomic illustrations of the orbital uncinat process are presented. **RESULTS:** Based on objective criteria of follow up office examination and CT scans, preliminary results indicate successful endoscopic management for our patients. No orbital complications occurred. Subjectively, all 3 patients experienced complete relief of their chronic maxillary sinusitis symptoms. **CONCLUSIONS:** As this study illustrates, the orbital uncinat process presents a unique challenge for the endoscopic sinus surgeon. Only through an appreciation of the anatomic details of the ostiomeatal complex can such entities be properly recognized, successfully treated, and complications avoided.