

AMERICAN RHINOLOGIC SOCIETY

2001 Fall Scientific Meeting

**Denver, Colorado
September 8, 2001
8:00 am - 5:30 pm
Plaza Ballroom D**

PRESENTATION SCHEDULE

8:00 am **Introduction**
Paul H. Toffel, MD, President Elect

Moderator: Paul H. Toffel, MD, Los Angeles, CA

8:05 am **“YAMIK” Sinus Catheter in the Topical Treatment of Acute Rhinosinusitis in Patients After Previous Sinus Surgery.**
Jan Gosepath, MD, Mainz, Germany
Vladimir Kozlov, MD, PhD, Mainz, Germany
Wolf Mann, MD, PhD, Mainz, Germany

8:13 am **Microbiology of Middle Meatus in Chronic Rhinosinusitis.**
Elizabeth Araujo, MD, Porto Alegre, Brazil
Alexandre Pereira, MD, Porto Alegre, Brazil
Vladimir Cantarelli, MD, Porto Alegre, Brazil
Afonso Mariante, MD, Port Alegre, Brazil

8:21 am **The Microbiology and Antibiotic Resistance Patterns in Chronic Rhinosinusitis.**
Todd T. Kingdom, MD, Atlanta, GA
Ron Swain, Jr., MD, Atlanta, GA

8:29 am **Epstein Barr Virus Mild Acquired Immune Deficiency Syndrome (EBV MAIDS) in Post-Surgical Sinusitis.**
Paul H. Toffel, MD, Los Angeles, CA
Joshua D. Christensen, Los Angeles, CA

8:37 am ***Discussant: Winston Vaughan, MD, Palo Alto, CA***

8:45 am **PANEL**
“Medical Management Strategies for Difficult Sinusitis”
Moderator: Winston Vaughan, MD, Palo Alto, CA
Panelists: Donald C. Lanza, MD, Cleveland, OH
Thomas A. Tami, MD, Cincinnati, OH
Eugenia M. Vining, MD, New Haven, CT

10:00 am **BREAK**

Moderator: Brent Senior, MD, Bloomfield, MI

10:20 am **A Prospective Trial Assessing the Risk of Bacterial Cross-Contamination Between a Venturi Principle Atomizer and a Hydraulic Principle Atomizer.**
Timothy R. Wolfe, MD, Salt Lake City, UT
Phillip Bossart, MD, Salt Lake City, UT
Todd Hillman, MD, Salt Lake City, UT

10:28 am **A Comparison of Swabs Versus Suction Traps for Endoscopically Guided Sinus Cultures.**
Amin R. Javer, MD, Vancouver, British Columbia
Yotis Tsaparas, MD, Vancouver, British Columbia

10:36 am **Sinus Mucosa Eosinophilia in Asthmatic Patients With Sinusitis.**
Pablo Arango, MD, Charlottesville, VA
Stilianos E. Kountakis, MD, Charlottesville, VA

10:44 am *Discussant: Charles W. Gross, MD, Charlottesville, VA*

Moderator: James A. Hadley, MD, Rochester, NY

10:52 am **Treatment of Patients with Recurrent Sinusitis Following Endoscopic Sinus Surgery.**
Michael Friedman, MD, Chicago, IL
Vijay Anand, MD, New York, NY
Raymond Schettino, MD, Roswell, GA
Hani Ibrahim, MD, Chicago, IL

11:00 am **A Diagnostic Paradigm for Chronic Sinusitis.**
James A. Stankiewicz, MD, Maywood, IL
James M. Chow, MD, Maywood, IL

11:08 am **Protein Synthesis on Epithelial Cells and Submucosal Glands in Nasal Septum or Rats Exposed to Long-Term Air Pollution.**
Joao F. del Mello, Jr., MD, Sao Paulo, Brazil
Olavo Mion, MD, Sao Paulo, Brazil
Paulo H. Saldiva, MD, Sao Paulo, Brazil
Aroldo Miniti, MD, Sao Paulo, Brazil

11:16 am **Paranasal Sinus Mucosal Regeneration: The Effect of Topical Vitamin A.**
Mendy Maccabee, MD, Portland, OR
Peter H. Hwang, MD, Portland, OR

11:24 am ***Discussant: Michael Benninger, MD, Detroit, MI***

11:32 am **ARS BUSINESS MEETING**

12:00-1:00pm **LUNCH**

Moderator: Joseph Jacobs, MD, New York, NY

1:00 pm **Comparison of Measurement Techniques of Nasal and Sinus Nitric Oxide and the Influence of Maxillary Sinus Ostia Size on the Nasal and Sinus Nitric Oxide.**
Peter John Wormald, MD, Woodville, Australia
Guy Rees, Woodville, Australia
Ravi Kirihene, MD, Woodville, Australia

1:08 pm **The Inferior Third of the Superior Turbinate Does Not Contain Significant Amounts of Olfactory Tissue in Sinus Surgery Patients.**
Phillip Say, MD, Omaha, NE
Donald Leopold, MD, Omaha, NE
Greg Cochran, MD, Omaha, NE
Tim Greiner, MD, Omaha, NE

1:16 pm **Nasal Polyposis in Cystic Fibrosis: Genotype-Phenotype Correlations.**
Maurizio Di Cicco, MD, Milan, Italy
Diana Costantini, MD, Milan, Italy
Ita Padoan, MD, Milan, Italy

1:24 pm **Endoscopic anatomy of the Sphenopalatine and Posterior Septal Arteries: Implications for the Endoscopic Management of Epistaxis.**
Thomas A. Tami, MD, Cincinnati, OH
Heather Schwartzbauer, MD, Cincinnati, OH
Mona Shete, MD, Cincinnati, OH

1:32 pm *Discussant: Howard L. Levine, Cleveland, OH*

1:40 pm **PANEL**

“Fungus or Not Fungus?”

Moderator: James Stankiewicz, MD, Maywood, IL

Panelists: Berrylin Ferguson, MD, Pittsburgh, PA

David Kennedy, MD, Philadelphia, PA

Fred Kuhn, MD, Savannah, GA

David A. Sherris, MD, Rochester, MN

2:50-3:15 pm **BREAK**

Moderator: Michael Sillers, MD, Birmingham, AL

3:15 pm **Endoscopic Transmaxillary Biopsy of Pterygomaxillary Space Masses.**

Andrew P. Lane, MD, Baltimore, MD

William E. Bolger, MD, Philadelphia, PA

3:23 **Outcomes of the Endoscopic Modified Lothrop Procedure.**

Stacey L. Schulze, MD, Milwaukee, WI

Todd A. Loehrl, MD, Milwaukee, WI

Robert J. Toohill, MD, Milwaukee, WI

Timothy L. Smith, MD, Milwaukee, WI

3:31 pm **Complications of Hydroxyapatite Use for the Repair of CSF Leaks and an External Auditory Canal Defect.**

James Stankiewicz, MD, Maywood, IL

Abhay Vaidya, MD, Tulsa, OK

James M. Chow, MD, Maywood, IL

Guy Petruzzelli, MD, Maywood, IL

3:39 pm **Endoscopic Hypophysectomy Using a Standard Sphenoidotomy Approach.**

David R. White, MD, Chapel Hill, NC

Matthew Ewend, MD, Chapel Hill, NC

Brent A. Senior, MD, Bloomfield, MI

3:47 pm **Transnasal Endoscopic Repair of Congenital Choanal Atresia: Long-Term Follow-Up and Evolution of Current Techniques.**

**C. David Crouse, II, MD, Charlottesville, VA
Scott D. London, MD, Charlottesville, VA
Russell Faust, MD, PhD, Charlottesville, VA
Charles W. Gross, MD, Charlottesville, VA**

3:55 pm *Discussant: Marvin P. Fried, MD, Bronx, NY*

Moderator: Robert Meyers, MD, Deerfield, IL

**4:03 pm The ABC's of Rhinophyma Management.
Fred J. Stucker, MD, Shreveport, LA
Timothy Lian, MD, Shreveport, LA**

**4:11 pm A Simplified Surgical Approach to the Nasal Valve: Technical
Review and Presentation of a Two-Year Series.
Shawn S. Nasser, MD, Beverly Hills, CA
Joseph H. Sugarman, MD, Beverly Hills, CA**

**4:19 pm Management of Severe Bilateral Nasal Wall Collapse.
Fred J. Stucker, MD, Shreveport, LA
Timothy Lian, MD, Shreveport, LA**

**4:27 pm Alar Batten Grafts for Treatment of Nasal Valve Collapse.
Daniel G. Becker, MD, Philadelphia, PA**

4:35 pm *Discussant: Steven C. Marks, MD, Bel Air, MD*

Moderator: William R. Panje, MD, Chicago, IL

**4:43 pm Tornwaldt's Cyst: Incidence and Treatment.
Charles W. Gross, MD, Charlottesville, VA
Grant M. Mussman, MD, Charlottesville, VA**

**4:51 pm Endoscopic Management of Lesions of the Sphenoid, Orbital
Apex, and Clivus.
Todd T. Kingdom, MD, Atlanta, GA
John M. DeGaudio, MD, Atlanta, GA**

- 4:59 pm The Use of Autologous Platelet-Gel as an Intranasal Dressing
in Functional Endoscopic Sinus Surgery.
Marc M. Kerner, MD, Northridge, CA**
- 5:07 pm Long-Term Outcome in Patients with Chronic Sinusitis
Following the Minimally Invasive Sinus Technique (MIST).
Peter J. Catalano, MD, Burlington, MA
Eric Roffman, BA, Burlington, MA**
- 5:15 pm *Discussant: Frederick A. Kuhn, M.D., Savannah, GA***
- 5:25 pm ADJOURNMENT**

ABSTRACTS

8:00 am **Introduction**
Paul H. Toffel, MD, President Elect

Moderator: Paul H. Toffel, MD, Los Angeles, CA

8:05 am **“YAMIK” Sinus Catheter in the Topical Treatment of Acute Rhinosinusitis in Patients After Previous Sinus Surgery.**
Jan Gosepath, MD, Mainz, Germany
Vladimir Kozlov, MD, PhD, Mainz, Germany
Wolf Mann, MD, PhD, Mainz, Germany

Abstract: BACKGROUND: The "YAMIK" sinus catheter was designed to introduce an efficient tool for the topical treatment of acute rhinosinusitis. "YAMIK" creates intermittent positive and negative intranasal pressure after two inflatable cuffs seal the ipsilateral nostril and choana. It is used either to evacuate mucous or discharge and/or to introduce antiseptic, antibacterial or antifungal solutions to all paranasal sinuses and the nasal cavity of one side at a time. DESIGN: This study was designed to evaluate the effectiveness of the "YAMIK" in cases of prolonged episodes of acute purulent rhinosinusitis in patients who previously underwent endonasal sinus surgery. 20 patients were treated at repeated visits to the outpatient clinic of our institution. At each visit, their clinical symptoms as well as findings on anterior rhinoscopy and nasal endoscopy were evaluated and "YAMIK"-treatment was performed. RESULTS: 17 of the 20 patients were treated successfully with acute disease complete!

ly resolved within 10 days of treatment. Two patients discontinued the treatment after they did not show significant improvement after one week. One patient felt uncomfortable during the application of the "YAMIK" and did not continue after the initial treatment. CONCLUSION: Our results suggest that the "YAMIK" catheter is an effective tool in the topical treatment of acute rhinosinusitis, especially in patients who suffer from prolonged onsets of purulent infection after previous sinus surgery.

8:13 am **Microbiology of Middle Meatus in Chronic Rhinosinusitis.**
Elizabeth Araujo, MD, Porto Alegre, Brazil
Alexandre Pereira, MD, Porto Alegre, Brazil

Vladimir Cantarelli, MD, Porto Alegre, Brazil
Afonso Mariante, MD, Port Alegre, Brazil

Abstract: Cultures of secretions from the middle meatus of 114 patients with chronic rhinosinusitis (CRS) collected during endoscopic examination were compared to those obtained in the homolateral maxillary aspirate. A group of 23 healthy volunteers was used as control. Gram smears, aerobic, anaerobic and fungal cultures and susceptibility tests were obtained.

In patients with CRS aerobic germs were isolated in 86% of samples, anaerobic in 8% and fungi in 14%. Out of a total of 158 microorganisms cultivated, *S. aureus* was present in 26% of samples, coagulase-negative *Staphylococcus* in 14% and *S. pneumoniae* in 12%. Gram-negatives constituted 26% of aerobic organisms. In 80% of the cases the same pathogen was isolated in both cultures.

Reduced sensitivity to penicillin was detected in 90% of coagulase-negative *Staphylococcus*, in 78% of *S. aureus* and in 11% of *Streptococcus pneumoniae*. 53% of the coagulase-negative and 16% of *S. aureus* were methicillin-resistant.

In healthy individuals the coagulase-negative *Staphylococcus* was isolated in 56%, *S. aureus* in 39% and *S. pneumoniae* in 9%. In 17% of individuals mycological exams were positive, but direct tests were negative in all.

Absence of leucocytes in Gram and the presence of coagulase-negative *Staphylococcus* were more frequent in CRS group ($p < 0.012$). In patients with CRS the coagulase-negative *Staphylococcus* showed lower sensitivity to oxacillin compared to healthy individuals.

Cultures obtained from the middle meatus under endoscopic viewing proved to be a easy and reliable method to identify microorganisms in CRS.

8:21 am The Microbiology and Antibiotic Resistance Patterns in Chronic Rhinosinusitis.
Todd T. Kingdom, MD, Atlanta, GA
Ron Swain, Jr., MD, Atlanta, GA

Abstract: Objectives: The purpose of this study was to review the microbiology of chronic rhinosinusitis in patients undergoing endoscopic sinus surgery (ESS) and comment on antimicrobial resistance trends.

Methods: A retrospective review of 101 patients undergoing ESS during the period of 1997-2001 was performed. Patients were divided into groups based upon their surgical history. Fifty-five patients without a prior ESS history were placed in the primary group; 46 patients who had undergone prior ESS were placed in the revision group. Intraoperative microbiology culture data was reviewed and antimicrobial resistance data analyzed.

Results: In the primary surgery group 163 isolates were identified; 101 isolates were identified in the revision surgery group. Overall, the most common isolates based on the percentage of total isolates obtained were coagulase-negative Staphylococcus (31%), gram-negative rods (19%), and Staphylococcus aureus (17%). Pseudomonas aeruginosa represented 8% of all isolates. When comparing the two patient groups, we found the revision group had a slightly higher incidence of both coagulase-negative Staphylococcus (36% vs. 28%) and Staphylococcus aureus (21% vs. 15%). No difference was noted in the prevalence of gram-negative rods or Pseudomonas aeruginosa between the two groups.

Antimicrobial resistance appeared to be greater in the revision surgery group for coagulase-negative Staphylococcus, Staphylococcus aureus, and Pseudomonas aeruginosa.

Conclusion: The most prevalent microorganisms in patients with chronic rhinosinusitis are coagulase-negative Staphylococcus, Staphylococcus aureus, and gram-negative rods. Perhaps more importantly, the antimicrobial sensitivities of these microorganisms appear to be a growing problem. These findings highlight the importance of culture-directed antibiotic therapy in treating chronic rhinosinusitis of bacterial etiology.

8:29 am

Epstein Barr Virus Mild Acquired Immune Deficiency Syndrome (EBVMAIDS) in Post-Surgical Sinusitis.

Paul H. Toffel, MD, Los Angeles, CA

Joshua D. Christensen, Los Angeles, CA

Abstract: Purpose: Functional endoscopic sinus surgery (FESS) has remarkably improved the treatment of chronic rhinosinusitis patients. Most experienced practitioners achieve reported success rates of 85-95% among their patients. However, 5-15% refractory patients reported by all

rhinologic surgeons leaves an exasperating and perplexing group who, despite appropriate mechanical corrections, continue to experience debilitating rhinosinusitis episodes requiring repeated oral and IV antibiotics, or in some cases, anti-fungal therapy. After years of observation, it was felt these difficult patients may suffer from a common thread of partial immuno-compromise. Drawing on military experience of treating immuno-immature populations prone to EBV infectious mononucleosis, and post mononucleosis syndrome, it was sought to screen disabled refractory patients for this factor, and treat them with long-standing military protocols for the immuno-immature populations dispatched to third-world combat conditions.

Methods: 42 post-surgical refractory sinusitis patients out of approximately 1600 FESS patients managed between 1993 and 2001 were found to have significant elevations of marker EBV antibody titers, and were treated with the military post-mononucleosis and prophylactic protocol of serum immune globulin I.M. injection therapy, after informed consent, and were then followed for reduction in frequency of sinusitis episodes and changes of quality-of-life visual analog scale derived from the Rhinosinusitis Outcome Measure (RSOM 31) outcomes tool. Results: 40 of 42 patients reported significant drops in recurrent rhinosinusitis rates and average improvement of 40% in quality-of-life scaling during this preliminary study. Conclusion: Diagnosis of EBV-MAIDS among refractory post-surgical sinusitis patients occurs at a significant rate, and treatment protocols based on long-standing military-style serum immune globulin prophylaxis have resulted in significant improvement!

in rate of infection and quality-of-life among this cadre ! of perplexing patients. This study can be expanded to multi-center trials, especially at institutions used to handling seriously immune patients as those with HIV-AIDS. It appears that immuno-compromise occurs over a spectrum, and detection of mild to moderately immuno-competent patients among the refractory post-surgical rhinosinusitis population can lead to successful treatment and improved quality of life.

8:37 am ***Discussant: Winston Vaughan, MD, Palo Alto, CA***

8:45 am **PANEL**

“Medical Management Strategies for Difficult Sinusitis”

Moderator: Winston Vaughan, MD, Palo Alto, CA

Panelists: Donald C. Lanza, MD, Cleveland, OH
Thomas A. Tami, MD, Cincinnati, OH
Eugenia M. Vining, MD, New Haven, CT

10:00 am BREAK

Moderator: Brent Senior, MD, Bloomfield, MI

10:20 am A Prospective Trial Assessing the Risk of Bacterial Cross-Contamination Between a Venturi Principle Atomizer and a Hydraulic Principle Atomizer.

Timothy R. Wolfe, MD, Salt Lake City, UT

Phillip Bossart, MD, Salt Lake City, UT

Todd Hillman, MD, Salt Lake City, UT

Abstract: Introduction: This study determined the incidence of internal contamination of Venturi principle atomizers and hydraulic principle atomizers exposed to *Staphylococcus aureus* (Staph).

Methods: A Staph suspension with a titer of $1 \times 10^7 \pm 0.5 \log_{10}$ CFU/ml was created. Nine test devices, one positive control and one negative control of each device were filled with sterile saline. Test device nozzles were immersed into the bacterial solution and 1 ml of spray was atomized via compressed wall air (Venturi) or hydraulic pump (hydraulic). The Venturi nozzle was wiped with 70% isopropyl alcohol while the disposable hydraulic nozzle was replaced. After 30 minutes, 1 ml of atomized fluid was collected, cultured and the process was repeated. After sixteen uses the fluid remaining in the bottles was cultured. Identical procedures were conducted for the positive controls, except the nozzles were never cleaned or replaced. Negative controls were never exposed to bacteria.

Results: See Table 1

Table 1:

Percentage of collected spray growing Staph (n=144)

Percentage of fluid reservoirs growing Staph (n=9)

Positive control Negative control

Venturi Atomizer 100% (144/144) 78% (7/9)

Spray = 100% (16/16) Reservoir = 100% (1/1)

Spray =0%(0/16)Reservoir = 0% (0/1)
Hydraulic atomizer 0%(0/144) 0%(0/9)
Spray =100%(16/16)
Reservoir = 0% (0/1)
Spray =0%(0/16)
Reservoir = 0% (0/1)
Fisher exact test P=0.002

Conclusions: Re-use of hydraulic atomizers does not result in contamination of the device if the disposable nozzle tip is replaced after each use. Venturi atomizers are contaminated after a single use and therefore must be sterilized after each use due to the unacceptable risk of cross-contaminating patients with pathologic microorganisms.

10:28 am A Comparison of Swabs Versus Suction Traps for Endoscopically Guided Sinus Cultures.
Amin R. Javer, MD, Vancouver, British Columbia
Yotis Tsaparas, MD, Vancouver, British Columbia

Abstract: Introduction: Knowledge of the causative organism(s) in rhinosinusitis has become the cornerstone of adequate medical and surgical management. Little uniformity and data exist for the best method of obtaining sinus cultures. Most Otolaryngologists tend to utilize the nasal swab for obtaining transnasal middle meatal cultures. A prospective study was carried out to compare the effectiveness of standard nasal swabs versus suction traps in obtaining bacterial isolates under endoscopic guidance.

Methods: Twenty-seven patients with purulence in the middle meatus or frontal recess were included in the study. All patients were cultured utilizing nasal wire swabs. Seventeen of these patients also had the purulence suctioned into a Xomed Sinus Secretion Collector(XSSC), and seven had the purulence suctioned into a standard Leukens trap. All specimens were sent to the hospital microbiology lab within one hour of capture.

Results: The average number of bacterial isolates cultured per patient was 1.25 for the swab versus 1.23 for the XSSC and 1.86 for the Leukens trap. However, if coagulase negative Staphylococcus, considered a contaminant, was not included in the study, then the respective numbers were 0.5 for the wire swab, 0.76 for the XSSC and 1.14 for the Leukens trap. The

wire swab only captured pathogenic bacteria 40% of the time while the XSSC and Leukens trap captured pathogenic bacteria 62% and 61% of the time respectively.

Conclusion: The wire swab, having a high nasal flora contamination rate, is not as efficacious in obtaining endoscopically guided cultures, as is the suction trap.

10:36 am Sinus Mucosa Eosinophilia in Asthmatic Patients With Sinusitis.

Pablo Arango, MD, Charlottesville, VA

Stilianos E. Kountakis, MD, Charlottesville, VA

Abstract: Background: Chronic hyperplastic sinusitis / nasal polyposis (CHS/NP) is a disease characterized by the unregulated proliferation of eosinophils, Th2-like lymphocytes, goblet cells, fibroblasts, and mast cells. CHS is present in most subjects with asthma and approximately 50% of CHS subjects have asthma. The frequent co-expression of these disorders and their similar pathophysiology suggests that these are similar disorders affecting the upper and lower airway, respectively.

Objectives: Our study was designed to examine the incidence of asthma in patients with chronic hyperplastic sinusitis

Methods: 28 patients with chronic sinusitis were evaluated for the presence of asthma. Nasal polyp tissue was evaluated from these individuals undergoing elective polypectomy.

Tissue was analyzed for pathology with particular attention to presence of eosinophils. Patients with moderate to high levels of mucosal eosinophils were classified as having hyperplastic sinusitis. Those with few to no mucosal eosinophils were classified as having inflammatory sinusitis. The incidence of asthma in both groups was compared.

Results: There were 20 patients with hyperplastic sinusitis and 8 patients with inflammatory sinusitis. There were 7 patients with asthma in the cohort and all 7 were found to have moderate to high levels of eosinophils in the sinus mucosa ($p < 0.02$).

Discussion: The presence of asthma is strongly associated with increased levels of sinus mucosal eosinophils in patients with chronic sinusitis

10:44 am Discussant: Charles W. Gross, MD, Charlottesville, VA

Moderator: James A. Hadley, MD, Rochester, NY

**10:52 am Treatment of Patients with Recurrent Sinusitis Following Endoscopic Sinus Surgery.
Michael Friedman, MD, Chicago, IL
Vijay Anand, MD, New York, NY
Raymond Schettino, MD, Roswell, GA
Hani Ibrahim, MD, Chicago, IL**

Abstract: Objective: To evaluate the effectiveness of intravenous (IV) antibiotic therapy for a group of patients with persistent or recurrent sinusitis following endoscopic sinus surgery. All patients had failed treatment with surgery and oral antibiotics.

Design: A retrospective observational study.

Setting: Data collected from cooperating physicians.

Patient Selection: We reviewed the charts of 194 patients who received IV antibiotic therapy between 1997 and 2000 from their local physician in coordination with SinuCare, an Internet disease-management company. Patients who had failed previous endoscopic surgery, continued to have symptoms of sinusitis after a minimum postoperative treatment period of 4 months with oral antibiotic therapy, and had a minimum 6-month follow up after IV treatment were selected for the study. Seventy-two patients satisfied these criteria.

Outcome Measures: Patient monitoring included a description of baseline demographic and clinical status and longitudinal patient-based assessment of five rhinosinusitis-related symptoms during and after IV treatment.

Results: Results were computed based on subjective patient complaints. The average duration of IV antibiotic therapy was 66 days (range 42-154 days). When therapy was completed, 60 (83.3%) patients had clinically meaningful improvement in symptoms. The number dropped to 45 patients (64.3%) at the end of 6 months.

Conclusion: Preliminary results of this retrospective review provide limited conclusions. The study does show that some patients with persistent sinusitis after ESS will benefit from IV antibiotic therapy. More detailed studies are needed to identify those patients who are likely to benefit.

11:00 am A Diagnostic Paradigm for Chronic Sinusitis.

James A. Stankiewicz, MD, Maywood, IL

James M. Chow, MD, Maywood, IL

Abstract: The current method of diagnosing chronic rhinosinusitis is based on history and physical exam (including endoscopic examination). Patients diagnosed in this manner are then placed on antibiotic therapy for one month and a CT scan performed if symptoms persist after treatment. No study has looked scientifically at identifying cost-effective accurate diagnosis. This prospective study of 78 patients meeting the definition for chronic sinusitis will show what is the most accurate, cost-effective way of diagnosing chronic rhinosinusitis.

Purpose: To determine the best method for the diagnosis of chronic sinusitis.

Methods: Prospective chart review of 78 patients with symptoms of chronic rhinosinusitis, physical examination including endoscopy, and pre-treatment CT scans.

Results: The results indicate that a screening CT scan is the most efficient objective way of diagnosing chronic sinusitis prior to treatment. The full paper will compare and contrast history, physical exam, endoscopy and CT scan as they relate to diagnosis to create a diagnostic paradigm.

Conclusion: The most efficient cost-effective accurate way of diagnosing chronic rhinosinusitis is to be delineated and CT scanning plays a prominent role.

11:08 am Protein Synthesis on Epithelial Cells and Submucosal Glands in Nasal Septum of Rats Exposed to Long-Term Air Pollution.

Joao F. del Mello, Jr., MD, Sao Paulo, Brazil

Olavo Mion, MD, Sao Paulo, Brazil

Paulo H. Saldiva, MD, Sao Paulo, Brazil

Aroldo Miniti, MD, Sao Paulo, Brazil

Abstract: Introduction: Air pollution may cause acute and chronic adverse health effects. Even when their levels are below the legal limits, their constituents may interact with each other, generating new complexes that are more aggressive. Nasal cavities are susceptible to air pollutants.

Methods: To verify the effects of air pollution on nasal mucosa, 8 rats (Group I) were kept for 6 months in a petrochemical

center at Cubatpo, Spó Paulo, Brazil, where air pollution is high, mostly due to particulate matter, although it did not exceed legal limits. The control group (Group II) was kept, for the same period, in Ubatuba, where air pollution was assumed nil. To detect damage to the mucosa, we used AgNOR (a silver staining technique), which measures protein synthesis activity. AgNOR area in the cellular nucleus increases when synthesizing proteins. We evaluated AgNOR expressed in submucosal glands and epithelial cells in the nasal septum of both groups, and also measured the height of the epithelium layer.

Results: The AgNOR areas were smaller in the epithelial cells than in the submucosal glands, regardless of which city the rats stayed. Furthermore, in Group I the epithelium and submucosal glands areas were smaller than in Group II. The epithelium layer was narrower in animals from Group I, although we could not establish a correlation between this and AgNOR area.

Conclusions: The exposure to air pollution for 6 months generated an atrophy on the nasal septum mucosa of rats. AgNOR was an efficient biologic marker of these effects.

11:16 am Paranasal Sinus Mucosal Regeneration: The Effect of Topical Vitamin A.

**Mendy Maccabee, MD, Portland, OR
Peter H. Hwang, MD, Portland, OR**

Abstract: Introduction: Paranasal sinus mucosa may suffer morphologic and functional alterations as a result of surgical trauma. Mucosal stripping typically yields regenerated mucosa characterized by fibrosis, inflammatory infiltrate, and dysmorphic or absent cilia. Topically applied vitamin A has been shown to aid in regeneration of ciliated tracheal epithelium. The aim of this study is to determine the effect of vitamin A gel on regeneration of paranasal sinus mucosa.

Methods: Both maxillary sinuses of twelve New Zealand white rabbits were surgically opened and stripped of mucosa. Six rabbits received 0.01% topical vitamin A gel treatment to the stripped left maxillary sinus (low concentration group). The remaining six received 0.025% topical vitamin A gel to the stripped left maxillary sinus (high concentration group). The stripped right maxillary sinus of all twelve rabbits served as the 'operated, untreated' control. Additionally, there were

twelve right maxillary sinuses that were surgically opened but unaltered which served as the 'normal' control group.
Results: Topical vitamin A treatment of stripped paranasal sinus mucosa appeared to result in more normal mucosal and ciliary regeneration marked by less cellular atypia and fibrosis. Additionally, the degree of ciliary loss and morphologic derangement was reduced. Although the regenerated mucosa was still grossly abnormal the degree of cellular and ciliary abnormality was markedly diminished. Between the two treatment groups, the lower concentration vitamin A group had more favorable morphology than the higher concentration vitamin A group. However, the higher concentration group was improved when compared to no treatment.
Conclusions: In a rabbit model, topical vitamin A gel appears to enhance regeneration of more normal ciliated paranasal sinus mucosa. More investigation needs to be done in order to determine the clinical significance for human subjects.

11:24 am *Discussant: Michael Benninger, MD, Detroit, MI*

11:32 am ARS BUSINESS MEETING

12:00-1:00pm LUNCH

Moderator: Joseph Jacobs, MD, New York, NY

**1:00 pm Comparison of Measurement Techniques of Nasal and Sinus Nitric Oxide and the Influence of Maxillary Sinus Ostia Size on the Nasal and Sinus Nitric Oxide.
Peter John Wormald, MD, Woodville, Australia
Guy Rees, Woodville, Australia
Ravi Kirihene, MD, Woodville, Australia**

Abstract: The aim of this study was to determine the affect of the size of the maxillary antrostomy on maxillary sinus NO levels. Fifty-five patients who had previously undergone bilateral endoscopic sinus surgery were included in the study. In 29 patients the maxillary ostium could be cannulated. Suction was placed through the maxillary ostium into the

maxillary sinus and measurements performed during mouth breathing and breath holding. The maxillary sinus ostia size varied from 4 mm² to 200 mm² with 67% of the sample having an ostia size less than 20 mm². Readings were taken at sinus peaks and plateaus. The average NO levels measured in the group with small ostia [less than 20mm²] were sinus initial peak level of 3383ppb and sinus breath holding plateau of 2017ppb. The nasal breath holding plateau was 1869ppb. In the group with the larger ostia [size 20 mm² - 200 mm²] lower values were noted (sinus initial peak level of 1627ppb and sinus breath holding plateau of 1343ppb). The nasal ! breath holding plateau was 1300ppb. Maxillary sinuses with small ostia < 20 mm² had a statistically significant higher level NO than those with large ostia (p<0.05) on both peak levels and breath holding plateaus. The relative ratios between maxillary sinus peak level and nasal breath holding level showed that maxillary sinuses with small ostia had significantly higher ratios than the sinuses with large ostia (p<0.05). The maxillary antrostomy size significantly affected the level of sinus NO.

1:08 pm

of Olfactory Tissue in Sinus Surgery Patients.

Phillip Say, MD, Omaha, NE

Donald Leopold, MD, Omaha, NE

Greg Cochran, MD, Omaha, NE

Tim Greiner, MD, Omaha, NE

Abstract: Introduction: One approach to the sphenoid sinus involves resection of the inferior portion of the superior turbinate. Textbook drawings of this area show it to be covered with olfactory mucosa. This study will determine if olfactory tissue can be found in the superior turbinate mucosa and what effect its removal has on the patient's olfactory ability.

Methods: The inferior one-third of the superior turbinate removed during endoscopic sphenoidotomy, was stained with olfactory marker protein (OMP) antibody, a marker for mature olfactory tissue. The specimens were graded for content of olfactory epithelium and subepithelial neuronal elements. All patients underwent uni-nasal 12-item smell identification testing before surgery and at least 3 weeks after surgery.

Results: Forty-one superior turbinate samples were taken from 24 patients. Twelve percent of the samples contain

olfactory epithelium and 7% contain subepithelial olfactory nerve tissue. When comparing the pre and postoperative smell test results, 56% of the nostrils have no more than a 1 item change, 36% of the nostrils have a >1 item improvement, and only 8% have a >1 item loss. There was no significant correlation ($p=0.90$) between the presence of olfactory epithelium or subepithelial nerve tissue in the superior turbinate samples and a decrease in smell score.

Conclusions: Olfactory tissue is sparse in the mucosa of the inferior portion of the superior turbinate in patients having sinus surgery. In general, there is not a significant decrease in olfactory ability associated with removal of this mucosa during endoscopic sphenoidotomy.

1:16 pm

Nasal Polyposis in Cystic Fibrosis: Genotype-Phenotype Correlations.

Maurizio Di Cicco, MD, Milan, Italy

Diana Costantini, MD, Milan, Italy

Ita Padoan, MD, Milan, Italy

Abstract: Cystic Fibrosis (CF) is an autosomal recessive genetic disorder causes dysfunction of exocrine glands and has several ENT clinical manifestations. Cf phenotype is characterized by complex multi organ involvement including paaranasal sinuses disease. Genotype-phenotype correlations have been extensively studied for pancreatic function and lung disease, but few data are available for the sinonasal manifestation of CF reported for up 67% of patients.

Aim of the present study was to investigate whether patients suffering from nasal polyposis (NP) exhibit significantly distinct mutations in the CFTR gene respect the whole CF population followed at the Milan CF Center. The molecular analysis of CFTR gene using PCR/OLA assay for up to 31 different mutations was performed in 79 CF patients. The studied populationn (49 M/30 F; age ranging between 3 and 39.5) underwent medical (51.9%) or surgical (48.1%) therapy for the treatment of NP.

Results:10 different CFTR mutations account for 117/158 (74%) of chromosomes:delF508 (51.2%); 1717-1G->A (11.7%);N1303K (4.4%);G542X(3.8%);3849+10kbC->T (1.9%);R1162X and W1282X (1.2%) and R553X, G85E,

S549N, R334W, 2183-AA->G (0.6%each). 41/158 alleles (26%) are still unknown.

No difference was noted comparing to the general population, except for the 1717-1G->A allele (7% in NP population vs 3.3%, $p=0.02$) and at a less extent for G542X (3.8% vs 5.4% in the whole population). Genotypes identified were homozygosity delF508 in 24% of patients; compound heterozygosity (del F508/other or UN mutation) in 54%; 2 patients were homozygotes for R1162X.

Conclusion: Genotypes of NP patients are similar to those of general CF population, the only significant difference seen was in the higher frequency of 1717-1G->A CFTR mutation. Further studies are needed to clarify the presence of this mutation as a risk factor for developing NP, thus requiring preventive assessment and/or therapies since early childhood in patients at risk.

1:24 pm

Endoscopic anatomy of the Sphenopalatine and Posterior Septal Arteries: Implications for the Endoscopic Management of Epistaxis.

Thomas A. Tami, MD, Cincinnati, OH

Heather Schwartzbauer, MD, Cincinnati, OH

Mona Shete, MD, Cincinnati, OH

Abstract: Introduction:

Refractory posterior epistaxis is a challenge for otolaryngologists. Most algorithms for managing this condition ultimately call for interrupting the arterial blood supply to the nasal mucosa. Traditionally this was accomplished either by trans-antral arterial ligation or by arteriographic-guided embolization. More recently, the endonasal endoscopic approach has also been described. Although successful results have been achieved using this approach, surgical failures have also been reported. Since the primary blood supply to the posterior nasal cavity is derived from the terminal branches of the sphenopalatine and the posterior septal arteries, this anatomic study was performed to examine and describe the anatomical relationship of these two arteries as they exit the pterygopalatine fossa and enter the nasal cavity.

Methods/Results: We performed endoscopic dissections of this anatomic region in 9 fresh and 1 formalin preserved cadaver specimens. A total of 19 sides were examined. In

3/19 (16%) the posterior septal artery branched from the sphenopalatine artery within the sphenopalatine canal allowing the two arteries to exit together. In 8/19 (42%) the posterior septal artery exited much more posteriorly, yet from within a shared yet posteriorly elongated sphenopalatine foramen. In the remaining 8/19 (42%) the posterior septal artery exited through a distinct foramen directly posterior to the larger sphenopalatine foramen.

Conclusions: Understanding this anatomical relationship is important when performing endoscopic arterial ligation. If the posterior septal artery is not specifically identified and ligated, an important component of the posterior nasal circulation will not be adequately addressed by this surgical approach.

1:32 pm *Discussant: Howard L. Levine, Cleveland, OH*

1:40 pm **PANEL**

“Fungus or Not Fungus?”

Moderator: James Stankiewicz, MD, Maywood, IL

Panelists: Berrylin Ferguson, MD, Pittsburgh, PA

Fred Kuhn, MD, Savannah, GA

Jens Ponikau, MD, Rochester, MN

Manrin Raines, MD, Memphis, TN

David A. Sherris, MD, Rochester, MN

2:50-3:15 pm **BREAK**

Moderator: Michael Sillers, MD, Birmingham, AL

3:15 pm **Endoscopic Transmaxillary Biopsy of Pterygomaxillary Space Masses.**

Andrew P. Lane, MD, Baltimore, MD

William E. Bolger, MD, Philadelphia, PA

Abstract: Introduction: Although masses in the pterygomaxillary space are uncommon, they may present diagnostic challenges when they occur. A tissue biopsy is typically required for histopathologic analysis, but the relative inaccessibility of this region can make surgical biopsy difficult. In this study, we describe our initial experience of six cases in

which a transnasal endoscopic technique was used to biopsy masses of the pterygomaxillary space.

Methods: Six patients with radiographic evidence of a pterygomaxillary space mass were treated. The surgical approach involved an endoscopic uncinectomy and a wide maxillary antrostomy to provide exposure of the posterior maxillary sinus wall. Thereafter, the bone and underlying periosteum of the posterior maxillary wall were removed to expose the pterygomaxillary space. The mass in question was identified and biopsied.

Results: In each case, satisfactory surgical exposure of the mass was achieved and diagnostic biopsy was obtained. There were no adverse sequelae related to the procedure. Specifically, no significant bleeding occurred due to injury of the internal maxillary artery, and there were no cases of post-operative paresthesias related to the biopsy procedure.

Conclusions: The transnasal endoscopic approach to the pterygomaxillary space is a safe, minimally invasive technique that can be performed by otolaryngologists trained in endoscopic sinus surgery. This procedure allows adequate exposure of the pterygomaxillary space for biopsy while avoiding the morbidity of an open surgical approach. Our preliminary success warrants further use of this approach for accessing lesions of this difficult anatomic region.

3:23

Outcomes of the Endoscopic Modified Lothrop Procedure.

Stacey L. Schulze, MD, Milwaukee, WI

Todd A. Loehrl, MD, Milwaukee, WI

Robert J. Toohill, MD, Milwaukee, WI

Timothy L. Smith, MD, Milwaukee, WI

Abstract: Objective: The current literature contains reports that describe relatively short-term outcomes following the endoscopic modified Lothrop procedure. This study examines the long-term outcomes of the endoscopic modified Lothrop procedure for the management of the most severe forms of recalcitrant chronic frontal rhinosinusitis.

Methods: Thirteen consecutive cases of endoscopic modified Lothrop surgery from 4/96 through 12/99 were reviewed. Average follow-up period was 34.5 months (range 12-56 months). Patent communication to the frontal sinus was evaluated by postoperative endoscopic exam, and by CT when

indicated. Postoperative patient symptomatology, medication requirements, and quality of life were assessed during clinic evaluation and by standardized telephone questionnaire. Results: Patient ages ranged from 21 to 67 (mean 43 years). Six patients suffered from hyperplastic polyposis associated with aspirin intolerance and asthma (aspirin triad disease). All patients had a history of recalcitrant chronic frontal rhinosinusitis and all had undergone at least two (range two to five) previous surgeries. After mean follow-up of 34.5 months, a 77% patency rate was obtained, with 2 of the 13 patients requiring osteoplastic flap (OPF) with obliteration. Telephone questionnaire results indicate improved symptoms, decreased medication requirements, and improved quality of life in the majority of patients who maintained patency. There was no significant difference in treatment response of patients with aspirin intolerance.

Conclusion: Longer-term follow-up demonstrates that the endoscopic modified Lothrop procedure provides a good alternative to OPF with adipose obliteration for patients with the most severe forms of chronic frontal rhinosinusitis. Initially high patency rates decline with longer-term follow-up, and severe forms of chronic rhinosinusitis continue to significantly impact patient-perceived quality of life in some patients. The endoscopic modified Lothrop procedure should be reserved for patients who have failed more conservative endoscopic approaches to the frontal recess.

**3:31 pm Complications of Hydroxyapatite Use for the Repair of CSF Leaks and an External Auditory Canal Defect.
James Stankiewicz, MD, Maywood, IL
Abhay Vaidya, MD, Tulsa, OK
James M. Chow, MD, Maywood, IL
Guy Petruzzelli, MD, Maywood, IL**

Abstract:

Hydroxyapatite cement was first introduced in the 1980's as a new method for bone replacement. Since that time its popularity is increasing as a bioimplant. Hydroxyapatite is not recommended for use where air exposure is possible. However, many surgeons are, indeed, employing hydroxyapatite to close nasal/sinus CSF leaks or in the treatment of encephalocele. This paper retrospectively documents five

patients where hydroxyapatite was used in an exposed fashion; four patients with closure of ethmoid and sphenoid sinus CSF leaks. The paper demonstrates that exposed hydroxyapatite can be extremely problematic resulting in scarring, chronic granulation, infection, and prolonged healing. Oftentimes, revision surgery is necessary to help control the reaction to hydroxyapatite. Guidelines for use of hydroxyapatite for the treatment of CSF rhinorrhea/encephalocele, skull base defects are outlined and discussed.

3:39 pm

Endoscopic Hypophysectomy Using a Standard Sphenoidotomy Approach.

David R. White, MD, Chapel Hill, NC

Matthew Ewend, MD, Chapel Hill, NC

Brent A. Senior, MD, Bloomfield, MI

Abstract: Introduction: Transsphenoidal hypophysectomy is an evolving procedure which is becoming progressively less invasive. Recent endoscopic techniques have greatly improved upon transseptal approaches, but may require "relaxing" alar incisions or nasal speculums which compromise nasal anatomy. Endoscopic sphenoidotomies provide excellent access to the sella turcica without the use of speculums or incisions. We review our series of thirty patients undergoing endoscopic hypophysectomy via standard bilateral sphenoidotomies.

Methods: All patients (n=30) who underwent endoscopic hypophysectomy via standard sphenoidotomy were included in the study. Twenty-three patients had pituitary adenomas, six had Rathke's cleft cysts, and one had a pilocytic astrocytoma. Bilateral endoscopic sphenoidotomies and removal of the intersinus septum was performed followed by endoscopic hypophysectomy using straight and angled endoscopes to allow maximum tumor resection. The sella was packed with microfibrillar collagen or abdominal fat depending on the size of the defect.

Results: No deaths, intracranial complications (infarct, intracranial bleed), postoperative hemorrhages, or cranial nerve injuries were encountered. Three intraoperative and three postoperative cerebrospinal fluid (CSF) leaks were encountered, requiring lumbar drain placement for an average 4.33 days. Intraoperative CSF leaks were repaired endoscopically using abdominal fat grafts. No CSF leaks

recurred. Six patients developed transient diabetes insipidus; all resolved spontaneously. One patient developed postoperative meningitis requiring a prolonged hospital stay. Average length of stay was 4.27 days. No intranasal were encountered.

Conclusions: Standard endoscopic sphenoidotomy provides excellent access for transsphenoidal hypophysectomy. Endoscopic hypophysectomy allows aggressive resection of tumor with side effects and length of stay similar to transseptal approaches.

3:47 pm **Transnasal Endoscopic Repair of Congenital Choanal Atresia: Long-Term Follow-Up and Evolution of Current Techniques.**
C. David Crouse, II, MD, Charlottesville, VA
Scott D. London, MD, Charlottesville, VA
Russell Faust, MD, PhD, Charlottesville, VA
Charles W. Gross, MD, Charlottesville, VA

Abstract: Objective: To evaluate long term success of endoscopic repair of choanal atresia and to discuss current techniques

Design: Retrospective review

Setting: Tertiary Care Center

Patients: Twenty-eight patients with either unilateral or bilateral choanal atresia were treated

Intervention: Senior author currently uses transnasal endoscopic drill-out technique. We describe our experience with twenty-eight patients with unilateral or bilateral choanal atresia treated with endoscopic transnasal repair over the past decade.

Main Outcome Measures: The long term patency of the surgical repair of the atretic plate by the endoscopic technique is reviewed. As well, current techniques for the endoscopic approach and advances are discussed. The type of stent currently used, selective omission of stenting, the use of new hemostatic materials and Mitomycin-C are discussed.

3:55 pm **Discussant: Marvin P. Fried, MD, Bronx, NY**

Moderator: Robert Meyers, MD, Deerfield, IL

4:03 pm

The ABC's of Rhinophyma Management.

Fred J. Stucker, MD, Shreveport, LA

Timothy Lian, MD, Shreveport, LA

Abstract: Rhinophyma is a benign, but often extremely disfiguring, tumor of the nose. The more gross the cosmetic deformity, the more likely and profound is the functional component. These pendulous tumors compress the internal airway and the pendulous tip can completely occlude the nostrils. We review the pathophysiology and present a historical summary of the techniques the senior author has made use of managing 151 patients with rhinophyma. We have employed and reviewed the techniques reported in the literature against the background of our experience. At that time we were using the CO2 laser for this pathology and had 10 years experience with this modality. Although, our patients did well with these other therapeutic modalities, all had noteworthy shortcomings. We utilize Tumescant local anesthesia, a Weck blade for excision and the ABCoagulator for hemostasis, thus TWA. Currently we strongly recommend the TWA technique for management of all cases of rhinophyma because of it!

s expediency and excellent results. Our series since 1991 includes 63 cases, none of which has taken longer than 8 minutes after the completion of tumescent anesthesia. This technique is safe, simple to learn, yields excellent results and has less morbidity than other modalities. The patient has a dry physiologic dressing at the completion of the operation. A dressing of ointment is all that is used postoperatively.

4:11 pm
Review

A Simplified Surgical Approach to the Nasal Valve: Technical

and Presentation of a Two-Year Series.

Shawn S. Nasser, MD, Beverly Hills, CA

Joseph H. Sugerman, MD, Beverly Hills, CA

Abstract: OBJECTIVES: The Nasal Valve is the primary source of anterior nasal airway resistance, with valve pathology significantly contributing to airway obstruction. Surgical procedures addressing valve pathology include septoplasty, spreader grafts and valve M-plasty. This series highlights a simple, endonasal method of supporting the nasal valve with cartilage grafts. In its simplicity, it precludes incising the nasal valve mucosa as well as avoiding incisions on the upper

lateral cartilage ù septal cartilage unit. Patients can easily be evaluated as candidates for incorporating this simple òdoorstopö procedure either as part of OR independent of their nasal septal reconstruction, by using a variety of non-surgical nasal valve devices preoperatively.

DESIGN: Development of an extremely simple yet effective surgical technique based on nasal valve physiology, as well as a retrospective review of patients of a 2 year period who have undergone the valve òdoorstopö procedure in concert with septal reconstruction. Patients were followed for a minimum of 3 months postoperatively (mean 13.0 months), and the clinical indicators measured included examination of the nasal airway as well as the subjective comparison pre- and post-operatively of nasal breathing.

RESULTS: In the group of 42 patients, significant differences were demonstrated in the pre- and post-operative subjective scoring for nasal airway obstruction (3.36 pre- and 7.96 post-op with $p < 0.001$). The procedure was undertaken in most cases in less than 15 minutes, using septal cartilage grafts.

CONCLUSIONS: This study presents a new, simplified technique for addressing nasal valve collapse, which has been successfully undertaken during the last three years. This procedure provides a faster, simpler, and less involved method than the established techniques of valve M-plasty and ethmoid bone spreader grafts.

4:19 pm

Management of Severe Bilateral Nasal Wall Collapse.

Fred J. Stucker, MD, Shreveport, LA

Timothy Lian, MD, Shreveport, LA

Abstract: Complete bilateral valve collapse can result from a perfectly acceptable rhinoplasty procedure. It is more likely to occur when certain predisposing anatomical findings exist.

These include patients with very large dorsal hump removals, those with a so-called tension nose and in individuals with an inordinate cartilage to bone ratio of the nasal vault. Multiple procedures and over-resection are also major predisposing factors, especially as the patient ages.

We present our experiences with 83 rhinoplasty patients who had severe bilateral nasal wall collapse. We surgically managed all these patients with a large conchal bowl onlay

grafts. The popular spreader graft, which is often recommended for this type of correction, has a significant long-term failure rate. The technical features are outlined, as are causes and preventative recommendations.

**4:27 pm Alar Batten Grafts for Treatment of Nasal Valve Collapse.
Daniel G. Becker, MD, Philadelphia, PA**

Abstract: Nasal valve collapse and nasal vestibular stenosis are common causes of nasal obstruction. However, their diagnosis is often overlooked. In this report, the author reviews his operative series of patients requiring surgery for nasal valve collapse and nasal vestibular stenosis. Preoperative, intraoperative, and postoperative photographs illustrate the application of alar batten grafts in the treatment of this problem. Technical aspects are described in detail. Alar batten grafts represent a reliable and minimally invasive approach to nasal valve collapse and nasal vestibular stenosis.

4:35 pm *Discussant: Steven C. Marks, MD, Bel Air, MD*

Moderator: William R. Panje, MD, Chicago, IL

**4:43 pm Tornwaldt's Cyst: Incidence and Treatment.
Charles W. Gross, MD, Charlottesville, VA
Grant M. Mussman, MD, Charlottesville, VA**

Abstract: Tornwaldt's cyst is a rare entity which may cause clinically significant symptoms. We report a case of Tornwaldt's cyst that was managed with endoscopic marsupialization, bringing symptomatic relief, and review our clinical experience with incidentally observed Tornwaldt's cyst at the University of Virginia. We reviewed 21,158 MRIs and 31,855 CTs performed between 1994 and 1999 for incidental finding of Tornwaldt's cyst. The average size of cysts identified by CT scan was 0.66 cm³, and 0.58 cm³ for MRI. Tornwaldt's cyst was identified in 0.12% of our MRIs and 0.013% of our CT scans. Patient ages were distributed between 21 and 80, with a mean age of 46.7 years. Twenty female and twelve male patients were identified. The most common symptoms suffered by these patients were headache, seizures,

and dizziness. Although Tornwaldt's cyst is usually an incidental finding, this clinical diagnosis must be kept in mind, as endoscopic management can result in dramatic symptomatic relief in selected patients.

4:51 pm Endoscopic Management of Lesions of the Sphenoid, Orbital Apex, and Clivus.

Todd T. Kingdom, MD, Atlanta, GA

John M. DelGaudio, MD, Atlanta, GA

Abstract: Objective: The expanding role of endoscopic management of sinonasal disorders includes approaches to the central skull base. In this report we review our experience managing unique lesions of the sphenoid sinus, orbital apex, and clivus via a transnasal endoscopic technique.

Methods: A retrospective, case series review of 11 patients presenting with skull base lesions managed via an endoscopic approach. Emphasis was placed on analyzing the pre-operative planning strategy and the surgical technique.

Results: We reviewed the medical records of 11 patients who underwent an endoscopic approach to the sphenoid sinus, orbital apex, or clivus. Seven patients presented with lesions of the sphenoid sinus and clivus. The lesions in this patient group included plasmacytoma of the clivus (2), metastasis to the cavernous sinus and clivus (2), and one patient each with fibrous dysplasia, cholesterol granuloma, and meningoencephalocele. Four patients presented with lesions of the orbital apex. These included invasive fungal sinusitis (2), mucocele (1), and pseudotumor (1). Image-guided surgical navigation was utilized in each case and all approaches consisted of entirely endoscopic transnasal techniques. The diagnosis was successfully established in each case.

Conclusions: Endoscopic approaches to the skull base are possible because of rapid advancements in technology now available to the rhinologic surgeon. This report highlights the pre-operative strategies and surgical techniques used in approaching lesions of the sphenoid sinus, orbital apex, and clivus. These extended techniques should provide a more direct, less invasive, and more cost effective method for diagnosing and managing select skull base lesions.

4:59 pm

**The Use of Autologous Platelet-Gel as an Intranasal Dressing in Functional Endoscopic Sinus Surgery.
Marc M. Kerner, MD, Northridge, CA**

Abstract: Objective: The purpose of this initial prospective study is to assess the efficacy of autologous platelet gel as a postoperative dressing in patients undergoing functional endoscopic sinus surgery for chronic sinusitis.

Design: The study consisted of a prospective, nonrandomized study in which patients were used as their own controls with platelet poor plasma.

Setting: A community referral otolaryngology practice of patients undergoing medical and surgical therapy for sinusitis.

Patients: Twenty-five consecutive patients undergoing endoscopic sinus surgery were enrolled in the study.

Intervention: The use of autologous platelet gel was delivered into the sinus cavities post-operatively.

Main Outcome Measures: Patients were examined weekly in the postoperative period for eight weeks, then at three months. Postoperative bleeding, time to onset of re-mucosalization, postoperative pain measurements, and synechiae formation were used as the main outcomes measures.

Results: There were no platelet gel-induced synechiae in any of the treated patients, and time to onset of re-mucosalization appears to be reduced by almost one-third compared to historical controls. Additionally, there were no cases of postoperative bleeding.

Conclusions: It appears in this initial phase study, platelet gel is a useful adjunct to endoscopic sinus surgery, as it may reduce postoperative bleeding complications, and accelerate mucosalization without inducing synechiae formation.

5:07 pm

**Long-Term Outcome in Patients with Chronic Sinusitis Following the Minimally Invasive Sinus Technique (MIST).
Peter J. Catalano, MD, Burlington, MA
Eric Roffman, BA, Burlington, MA**

Abstract: Introduction: Controversy persists regarding the use of minimally invasive sinus techniques (MIST) to treat chronic sinusitis primarily because of an absence of long-term outcome data.

Methods: In this prospective study of seventy-five patients with chronic sinusitis treated surgically with MIST, long-term postoperative outcome was assessed using the duration based Chronic Sinusitis Survey (CSS) quality of life instrument. Results: Patient age ranged from 4 to 81 years old (mean age: 45 +/- 16.8 years). 34 subjects were male and 41 were female. Mean follow-up time was 23.9 +/- 2.3 months. At follow up, there was 134.6% improvement in the mean CSS symptom score ($p < 0.00001$), 32.6% improvement in the mean CSS medication score ($p < 0.00001$), and 67.5% improvement in the mean CSS total score ($p < 0.00001$). An overall improvement was found in 77.3% of patients. 12.0% were worse, predominately due to a mean reduction in the CSS medication score of 29.2%, and 10.7% were unchanged. 22 patients (29.3%) had post-surgical CSS total scores that surpassed the mean normative CSS total score obtained in healthy controls. Prior to follow-up evaluation, 8 patients of the 75 (10.6%) had revision surgery following the initial procedure; 7 had revision MIST procedures, and one underwent revision with a different physician. Of these 8 patients, 7 were found to have an overall improvement upon follow up, and one remained unchanged.

Conclusion: We conclude that MIST significantly improves long-term quality of life outcome in patients with chronic sinusitis and should be considered highly as an initial surgical option for these patients.

5:15 pm ***Discussant: Frederick A. Kuhn, M.D., Savannah, GA***

5:25 pm **ADJOURNMENT**