Faculty Roster

Daniel W. Nuss, MD, FACS
George D. Lyons Professor and Chairman
Head and Neck Surgery & Skull Base Surgery

Lacey K. Adkins, MD
Assistant Professor
Laryngology & Care of the Professional Voice

Phillip G. Allen, MD
Clinical Associate Professor
Otolaryngology-Head and Neck Surgery

Moisés A. Arriaga, MD, MBA, FACS
Clinical Professor
Otology, Neurotology & Cranial Base Surgery

R. Graham Boyce, MD, FACS
Clinical Associate Professor
Facial Plastic and Reconstructive Surgery

Lauren Buck, MD
Clinical Assistant Professor
Pediatric Otolaryngology

Bradley J. Chastant, MD, FACS
Clinical Professor
Facial Plastics and Sinus Surgery

Michael D. DiLeo, MD
Clinical Associate Professor
Head and Neck Surgery-
Microvascular Reconstruction

Jill N. D'Souza, MD
Assistant Professor
Pediatric Otolaryngology

Michael E. Dunham, MD, FACS
Professor
Pediatric Otolaryngology

Celeste C. Gary, MD
Clinical Associate Professor
Facial Plastic and Reconstructive Surgery

Michael A. Hagmann, MD
Clinical Associate Professor
Pediatric Otolaryngology

Jennifer D. Hanby, MD
Assistant Professor
Otolaryngology-Head and Neck Surgery

Stephen C. Hernandez, MD
Assistant Professor and
Associate Program Director
Rhinology, Head and Neck Oncology &
Skull Base Surgery

Laura T. Hetzler, MD, FACS
Professor and Program Director
Vice Chair of the Department of Otolaryngology
Facial Plastic and Reconstructive Surgery

Sagar G. Kansara, MD
Assistant Professor
Head and Neck Surgery –
Microvascular Reconstruction

Melda Kunduk, PhD
Adjunct Professor
Speech Pathology

Belinda Mantle, MD
Assistant Professor
Pediatric Otolaryngology

Kevin E. McLaughlin, MD
Clinical Assistant Professor
Sinus Surgery & Sleep Medicine

J. Scott McMurray, MD, FAAP, FACS
Clinical Associate Professor
Pediatric Otolaryngology

Andrew J. McWhorter, MD
Professor and Vice Chair for Development
Laryngology & Care of the Professional Voice

Rahul Mehta, MD
Associate Professor
Otology, Neurotology & Rhinology

Katie L. Melder, MD
Assistant Professor
Rhinology & Skull Base Surgery

Lisa M. Morris, MD
Assistant Professor
Facial Plastic and Reconstructive Surgery
Craniofacial Surgery

Rula Mualla, MD
Assistant Professor
Head and Neck Surgery –
Microvascular Reconstruction

Terrence P. Murphy, MD, FACS
Associate Professor
Otology & Neurotology

Alyssa K. Ovaitt, MD
Assistant Professor
Facial Plastic & Reconstructive Surgery

Robert G. Peden, MD
Clinical Associate Professor
Otolaryngology-Head and Neck Surgery

Laura Pelaez, MD
Clinical Associate Professor
Otolaryngology-Head & Neck Surgery

Mark C. Petitjean, MD
Assistant Professor
Otolaryngology-Head and Neck Surgery

Justin M. Tenney, MD
Clinical Associate Professor
Otolaryngology-Head and Neck Surgery

Vilija J. Vaitaitis, MD
Assistant Professor
Head and Neck Surgery –
Microvascular Reconstruction

Rohan R. Walvekar, MD
Professor and Vice Chair for Head and
Neck Oncology Services
Head and Neck Surgical Oncology,
Robotic Surgery, Sialendoscopy &
Skull Base Surgery

Research Faculty

Carlos S. Busso, PhD
Research Associate

Hamilton E. Farris, PhD
Assistant Dean for Student Affairs and
Records
Associate Professor/Research

Takeshi Ikuma, PhD
Research Instructor

Jennifer J. Lentz, PhD
Professor/Research

LSU Health
NEW ORLEANS
School of Medicine
Department of Otolaryngology
Head and Neck Surgery

LSU Health
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School of Medicine
Department of Otolaryngology
Head and Neck Surgery

The Twenty-Seventh Annual
Resident Research and Alumni Day
Dedicated to Mervin L. Trail, MD

Invited Guest Lecturer:

Elizabeth H. Toh, MD, MBA

Clinical Professor, Boston University School of Medicine
Chair, Department of Otolaryngology-Head and Neck Surgery
Lahey Hospital & Medical Center

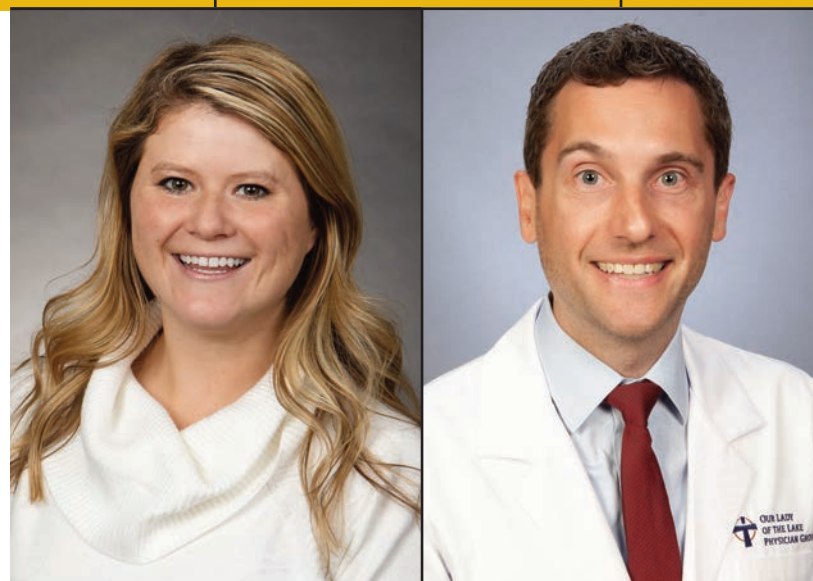June 21, 2024   New Orleans, Louisiana

CONGRATULATIONS

Kelsey R. Doguet, MD
Private Practice
Baton Rouge, Louisiana

Ashley R. Kraft, MD
Private Practice
Gulfport, Mississippi

Gregory P. Marks, MD
Head and Neck Oncologic and Reconstructive Surgery Fellowship
Birmingham, Alabama

Bailey R. Minehart, MD
Facial Plastic & Reconstructive Surgery Fellowship
San Antonio, Texas

Samuel R. Barber, MD
Barrow Neurological Institute
Phoenix, Arizona

2024 GRADUATES

Dear Alumni, Faculty, Residents and Friends of the Department:

It is with great pleasure that we welcome you to the 27th Annual LSU Department of Otolaryngology- Head and Neck Surgery **Resident Research and Alumni Day**, dedicated since 2003 to Mervin L. Trail, MD. This special event recognizes the scholarly activities of our residents, students, fellows and faculty, and acknowledges the contributions made by the alumni of our Department in support of the educational process.

This program booklet contains a summary of presentations of original research conducted by LSU Otolaryngology residents and fellow. Every year, each resident is required to conduct a scientific research project. Upon completion of the project, the resident is required to write a summary manuscript that is fit for submission to a peer-reviewed journal. We emphasize the principles of research that are important for clinical practice, including focus, strategy, planning, scientific reasoning, problem solving, critique, documentation and presentation skills. The research must conform to generally accepted standards of experimental design, data collection and analysis. The enclosed abstracts illustrate and add to the tradition of excellence that has been the hallmark of our Department for many years.

I thank the many people in our Department who make this event possible. We are grateful to Lacey Adkins, MD, our Director of Clinical Research, and Leslie Son, PhD, our Academic Research Coordinator. The Department's Faculty mentors, whose names are listed as co-authors with each individual abstract, deserve special recognition for providing guidance and mentorship to our residents in their research endeavors.

Finally, I would like to express our sincere thanks to the administrative staff in our Department, including Alison Kern, CPA, Andrelle Causey, MSHCM, Annette Barnes, RN, Elizabeth Yanes, MPH, Emilie Gauthier, MHA, and our Residency/Fellowship Coordinators, Missi Lightfoot, MPA and Therese DeMouy, MD, who have all been a tremendous help to our residents and fellow in this process.

We welcome and appreciate your participation in this event.

Sincerely,

Daniel W. Nuss, MD, FACS
George D. Lyons Professor and Chairman
Department of Otolaryngology
Head and Neck Surgery

Guest of Honor

Elizabeth H. Toh, MD, MBA
Clinical Professor, Department of Otolaryngology – Head & Neck Surgery
Boston University School of Medicine
Boston, Massachusetts

Previous Guests of Honor

1997	Austin I. King, MD, FACS	2012	Cherie-Ann O. Nathan, MD, FACS
1998	E. Gaylon McCollough, MD, FACS	2013	Guido V. DeJesus, MD
1999	Carl H. Snyderman, MD, FACS	2014	Eugene N. Myers, MD, FACS
2000	Moisés A. Arriaga, MD, FACS	2015	Richard W. Waguespack, MD
2001	Ricardo L. Carrau, MD, FACS	2016	Paul A. Levine, MD
2002	Dean M. Toriumi, MD, FACS	2017	Travis T. Tollefson, MD, MPH, FACS
2003	Charles W. Cummings, MD, FACS	2018	Harold C. Pillsbury, MD, FAC
2004	George D. Lyons, MD, FACS	2019	Gresham T. Richter, MD, FACS, FAAP
2005	Pierre N. Lavertu, MD	2020	Scott P. Stringer, MD, MS
2008	David W. Eisele, MD	2021	Mark S. Courey, MD
2009	Berrylin J. Ferguson, MD, FACS	2022	Scott P. Stringer, MD, MS
2010	James Y. Suen, MD	2023	James L. Netterville, MD
2011	Keith E. Blackwell, MD		

Alumnus/Alumna of the Year Recipients

1997	Ray J. Lousteau, MD	2011	Michael A. Hagmann, MD
1998	Joseph J. Creely, MD	2012	George D. Lyons, MD
1999	Louis G. Cucinotta, MD	2013	Robert G. Peden, MD
2000	Herbert W. Marks, MD	2014	Daniel W. Nuss, MD, FACS
2001	Douglas B. Webster, PhD	2015	Laura T. Hetzler, MD, FACS
2002	Charles I. Berlin, PhD	2016	Justin M. Tenney, MD
2003	R. Patrick Cecola, MD	2017	Kevin McLaughlin, MD
2004	Bradley J. Chastant, MD	2018	Anna M. Pou, MD
2005	Robin J. Barry, MD	2019	Jennifer Daigle-Hanby, MD
2006	Peter L. Rigby, MD	2020	Mary A. Fazekas-May, MD
2007	Jeffery J. Joseph, MD	2021	Andrew J. McWhorter, MD
2008	Michael D. DiLeo, MD	2022	Rohan R. Walvekar, MD
2009	Evelyn A. Kluka, MD	2023	Stephen C. Hernandez, MD
2010	R. Graham Boyce, MD, FACS		

Teacher of the Year Recipients

2007	Anna M. Pou, MD	2016	Bradley J. Chastant, MD
2008	James Garitty, MD	2017	Robert G. Peden, MD
2009	Robert G. Peden, MD	2018	Jennifer Daigle-Hanby, MD
2010	Justin M. Tenney, MD	2019	Michael E. Dunham, MD, FACS
2011	Jennifer Daigle, MD	2020	Rahul Mehta, MD
2012	Kevin E. McLaughlin, MD	2021	Lacey K. Adkins, MD
2013	Daniel W. Nuss, MD, FACS	2022	Andrew R. Fuson, MD
2014	Rohan R. Walvekar, MD	2023	Michael D. DiLeo, MD
2015	Phillip G. Allen, MD		

Previous Resident Research Award Winners

1997	Matthew K. Money, MD & Kathy L. Chauvin, MD	2011	Jacques E. Gaudet, MD
1998	Michael J. Hammett MD	2012	Jacques E. Gaudet, MD
1999	Chen Xie, MD	2013	Neal M. Jackson, MD
2000	P. Elise Scallan-Lalonde, MD	2014	Kevin Taheri, MD
2001	Matthew H. Steele, MD	2015	Evan Longfield, MD
2002	Darryl T. Mueller, MD	2016	Rachel A. Barry, MD
2003	Jason P. Hunt, MD	2017	Tyler W. Crosby, MD
2004	Robert E. Ostendorf, MD	2018	Tyler W. Crosby, MD
2005	Justin M. Tenney, MD	2019	Vilija Vaitaitis, MD
2007	Emily L. Burke, MD	2020	Tyler W. Crosby, MD
2008	Amy G. Rabalais, MD	2021	Tyler W. Crosby, MD
2009	Brad W. LeBert, MD	2022	Kody G. Bolk, MD
2010	Jacques E. Gaudet, MD	2023	J. Nicholas Poche, MD

Organizing Committee

Daniel W. Nuss, MD, FACS
George D. Lyons Professor and Chairman

Laura T. Hetzler, MD, FACS
Professor and Program Director
Vice Chair of the
Department of Otolaryngology

Stephen C. Hernandez, MD
Assistant Professor and
Associate Program Director

Lacey K. Adkins, MD
Assistant Professor and
Director of Clinical Research

Leslie S. Son, PhD
Academic Research Coordinator
Departments of Surgery and Otolaryngology
Our Lady of the Lake Regional Medical Center
Office of Research

Panel of Judges

Christopher Haas, MD
Assistant Professor
Dermatology

Jessica Rivera, MD, PhD
Clinical Associate Professor
Pediatric Orthopaedics

Elizabeth Toh, MD, MBA
Clinical Professor
Otology/Neurotology

Fern Tsien, PhD
Associate Professor
Genetics

Program

8:00	**Registration and Breakfast**
8:30 – 8:35	**Welcome: Richard DiCarlo, MD** **Interim Dean, LSUHSC School of Medicine**
8:35- 8:45	**Welcome and Opening Remarks** **Daniel W. Nuss, MD, FACS** **Laura T. Hetzler, MD, FACS**

Resident Presentations – Session I   Moderator: Michael E. Dunham, MD

8:45 - 8:53	*A Comparative Analysis of Ipsilateral and Contralateral Nasoseptal Flaps When Utilizing the Transpterygoid Corridor for Repair of Sphenoid Lateral Recess Defects* **Kelsey R. Doguet, MD**; Kody G. Bolk, MD; Stephen C. Hernandez, MD
8:55 - 9:03	*Temporal Bone Trauma: Audiologic and Facial Nerve Outcomes and Predictors of Follow Up* **Ashley R. Kraft, MD**; Anne K. Maxwell, MD; John C. Lemoine MD; Hayden Guidry, BS; Reed Smith, MS; Hannah DellaCroce, BSPH; Anna Rawls, BS; Sheeza Wajid, BS; Zhide Fang, PhD; Rahul Mehta, MD
9:05 - 9:13	*Utility of Narrated Video Endoscopy and Medical Education for Head and Neck Clinical Anatomy* **Gregory P. Marks, MD**; Caroline A. Bonaventure, MD; Jason C. Mussell, PhD; Stephen C. Hernandez, MD
9:15 - 9:23	*The Utility of Sentinel Lymph Node Biopsy in T1 Stage Melanoma* **Bailey R. Minehart, MD**; Elizabeth Helm, MS2; Zhide Fang, PhD; Rula Mualla, MD
9:25 - 9:33	*Audiologic Outcomes of Endoscopic Tympanoplasty: A Single Institution Review* **Adam J. Blancher, MD**; Charlotte Pearson; Anna Rawls; Ava Karam; Rahul Mehta, MD
9:35 - 9:43	*Determining the Safety of Laser Therapy to Treat Chronic Radiation Dermatitis and Aesthetic Changes in Head and Neck Cancer Patients* **Christine A. Matthews, MD**; Lisa M. Morris, MD; Alyssa K. Ovaitt, MD; Jennifer Womack, PA-C; Leslie S. Son, PhD; Laura T. Hetzler, MD
9:45 - 9:55	**Discussion**

Honored Guest Lecturer

9:55 - 10:40	*DEI in Neurotology: Reflections on a Journey in Leadership and Change Management in Medicine* **Elizabeth H. Toh, MD, MBA**
10:40 - 11:00	**Visit Our Exhibitors**

Resident Presentations – Session II   Moderator: Stephen C. Hernandez, MD

11:00 - 11:08	*Comparison of Surgical Field Visualization and Hospital Cost of Total Intravenous Anesthesia Compared to Inhalation Anesthesia with Tranexamic Acid* **Kurt C. Mueller, MD**; Jacob Hagen, BS; Michael E. Dunham, MD; Stephen C. Hernandez, MD
11:10 - 11:18	*Comparison of SPG Block vs Topical Anesthetic for Post-Operative Pain Control After Functional Endoscopic Sinus Surgery* **J. Logan Sobiesk, MD**; Kurt C. Mueller, MD; Neelam P. Phalke, MD; Leslie S. Son, PhD; Stephen C. Hernandez, MD
11:20 – 11:28	*Incidence of Laryngeal Lesions Associated with Electronic Cigarettes* **Colleen F. Cecola, MD**; Avni Shridhar, MS; Cassidy Nguyen, MS; Lacey K. Adkins, MD
11:30 - 11:38	*Auril-Fit: An Efficient, Low-Cost System for Creating External Ear Prostheses for Patients Undergoing Auriculectomy and Lateral Temporal Bone Resection* **Armand A. Jacques, MD**; Michael E. Dunham, MD; Aimee Galatas; Rahul Mehta, MD
11:40 - 11:48	*Laryngeal Mask Airway Versus Jet Ventilation for Surgical Management of Subglottic and Tracheal Stenosis* **I. Shradha Mamidi, MD**; Salena Sinnasone, BS; Samantha Jindia, BS; Lacey K. Adkins, MD
11:50 - 12:00	**Discussion**

Resident Presentations – Session III   Moderator: Lacey K. Adkins, MD

12:00 - 12:08	*Endoscopic Surgical Field Clarity Index: An Artificial Intelligence-Based Measure of Transnasal Endoscopic Surgical Field Quality* **J. Nicholas Poche, MD, MS**; Katie L. Melder, MD; Daniel W. Nuss, MD; Zhide Fang, PhD; Michael E. Dunham, MD, MS; Stephen C. Hernandez, MD
12:10 - 12:18	*Augmented Reality in Evaluation of Parotid Tumors for Surgical Planning* **Caroline A. Bonaventure, MD**; Madeline Burk; Rohan R. Walvekar, MD
12:20 - 12:28	*Development of Clinical Guidelines for Otologic Trauma in a Pediatric Patient Population* **Carley E. Boyce, MD**; Belinda Mantle, MD
12:30 - 12:38	*The Continuous Nasal Surgical Site Aspirator – A Device to Clear the Surgical Field During Sinus Surgery* **John C. Lemoine, MD;** J. Nicholas Poche, MD; Stephen C. Hernandez, MD; Michael E. Dunham, MD
12:40 - 12:48	*Surgical Approaches to Repair Tegmen Defects: A Systematic Review* **Katelyn N. Robillard MD, PhD**; Aimée Galatas; Rahul Mehta, MD
12:50 - 1:00	**Discussion**
1:00 - 2:00	**Lunch and Judges' Review of Papers** **Visit our Exhibitors**

Neurotology Fellow Presentation

2:00 - 2:10	*Neurotology Fellow Research Update* **Samuel R. Barber, MD**

Research Spotlight

2:10 - 2:30	*LSU Otology/Neurotology Research Synopsis* **Rahul Mehta, MD**

Awards

2:30 - 3:00	*Presentation of Awards* **Daniel W. Nuss, MD, FACS**

Mervin L. Trail, MD (1934-2001)

Former Chancellor of LSU Health Sciences Center
Former Residency Director and Chairman of Otolaryngology

Mervin Lee Trail grew up in a rural mining town in Maryland, and went on to earn his MD degree from the University of Maryland School of Medicine. After service in the U.S. Navy, he trained as a resident in Otolaryngology at Johns Hopkins University.

"Merv", as he insisted on being called, came to New Orleans in 1968 to join the faculty of the LSU School of Medicine. A staunch proponent of interdisciplinary medical education, he helped expand the boundaries of Otolaryngology, and became a widely acclaimed expert in advanced head and neck surgery. In addition to being a superb clinician, Merv was a tireless advocate for the education of students and residents. During his LSU career of over 30 years, Dr. Trail served initially as Residency Director, then Chairman of Otolaryngology, and ultimately as Chancellor of the LSU Health Sciences Center.

Those who knew Dr. Trail remember his boundless love for New Orleans. Beyond his medical career, he became one of New Orleans' most famous citizens by championing tourism, economic development and sports. In fact, he was instrumental in promoting New Orleans as a "destination city", and through his personal efforts, New Orleans became host to such high-profile events as the NCAA Final Four, the Super Bowl, the US Olympic Trials, and the Republican National Convention. He was a founding member of the Morial Convention Center and the Mardi Gras Krewe of Bacchus, and founding chair of the New Orleans Sports Foundation.

Dr. Trail passed away suddenly in 2001, with the legacy of having changed LSU, New Orleans, and the specialty of Otolaryngology as well. In 2003, the annual Resident Research and Alumni Day was dedicated in his name. The focus of this day is to honor Dr. Trail's memory by showcasing the research conducted by LSU Otolaryngology Residents.

Elizabeth H. Toh, MD, MBA

Clinical Professor, Boston University School of Medicine
Chair, Otolaryngology-Head and Neck Surgery
Lahey Hospital & Medical Center
Burlington, MA

President, American Neurotology Society
**President, Otosclerosis Study Group**
Deputy Editor-in-Chief, Otology & Neurotology Open

Dr. Elizabeth Toh graduated from medical school at National University of Singapore. She completed her Otolaryngology residency training at Mount Sinai Medical Center in New York and Neurotology fellowship training at the House Ear Clinic in Los Angeles. She joined the Otolaryngology faculty at the University of Pittsburgh in 2001 and was subsequently recruited to Lahey Clinic in 2009 to head the Division of Otology/Neurotology. Dr. Toh has a special interest in hearing implant technology and skull base surgery and serves as the Director of the Balance and Hearing Implant Center and Co-Director for the Center for Cranial Base Surgery at Lahey Hospital & Medical Center. She was appointed Chair of Otolaryngology-Head and Neck Surgery at Lahey Hospital & Medical Center in 2021 and also serves in various leadership roles in Otolaryngology and Neurotology in the United States. Dr. Toh is the current President of the American Neurotology Society, President of the Otosclerosis Study Group and Deputy Editor-in-Chief of the gold open-access journal, Otology & Neurotology Open. She lives in Boston with her husband, Pete, also a Neurotologist, and four-legged son, Toby.

DEPARTMENT OF OTOLARYNGOLOGY
RESEARCH ABSTRACTS
HEAD AND NECK SURGERY
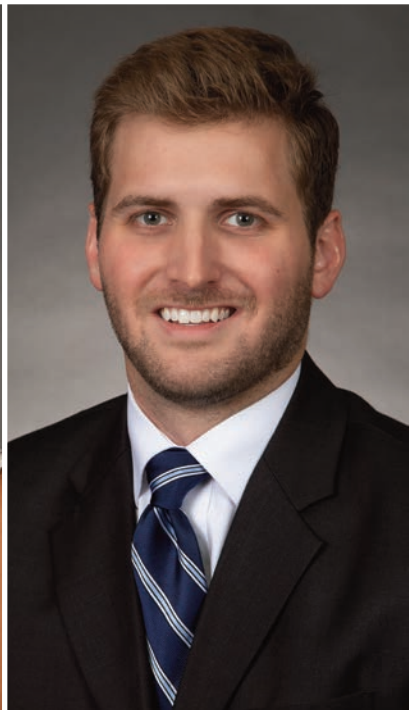
Kelsey R. Doguet, MD

Ashley R. Kraft, MD

Gregory P. Marks, MD

Bailey R. Minehart, MD

Adam J. Blancher, MD

Christine A. Matthews, MD

Kurt C. Mueller, MD

J. Logan Sobiesk, MD

Colleen F. Cecola, MD

Armand A. Jacques, MD

I. Shradha Mamidi, MD

J. Nicholas Poche, MD

Caroline A. Bonaventure, MD

Carley E. Boyce, MD

John C. Lemoine, MD

Katelyn N. Robillard, MD, PhD

Samuel R. Barber, MD

A Comparative Analysis of Ipsilateral and Contralateral Nasoseptal Flaps When Utilizing the Transpterygoid Corridor for Repair of Sphenoid Lateral Recess Defects

Kelsey R. Doguet, MD; Kody G. Bolk, MD; Stephen C. Hernandez, MD

Background: Spontaneous CSF leaks commonly occur within the lateral sphenoid recess in well pneumatized patients. Access is often difficult to repair, and vascularized flaps have been found to be superior to free grafting techniques. However, transpterygoid approaches may require sacrifice of the ipsilateral pedicle to gain lateral access, necessitating contralateral flaps for reconstruction. We aim to demonstrate the utility of pedicle mobilization and preservation and how that equates to flap length, size, and ultimately postoperative morbidity.

Methods: Five cadaveric specimens were utilized. Nasoseptal flaps were raised bilaterally and a transpterygoid approach was used to access the lateral recess of the sphenoid sinus. Lateral recess defects were created bilaterally. We then measured the flap length required for full defect coverage using both the ipsilateral and contralateral flaps. The full flap lengths were also measured.

Results: On average, ipsilateral flaps require 4.21cm in length for full defect coverage as compared to 7.53cm in length for contralateral septal flaps. The average total flap length was 7.7cm. There is a 45% decrease in flap length required for defect coverage when using the ipsilateral flap.

Conclusions: While ipsilateral nasoseptal flaps require advanced techniques and mobilization of the pedicle in transpterygoid approaches, there is considerable difference in length required for defect coverage. This may allow for preservation of nasal structure, improved healing, and preservation of the contralateral nasoseptal flap for salvage.

Temporal Bone Trauma: Audiologic and Facial Nerve Outcomes and Predictors of Follow Up

Ashley R. Kraft, MD; Anne K. Maxwell, MD; John C. Lemoine, MD; Hayden Guidry, BS; Reed Smith, MS; Hannah DellaCroce, BSPH; Anna Rawls, BS; Sheeza Wajid, BS; Zhide Fang PhD; Rahul Mehta, MD

Background: Temporal bone fracture is a frequent reason for otolaryngologic consultation. Some are followed as an inpatient for complications including cerebrospinal fluid leak or facial paralysis; however, all are recommended to follow up with an audiogram approximately one to two months after injury. In our experience, few of these patients are seen in the clinic. By identifying what factors play a role in a patient's ability to seek audiologic and otolaryngologic care following temporal bone trauma, we can address barriers to obtaining care and improve outcome data.

Methods: Retrospective cohort study of patients with radiologically proven temporal bone fractures between January 2010-December 2020. The primary outcome measure was follow up.

Results: Overall 431 cases met inclusion criteria for this study. The otic capsule was noted to be involved in 5.6% of patients and facial nerve injury was seen in 7.2%. Significantly higher rates of follow up were noted in patients with facial nerve injury (p = 0.0001), subjective hearing loss (p = 0.0001), cerebrospinal fluid leak (p = 0.0007), and external auditory canal injury (p = 0.0138) compared to patients with no injury. 302 patients (70%) were lost to follow up. In the follow up cohort, mean PTA values on the side of the fractured temporal bones were 3628 dB, with word recognition thresholds (WRT) were 8626%, compared to PTA values of 2013 dB and WRT of 9610% in the uninjured control ear. 1 patient developed cholesteatoma within 2 years of injury requiring surgical intervention. 31 (7.2%) of patients were diagnosed with facial nerve injury, 6 of which underwent facial nerve decompression. All incomplete paralysis patients had improvement in facial nerve function at follow up. Two patients have undergone facial reanimation procedures. 27 (6.3%) patients were diagnosed with CSF leak, all but 4 of which resolved with conservative care. 2 developed meningitis requiring further surgical intervention.

Conclusions: Symptomatic complications of temporal bone fracture result in increased follow up after injury. Though many of these patients are reportedly asymptomatic, there are likely subclinical effects on long-term hearing and risks of delayed complications such as meningitis that should ideally be recognized and addressed with appropriate clinical follow up. Associated coordinated care quality improvement endeavors to enhance both otolaryngologic and audiologic follow up for temporal bone trauma may improve these rates and ultimately patient outcomes.

Kelsey R. Doguet, MD

Ashley R. Kraft, MD

Utility of Narrated Video Endoscopy and Medical Education for Head and Neck Clinical Anatomy

Gregory P. Marks, MD; Caroline A. Bonaventure, MD; Jason C. Mussell, PhD; Stephen C. Hernandez, MD

Introduction: The impact of the contagious nature of COVID-19 has resulted in a large-scale change in the delivery of medical education. During the COVID-19 pandemic, internationally we have seen impacts on medical students including program suspension, altering of education timelines, and cessation of in-person training. Adaptation of the traditional medical curriculum became paramount as in-person education was suspended. One such topic that is notably difficult to convey is human anatomy as many consider this best learned via a hands-on or in-person approach. Previous studies have shown the utility of multi-media approaches to medical education with significant reduction in study time and improved clinical performance. One area of possible expansion into the multi-media medical education realm is the use of endoscopy to describe head and neck anatomy and its clinical implications. Endoscopy, laparoscopy, and simulation labs have been proven as useful tools in improving student and resident training. The aim of this study is to assess the utility of narrated video endoscopies regarding knowledge of head and neck anatomy, associated knowledge retention, and its functional application. Our hypothesis is that understanding, retention, and application of head and neck anatomy will improve as compared to the traditional anatomy curriculum.

Methods: A 14 question internally- validated test and grading scale was used to assess applicable knowledge of head and neck anatomy. A test was conducted prior to exposure to the video curriculum and at a 4-week post-curriculum retention test. Senior medical students, senior nurse anesthetist students, and speech pathology students were enrolled into the study and completed both the pre-video and post-video tests. The primary outcome studied will be understanding and retention of head and neck anatomy. The secondary outcome is a survey utilizing a Likert scale conducted by the participants on the helpfulness of the curriculum.

Results: Nine participants completed both the pre-video and post-video tests as well as the survey. The mean correct answers pre-video was 6.22 +/- 2.82 answers, and the mean correct number post-video was 8 +/- 3.24 answers (p = 0.07). In the post-curriculum survey, respondents agreed positively with the use of the narrated endoscopy with exception to two areas in which they neither promoted nor rejected use of the video for educational purposes.

Conclusion: While this study does not directly compare medical education via endoscopy to that of textbooks, it is able to demonstrate endoscopy as a useful educational tool that is well received as a medical education medium. Further investigation warrants a broader study population and the direct comparison in testing between traditional medical education and endoscopy videos in the training of future medical care providers.

The Utility of Sentinel Lymph Node Biopsy in T1 Stage Melanoma

Bailey R. Minehart, MD; Elizabeth Helm, MS2; Zhide Fang, PhD; Rula Mualla, MD

Background: Melanoma is the sixth most common cause of cancer in the United States. Melanoma can be found on any region of the body where melanocytes may be found and are relatively common in the head and neck. About 10-25% of all melanomas arise within the head and neck with the most common sites being the cheek. The utility of sentinel lymph node biopsy has been well established for higher staged disease but there is question of the utility of sentinel lymph node biopsy in both T1a and T1b staged melanomas.

Learning objectives: Given the prevalence of shave biopsy for melanoma diagnosis, should T1a and T1b melanomas of the head and neck undergo routine sentinel lymph node biopsy.

Study Objective: To collect patient demographics associated with T1 stage melanoma and determine trend of SLNB offered to patients based on biopsy pathology and rates of recurrence for T1 melanoma in those who underwent SLNB or were treated with excision only.

Methods: This study is a retrospective review over multiple Louisiana Health Science Center teaching institutions between January 2015 to December 2023. Institutions include Our Lady of The Lake Regional Medical Center in Baton Rouge, LA, University Medical Center in New Orleans, LA and University Hospital & Clinics in Lafayette, La.

Results: Overall, 329 subjects met criteria of head and neck melanoma. Out of 329 subjects, 147 subjects were initially staged as T1 after biopsy. 89% of diagnoses were achieved by shave biopsy. 116 subjects in total underwent SLNB. For those who underwent SLNB, at time of diagnosis 19.83% (n = 23) of subjects were staged as T1a and 16.38% (n = 19) were staged as T1b. In the SLNB group, 2 subjects staged as T1b had positive SLNB and 1 of these two subjects were found to have recurrence at 6 months. 1 subject staged as T1a was found to have a positive SLNB. Only 1 subject staged as T1a had recurrence, but had a negative SLNB. Overall, 196 subjects did not undergo SLNB. These subjects were classified as the "excision only" group. In the excision only group, 41.75% (n = 81) of subjects were staged as T1a and 12.37% (n = 24) were staged as T1b. In the excision only group, only 4.17% (n = 2) T1b of subject were found to have recurrence. For the excision only group, 2.46% (n = 2) of subjects in the T1a group were found to have recurrence. Overall, 23.12% of T1 staged subjects (n = 13) were staged higher than T1 after final treatment.

Conclusion: Offering sentinel lymph node biopsy to T1 staged patients remains controversial. Our data shows that SLNB did not significantly change overall outcomes for our patients but there was a significant amount of patients who were staged higher than T1 after final treatment thus it still remains important to utilize SLNB in T1 staged melanomas.

Gregory P. Marks, MD

Bailey R. Minehart, MD

Audiologic Outcomes of Endoscopic Tympanoplasty: A Single Institution Review

Adam J. Blancher, MD; Charlotte Pearson; Anna Rawls; Ava Karam; Rahul Mehta, MD

Introduction: Endoscopic tympanoplasty is a contemporary, minimally invasive approach for the repair of tympanic membrane perforations. This study aims to rigorously evaluate the efficacy of this technique in terms of anatomic healing and auditory function improvements.

Methods: Conducted at Our Lady of the Lake Regional Medical Center from 2015 to 2023, this retrospective review included 199 patients who underwent endoscopic tympanoplasty. Excluding cases with cholesteatoma, anatomic outcomes were assessed by healing rates and the necessity for revision surgery, while functional outcomes were evaluated through changes in pre- and post-operative Pure Tone Averages (PTAs) at 3, 6, and 12 months. The patient cohort was analyzed across various demographics, including age, gender, and perforation characteristics. Statistical analysis was applied using paired t-tests, ANOVA, and Tukey's HSD.

Results: The study demonstrated a 97.0% healing success rate and a 3.0% revision surgery rate due to persistent tympanic membrane perforations. Average pre-operative PTAs were 46.28 dB in adults and 26.89 dB in pediatric patients, with a general post-operative improvement of 7.12 dB. Pediatric patients showed a slightly higher improvement (8.41 dB) compared to adults (6.20 dB), though these differences were not statistically significant. Likewise, no significant differences were observed in outcomes based on the location of the perforation or gender.

Conclusion: Our research substantiates the efficacy of endoscopic tympanoplasty in delivering substantial tympanic membrane healing and auditory function enhancements, devoid of significant demographic or perforation-specific disparities. The findings corroborate the technique's uniform efficacy and underscore its potential as a mainstay in contemporary otologic surgery, meriting equal consideration alongside traditional methods. The implications of these findings advocate for an amplified adoption and proficiency in endoscopic techniques within otolaryngology.

Determining the Safety of Laser Therapy to Treat Chronic Radiation Dermatitis and Aesthetic Changes in Head and Neck Cancer Patients

Christine A. Matthews, MD; Lisa M. Morris, MD; Alyssa K. Ovaitt, MD; Jennifer Womack, PA-C; Leslie S. Son, PhD; Laura T. Hetzler, MD

Introduction: Chronic dermatitis is a common sequela of radiation therapy seen frequently in head and neck cancer patients due to the high doses of radiation given onto the delicate skin of the face and neck. It manifests as skin fibrosis, atrophy, pigmentation changes, and telangiectasias. With these changes occurring in sensitive and conspicuous areas, radiation induced dermatitis can be distressing for patients. Radiated skin becomes fragile with poorer wound healing capabilities, reduced vascularity, and increased risk of ulceration. These conditions have traditionally made history of prior radiation a relative contraindication to receiving skin resurfacing treatments such as chemical peels and laser therapy use. Our objective is to determine the safety, efficacy, and aesthetic changes of laser therapy to treat chronic radiation dermatitis in head and neck cancer patients.

Methods: Open prospective study using the erbium-YAG laser to treat chronic radiation dermatitis on patients with a history of head and neck cancer who are at least one year out of treatment. Each patient's first treatment was relatively conservative - one pass of the laser at a shallow depth. Repeat treatments were done in 4-6 week intervals with progressively increasing laser depth and number of passes. We assessed the healing process as well as changes in telangiectasias, pigmentation, skin texture and rhytids through patient photos and questionnaires performed at each visit.

Results: All patients enrolled thus far have completed four treatments each. Patients noted mild crusting and erythema to the skin that resolved within 3-5 days. No patients have experienced skin ulceration or wound development. All patients experienced noticeable improvement in radiation induced induration and rhytids.

Conclusions: Laser therapy is a safe and efficacious method for treatment of radiation induced chronic dermatitis with minimal side effects and little down time after treatments.

Adam J. Blancher, MD

Christine A. Matthews, MD

Comparison of Surgical Field Visualization and Hospital Cost of Total Intravenous Anesthesia Compared to Inhalational Anesthesia with Tranexamic Acid

Kurt C. Mueller, MD; Jacob Hagen, BS; Michael E. Dunham, MD; Stephen C. Hernandez, MD

Introduction: During endoscopic sinus surgery (ESS), surgical visualization is crucial for safety and efficiency of the operation. Bleeding has a significant impact on this visualization; even small amounts of bleeding may disturb the view of the operative field. Several techniques have been used to attempt to maintain an optimal surgical field during ESS. One method is tranexamic acid (TXA), a medication with antifibrinolytic properties. The use of total intravenous anesthesia (TIVA) has also been shown to improve surgical field visualization compared to general inhalational anesthetics. However, a disadvantage of TIVA is that it is generally more costly than inhalational anesthesia.

Objective: This study aims to assess whether the use of TIVA alone or inhalational anesthesia with intravenous TXA is more efficacious in improving surgical field quality. Furthermore, this study aims to determine whether there is a difference in cost between the two methods.

Methods: This is a prospective, double-blinded randomized control trial consisting of subjects undergoing endoscopic sinus surgery (ESS). Subjects in the control group received total intravenous anesthesia without any tranexamic acid during surgery. Subjects in the study group received inhalational anesthesia with 15mg/kg of intravenous tranexamic acid on induction. The endoscopic view of each surgery was documented in its entirety. An endoscopic image clarity classifier, using artificial intelligence to assess surgical field quality, was utilized to assign each patient endoscopic surgical field clarity index (ESFCI) and operating efficiency scores. A cost analysis was performed assessing the average labor cost for the operating room and post ambulatory recovery unit.

Results: Thirty-one patients were enrolled in the study; 16 were in the study group and 15 were in the control group. There were 18 patients with video documentation of the ESS. Of these, 9 were in the study group and 9 were in the control group. When comparing the study group (inhaled anesthetics with TXA) to the control group (TIVA alone), there was no statistical difference in ESFCI (0.664 vs. 0.626, p = 0.787), operating efficiency (66% vs. 62%, p = 0.540), and operating time (139.2 min vs. 149.4 min, p = 0.744). Of the 31 patients enrolled in the study, there were similar results in the study group compared to the control group for time in the operating room (192 vs. 194 min), PACU minutes (67 vs. 75 min), and anesthesia time (196 vs. 205 min). The average labor cost was slightly lower in the study group compared to the control group with respect to the operating room ($835 vs $845), PACU ($141 vs. $158), and for CRNA ($552 vs $579).

Conclusions: When comparing inhaled general anesthetics with tranexamic acid to TIVA alone, there is no difference in surgical field visualization. There may be lower perioperative labor costs associated with inhaled anesthetics and tranexamic acid, but these may be clinically insignificant. Further investigation and a larger sample size is needed to further elucidate this relationship.

Comparison of SPG Block vs Topical Anesthetic for Post-Operative Pain Control After Functional Endoscopic Sinus Surgery

J. Logan Sobiesk, MD; Kurt C. Mueller, MD; Neelam P. Phalke, MD; Leslie S. Son, PhD; Stephen C. Hernandez, MD

Introduction: Functional endoscopic sinus surgery (FESS) is a common procedure for the management of chronic sinus disease that has failed medical management. It can be an extensive procedure associated with significant but short-term immediate post-operative pain that quickly improves over the early post-operative period. Pain, as with many surgical procedures, is commonly managed initially with narcotic pain medication. Nearly 14% of patients do not take any of their prescribed narcotics post-operatively and even more use only a small quantity of their prescribed pills. This seems to indicate that we are over-treating post-operative pain after FESS. Multiple studies have evaluated alternative pain management strategies to reduce or eliminate narcotic pain control. This includes sphenopalatine ganglion (SPG) block and topical anesthetic-soaked nasal packing—both of which have been shown to reduce post-operative narcotic and breakthrough pain medication requirements compared to post-op pain meds alone. No studies directly compare these two pain control measures or further characterize and compare their risks and benefits. Furthermore, no studies specifically evaluate whether these pain control measures are effective in opioid-sensitive patients.

Objective: Conduct a single blind prospective cohort study comparing sphenopalatine ganglion block to ropivacaine soaked pledges for pain control following functional endoscopic sinus surgery.

Study Design: 51 adult patients who met inclusion criteria undergoing FESS for chronic rhinosinusitis and/or nasal polyposis were enrolled in the study. Patients were randomized into a nasal packing arm or an SPG block arm using a permuted block system (AABB, ABAB, BBAA, etc. where A is nasal packing and B is SPG). The surgeon was not blinded to the cohort arms as the end anesthetic did not affect the standard procedure of FESS. The treatment occurred intraoperatively. The nasal packing arm received pledgets soaked in 0.5% Ropivacaine in 1:100,000 epinephrine. The packing was removed at the conclusion of the case prior to awakening. The SPG block arm received the block just before the conclusion of the procedure. The same pain control measures were prescribed post-operatively: scheduled Tylenol 650mg every 4 hours and breakthrough Oxycodone 5 mg every 5 hours as needed. Post-op pain scores by a 0 -10 scale were recorded post-op prior to discharge, at 24h (by phone call), at follow-up on post-op day #5-, and 3-weeks post-op (by phone call). Pill counts of the narcotics will be performed at the in-person follow-up and per patient report at the above-mentioned time points. In addition to post-op pain scores, the standard form-8 (SF-8) health survey the Sinonasal Outcome Test (SNOT22) and the Visual Analogue Scale were provided to each participant at 3 different time-points, pre-operatively in the clinic or before surgery in pre-op (before any anesthesia/anxiolytics are given). Post-operatively at the time of discharge from the hospital and at the post-operative follow-up visit at post-op day #5.

Initial Results: 51 patients met inclusion criteria. Study arms were 23 nasal packing and 28 SPG block arm. 26 were revision FESS and 25 primary FESS. 25 males and 26 females ages ranging from 20-88. 32 (62%) patients underwent bilateral FESS while 19 (38%) underwent unilateral surgery. Septoplasty (9; 17%) and turbinate reduction (8; 15%) were performed as adjunct procedures during FESS. Propel stents (43; 84%), Nasopore packing (46; 90%), silastic sheeting (2; 3%), doyle splints (9; 17%), and fingercot (4; 7%) were used. 3 patients had opioid intolerance and 4 had chronic pain conditions. The average post-op pain scores (out of 10) prior to discharge, at 24h, post-op day #5, and 3-weeks post-op were 4.32, 3.02, 1.91, and 1.18, respectively. The average opioid pill count (out of 15) at 24h, post-op day #5, and 3-weeks post-op were 13.9, 10.65, and 9.7, respectively.

Discussion: Previous studies in post-op pain management have shown SPG block and topical anesthetic nasal packing to be superior to medication alone. Amidst the opioid epidemic that we face, control of post-operative pain is imperative to avoid over prescribing opioid medications. Initial review of our findings are promising for similar results with comprehensive comparative analysis ongoing.

Kurt C. Mueller, MD

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Incidence of Laryngeal Lesions Associated with Electronic Cigarettes

Colleen F. Cecola , MD; Avni Shridhar, MS; Cassidy Nguyen, MS; Lacey K. Adkins, MD

Introduction: Vaping is a phenomenon that is slowly replacing the popularity of cigarette smoking culturally. Previous data shows that vaping changes the in-vitro makeup of the vocal cords1. Inhalation of other tobacco-containing vapors like hookah have been linked to head and neck malignancies2. However, the degree to which vaping can be linked to neoplasm has yet to be determined. The amount of damage that vaping can contribute to the larynx has also not been well studied. Some promote e-cigs as a manner to help quit cigarette smoking, but the data is controversial. Some critics propose it as a "gateway drug" to cigarettes. Currently there is a dearth of date in the Otolaryngology field about the incidence of vaping and the harms it poses to the larynx. To expose this data, we have begun to collect these variables in our Voice clinic at Our Lady of the Lake. Our hypothesis is that subjects who vape display similar laryngeal lesions to those who smoke cigarettes compared to normal, non-smoking controls.

Methods: This is a retrospective and ongoing chart review of all patients above 18 years who present to the Voice clinic with dysphonia. Patients who both actively smoke cigarettes and vape, have undergone laryngectomy or partial laryngectomy, prior surgical treatment of a laryngeal disease, or received radiation to the larynx have been excluded. Starting October 1, 2022, patients with dysphonia who vape, smoke cigarettes, and age and sex matched non-smoking controls were recorded for presence of laryngeal pathology, voice changes, demographics, and more.

Results: Of 99 subjects presently recorded, only 1 singularly vaped, or approximately 1.01%. However, the data did display significant pathology of polypoid corditis requiring later operative debridement. 18 of 99 (18.18%) patients smoked cigarettes, and pathology ranged from none to malignant.

Conclusion: Further data collection and studies must be obtained to draw any conclusion regarding the consequences of vaping to the larynx. However, intake process of raw data continued to improve over time, and, therefore, incidence of vaping in the clinic is expected to as well.

Auril-Fit: An Efficient, Low-Cost System for Creating External Ear Prostheses for Patients Undergoing Auriculectomy and Lateral Temporal Bone Resection

Armand A. Jacques, MD; Michael E. Dunham, MD; Aimee Galatas; Rahul Mehta, MD

Introduction: Patients undergoing auriculectomy with or without lateral temporal bone resection for cancer often face a considerable deformity resulting from the removal of the external ear. Unfortunately, existing ear reconstruction techniques are currently unavailable in Louisiana. Moreover, the prohibitive cost of external ear prosthetics further restricts our patients from obtaining suitable replacements. To tackle this issue, we propose the development of an efficient and affordable approach to constructing external ear prostheses, ensuring their accessibility to our patients. Our solution, Auril-Fit, involves utilizing a 3D scanner, 3D modeling, and 3D printing to create color-matched external pinna prostheses that can be securely attached with medical adhesive

Objective:
1. Develop a streamlined system for creating a simple external ear prothesis for patients who undergo aurilectomy.
2. Complete a structural analysis of the Auril-Fit external ear prosthesis.

Study Design: The study team intends to identify approximately 15 individuals from Our Lady of the Lake Hospital, Hearing and Balance Center. These individuals will undergo or have undergone auriculectomy. These patients will be informed and consented about participation in the study while in the clinic office. The process will occur by creating a computer model of the external ear using a 3D scanner (provided by the LSU School of Engineering). The computer reconstruction is used to generate a 3D printed mold, which is then used to create a color-matched silicon model of the ear. The silicon model is subsequently attached to the reconstructed site using medical adhesive.

The fitting of the prosthetic will be done in the Hearing and Balance clinic by the study team physicians. The subjective patient outcomes will be determined by administration of follow-up validated prosthetic surveys designed to assess patient satisfaction of appearance, psychosocial well being, and quality of life outcomes following prosthetic application.

Results: Among the patient(s) enrolled, high satisfaction with product and quality of life was seen with use of the Auril-Fit prosthesis.

Conclusion: Auril-Fit is a low cost option for patients undergoing auriculectomy allowing for cosmetic and partial functional reconstruction. Future studies will enlist more patients, as well as using 3D images of the remaining ear to create a better matched prosthetic.

Colleen F. Cecola, MD

Armand A. Jacques, MD

Laryngeal Mask Airway Versus Jet Ventilation for Surgical Management of Subglottic and Tracheal Stenosis

I. Shradha Mamidi, MD; Salena Sinnasone, BS;
Samantha Jindia, BS; Lacey K. Adkins, MD

Introduction: Subglottic/tracheal stenosis (SGS/TS) commonly requires surgical treatment with incision and dilation (I&D) of the stenotic segment, usually with direct laryngoscopy and jet ventilation. Treatment with a laryngeal mask airway (LMA) and flexible bronchoscope has been proven to be a safe, but efficacy of utilizing a LMA has not been examined. This study compares the outcomes and effectiveness when comparing LMA versus jet ventilation for the management of SGS/TS.

Methods: A retrospective chart review identified 150 cases of patients with SGS/TS who underwent management using LMA or jet ventilation with a single provider between October 2017 to May 2023. Patients were categorized into SGS/TS caused autoimmune or idiopathic causes and traumatic or iatrogenic causes. Variable studied include surgical time, postoperative pain scores, pulmonary function test (PFT) values, surgery free interval, adjuvant medical management and disease etiology were assessed.

Results: When controlled for etiology, there was no difference in the surgery free interval or change in PFT values. Postoperative pain tended to be lower with LMA but this did not reach significance. For idiopathic and autoimmune SGS/TS, LMA had longer operative times than jet ventilation (71 and 72 vs 47 and 45 minutes, p < 0.001 and 0.018 respectively). This difference was not seen with iatrogenic stenosis.

Conclusion: LMA and jet ventilation are both effective ways to manage ventilation for treatment of SGS/TS. While the surgical time is occasionally longer with LMA, outcomes in terms of disease-free intervals between surgeries and change in PFTs are equivocal. When controlling for etiology of stenosis, operative length was no longer significant in patients with traumatic or iatrogenic causes. While postoperative pain tended to be lower for LMA, this was not significant. Given that jet ventilation safety and efficacy is reliant on an anesthesiologist's familiarity with this ventilation technique, LMA may be a good comparable ventilation method when treating patients with stenosis.

Endoscopic Surgical Field Clarity Index: An Artificial Intelligence-Based Measure of Transnasal Endoscopic Surgical Field Quality

J. Nicholas Poche, MD, MS; Katie L. Melder, MD; Daniel W. Nuss, MD; Zhide Fang, PhD;
Michael E. Dunham, MD, MS; Stephen C. Hernandez, MD

Introduction: Surgeons perform transnasal endoscopic surgery for disorders of the nose, paranasal sinuses, and skull base. While endoscopic surgery is less invasive, endoscopic visualization can be easily obscured, resulting in diminished surgical visualization and prolonged operating times. Researchers and medical manufacturers are exploring ways to enhance endoscopic visualization through technological advancements in instrument design and optimizing anesthetic and surgical techniques. However, the lack of an objective measure for assessing endoscopic surgical field quality hinders the evaluation of interventions intended to improve visualization.

Methods: We developed an artificial intelligence-enabled computer vision model to analyze trans-nasal endoscopic surgical recordings. The Endoscopic Image Clarity Classifier labels video frames as "clear", "obscured", or "null" (endoscope not in the nasal cavity). The Endoscopic Surgical Field Clarity Index is calculated from the ratio of clear frames, ranging from 0.0 to 1.0. Null frame counts determine an operating efficiency score. In a study using surgical recordings acquired after the model was developed, we used linear regression analysis to compare the classification index with the normalized Boezaart score.

Results: The surgical field classifier achieved accuracy, F1, and ROC-AUC scores of 0.99. There was a statistically significant correlation between the Endoscopic Surgical Field Index and Boezaart scores (R2 = 0.9898, p-value < 0.0001), indicating that higher Endoscopic Surgical Field Clarity Index values are consistent with a clearer surgical field are associated with a lower Boezaart score. The mean operating efficiency was 61%.

Conclusions: Our findings validate an objective model to assess surgical field quality during trans-nasal endoscopic surgery using an artificial intelligence-assisted image classifier and surgical field clarity index. The Endoscopic Surgical Field Clarity Index helps evaluate any surgical intervention intended to improve the surgical field during trans-nasal endoscopic surgery.

I. Shradha Mamidi, MD

J. Nicholas Poche, MD

Augmented Reality in Evaluation of Parotid Tumors for Surgical Planning

Caroline A. Bonaventure, MD; Madeline Burk; Rohan R. Walvekar, MD

Introduction and Background: Augmented Reality is becoming an attractive and popular tool to aid healthcare providers in diagnosis, clinical evaluation, treatment planning, and education. As technology continues to improve, it shows great promise in increasing the accuracy, efficiency, and safety profile of clinical medicine.

AR is of great interest to surgical specialties, especially otolaryngology, where surgery involves delicate anatomy that must be preserved to provide optimal functional outcomes. Visualization is paramount in providing safe and effective care to otolaryngology patients. The introduction of AR into the surgical space brings a new avenue for surgical planning, as well as for an educational tool for residents, medical students, or anyone in surgical training.

The goal of our study is to evaluate the use of an AR platform for assistance in surgical planning and education for trainees for parotidectomy surgeries, specifically in patients with parotid tumors. We hypothesize that using AR will improve preoperative surgical assessment and consequently surgical planning. Specifically, we will plan to evaluate tumor location of parotid tumors (superficial vs deep lobe) and their relation to the facial nerve using preoperative assessment with AR versus assessment with standard computed tomography (CT) scans and validating the results using prior radiology interpretation and intraoperative findings.

Study Design and Methods: The study is a retrospective study of adult patients from Our Lady of the Lake with parotid tumors from January 1, 2019 to January 1, 2024.

Each subject's preoperative CT scan will be de-identified and downloaded for evaluation. Questionnaires will be used to evaluate the subject's images and the AR hardware. Study participants will include otolaryngology faculty and residents. Each study participant will review the individual AR scans using the HerculesXR headset and complete a questionnaire to evaluate their perception of the tumor's location in relation to the facial nerve. After these evaluations, the participants would similarly complete questionnaires to evaluate their perception of the location of the tumor on a traditional CT scan. Evaluations will be compared within participants, to other participants, to the official radiology report, and to the surgical operative report to determine accuracy of AR versus traditional CT in visualizing and locating parotid tumors.

In all, we hypothesize this study will provide insight into the utility of augmented reality in surgical planning for parotidectomy and allow for further investigation of its use for planning in otolaryngology-related procedures as well as in the educational space.

Development of Clinical Guidelines for Otologic Trauma in a Pediatric Patient Population

Carley E. Boyce, MD; Belinda Mantle, MD

Introduction: Temporal bone fractures are a common lesion of the base of the skull. Traumatic injury to the temporal bone can lead to significant morbidity or even mortality. Variable clinical presentations may arise from such fractures, ranging from asymptomatic course to very serious consequences. Common complications recorded in the literature include facial nerve paralysis, CSF leakage, hearing loss, and vertigo. One long-term sequelae less frequently mentioned yet still critical because of its devastating consequences is external auditory canal stenosis. Stenosis of the ear canal can not only result in reduced quality of life because of external deformity and conductive hearing loss, but also places the patient at an increased risk of cholesteatoma. The treatment of these sequela can be subsequently very challenging; therefore, this study aims to review cases of ear canal stenosis following trauma from the time of initial treatment to prevent these negative results and improve future patient care.

Methods: This study is a retrospective chart review of patients with radiographically proven temporal bone and mandibular fractures and physical exam findings of external auditory canal stenosis between September 2018 and September 2023. Variables examined include mechanism of trauma, imaging studies, physical exam findings, placement of packing at time of initial encounter, follow up, and surgical intervention.

Results: Four pediatric patients were identified with external auditory canal stenosis and radiographic otologic trauma following motor vehicle collisions and gunshot wounds. Of this select patient population, all patients were evaluated with CT imaging. All the patients were noted to have lacerations within the ear canal as well as granulation and debris at the time of initial physical exam, and one patient of the four had a Merocel sponge placed at this time. Follow up time from injury varied from one month to eight months, and all the patients required surgical intervention for stenosis and complications.

Conclusion: External auditory canal stenosis, while not the most common consequence of temporal bone and mandibular trauma, can cause long-term complications especially in pediatric patients. Our research emphasizes the significance of otologic trauma and the considerable complications. Early identification of this injury and medical management may potentially reduce the need for surgery in cases of fixed stenosis and is an important consideration in future patient care.

The Continuous Nasal Surgical Site Aspirator – A Device to Clear the Surgical Field During Sinus Surgery

John C. Lemoine, MD; J. Nicholas Poche, MD; Stephen C. Hernandez, MD; Michael E. Dunham, MD

Introduction: Endoscopic sinus surgery is a minimally invasive technique that allows for treating a variety of nasal and sinus disease processes. Using an endoscopic approach allows a surgeon to identify anatomical landmarks and areas of nasal or sinus disease and treat them in a less invasive manner compared to open surgery. However, endoscopic surgery contains challenges such as maintaining a clear surgical field while operating in the narrow, enclosed anatomic region of the nasal cavity. Blood, mucus, other debris, or aerosols can interfere with visualization. The Nasal Surgical Site Aspirator is designed to collect, aspirate, and dispose of interoperative secretions, blood, and debris, providing a clean surgical field. The device is a conical-shaped aspirator with a surrounding cushion that encircles the aspirator and creates a seal in the nasopharynx. It is inserted into the nasopharynx trans-orally at the beginning of the procedure and then connected to high-flow, filtered vacuum pump. Aspirated secretions and aerosols are continuously evacuated away from the operative field to a sequestered collection device. This project aims to take the already designed device and to test the manufactured prototype in order to explore the feasibility of device utilization. The testing will be designed to demonstrate the effectiveness of the device at keeping the surgical field clear and will involve cadaveric studies before proceeding further. The immediate goal of this project will be to adequately test the device to demonstrate that it can effectively aspirate blood and debris from the surgical field to keep it clear.

Specific Goals and Planned Methods:
The prototype has been designed in coordination with the LSU Department of Engineering and has been manufactured through the Sustainable Living Lab in the LSU Department of Engineering. We will evaluate the device using a cadaver model for each design iteration. The device will be inserted trans-orally into the nasopharynx and connected to standard wall suction. A saline solution containing red food coloring (either Red Dye 40 or Carmine) will be introduced into the anterior nasal cavities through a catheter, which will be inserted into the anterior frontal recess via a trephine. We will measure the clarity of each surgical field during the instillation of the dyed saline (simulating bleeding during endoscopic sinus surgery), both with and without the evacuator. Videos of these simulated procedures will be recorded. Multiple procedures will be recorded, varying the rate of fluid flow.

We have developed the Endoscopic Surgical Field Clarity Index (ESFCI), which objectively scores the clarity of trans-nasal endoscopic surgical (TNES) procedures. We will compare the surgical field quality with and without the evacuator using the ESFCI and analyze the results with the independent samples t-test.

The ESFCI AI-assisted computational model rates field clarity on a scale from 0.0 (wholly obscured) to 1.0 (completely clear) using a video recording of the procedure. It uses an AI-assisted computer vision model we trained and validated on human-labeled images from TNES procedures. A manuscript describing this work has been separately prepared and approved for publication.

Surgical Approaches to Repair Tegmen Defects: A Systematic Review

Katelyn N. Robillard, MD, PhD; Aimée Galatas; Rahul Mehta, MD

Background: Defects of the lateral skull base require surgical intervention to prevent life-threatening complications including persistent CSF leaks, meningitis, and meningoencephaloceles. Many reconstruction methods have been described in the literature with outcome analyses yielding mixed results. To address this gap in knowledge, we performed a systematic review of surgical approaches to repair tegmen bony defects.

Methods: The overall research question was formulated according to the PICOS model: "In patients with tegmen defects, how do surgical approaches and reconstruction methods affect the rate of perioperative complications, length of hospital stay, and duration of follow up?" A systematic review of all relevant articles from January 2012 through March 2023 was performed using MEDLINE, EMbase, Web of Science, and SCOPUS databases. Studies were chosen that included at least 10 procedures; clearly defined the skull base defect, surgical approach, and grafting materials; and reported surgical outcomes.

Results: A total of 821 studies were reviewed. Of these, 39 met inclusion criteria yielding a total of 1,638 procedures (1,614 patients) for analysis. Patient age ranged from 5 to 94, and the most common presenting symptom was CSF otorrhea especially after PE tube placement. Most tegmen defects were spontaneous, but other etiologies included chronic otitis media, cholesteatoma, iatrogenic, or traumatic. Many were associated with encephaloceles, superior semicircular canal dehiscence (SSCD), or meningitis. Surgical repair was carried out via transmastoid, middle cranial fossa, or a combined approach. The defect was repaired with a single or multilayer graft using various autologous (e.g., bone fascia, muscle, fat), xenogeneic (e.g., fetal bovine cartilage), bioactive (e.g., DuraGen, Tisseel, Surgicel, Gelfoam), or artificial (e.g., titanium) materials. Perioperative complications included persistent CSF leak, meningitis, altered mental status, facial paresis, and need for additional procedures.

Conclusion: Tegmen defects occur spontaneously at all ages but are most common in later adulthood. Defects often present with CSF otorrhea and can be associated with encephaloceles and SSCD. Lateral skull base defects are successfully repaired using multiple approaches that favor a multilayer graft containing various materials. Although perioperative complications have been reported, tegmen repair is typically well tolerated and has a low recurrence rate.

John C. Lemoine, MD

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Credit Information

As a result of participating in this activity, learners should be better able to:
- **Discuss the latest advances in research for ENT procedures**
- Identify potential applications of new research findings to improve patient care in ENT practice
- Gain in-depth knowledge about specific ENT diseases, diagnostics, and treatment modalities
- Describe emerging technologies and their potential impact on ENT diagnosis and treatment

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Faculty and Planning Committee
The following presenters, authors, faculty and planning committee members disclosed relationship(s) with the following ineligible companies.
These relationships have been mitigated

Name	Ineligible Company	Relationship
Elizabeth Toh, MD	Envoy Medical Corporation	Advisory Board
Jason Mussell, PhD	Pacira Biosciences	Consultanty
Rohan Walvekar, MD	Hood Laboratory	Consultant