“Skull Base: The Whole is Greater Than the Sum of the Parts”

February 20-22, 2015
Tampa Convention Center, Tampa, Fl

Pre-Meeting Course February 18-19, 2015
USF Health Center for Advanced Medical Learning and Simulation

FINAL PROGRAM

PRESIDENT: Michael Link, MD

PROGRAM CHAIR: Siviero Agazzi, MD, MBA

SCIENTIFIC PROGRAM COMMITTEE: President, Michael Link, MD, President Elect, Carl Snyderman, MD, MBA, Secretary, James Evans, MD, Treasurer, Ian Witterick, MSc, FRCSC, Meeting Chairman, Siviero Agazzi, MD, MBA, Co-Chairman for Neurosurgery, Vikram Prabhu, MD, Co-Chairman for Neurosurgery, Manuel Ferreira, MD, Co-Chairman for Head and Neck, Chris Rassekh, MD, Co-Chairman for Head and Neck, Ian Witterick, MSc, FRCSC, Co-Chairman for Neuro-Otology, Matt Carlson, MD, MS, and Co-Chairman for Neuro-Otology, George Wanna, MD

PRE-MEETING COURSE CHAIRS: Bharat Guthikonda, MD, Eric Moore, MD, Philip Theodosopoulos MD, and Lee Zimmer, MD, PhD
Dear Colleagues:

Welcome to the 25th Annual NASBS Meeting at the Tampa Convention Center in Tampa, Florida.

This year’s pre-meeting practical course, held at the nearby, state of the art Center for Advanced Medical Learning and Simulation (CAMLs) lab emphasizes the extremely varied skills necessary in skull base surgery. The first day includes cadaveric hands-on trans-nasal endoscopic dissections emphasizing techniques to identify and avoid vascular injury with the afternoon dedicated to temporal bone drilling and the access to the petroclival region. For the first time, the second day of the pre-meeting practical course is entirely devoted to learning microvascular anastomosis, necessary for cerebral bypass and vascularized free tissue transfers. Participants are able to perform microanastomoses on live rat vessels to hone their skills.

The theme of this year’s meeting is, “The Whole is Greater than the Sum of the Parts.” The multidisciplinary nature of the NASBS makes it unique among professional scientific organizations. The scientific program this year is meant to emphasize the rich interaction that occurs among the different specialties and how it greatly benefits patients battling difficult skull base pathologies. This year’s Scientific Program Committee chaired by Dr. Siviero Agazzi, has put together a very exciting program. As in previous years, this year’s meeting promises in-depth discussions via breakfast seminars, expert panel sessions, proffered papers and posters. This year’s honored guests include Harry van Loveren (University of South Florida), L. Dade Lunsford (University of Pittsburgh) and Edward R. Laws (Brigham and Women’s). Each of these pioneers has contributed greatly to advancing skull base surgery and has a very unique perspective on the past 25 years. This year’s non-medical keynote speaker is retired Astronaut Fred Haise who was on Apollo 13 during the aborted attempt to land on the moon. As portrayed in the award-winning movie of the same name, disaster was averted thanks to inspired and dedicated teamwork among the astronauts on the command module Odyssey, and the staff at Mission Control.

We are looking forward to a collegial opening reception on Friday evening and a relaxing cruise on the waters of Tampa Bay with food and drinks Saturday evening, still leaving time for anyone interested in taking the trolley to Ybor City to participate in the night parade!

Enjoy your time in Tampa!

Michael J. Link, MD
President, North American Skull Base Society
ANNUAL MEETING OBJECTIVES
At the conclusion of this activity, participants should be able to:

- Understand and explain the most recent recommendations for the management of skull base pathologies.
- Express knowledge of the technical aspects of the surgical and radiosurgical management of these pathologies as learned from the experience of leaders in the field.
- Describe the 3D anatomy of the skull base and neurovascular structures pertaining to the management of skull base pathologies.
- List and apply the fundamentals of quality measurement and their specific application to the skull base pathologies.
- Express knowledge about recent developments in the management of skull base pathologies as presented.

WHO SHOULD ATTEND
The NASBS meeting is open to NASBS members and non-members.

TARGET AUDIENCE
- Head and neck surgeons, neurosurgeons, reconstructive surgeons, radiotherapists, radiologists, medical oncologists, physical rehabilitation physicians, ophthalmologists, neuroradiologists, maxillofacial surgeons, maxillofacial prosthodontists and endocrinologists.
- Targeted allied health professionals will include physical therapists, oncology nurses, oral health specialists, occupational therapists, speech and language pathologists, optometrists, psychologists and anaplasologists.

ACCREDITATION STATEMENT
This activity has been planned and implemented in accordance with the Essential Areas and Policies of the Accreditation Council for Continuing Medical Education through the joint partnership of the American College of Surgeons and the North American Skull Base Society. The American College of Surgeons is accredited by the ACCME to provide continuing medical education for physicians.

AMA PRA CATEGORY 1 CREDITS™
The American College of Surgeons designates this live activity for a maximum of 23.25 AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

TRANSPORTATION
Explore Historic Ybor City, Channel District and Downtown Tampa on the TECO Line Streetcar System for 50% off 1-Day unlimited rides and the One-Way Cash Fare. Take advantage of this great savings and tour Tampa’s downtown attractions, restaurants, retail shops, and bars along the Streetcar line. Simply show your convention credentials to the motorperson upon boarding the Streetcar.

This 50% savings is good for the convention delegate only. Guests may choose from several fare options conveniently located at Ticket Vending Machines at each station stop. Convention delegates can purchase the discounted passes at the Ticket Vending Machines at each station stop with a credit card, or with exact change directly from the Motorperson.
General/CME Information

MEMBERSHIP BENEFITS

- **Scientific Journal:** Members will receive the official journal of the society, *The Journal of Neurological Surgery*, a biyearly publication that contains peer reviewed original articles, review articles, and position papers. It will also present news and information on an international scope to keep members aware of recent and upcoming events, activities, and evolving developments in skull base surgery.

- **Continuing Medical Education:** Members will receive listings of continuing medical educational opportunities in skull base surgery, as well as scientific courses sponsored by NASBS and will receive reduced registration fees for national scientific meetings.

- **Membership Directory:** An annual directory of the membership will be provided.

- **NASBS Website Access:** Members will have access to Member-Only discussion areas on the Society’s website.

Please visit [www.nasbs.org/about/membershipinfo.php](http://www.nasbs.org/about/membershipinfo.php) for more information or email membership@nasbs.org.

WHY JOIN NASBS?

Membership is based on an interest in skull base surgery and related sciences. Individuals with backgrounds in neurosurgery, otolaryngology-head and neck surgery, radiology, neuroradiology, otology, neurotology, plastic and reconstructive surgery, and others interested in skull base diseases are welcome to apply.

### REGISTRATION HOURS

**Pre-Function Ballroom A & B**
- **Thursday, February 19, 2015**
  - 2:00 pm – 6:00 pm
- **Friday, February 20, 2015**
  - 6:30 am – 7:45 pm
- **Saturday, February 21, 2015**
  - 6:30 am – 6:00 pm
- **Sunday, February 22, 2015**
  - 6:30 am – 12:30 pm

### EXHIBIT HALL/POSTER HOURS

**Ballroom B**
- **Friday, February 20, 2015**
  - 9:00 am – 4:00 pm Hall Open
  - 6:30 pm – 7:45 pm Hall Open
  - 9:00 am – 9:30 am Break in Exhibit Hall
  - 12:00 pm – 1:00 pm Lunch for Non-Members and Poster Viewing in Exhibit Hall
  - 3:30 pm – 4:00 pm Refreshment Break in Exhibit Hall
  - 6:30 pm – 7:45 pm Reception in Exhibit Hall
- **Saturday, February 21, 2015**
  - 9:00 am – 4:30 pm Hall Open
  - 9:00 am – 9:30 am Refreshment Break in Exhibit Hall
  - 12:15 pm – 1:30 pm Lunch/Poster Viewing
  - 4:00 pm – 4:30 pm Refreshment Break in Exhibit Hall
- **Sunday, February 22, 2015**
  - 8:00 am – 11:00 am Hall Open
  - 10:00 am – 10:30 am Refreshment Break in Exhibit Hall
**DISTINGUISHED SERVICE AWARD**

**Jon Hobson Robertson, MD**

Dr. Jon Hobson Robertson graduated from the University of Tennessee Medical School in 1971. He completed his residency in Neurosurgery at the University of Tennessee in 1979. Following his residency he joined the Semmes-Murphey Clinic and was appointed Assistant Professor in the UT Department of Neurosurgery. He was promoted to Associate Professor in 1984, and became Professor and Chairman of the UT Department of Neurosurgery in 1997. He stepped down as Chair of the UT program in July, 2011. Although he has limited his clinical practice in skull base surgery, he continues to enjoy his teaching role as a senior faculty member.

Dr. Robertson was President of the North American Skull Base Society in 2002, President of the Society of University Neurosurgeons in 2005, President of the American Association of Neurological Surgeons in 2008, and a Director on the American Board of Neurological Surgeons 2000-2006. In April 2013, the American Association of Neurological Surgeons awarded Dr. Robertson, with its highest member honor, the Harvey Cushing Medal. He currently continues in the service of organized neurosurgery as the Chairman of the Neurosurgery Research and Education Foundation.

Parents of five children and grandparents of twelve, Dr. Robertson and his wife, Carol Ann, have been married for 47 years. Dr. Robertson enjoys fly-fishing, music, and spending time with his family.

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**NASBS Skull Base Surgery**

**SUMMER WORKSHOP**

**July 9-12, 2015 • LSU Health Sciences Center, New Orleans, LA**

**SAVE THE DATE**

Do you have a Neurosurgery Resident or Head & Neck Fellow in need of Skull Base Surgery hands-on training? Then send them to the NASBS Skull Base Summer Workshop at LSU.

*This course is not to be missed!* Registration will be first-come, first served and will open in April.

For more information, visit [www.nasbs.org/future_meetings](http://www.nasbs.org/future_meetings) or contact Course Coordinator, Paula Kupiec at 310-424-3326, ext. 161 or paula@nasbs.org.
Honored Guest Lecturers

HARRY VAN LOVEREN, MD

Friday, February 20, 9:30 am

Harry van Loveren was born in the Netherlands in 1953, the natural product of a Marine Corps master-sergeant father and an Asian mother. He immigrated to the United States with his family and maintained immigrant values. His college education was varied, ranging from political science at Holy Cross to Chemistry at the University of Cincinnati (UC), with time off in between to try a traditional family career as a carpenter. Medical school was a very late decision. After completing medical school, he trained with the Mayfield Clinic (then the Mayfield Neurological Institute) because Frank Mayfield, M.D. represented all that was good about being a physician, and because of John Tew, M.D., the chairman. A fellowship rotation in the neurophysiology laboratory of Jean Sigfried and Helmut Haas in Zurich convinced him that personal success in Neuroscience would best be achieved by collaboration rather than competition, a recognition that resulted in a continuing collaboration with Jeffrey Keller, Ph.D., an anatomist at Mayfield. He remained at the Mayfield Clinic and participated in its amalgamation with the University of Cincinnati Department of Neurosurgery. His clinical and research interests include pain, functional neurosurgery, trauma, vascular neurosurgery, and skull base surgery.

Dr. van Loveren moved to Tampa in 2002 to accept a position as Professor of Neurosurgery and Program Director for the Department of Neurosurgery Residency Program at the University of South Florida. He was subsequently appointed Chair of the USF Department of Neurosurgery in 2003. In 2013, Dr. van Loveren was appointed Interim Dean of the USF Morsani College of Medicine while the University conducted a National search for a permanent Dean. He filled this position until May 2014. Dr. van Loveren presently serves as the David W. Cahill Professor and Chairman of the Department of Neurosurgery and Brain Repair at the University of South Florida and was recently appointed Associate Dean of Surgical Sub-Specialties to provide additional administrative and clinical leadership to the Departments of Urology, Otolaryngology, and Ophthalmology, in addition to his continued role in Neurosurgery. Since 1982, Dr. van Loveren has contributed over 115 academic papers in various publications. He has also written 36 book chapters, and in 1993, he and his mentor, Dr. John Tew wrote the Atlas of Operative Microneurosurgery, Volume I, Aneurysms and Arteriovenous Malformations, the first-place winner of the Association of Medical Illustrators award for a medical atlas. Atlas of Operative Microneurosurgery, Volume II, was released in January 2001. Dr. van Loveren has lectured at more than 200 conferences across the United States and around the world. In addition, he has had 17 visiting professorships in seven countries, conducted over 60 practical courses, and organized more than 20 professional symposia. He has mentored 24 skull base fellows and six post-graduate fellows, and has served as an investigator or co-investigator in more than 30 clinical research projects. Dr. van Loveren has served in many professional and scientific societies, including the AMA, AANS, AAcNS, CNS, North American Skull Base Society, Academy of Medicine of Cincinnati, Frank H. Mayfield Society, Ohio State Medical Association, AANS/CNS Joint Section on Cerebrovascular Surgery, AANS/CNS Joint Section on Tumors, and the American Heart Association.
Honored Guest Lecturers

L. DADE LUNSFORD, MD, FACS

Saturday, February 21, 9:30 am

Dr. Lunsford is the Lars Leksell Professor of Neurological Surgery and Distinguished Professor at the University of Pittsburgh. He currently is Director of the Center For Image-Guided Neurosurgery at the University of Pittsburgh Medical Center, and Director of the Neurological Surgery Residency Training Program. Dr. Lunsford's primary scholarly and patient care interests have been related to the combination of imaging and brain surgery for tumors, vascular malformations, and functional disorders. This includes stereotactic surgery, stereotactic radiosurgery, and image-guided brain surgery.

A native of Roanoke, Virginia, Dr. Lunsford received his B.A. with high honors at the University of Virginia in 1970. He received his medical degree from the Columbia University College of Physicians and Surgeons in 1974. He completed his surgical internship at the University of Virginia Hospital, and his residency in neurosurgery at the University of Pittsburgh under Dr. Peter Jannetta in 1980. Dr. Lunsford then undertook a one year AANS Van Wagenen fellowship in stereotactic and functional neurosurgery and radiosurgery at the Karolinska Institute in Stockholm, Sweden. After stepping down as the Department chair in 2006, Dr. Lunsford has devoted additional time to clinical research and resident and fellow education.

Dr. Lunsford has authored or co-authored more than 550 peer-reviewed articles, 260 book chapters, and authored or edited 12 books. Dr. Lunsford also served as President of the UPMC Presbyterian Medical Staff and Chair of the Council of Clinical Chairs at the University of Pittsburgh School of Medicine. He is currently the neurosurgical consultant for the University of Pittsburgh athletic teams as well as the Pittsburgh Penguins hockey team.

EDWARD LAWS, MD, FACS

Sunday, February 22, 10:30 am

Dr. Laws received his bachelor's degree from Princeton University with honors in Economics and Sociology in the Special Program in American Civilization, and then attended the Johns Hopkins University School of Medicine in Baltimore, Maryland. He did his surgical internship and neurosurgical residency at Johns Hopkins under A. Earl Walker. After completing his residency he joined the faculty at the Johns Hopkins Medical School. In 1972, he joined the staff of the Mayo Clinic in Rochester, Minnesota where ultimately he became Professor of Neurosurgery and developed major interests in pituitary surgery and epilepsy surgery along with a continuing interest in the metabolism and pathophysiology of primary brain tumors. In 1987 he became Professor and Chairman of the Department of Neurosurgery at the George Washington University in Washington, DC, and in 1992 joined the faculty of the University of Virginia as Professor of Neurosurgery and Professor of Medicine, establishing a Neuro-Endocrine Center there. Subsequently, he was Professor of Neurosurgery at Stanford University, and in 2008 established the Pituitary/Neuroendocrine Center at the Brigham and Women's Hospital in Boston where he currently is Professor of Neurosurgery at Harvard Medical School. During his surgical career he has operated upon more than 7000 brain tumors, of which 5400 have been pituitary lesions. Dr. Laws has served as President of the World Federation of Neurosurgical Societies, President of the Congress of Neurological Surgeons, Editor of Neurosurgery, Chairman of the Board of Trustees of the Foundation for International Education in Neurosurgery, Director of the American Board of Neurological Surgery, President of the American Association of Neurological Surgeons, and President of the Pituitary Society. He has authored over 500 scientific papers and book chapters, and is co-editor of the encyclopedic volume, “Brain Tumors” which is in its third edition. He has been the fifth neurosurgeon to become President of the American College of Surgeons, and was elected to membership in the Institute of Medicine of the National Academy of Science. He remains actively involved in pituitary tumor and neuroendocrine research and surgery.
KEYNOTE SPEAKER: FRED HAISE

Saturday, February 21, 11:15 am

Fred Haise, portrayed by actor Bill Paxton in the blockbuster Ron Howard film, Apollo 13, served as the lunar module pilot during the ill-fated 1970 space mission. He retired as president of Northrop Grumman Technical Services (GTS), a wholly owned subsidiary company of The Northrop Grumman Corporation.

Born in Biloxi, Mississippi, Haise graduated with honors in aeronautical engineering from the University of Oklahoma in 1959. After completing his U.S. Navy flight training in 1954, he served as a U.S. Marine Corps fighter pilot in VMF-533 and VMF-114. He had further assignments as a tactics and all-weather flight instructor at NAS Kingsville in advanced training units 100 and 102. In 1961, he was recalled into the U.S. Air Force with the Ohio ANG 164th TAC Fighter Squadron. He completed postgraduate courses in the USAF Aerospace Test Pilot School at Edwards Air Force Base in 1964 and the Harvard Business School PMD Program in 1972. He has logged 9,100 hours of flying time in over 80 types of aircraft.

In 1973, Haise was involved in an aircraft crash of a BT 13 aircraft that had been modified for the Tora! Tora! Tora! movie by 20th Century Fox to look like a Japanese VAL dive-bomber. In the ensuing fire he was burned on over 65 percent of his body, and spent three months in the hospital recovering. It took him 14 months to regain flight status in 1974, and he went on to fly the Space Shuttle Enterprise in 1977. Other than scars, he has no physical disabilities as a result of that accident.

Haise began his 20-year NASA career as an aeronautical research pilot at Lewis Research Center in 1959. He performed further assignments as a research pilot at the NASA Flight Research Center in 1963 and as an astronaut at Johnson Space Center in 1966. He served as backup crew for the Apollo 8, 11, and 16 missions and flew as the lunar module pilot on the aborted Apollo 13 lunar mission in 1970. He also flew five flights as the commander of the Space Shuttle Enterprise in 1977 for the Approach and Landing Program at Edwards Air Force Base.

Fred Haise was presented with the Presidential Medal of Freedom in 1970 by President Richard Nixon. His honors include the American Institute of Aeronautics and Astronautics (AIAA) Haley Astronautics Award, the General Thomas D. White Space Trophy, the NASA Distinguished Service Medal, the NASA Exceptional Service Award, the NASA Special Achievement Award, and induction into the Astronaut Hall of Fame.

He is an associate fellow of the AIAA and a fellow of the Society of Experimental Test Pilots and The American Astronautical Society. In addition, he is a member of the Tau Beta Pi, Sigma Gamma Tau, and Phi Theta Kappa honor societies.
Meeting Faculty & Disclosures

In accordance with the ACCME Accreditation Criteria, the American College of Surgeons, as the accredited provider of this activity, must ensure that anyone in a position to control the content of the educational activity has disclosed all relevant financial relationships with any commercial interest. Therefore, it is mandatory that both the program planning committee and speakers complete disclosure forms. Members of the program committee were required to disclose all financial relationships and speakers were required to disclose any financial relationship as it pertains to the content of the presentations. The ACCME defines a ‘commercial interest’ as ‘any entity producing, marketing, re-selling, or distributing health care goods or services consumed by, or used on, patients’. It does not consider providers of clinical service directly to patients to be commercial interests. The ACCME considers “relevant” financial relationships as financial transactions (in any amount) that may create a conflict of interest and occur within the 12 months preceding the time that the individual is being asked to assume a role controlling content of the educational activity.

ACS is also required, through our joint partnership, to manage any reported conflict and eliminate the potential for bias during the activity. All program committee members and speakers were contacted and the conflicts listed below have been managed to our satisfaction. However, if you perceive a bias during a session, please report the circumstances on the session evaluation form.

Please note we have advised the speakers that it is their responsibility to disclose at the start of their presentation if they will be describing the use of a device, product, or drug that is not FDA approved or the off-label use of an approved device, product, or drug or unapproved usage.

The requirement for disclosure is not intended to imply any impropriety of such relationships, but simply to identify such relationships through full disclosure and to allow the audience to form its own judgments regarding the presentation.

NASBS SCIENTIFIC PROGRAM COMMITTEE

Michael Link, MD
President

Siviero Agazzi, MD, MBA
Program Chair

Vikram Prabhu, MD
Co-Chairman for Neurosurgery

Maneul Ferreira, MD
Co-Chairman for Neurosurgery

Chris Rassekh, MD
Co-Chairman for Head and Neck

Ian Witterick, MSc, FRCSC
Co-Chairman for Head and Neck

Matt Carlson, MD, MS
Co-Chairman for Neuro-Otology

George Wanna, MD
Co-Chairman for Neuro-Otology

Lee Zimmer, MD, PhD
Pre-Course Co-Chairman

Bharat Guthikonda, MD
Pre-Course Co-Chairman

Philip Theodosopoulos, MD
Pre-Course Co-Chairman

Eric Moore, MD
Pre-Course Co-Chairman
The following presenters, faculty, or planning committee members have disclosed the listed financial relationships with commercial interests associated with their participation at the 25th Annual NASBS Meeting and Pre Meeting Course.

*“★” behind name denotes a member of the planning committee.

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## Disclosures

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### MEETING FACULTY, PRESENTERS & PLANNING COMMITTEE

<table>
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<th>NAME</th>
<th>COMPANY</th>
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<td>AB Elekta Insightec</td>
<td>Ownership Interest</td>
<td>Consultant</td>
</tr>
<tr>
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<td>Kogent Codman J&amp;J</td>
<td>Ownership Interest Consulting Fee</td>
<td>Stock Holder Consultant</td>
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<tr>
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<td>Elsevier QMP</td>
<td>Royalty Royalty</td>
<td>Book Editor Book Editor</td>
</tr>
<tr>
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<td>Visionsense Inc.</td>
<td>Stock Options</td>
<td>Board Member</td>
</tr>
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<td>Joachim Oertel</td>
<td>Karl Storz</td>
<td>Consulting Fee</td>
<td>Consultant</td>
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<tr>
<td>Rod Schlosser</td>
<td>BrainLAB Olympus Arrinex Optinose Intersect ENT</td>
<td>Consulting Fee Consulting Fee Consulting Fee Research Research</td>
<td>Consultant Consultant Consultant Grant Support Grant Support</td>
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<td>Cochlear Americas</td>
<td>Consulting Fee</td>
<td>Consultant</td>
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<tr>
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<td>SPI Surigical, Inc. Viket Medical, Inc.</td>
<td>Ownership Interest Ownership Interest</td>
<td>Stock-holder Stock-holder</td>
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<tr>
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<td>Central Dupage Proton Center Illinois Gamma Knife Center</td>
<td>Ownership Interest Ownership Interest</td>
<td>Staff Physician Management Position</td>
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<td>SPIWay, LLC</td>
<td>Ownership Interest</td>
<td>Consultant</td>
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<tr>
<td>Mark Tabor</td>
<td>Medtronic, LLC</td>
<td>Consulting Fee</td>
<td>Consultant</td>
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WEB: [www.osteomed.com](http://www.osteomed.com)

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2825 Airview Blvd.  
Kalamazoo, MI 49002  
PHONE: 269-385-2600  
FAX: 269-385-1062  
WEB: [www.stryker.com](http://www.stryker.com)

Stryker is one of the world’s leading medical technology companies and together with our customers, we are driven to make healthcare better. The Company offers a diverse array of innovative medical technologies, including reconstructive, medical and surgical, and neurotechnology and spine products to help people lead more active and more satisfying lives.

### Surgical Theater

*Booth #107*

781 Beta Drive  
Mayfield Village, OH 44143  
PHONE: 216-452-2177  
FAX: 216-916-3806  
WEB: [www.surgicaltheater.net](http://www.surgicaltheater.net)

“Pre-Live the Future” with SuRgical Planner (SRP): 3D planning of craniotomy, optimized approaches for Keyhole and other minimally invasive techniques.

Surgical Navigation Advanced Platform (SNAP) connects to intra-operative navigation systems enhancing 3D navigation and situational awareness, making tumors, vessels and tissue transparent to improve visualization. “See What You Can’t See.”

### Synaptive Medical

*Booth #206*

101 College Street, Suite 200  
Toronto, ON M5G 1L7, CANADA  
PHONE: 416-673-6679  
WEB: [www.synaptivemedical.com](http://www.synaptivemedical.com)

Synaptive Medical has dedicated more than 50 engineers and scientists specifically to the development of neurosurgical technologies. The result? Our BrightMatter™ Neurosurgery Products provide advanced tools and information for surgeons and hospitals to focus on patient outcomes.

### Thieme

*Booth #120*

333 7th Avenue  
New York, NY 10001  
PHONE: 212-584-4710  
WEB: [www.thieme.com](http://www.thieme.com)

Thieme is an award-winning international STM publisher serving health professionals for more than 125 years. Thieme offers a wide range of health-science books focusing on neurosurgery, otolaryngology, orthopaedics, ophthalmology, radiology, audiology, speech-language pathology. Its [Journal of Neurological Surgery Part B: Skull Base](http://www.thieme.com) is the official organ of the NASBS.
Convention Center Floor Plan

FLOOR PLAN LEGEND

- ATM
- Cafes, Concessions & Restaurants
- Main Entrance
- Restrooms

Tampa Convention Center
Phone: (813) 274-8511 • Fax: (813) 274-7430
333 South Franklin Street • Tampa, FL 33602
www.TampaConventionCenter.com
## Schedule-at-a-Glance

### FRIDAY, FEBRUARY 20, 2015

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:30 am</td>
<td>Registration Open</td>
<td>Pre-Function Ballroom A &amp; B</td>
</tr>
<tr>
<td>6:45 am</td>
<td>Continental Breakfast</td>
<td>Located in all Breakfast Seminar Rooms 13/14, 15/16, 18/19, and 20/21</td>
</tr>
<tr>
<td>7:00 am – 8:00 am</td>
<td><strong>BREAKFAST SEMINARS</strong></td>
<td>Room 13/14, Room 15/16, Room 18/19, Room 20/21</td>
</tr>
<tr>
<td>8:00 am – 9:00 am</td>
<td><strong>CONCURRENT SESSIONS</strong></td>
<td>Room 13/14, Room 15/16, Room 18/19, Room 20/21</td>
</tr>
<tr>
<td>9:00 am – 9:30 am</td>
<td>Break with Exhibitors</td>
<td>Ballroom B</td>
</tr>
<tr>
<td>9:30 am – 12:00 pm</td>
<td><strong>PLENARY SESSION</strong></td>
<td>Room 22/23, Ballroom B</td>
</tr>
<tr>
<td>12:00 pm – 1:00 pm</td>
<td><strong>NASBS Annual Business Meeting &amp; Lunch</strong></td>
<td>Room 22/23, Ballroom B</td>
</tr>
<tr>
<td>1:00 pm – 2:00 pm</td>
<td><strong>CONCURRENT SESSIONS</strong></td>
<td>Room 13/14, Room 15/16, Room 18/19, Room 20/21</td>
</tr>
<tr>
<td>2:00 pm – 3:30 pm</td>
<td><strong>PROFFERED PAPERS</strong></td>
<td>Room 13/14, Room 15/16, Room 18/19, Room 20/21</td>
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<tr>
<td>3:30 pm – 4:00 pm</td>
<td>Break with Exhibitors</td>
<td>Ballroom B</td>
</tr>
<tr>
<td>4:00 pm – 5:30 pm</td>
<td><strong>PROFFERED PAPERS</strong></td>
<td>Room 13/14, Room 15/16, Room 18/19, Room 20/21</td>
</tr>
<tr>
<td>5:30 pm – 6:30 pm</td>
<td>Skull Base Jeopardy</td>
<td>Ballroom A</td>
</tr>
<tr>
<td>6:30 pm – 7:45 pm</td>
<td>Welcome Reception &amp; Poster Viewing in Exhibit Hall</td>
<td>Ballroom B</td>
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</tbody>
</table>

**BS1:** Vestibular Schwannoma: Best Treatment for Small and Medium Size Tumors  
**BS2:** Orbital Exenteration: When, Why and How  
**BS3:** Craniopharyngiomas  
**BS4:** Challenging Pituitary Tumors: Large, Small Secreting, Recurring

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:30 am</td>
<td>Honored Guest Lecturer: “Skull Base Surgery Teams: The Critical Role of the Leader” – Harry van Loveren, MD</td>
<td>Ballroom A</td>
</tr>
<tr>
<td>10:00 am</td>
<td><strong>NF-2 Panel</strong> – Derald Brackmann, MD, Fred Barker, MD &amp; Douglas Kondziolka, MD</td>
<td>Ballroom A</td>
</tr>
<tr>
<td>11:00 am</td>
<td><strong>3D Anatomy</strong> – Albert Rhoton, MD</td>
<td>Ballroom A</td>
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</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Location</th>
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<tbody>
<tr>
<td>12:00 pm – 1:00 pm</td>
<td>Lunch in the Exhibit Hall</td>
<td>Ballroom B</td>
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<tr>
<td>1:00 pm – 2:00 pm</td>
<td><strong>CONCURRENT SESSIONS</strong></td>
<td>Room 13/14, Room 15/16, Room 18/19, Room 20/21</td>
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<tr>
<td>2:00 pm – 3:30 pm</td>
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<tr>
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</tr>
<tr>
<td>4:00 pm – 5:30 pm</td>
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<tr>
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<td>Skull Base Jeopardy</td>
<td>Ballroom A</td>
</tr>
<tr>
<td>6:30 pm – 7:45 pm</td>
<td>Welcome Reception &amp; Poster Viewing in Exhibit Hall</td>
<td>Ballroom B</td>
</tr>
</tbody>
</table>
SATURDAY, FEBRUARY 21, 2015

6:30 am   Registration Open   Pre-Function Ballroom A & B
6:45 am   Continental Breakfast   Located in all Breakfast Seminar Rooms 13/14, 15/16, 18/19, and 20/21
7:00 am – 8:00 am   BREAKFAST SEMINARS

| BS5: Vestibular Schwannoma: Management of the Most Challenging Cases | Room 13/14 |
| BS6: Esthesioneuroblastomas | Room 15/16 |
| BS7: Management of Challenging Aneurysms | Room 18/19 |
| BS8: CSF Leak Management in Anterior and Lateral Skull Base Surgery | Room 20/21 |

8:00 am – 9:00 am   CONCURRENT SESSIONS

| CS9: Avoiding Complications in Lateral Skullbase Surgery | Room 13/14 |
| CS10: Diagnosis and Management of Intracranial Hypertension | Room 15/16 |
| CS11: Competency of Future Skull Base Surgeons: More Surgeons, Fewer Surgeries, Tougher Cases | Room 18/19 |
| CS12: Clival Chordomas Management Strategies | Room 20/21 |

9:00 am – 9:30 am   Break with Exhibitors

9:30 am – 12:15 pm   PLENARY SESSION

| 9:30 am   Honored Guest Speaker: “Stereotatic Radiosurgery: Birth to Midlife Crisis?” – L. Dade Lunsford, MD |
| 10:00 am   Presidential Address: “25 Years of NASBS: The Whole Is Greater Than the Sum of the Parts” – Michael Link, MD |
| 10:45 am   International Guest: “Constructing Skull Base Centers of Excellence, What Are the Key Ingredients?” – Mario Sanna, MD |
| 11:15 am   Keynote Speaker: “Failure Is Not an Option” – Fred Haise |

12:15 pm – 1:30 pm   Lunch & Poster Viewing in the Exhibit Hall

1:30 pm – 2:30 pm   CONCURRENT SESSIONS

| CS13: Novel Technologies and Imaging in Skull Base Surgery | Room 13/14 |
| CS14: Outcomes in Lateral Skull Base Surgery: What Really Matters | Room 15/16 |
| CS15: Multidisciplinary Approach to Perineural Invasion | Room 18/19 |
| CS16: Controversies in Skull Base Pathologic Interpretations | Room 20/21 |

2:30 pm – 4:00 pm   PROFFERED PAPERS

| PROFFERED PAPER XI: Meningioma II | Room 13/14 |
| PROFFERED PAPER XII: Pituitary II | Room 15/16 |
| PROFFERED PAPER XIII: Vestibular Schwannoma II | Room 18/19 |
| PROFFERED PAPER XIV: Vascular | Room 20/21 |

4:00 pm – 4:30 pm   Break with Exhibitors

4:30 pm – 6:00 pm   PROFFERED PAPERS

| PROFFERED PAPER XV: Skull Base Malignancies | Room 13/14 |
| PROFFERED PAPER XVI: Imaging | Room 15/16 |
| PROFFERED PAPER XVII: Vestibular Schwannoma/QOL/TORS | Room 18/19 |
| PROFFERED PAPER XVIII: Vascular/Trauma/Infectious Diseases/SSC | Room 20/21 |

6:00 pm – 7:00 pm   New Member Reception with Leadership   On board the StarShip docked outside the Convention Center
Boarding for the New Member Reception is at 6:00 pm. You must have your badge to board.

7:00 pm   President’s Reception on the StarShip Yacht   On board the StarShip docked outside the Convention Center
Enjoy a beautiful evening twilight cruise of Tampa Bay while networking with your peers. Boarding for the President’s Reception will begin at 7:00 pm. You must have your name badge or guest ticket with you to board. The yacht will set sail at 7:45 pm and return to dock at 9:00 pm. Cocktail/Business Attire (Bring a sweater or jacket).
## SUNDAY, FEBRUARY 22, 2015

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:30 am</td>
<td>Registration Open</td>
<td>Pre-Function Ballroom A &amp; B</td>
</tr>
<tr>
<td>6:45 am</td>
<td>Continental Breakfast</td>
<td>Located in all Breakfast Seminar Rooms 13/14, 15/16, 18/19, and 20/21</td>
</tr>
<tr>
<td>7:00 am – 8:00 am</td>
<td><strong>BREAKFAST SEMINARS</strong></td>
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<td></td>
<td><strong>BS9:</strong> Primary Tumors of the Facial Nerve</td>
<td>Room 13/14</td>
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<td><strong>BS10:</strong> Contemporary Management of SNUC</td>
<td>Room 15/16</td>
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<tr>
<td></td>
<td><strong>BS11:</strong> Petroclival Meningiomas</td>
<td>Room 18/19</td>
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<tr>
<td></td>
<td><strong>BS12:</strong> Management of Cervical Paragangliomas – Carotid Body Tumors and Glomus Vagale</td>
<td>Room 20/21</td>
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<tr>
<td>8:00 am – 9:00 am</td>
<td><strong>CONCURRENT SESSIONS</strong></td>
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<td></td>
<td><strong>CS17:</strong> The Da Vinci Code: Seeking Truth in Traditional Dogma of Lateral Skull Base Surgery</td>
<td>Room 13/14</td>
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<td></td>
<td><strong>CS18:</strong> Chemotherapy – Where is it Useful in Skull Base Tumors</td>
<td>Room 15/16</td>
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<td><strong>CS19:</strong> Skull Base Surgery in Private Practice – How to Make it Work? How to Build a Practice?</td>
<td>Room 18/19</td>
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<td><strong>CS20:</strong> Skull Base Tumors in Pediatric Patients</td>
<td>Room 20/21</td>
</tr>
<tr>
<td>9:00 am – 10:00 am</td>
<td><strong>CONCURRENT SESSIONS</strong></td>
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<tr>
<td></td>
<td><strong>CS21:</strong> Jugular Foramen Tumors</td>
<td>Room 13/14</td>
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<td></td>
<td><strong>CS22:</strong> Temporal Bone Tumors</td>
<td>Room 15/16</td>
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<tr>
<td></td>
<td><strong>CS23:</strong> Skull Base Surgery in Developing Countries – What Is Our Role?</td>
<td>Room 18/19</td>
</tr>
<tr>
<td></td>
<td><strong>CS24:</strong> Cochlear Implants, Auditory Brainstem Implants, Auditory Midbrain Implants, What Does the Future Hold?</td>
<td>Room 20/21</td>
</tr>
<tr>
<td>10:00 am – 10:30 am</td>
<td><strong>Break with Exhibitors</strong></td>
<td>Ballroom B</td>
</tr>
<tr>
<td>10:30 am – 12:30 pm</td>
<td><strong>PLENARY SESSION</strong></td>
<td>Ballroom A</td>
</tr>
<tr>
<td>10:30 am</td>
<td><strong>Poster Awards Announcement</strong> – Chris Rassekh, MD</td>
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<tr>
<td>10:30 am</td>
<td><strong>Honored Guest Speaker:</strong> “The Evolution of Transsphenoidal Surgery, and Lessons Learned Along the Way” – Edward Laws, MD</td>
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<tr>
<td>11:00 am</td>
<td>Radiology – Jonathan Morris, MD</td>
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<tr>
<td>11:30 am</td>
<td>Medical Malpractice Special Session: “So, You Have Been Sued...Now What?” – The Honorable Gregory Holder, Circuit Court Judge, 13th Judicial Circuit of Florida, Henry Valenzuela Esq, Personal Injury Attorney, and Ronald Bush Esq, Medical Malpractice Defense Attorney</td>
<td></td>
</tr>
<tr>
<td>12:30 pm</td>
<td><strong>Meeting Adjourned</strong></td>
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</tbody>
</table>
## Pre-Meeting Workshop

Accreditation Statement: This activity has been planned and implemented in accordance with the Essential Areas and Policies of the Accreditation Council for Continuing Medical Education through the joint partnership of the American College of Surgeons and the North American Skull Base Society. The American College Surgeons is accredited by the ACCME to provide continuing medical education for physicians.

**AMA PRA Category 1 Credits™.** The American College of Surgeons designates this live activity for a maximum of **19.75 AMA PRA Category 1 Credits™.** Physicians should claim only the credit commensurate with the extent of their participation in the activity.

### PRE-MEETING SURGICAL SIMULATION COURSE

**Wednesday, February 18 & Thursday, February 19, 2015**

COURSE DIRECTORS: Bharat Guthikonda, MD, Eric Moore, MD, Philip Theodosopoulos MD, & Lee Zimmer, MD, PhD

**USF Health Center for Advanced Medical Learning and Simulation**

The address for the USF Health Center for Advanced Medical Learning and Simulation is 124 South Franklin Street, Tampa, Florida 33602. It is a 6 minute walk from the Marriott Tampa Waterside Hotel and Marina. Leaving the Tampa Marriott Waterside Hotel & Marina, head towards the Tampa Convention Center and take a right onto S Franklin Street. Walking two blocks up S Franklin Street, CAMLS will be located on the right at the cross streets of S Franklin St and E Brorein St.

**Pre-Meeting Course Objectives:**

- Demonstrate knowledge of decision making for diagnosis of skull base lesions
- Apply open and endoscopic surgical techniques in the diagnosis of skull base tumors
- Understand the nuances of vascular anastomosis
- Explain various ways of reconstruction of the skull base to avoid complications

### DAY ONE: WEDNESDAY, FEBRUARY 18, 2015

**Endoscopic Skull Base Workshop & Temporal Bone Workshop**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00 am – 7:15 am</td>
<td>Registration, Breakfast, &amp; Course Overview – Bharat Guthikonda, MD</td>
</tr>
<tr>
<td>7:15 am – 8:00 am</td>
<td>Endoscopic Endonasal Skull Base Surgery: From the Lab to the OR – Juan C. Fernandez-Miranda, MD</td>
</tr>
<tr>
<td>8:00 am – 8:15 am</td>
<td>Skull Base Reconstruction – Adam Zanation, MD</td>
</tr>
<tr>
<td>8:20 am – 9:00 am</td>
<td>Exposure &amp; Management of Carotid Artery</td>
</tr>
<tr>
<td>8:20 am</td>
<td>Cavernous &amp; Parasellar Carotid – Daniel Prevadello, MD</td>
</tr>
<tr>
<td>8:40 am</td>
<td>Endoscopic Endonasal Approaches to the Petrous Carotid – Paul Gardner, MD</td>
</tr>
<tr>
<td>9:00 am – 12:30 pm</td>
<td>Endoscopic Lab</td>
</tr>
<tr>
<td>9:00 am</td>
<td>Nasoseptal Flap Harvest</td>
</tr>
<tr>
<td>9:30 am</td>
<td>Sellar &amp; Parasellar Exposure</td>
</tr>
<tr>
<td>11:00 am</td>
<td>Paracervical &amp; Vidian Exposure</td>
</tr>
<tr>
<td>12:30 pm – 1:30 pm</td>
<td>Lunch Session: Vascular Complications &amp; CSF Leak Cases – Carl Snyderman, MD, MBA, James Liu, MD, and James Evans, MD</td>
</tr>
<tr>
<td>1:30 pm – 2:00 pm</td>
<td>Temporal Bone Anatomy – Jeff Sorensen, MD</td>
</tr>
<tr>
<td>2:00 pm – 2:30 pm</td>
<td>Anterior Petrosectomy, Cavernous Sinus, &amp; Mid Fossa – Harry van Loveren, MD</td>
</tr>
<tr>
<td>2:30 pm – 3:00 pm</td>
<td>Posterior Petrosectomy – Myles Pensak, MD</td>
</tr>
<tr>
<td>3:00 pm – 6:00 pm</td>
<td>Lateral Skull Base Lab</td>
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<tr>
<td></td>
<td>• Cavernous Sinus</td>
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<td>• Middle Fossa &amp; Anterior Petrosectomy</td>
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<td></td>
<td>• Posterior Petrosectomy &amp; Trans Lab</td>
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<td>• Retrosigmoid</td>
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<tr>
<td>6:00 pm</td>
<td>Adjournment</td>
</tr>
</tbody>
</table>
Pre-Meeting Workshop

DAY TWO: THURSDAY, FEBRUARY 19, 2015

Bypass For Revascularization & Free Flap Reconstruction & Anastomosis

7:00 am – 7:15 am  Breakfast, Course Overview, & Faculty Introductions – Philip Theodosopoulos, MD
7:20 am – 7:40 am  Bypass Selection for Aneurysm Surgery – Fady Charbel, MD
7:45 am – 8:05 am  Pre-operative Workup – Sepideh Amin-Hanjani, MD
8:10 am – 8:30 am  Selecting a Bypass Graft – Jacques Morcos, MD FRCS
8:35 am – 8:55 am  Treatment of Complex MCA Aneurysms: From Clipping to Non-Occlusive Bypass Options – Luca Regli, MD
9:00 am – 9:20 am  Step by Step Technique of Rat Dissection & Bypass – Mario Zuccarello, MD
9:20 am – 9:30 am  Transition to Lab
9:30 am – 12:00 pm  Microvascular Lab Session #1 – All Faculty
  • Rat Femoral Vessels Anastomosis
  • Biomet Anastomosis with Loupes
12:00 pm – 12:30 pm  Lunch Session: Techniques for Posterior Circulation Bypass – Amir Dehdashti, MD
12:30 pm – 2:00 pm  Free Flap & Reconstruction Lectures
  12:30 pm  Principles of Microvascular Anastomosis – Eric Moore, MD
  12:50 pm  Common and Uncommon Donor & Recipient Vessels – Jeffery Janus, MD
1:05 pm  ALTF – Thomas Nagel, MD
1:20 pm  RFFF – Eric Moore, MD
2:35 pm  Latissimus & Serratus – Daniel Price, MD
1:50 pm  Questions & Case Discussion – All Free Flap Faculty
2:00 pm – 5:00 pm  Microvascular Lab Session #2 – All Faculty
  • Rat Femoral Vessels Anastomosis
  • Deep Bypass
5:00 pm  Complete Activity Post Test
5:30 pm  Adjournment

ACKNOWLEDGEMENT OF SUPPORTERS

The North American Skull Base Society would like to recognize and thank the following companies for their support through educational grants:

DIAMOND
Stryker

GOLD
Medtronic Surgical Technologies

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DePuy Synthes/Codman
Elekta, Inc.
Mizuho America, Inc.
Tampa General Hospital

BRONZE
Biomet Microfixation
Cook Medical
Leica Microsystems
Olympus

Supporter of Breakfast Seminar: Vestibular Schwannoma: Best Treatment for Small and Medium Size Tumors
Elekta, Inc.

Supporter of Scientific Session: Trigeminal Schwannomas
Elekta, Inc.

Supporter of Accreditation Services
Mayo Clinic

The North American Skull Base Society would like to recognize and thank the following companies for their support through in-kind donations:

Lab Space
Center for Advanced Medical Learning and Simulation (CAMLCS)

Equipment
Aesculap, a Division of B. Braun
Apex Medical, Inc.
Biomet Microfixation
Carl Zeiss Meditec, Inc.
Cook Medical
DePuy Synthes/Codman
Ethicon, Inc.
Integra LifeSciences
KARL STORZ Endoscopy-America, Inc.
Leica Microsystems
Medtronic Surgical Technologies
Mizuho America, Inc.
Olympus
Stryker

Supporter of Scientific Session: Trigeminal Schwannomas
Elekta, Inc.

Supporter of Accreditation Services
Mayo Clinic
FRIDAY, FEBRUARY 20, 2015

6:30 am  Registration Open                  Pre-Function Ballroom A & B
6:45 am  Continental Breakfast            Located in all Breakfast Seminar Rooms 13/14, 15/16, 18/19, and 20/21
7:00 am – 8:00 am  BREAKFAST SEMINARS

**BS1: Vestibular Schwannoma: Best Treatment for Small and Medium Size Tumors**
Moderator: L. Dade Lunsford, MD – Shifting the Paradigm

*Room 13/14*

Speakers:
- John G. Golfinos, MD – Why I Still Do Microsurgery
- Bruce J. Gantz, MD – Long Term Hearing Preservation
- David S. Haynes, MD – Observation: Benefits and Risks

At the conclusion of this session, participants will be able to:
1. Evaluate options for VS management
2. Differentiate goals and results of management
3. Compare cranial nerve outcomes depending on management

**BS2: Orbital Exenteration: When, Why and How**
Moderator: Patrick Gullane, MB, FRCSC, FACS, FRACS

*Room 15/16*

Speakers:
- Dennis Kraus, MD, FACS – Sino-Nasal Cancers, Extent of Pre-Operative Evaluation, Role of Imaging, Decision Making on When and How to Preserve the Orbit to Include Current Surgical Ablative and Reconstructive Options and Complications Associated with Preservation or Sacrifice. How to Decide?
- Vikram Prabhu, MD – Intra-Cranial Neoplasms Including Meningioma’s Involving the Orbit - Role of the Neurosurgeon in Determining When to Sacrifice the Eye and Whether Prior Radiation Limits the Potential to Preserve the Globe?
- Howard Krauss, MD – Determine the Appropriate Pre-Operative Orbital and Ophthalmic Evaluation that Help Determine When Vision is Truly Salvageable Prior to Embarking on Complex Eye Sparing Procedures with Innovative Orbital Reconstructive Techniques Including Prosthetic Rehabilitation

At the conclusion of this session, participants will be able to:
1. Understand the pre and intra-operative challenges associated in the decision making of orbital preservation in cancers arising in the sinus and surrounding structures that involve or invade the orbit
2. Be aware of intracranial neoplasms that potentially involve the orbit necessitating its sacrifice
3. Understand the many complex eye-sparing procedures with innovative orbital reconstructive techniques including prosthetic reconstruction

**BS3: Craniopharyngiomas**
Moderator: Fred Gentili, MD – Introduction

*Room 18/19*

Speakers:
- James Liu, MD – Choosing the Optimal Approach: Above or Below, Combined Approaches
- Ossama Al-Mefty, MD – Approach to Retrochiasmatic Craniopharyngiomas
- Sebastien Froelich, MD

At the conclusion of this session, participants will be able to:
1. Be aware of the different surgical approaches for excision of craniopharyngioma
2. Determine the indications and limitations of open and endoscopic approaches
3. Formulate an action plan for the overall management plan to deal with these challenging lesions

**BS4: Challenging Pituitary Tumors: Large, Small SecretIng, Recurring**
Moderator: Roukoz Chamoun

*Room 20/21*

Speakers:
- William Couldwell – Pituitary Adenomas: Surgical Nuances
- Pete Batra – Management of Challenging Pituitary Tumors: A Rhinologic Perspective
- Bruce Pollock – Pituitary Adenoma Radiosurgery: Expected Outcomes Based on a 25-year Experience

At the conclusion of this session, participants will be able to:
1. Recognize the challenges of complex pituitary tumors
2. Formulate a therapeutic plan that includes surgery and/or radiosurgery
3. Learn surgical pearls to deal with challenging pituitary tumor cases
**Scientific Program**

**8:00 am – 9:00 am** **CONCURRENT SESSIONS**

**CS1: Reconstruction of Large Craniofacial Defects**  
MODERATOR: Michael Harrington, MD, MPH – Introduction

SPEAKERS:
- Philippe Pasche, MD – Microvascular Reconstruction of Anterior Craniofacial Defects
- Eric Moore, MD – Reconstruction of Lateral and Extended Skull Base Defects
- Questions and Answers

At the conclusion of this session, participants will be able to:
1. Discuss reconstruction of anterior craniofacial defects
2. Discuss reconstruction of lateral skull base defects
3. Discuss reconstruction of extended skull base defects

**CS2: Role of Bypass Surgery in Skull Base Pathology**  
MODERATOR: Mario Zuccarello, MD

SPEAKERS:
- Andrew Carlson, MD – Bypass Physiology and Decision-Making
- Luca Regli, MD – How to Construct the Ideal Bypass for Flow Replacement: Occlusive and None Occlusive Techniques
- Laligam Sekhar, MD – Revascularization for Posterior Circulation Aneurysms
- Amir Dehdashti, MD – Nuances of Subcranial-Intracranial Bypass

At the conclusion of this session, participants will be able to:
1. Identify the physiology of cerebral bypass surgery
2. Apply current indications of cerebral bypass surgery
3. Select surgical techniques appropriate for cerebral bypass surgery

**CS3: Proton Beam Radiation – Not Just for Chordoma Any More**  
MODERATOR: Vinai Gondi

SPEAKERS:
- Pat Sweeney, MD – Comparison of Proton Therapy versus Radiosurgery for Benign Tumors
- Michelle Alonso-Basanta, MD, PhD – Emerging Role of Proton Therapy for Low-Grade Glioma
- Vinai Gondi, MD – Clinical Trials of Proton Therapy for Newly Diagnosed Glioblastoma and Recurrent Malignant Glioma

At the conclusion of this session, participants will be able to:
1. Understand the basic concepts of proton therapy
2. Identify potential non-chordoma clinical indications for considering proton therapy
3. Learn about ongoing clinical trials for proton therapy for novel non-chordoma indications

**CS4: Trigeminal Schwannomas**  
MODERATOR: Siviero Agazzi, MD, MBA – Middle Fossa and Meckel’s Cave: Transcranial and Transnasal Anatomical Pearls

SPEAKERS:
- Samuel Barnett, MD – Trigeminal Schwannomas: One Tumor, Multiple Compartments: How to Choose an Open Approach
- Vijay Anand, MD – Transnasal Endoscopic Resection of Trigeminal Schwannomas: Technical Pearls and Case Selection
- Ajay Niranjan, MD – Radiosurgery for Trigeminal Schwannomas: Dose, Results and Morbidity, The Pittsburgh Experience

At the conclusion of this session, participants will be able to:
1. Discuss the pertinent anatomy and classification of trigeminal schwannomas
2. Recognize the role of radiosurgery in the management of trigeminal schwannomas
3. Evaluate the benefit of open versus endonasal endoscopic approaches for the resection of trigeminal schwannomas

**9:00 am – 9:30 am** **Break with Exhibitors**  

Ballroom B
9:30 am – 12:00 pm  **PLENARY SESSION**  

**Honored Guest Lecturer:** "Skull Base Surgery Teams: The Critical Role of the Leader" – Harry van Loveren, MD  
*Introduction by Michael Link, MD*

*The North American Skull Base Society gratefully acknowledges an unrestricted educational grant from Tampa General Hospital in support of this session.*

10:00 am  **NF-2 Panel**  
*MODERATOR: Michael Link, MD*

- **SPEAKERS:**
  - Derald Brackmann, MD – *Surgical Management of NF2 Related Vestibular Schwannomas*
  - Douglas Kondziolka, MD – *Radiosurgical Management of NF2 Related Vestibular Schwannomas*
  - Fred Barker, MD – *Chemotherapeutic Options for NF2 Related Vestibular Schwannomas*

At the conclusion of this session, participants will be able to:
1. Demonstrate an understanding of the different treatment options available for NF2 related tumors.
2. Hypothesize about the chance for hearing preservation or rehabilitation among the different treatment options.
3. Formulate a long-term treatment strategy for patients with NF2.

*The North American Skull Base Society gratefully acknowledges an unrestricted educational grant from Tampa General Hospital in support of this session.*

11:00 am  **3D Anatomy** – Albert Rhoton, MD  
*Introduction by Michael Link, MD*

12:00 pm – 1:00 pm  **NASBS Annual Business Meeting & Lunch**  
*for All Members*

**Lunch in the Exhibit Hall**  
*Ballroom B*

1:00 pm – 2:00 pm  **CONCURRENT SESSIONS**

**CS5: Decision Making in Facial Re-Animation**  
*MODERATOR: Mark Varvares, MD – *Introduction and Overview*

*SPEAKERS:*
- Peter Neligan, MD – *The Management of Marginal Nerve Weakness, the Eye and the Role and Approaches for Gracilis Free Flaps in Facial Nerve Injuries*
- Steven Cannady, MD – *Intraoperative Decision Making and Management of the Acute Facial Nerve Defect*

At the conclusion of this session, participants will be able to:
1. Demonstrate how the specific point of injury drives options available for reanimation
2. Recommend the proper use of nerve transfer procedures based upon the level of facial nerve injury
3. Recognize when the use of gracilis free flap is the most appropriate method for facial reanimation know how to select the recipient nerve for muscle innervation

**CS6: Mucoceles or Infectious Sinus Disease**  
*MODERATOR: Mark Tabor, MD*

*SPEAKERS:*
- David Kennedy, MD – *Endoscopic Marsupialization of Mucoceles: Pearls and Pitfalls*
- Roy Casiano, MD – *Management of the Frontal Sinus Using Extended or Combined Approaches*
- Nithin Adappa, MD – *Maximal Endoscopic Surgical Treatment for Recalcitrant Sinus Disease*

At the conclusion of this session, participants will be able to:
1. Evaluate and treat sinus mucoceles
2. Manage advanced frontal sinus disease with extended of combined approaches
3. Employ maximal endoscopic treatment for recalcitrant sinus disease
**CS7: The Supermatrix – Managing Complex Complications in Skull Base Surgery**  
**MODERATOR:** Fred Gentili, MD – *Introduction and General Overview of the Types and Incidence of Complications in Skull Base Surgery*

**SPEAKERS:**
- Carl Snyderman, MD, MBA – *Carotid Injury, Failed Reconstruction with CSF Leak, Scalp Necrosis, Causes and Avoidance*
- John Golfinos, MD – *Venous Sinus Thrombosis and Occlusion in Skull Base Approaches*

At the conclusion of this session, participants will be able to:
1. Categorize and recognize the different types of complex complications that can occur in skull base surgery
2. Evaluate and formulate appropriate management plans to deal with the complications
3. Identify critical techniques for complication avoidance

**CS8: Management of Orbital Tumors, Complications and Difficult Diagnoses**  
**MODERATOR:** Jason Newman, MD

**SPEAKERS:**
- Steven Newman, MD – *Orbital Surgery: Evolution & Revolution*
- Khaled Aziz, MD – *Fronto Orbital Craniotomy for Tumors Involving Orbital Structures*
- Ilya Leyngold, MD – *Orbital Tumors: Diagnostic and Treatment Challenges*

At the conclusion of this session, participants will be able to:
1. Describe common surgical complications of skull base surgery involving the orbit
2. Understand the workup and treatment of complex orbital tumors
3. Understand how to incorporate the techniques of front-orbital craniotomy into clinical practice

**2:00 pm – 3:30 pm  PROFFERED PAPERS**

**PROFFERED PAPER I: Meningioma I**  
(ORAL PRESENTATIONS ARE 9 MINUTES IN LENGTH AND Q&A SESSIONS ARE 3 MINUTES)  
**MODERATORS:** Kenneth De Los Reyes, MD & Osama Al-Mefty, MD

**001:** DESCRIPTIVE EPIDEMIOLOGY OF WORLD HEALTH ORGANIZATION GRADE II AND III INTRACRANIAL MENINGIOMAS IN THE UNITED STATES – Varun R Kshettry, MD, Quinn T Ostrom, MPH, Carol Kruchko, Ossama Al-Mefty, MD, Gene H Barnett, MD, Jill S Barnholtz-Sloan, PhD, Cleveland Clinic, Case Western Reserve University, Brigham and Womens Hospital

**002:** FACTORS AFFECTING PATIENT OUTCOMES OF ATYPICAL MENINGIOMAS IN A MODERN COHORT – Vijay Agarwal, MD, Ranjith Babu, MD, Amitoz Manhas, MD, Edgar Perez, MD, Allan Friedman, MD, David C Adamson, MD, Duke University Medical Center

**003:** INTRACRANIAL RADIATION INDUCED MENINGIOMAS – Wael Hassanean, MD, PhD, Vikram C Prabhu, MD, Edward Melian, MD, Jawed Fareed, PhD, Ewa Borys, MD, Omer Iqbal, MD, Douglas E Anderson, MD; Loyola University Medical Center

**Questions & Answers**

**004:** DIFFUSE PARASELLAR MENINGIOMAS: WATCHFUL WAITING AS A BEST MANAGEMENT STRATEGY? – James Glasbey, MD, BSc, Feras Sharouf, BSc, Pablo Goetz, MD, FRCS, John Martin, MD, FRCS, Hayhurst Caroline, MD, FRCS; University Hospital of Wales, Cardiff

**005:** LONG-TERM BEHAVIOR OF RESIDUAL TUMOR ON THE BRAINSTEM IN PETROUS/PETROCLIVAL MENINGIOMAS WITH BRAIN STEM ADHESION: THE EFFECT OF DURAL DETACHMENT ON TUMOR CONTROL – Soichi Oya, MD, PhD, Toru Matsui; Saitama Medical Center/University

**006:** “POSTOPERATIVE VISUAL OUTCOME IN PATIENTS OF PARASELLAR MENINGIOMAS” – Rajesh Chhabra, MCh, NeuroSurgery, Satish Kumar, MS, Sunil K Gupta, MCh; PGIMER, Chandigarh

**Questions & Answers**

**007:** DELAY IN THE DIAGNOSIS OF MENINGIOMAS INVOLVING THE OPTIC APPARATUS: EXPERIENCE WITH 100 PATIENTS – Nevo Margalit, MD, Gal Barkai, MD, Lior Gone, MD, Nir Shimoni; Tel Aviv Medical Center

**008:** IS PTERIONAL CRANIOTOMY ADEQUATE FOR COMPLETE EXCISION OF OLFACTORY GROOVE MENINGIOMA – Sherif M Elwatidy, Professor, FRCSNS, MD, Zain Jamjoom, Saadfar Malik, MRCs; King Saud University

**009:** NEUROPSYCHOLOGICAL OUTCOMES FOLLOWING MICROSURGICAL RESECTION OF OLFACTORY GROOVE MENINGIOMAS – Vincent A DiNapoli, MD, PhD, Franco DeMonte, MD, MD Anderson Cancer Center

**Questions & Answers**
PROFFERED PAPER II: Pituitary I
(ORAL PRESENTATIONS ARE 9 MINUTES IN LENGTH AND Q&A SESSIONS ARE 3 MINUTES)
MODERATORS: Edward Laws, MD & Cedric Shorter, MD

010: COMPLICATIONS AFTER TRANSSPHENOIDAL SURGERY FOR CUSHING DISEASE – Timothy R Smith, MD, PhD, MPH, M. Maher Hulou, BS, Kevin T Huang, MD, Breno Nery, MD, Edward R Laws, MD, FACS; Brigham and Womens Hospital

011: ENDOSCOPIC ENDONASAL TRANSSPHENOIDAL SURGERY FOR MICROPROLACTINOMAS AND MESOPROLACTINOMAS AS AN ALTERNATIVE TO DOPAMINE AGONIST THERAPY – Anni Wong, MS, Zachary S Mendelson, BS, Tareq Azad, BS, Jean A Eloy, MD, James K Liu, MD, Rutgers New Jersey Medical School

012: CURRENT INDICATIONS FOR THE SURGICAL TREATMENT OF PROLACTINOMAS – Timothy R Smith, MD, PhD, MPH, M. Maher Hulou, BS, Kevin T Huang, Abdulkerim Gokoglu, MD, Edward R Laws, MD, FACS; Brigham and Womens Hospital

Questions & Answers

013: THE BARROW NEUROLOGICAL INSTITUTE EXPERIENCE TREATING PATIENTS WITH RECURRENT OR RESIDUAL PITUITARY ADENOMA USING CYBERKNIFE STEREOTACTIC RADIOSURGERY – Yashar Kalani, Emad Youssef, Andrew Little, David Brachman, Heyoung McBride, Laura Knecht, William White; Barrow Neurological Institute

014: PRESERVATION OF NORMAL PITUITARY FUNCTION AFTER ENDOSCOPIC SURGERY FOR PITUITARY MACROADENOMAS – Edward R Laws, MD, Sherry L Iuliano, NP, Whitney W Woodmansee, MD, Lianggee Hsu, MD, Charles Cho, MD, BWH

015: ANATOMICAL VARIATIONS OF ACROMEGALIC PATIENTS IN TRANSSPHENOIDAL SURGERY – Edward Platt, Diana Jin, Timothy Wen, John Carmichael, William J Mack, Gabriel Zada; Keck School of Medicine, University of Southern California

Questions & Answers

016: PREDICTORS OF MORTALITY AND MORBIDITY IN PATIENTS UNDERGOING TRANSSPHENOIDAL SURGERY FOR TREATMENT OF ACROMEGALY – Andrew Platt, Diana Jin, Timothy Wen, John Carmichael, William J Mack, Gabriel Zada; Keck School of Medicine, University of Southern California

017: COMPARISON OF SINONASAL QUALITY OF LIFE BETWEEN PATIENTS UNDERGOING MICROSCOPIC AND ENDOSCOPIC TRANSSPHENOIDAL SURGERY FOR PITUITARY LESIONS: A PROSPECTIVE COHORT STUDY – Andrew Little1, Daniel Kelly2, Daniel Prevedello3, Ricardo Carrau2, Chester Griffiths2, Gail Rosseau4, Barkhoudarian Garni2, Heidi Jahnke1, Kathryn Jelinek1, John Milligan1, William White1, 1Barrow Neurological Associated, 2John Wayne Cancer Institute, 3The Ohio State University, 4NorthShore University HealthSystem

018: OTOARYNGIC MANIFESTATIONS OF CUSHING DISEASE – Edward C Kuan, MD, MBA, Kevin A Peng, MD, Marvin Bergsneider, MD, Jeffrey D Suh, MD, Marilene B Wang, MD; UCLA

Questions & Answers

PROFFERED PAPER III: Vestibular Schwannoma I
(ORAL PRESENTATIONS ARE 9 MINUTES IN LENGTH AND Q&A SESSIONS ARE 3 MINUTES)
MODERATORS: Samuel Barnett, MD & Michael Huang, MD

019: INITIAL SURGICAL OUTCOMES FOR VESTIBULAR SCHWANNOMA IN THE ERA OF LESS HANDS-ON TRAINING – Brian Milligan, MD1, Joseph Ursick, MD2, Robert Cullen, MD2, Bradley Theadinger, MD2; 1St. Luke’s Marion Bloch Neuroscience Institute, 2Midwest Ear Institute at St. Luke’s Hospital

020: ACHIEVING EXCELLENT SURGICAL RESULTS IN VESTIBULAR SCHWANNOMA SURGERY FROM THE BEGINNING. A STEP-BY-STEP EDUCATIONAL APPROACH IN THE 21ST CENTURY – Florian Roser, MD, PhD1, Marcos S Tatagiba, MD, PhD2; 1Cleveland Clinic Abu Dhabi, 2University of Tuebingen

021: VESTIBULAR SCHWANNOMA GROWTH RATE IN LONG TERM FOLLOW UP – Richard Locke, MB, ChB, PhD, FRCS1, John Crowther, MB, ChB, FRCS1, William Taylor, MB, ChB, FRCS2, Georgios Kontorinis, MB, ChB, FRCS1; 1ENT Dept, Institute of Neurosciences, Glasgow, 2Neurosurgery Dept, Institute of Neurosciences, Glasgow

Questions & Answers

022: INCIDENTAL AND RISK FACTORS OF DELAYED FACIAL PALSY AFTER VESTIBULAR SCHWANNOMA RESECTION – Lucas P Carlstrom, PhD, William R Copeland, MD, Brian A Neff, MD, Colin Driscoll, MD, Michael J Link, MD; Mayo Clinic

023: LONG-TERM FACIAL NERVE FUNCTION IN PATIENTS WITH VESTIBULAR SCHWANNOMA – Oystein V Tveiten, MD1, Matthew L Carlson, MD2, Michael J Link, MD3, Morten Lund-Johansen, MD, PhD1; 1Department of Neurosurgery, Haukelands University Hospital, Bergen, Norway, 2Department of Otorhinolaryngology, Mayo Clinic School of Medicine, Rochester, MN, USA, 3Department of Neurologic Surgery, Mayo Clinic School of Medicine, Rochester, MN, USA
**Scientific Program**

**024:** A MANAGEMENT OF FACIAL NERVE IN THE LATERAL SKULL BASE SURGERY – Atsunobu Tsunoda, MD, PhD; Tokyo Medical and Dental University

**Questions & Answers**

**025:** TUMOR CONTROL AND FACIAL NERVE OUTCOMES FOLLOWING SUB/NEAR-TOTAL RESECTION FOR VESTIBULAR SCHWANNOMAS – Jeffrey T Jacob, MD, Matthew L Carlson, MD, Colin L Driscoll, MD, Michael J Link, MD; Mayo Clinic

**026:** FACIAL NERVE AND HEARING OUTCOMES AFTER MIDDLE CRANIAL FOSSA VESTIBULAR SCHWANNOMA SURGERY – Heather A Koehn, BS, Claire Iseli, MBBS, MS, Benjamin Huang, MD, MPH, Deanna Sasaki-Adams, MD, Oliver Adunka, MD, Matthew Ewend, MD, Craig Buchanan, MD; University of North Carolina, Chapel Hill, NC

**027:** LONG-TERM QUALITY OF LIFE IN VESTIBULAR SCHWANNOMA: IMPACT OF DISEASE AND TREATMENT – Matthew L Carlson, MD; Mayo Clinic, 1Haukeland University Hospital, Bergen, Norway

**Questions & Answers**

**PROFFERED PAPER IV: Reconstruction/CSF Leak I**

(Room 20/21)

**MODERATORS:** Peter Neligan, MD & Justin M. Sweeney, MD

**028:** ETIOLOGY OF VASCULARIZED SKULL BASE RECONSTRUCTIVE FAILURES AND OUTCOMES OF SECONDARY REPAIR – Cristine Klatt-Cromwell, MD, Brian Thorp, MD, Charles Ebert, MD, MPH, Matthew Ewend, MD, MPH, Deanna Sasaki-Adams, MD, Adam Zanation, MD; University of North Carolina

**029:** NASAL DEFORMITIES FOLLOWING NASOSEPTAL FLAP RECONSTRUCTION OF SKULL BASE DEFECTS – Nicholas R Rowan, MD, Eric W Wang, MD, Carl H Snyderman, MD, MBA; University of Pittsburgh Medical Center, Department of Otolaryngology-Head & Neck Surgery

**030:** MORBIDITY FOLLOWING ENDOSCOPIC SURGERY OF THE SELLA – Colin Edwards, MD, Tasneem Shikary, MD, Lee A Zimmer, MD, PhD; University of Cincinnati Dept of Otolaryngology

**Questions & Answers**

**031:** INCIDENCE OF EPISTAXIS FOLLOWING ENDOSCOPIC SELAR SURGERY: PROPOSED TREATMENT ALGORITHM – Lee A Zimmer, Tasneem Shikary, Colin Edwards; University of Cincinnati

**032:** TORN NASOSEPTAL FLAP, DOES REPAIR OF THE PERFORATION AFFECT POSTOPERATIVE CEREBROSPINAL FLUID LEAK? – Colin Huntley, MD, Gurston G Nyquist, MD, Alfred M Illoreta, MD, Marc Otten, MD, Hermes Garcia, MD, Chris Farrell, MD, Marc R Rosen, MD, James J Evans, MD; Thomas Jefferson University

**033:** ENDOSCOPIC ANTERIOR HEMI-SKULL BASE RESECTION AND RECONSTRUCTION – Mohammad H Al-Bar, MD, Ralph Abi-Hachim, MD, Mallory Raymond, Zoukaa Sargi, Roy R Casiano, MD; University of Miami

**Questions & Answers**

**034:** COMPLICATIONS OF ENDOSCOPIC ENDONASAL SKULL BASE SURGERY IN THE ERA OF VASCULARIZED RECONSTRUCTION – Robert J Taylor, MD, Emily C Ambrose, MD, Justin D Miller, MD, Adam M Zanation; 1Medical University of South Carolina, 2University of Colorado at Denver, 3University of North Carolina at Chapel Hill

**035:** ANTERIOR SKULL RECONSTRUCTION: DOES FAT PREPARATION MATTER? – Joshua W Wood, MD, Caleb D Wilson, MD, Jaron Densky, Merry Sebelik, MD, Courtney Shires, MD; University of Tennessee Health Science Center

**036:** TRANSSPHENOIDAL PITUITARY SURGERY, SLEEP APNEA, AND PNEUMOCEPHALUS: IS THERE A LINK? – Ken Maynard, MD, Scott L Zucker, MD, Gabrielle White-Dzuro, BS, Matthew Clavenna, MD, Paul Russell, MD, Lola B Chambless, MD; Vanderbilt University

**Questions & Answers**

**PROFFERED PAPER V: Miscellaneous I**

(Room 22/23)

**MODERATORS:** Jeroen R. Coppens, MD & Daniel Price, MD

**037:** SURGICAL EXPERIENCE IN TREATMENT OF ORBITAL TUMORS – Alejandro Monroy Sosa, MD, Gervith Reyes, MD, Ángel Herrera, MD, Martín Granados, Bernardo Cacho, Jessica Daniela Valencia, José Francisco Carrillo, MD; 1Institute National of Cancerology, 2Institute National of Neurology and Neurosurgery

**038:** LATERAL ORBITAL APPROACH FOR LESIONS INVOLVING THE MIDDLE FOSSA – Joseph D Chabot, DO, Susan Stefko, MD, Eric Wang, MD, Carl Snyderman, MD, Juan Carlos Fernandez-Miranda, MD, Paul Gardner, MD; University of Pittsburgh Medical Center
039: INVERTED PAPILLOMA OF THE TEMPORAL BONE: A MULTI-CENTER CASE SERIES – Mara C Modest, MD, Matthew L Carlson, MD, Jeffrey R Janus, MD, Alex D Sweeney, MD, Jamie J Van Gompel, David S Haynes, MD, Brian A Neff, MD; 1The Mayo Clinic, 2Vanderbilt University

Questions & Answers

040: RESECTION OF CEREBELLO PONTINE ANGLE (CPA) TUMORS BY EXCLUSIVELY ENDOSCOPIC APPROACH – Robert Behr, PhD, Konrad Schwager, PhD, Erich Hofmann; Klinikum Fulda

041: COULD ENDOSCOPIC ENDOANASAL APPROACH CONTRIBUTE TO IMPROVE SKULL BASE CHONDROSARCOMA PROGNOSIS? – Anne Laure Bernat, MD, Damien Bresson, MD, PhD, Marc Polivka, MD, Homa Adle-Biassette, MD, PhD, Patricia De Cremoux, MD, PhD, Jean Pierre Guichard, MD, Loic Feuvret, MD, Bernard George, MD, PhD, Sébastien Froelich, MD, PhD; LARIBOISIERE

042: RESECTION OF SCHWANNOMAS ARISING PTERYGOPALATINE FOSSA WITH TRANS-ZYGOMATIC TRANSCRANIAL APPROACH – Yiqun Wu, MD, Baohua Fan, BS, Huayi Cheng, MD, Chening Zhang, MD, Tong Ji, MD, Zhiyuan Zhang, MD; 1Neurosurgery, Shanghai 9th Hospital, Shanghai Jiaotong University School of Medicine, 2Department of Oral Maxillary and Head and Neck Oncology, Shanghai 9th Hospital, Shanghai Jiaotong Un

Questions & Answers

043: QUANTIFIED VOLUMETRIC ANALYSIS AND CLINICAL OUTCOMES OF ENDOSCOPIC ENDOANASAL TRANSSPHENOIDAL PITUITARY MACROADENOMA RESECTION – Charles P Couturier, MD, Solon Schur, Marc Tewfik, MD, FRCSC, Zeitouni Anthony, MD, FRCSC, Denis Sirhan, MD, FRCSC, DABNS; McGill University Health Center

044: SURGICAL RESULTS OF ENDOSCOPIC SKULL BASE APPROACH FOR GIANT PITUITARY ADENOMAS – Shigetoshi Yano, MD, PhD, Takuichiro Hide, MD, PhD, Naoki Shinojima, MD, PhD, Jun-ichi Kuratsu, MD, PhD, Neurosurgery, Kumamoto University

045: OPTICAL COHERENCE TOMOGRAPHY NAVIGATED SURGERY FOR DIFFERENT INTERNAL AUDITORY CANAL TUMOR APPROACHES – Saleh Mohebbi, MD, Alexander Fuchs, Sebastian Tauscher, Tobias Ortmayer, Lüder A Kahrs, Johannes Gaa, Thomas Rau, Thomas Lenarz, Omid Majdani; 1Hannover Medical School, 2Hannover Leibniz University

Questions & Answers

3:30 pm – 4:00 pm Break with Exhibitors Ballroom B

4:00 pm – 5:30 pm PROFFERED PAPERS

PROFFERED PAPER VI: Endonasal Meningiomas
(ORAL PRESENTATIONS ARE 9 MINUTES IN LENGTH AND Q&A SESSIONS ARE 3 MINUTES)

MODERATORS: James Evans, MD & Carl Snyderman, MD, MBA

046: SINONASAL OUTCOMES FOLLOWING ENDOSCOPIC ENDOANASAL RESECTION OF ANTERIOR SKULL BASE MENINGIOMAS: SURGICAL EXPERIENCE & OUTCOME EVALUATION – Mihir Gupta, BA, Omar A Choudhri, MD, Arjun Pendharker, MD, Abdullah Feroze, BS, Abdulrazag Aijan, MD, Griffith Harsh IV, MD, Peter Hwang, MD, Stanford University School of Medicine

047: SUITABILITY OF SUPRASELLAR MENINGIOMAS FOR ENDOSCOPIC ENDOANASAL SURGERY: ANATOMY AND SURGICAL OUTCOMES - Serge Makarenko, Ryojo Akagami, MD, Erick Carreras, BSc, Angela Brevner; University of British Columbia

048: ENDONASAL ENDOSCOPIC RESECTION OF SUPRASELLAR/INFRASELLAR MENINGIOMAS, AN INSTITUTIONAL EXPERIENCE - Edward Yap, MD, Deanna Sasaki-Adams, MD, University of North Carolina

Questions & Answers

049: ENDONASAL ENDOSCOPIC BONY DECOMPRESSION AND CONSERVATIVE DEBULKING OF INVASIVE PARA-SELLAR MENINGIOMAS – Xin Zhang, MD, Wei Hua, MD, Bjorn Lobo, MD, Amy Eisenberg, NP, Garni Barkhoudarian, MD, Chester F Griffiths, MD, Daniel F Kelly, MD; John Wayne Cancer Institute at Providence Saint John’s Health Center

050: SKULLBASE HERNIATION FOLLOWING ENDOSCOPIC ENDOANASAL RESECTION OF TUBERCULUM AND PLANUM MENINGIOMAS – Ali Kooshkabadi, MD, Phillip A Choi, BS, Xiaorong Zhang, MS, Eric Wang, MD, Carl H Snyderman, MD, MBA, Paul A Gardner, MD, Juan C Fernandez-Miranda, MD; 1Department of Neurological Surgery, University of Pittsburgh Medical Center, 2University of Pittsburgh School of Medicine, 3Department of Otolaryngology, University of Pittsburgh Medical Center

051: ENDOSCOPIC ENDOANASAL SURGERY FOR OLFACTORY GROOVE MENINGIOMAS: OUTCOMES AND LIMITATIONS IN 50 PATIENTS – Maria Koutourousiou, MD, Juan C Fernandez-Miranda, MD, Eric W Wang, MD, Carl H Snyderman, MD, MBA, Paul A Gardner; 1University of Louisville, 2University of Pittsburgh School of Medicine

Questions & Answers
**052:** ENDOSCOPIC ENDONASAL TRANSCRIBRIFORM APPROACH FOR ANTERIOR SKULL BASE LESIONS INVOLVING THE CRIBRIFORM PLATE: INDICATIONS, TECHNIQUES, AND RESULTS IN 24 PATIENTS – Zachary S Mendelson, BS, Ahmed B Sheikh, Jean A Eloy, MD, James K Liu, MD, Rutgers New Jersey Medical School

**053:** ENDOSCOPIC ENDONASAL AND TRANSCRANIAL SURGERY FOR MICROSURGICAL RESECTION OF VENTRAL FORAMEN MAGNUM MENINGIOMAS – Nicolas K Khattar, MD1, Maria Koutrouousiou, MD1, Juan C Fernandez-Miranda, MD1, Eric W Wang, MD2, Carl H Snyderman, MD, MBA3, Aaron A Cohen-Gadol, MD, MS4, Paul A Gardner, MD1; 1Department of Neurological Surgery, University of Pittsburgh School of Medicine, 2Department of Otolaryngology, University of Pittsburgh School of Medicine, 3Goodman Campbell Brain and Spine, Indiana University Department of Neurosurgery

**054:** A CHECKLIST FOR ENDONASAL TRANSSPHENOIDAL ANTERIOR SKULL BASE SURGERY – Edward R Laws, MD, FACS1, Judith M Wong, MD, MPH2, Timothy R Smith, MD, PhD3, Kenneth de los Reyes, MD3, Linda S Aglio, MD, MS1, Alison J Thorne, RN4, David J Cote, BS5, Atul Gawande, MD, MPH1, 2BWH, 2USC, 3Loma Linda U

**Questions & Answers**

**PROFFERED PAPER VII: PEDS/Suprasellar**

(ORAL PRESENTATIONS ARE 9 MINUTES IN LENGTH AND Q&A SESSIONS ARE 3 MINUTES)

MODERATORS: William C. Gump, MD & Raoul Olivera, MD

**055:** WHAT HAVE BEEN CHANGING IN CRANIOPHARYNGIOMAS SURGERY – Matteo Zoli, MD1, Diego Mazzatenta, MD1, Adelaide Valluzzi, MD1, Marco Faustini-Fustini, MD1, Ernesto Pasquini, MD2, Giorgio Frank, MD1; 1Center of pituitary and skull base tumors, IRCCS Istituto delle Scienze Neurologiche, Bologna, Italy, 2ENT Department, Azienda USL Bologna, Italy

**056:** PEDIATRIC NASOSEPTAL FLAP RECONSTRUCTION OF SUPRASELLAR APPROACHES – Ankona Ghosh, MD1, Kyle Hatten, MD1, James Palmer, MD1, Jay B Storm, MD2, John Y Lee, MD3, Kim Learned, MD4, Nithin Adappa, MD1; 1Department of ORL, Hospital of the University of Pennsylvania, 2Department of Neurosurgery, Childrens Hospital of Philadelphia, 3Department of Neurosurgery, Hospital of the University of Pennsylvania, 4Department of Neuroradiology, Hospital of the University of Pennsylvania

**057:** PEDIATRIC ENDOSCOPIC ENDONASAL SKULL BASE SURGERY. THE CHILDREN’S HOSPITAL OF PHILADELPHIA EXPERIENCE – Zarina S Ali, MD1; Rosemary E Henn, BS1, Nithin D Adappa, MD1, James N Palmer, MD2, John Y Y Lee, MD2, Phillip B Storm, MD1; 1University of Pennsylvania, 2The Childrens Hospital of Philadelphia

**Questions & Answers**

**058:** COMPLICATION RATE OF ENDOSCOPIC ENDONASAL RESECTION OF PEDIATRIC VERSUS ADULT CRANIOPHARYNGIOMA – Marvin Bergsneider, MD1, Marilene B Wang, MD, Jeffrey D Suh, MD; UCLA David Geffen School of Medicine

**059:** ENDONASAL TRANSSPHENOIDAL SURGERY OF CRANIOPHARYNGIOMAS: A CASE SERIES – Bakhtiyar Pashaev, M, D1, Valeriy Danilov, M, D2, Gulnar Vagapova1, Andrey Alekseev1, Dmitriy Bochkarev1, Farida Nasibullina, M, D2; 1Department of Neurosurgery, Interregional Clinical Diagnostic Center, Kazan, 2Kazan Medical State University, 3Kazan Medical state Academy

**060:** CEREBROSPINAL FLUID LEAK RISK FACTORS IN PEDIATRIC PATIENTS UNDERGOING ENDOSCOPIC ENDONASAL SKULL BASE SURGERY – Amanda L Stapleton, MD1, Elizabeth C Tyler-Kabara, MD, PhD2, Paul A Gardner, MD2, Snyderman H Carl, MD, MBA2, Wang W Eric, MD1; 1University of Pittsburgh Medical Center: Department of Otolaryngology, 2University of Pittsburgh Medical Center: Department of Neurological Surgery

**Questions & Answers**

**PROFFERED PAPER VIII: Endoscopic Surgery**

(ORAL PRESENTATIONS ARE 9 MINUTES IN LENGTH AND Q&A SESSIONS ARE 3 MINUTES)

MODERATORS: Mohamed Elhammady, MD & Andrew Little, MD

**061:** OUTCOMES FOLLOWING PURELY ENDOSONIC, EXTENDED ENDONASAL RESECTION OF NON-PITUITARY SELLER AND SUPRASELLER LEISONS: A CASE SERIES – Shamsul Alam, MD, B S M Medical University

**062:** RATHKE’S CLEFT CYST: CHARACTERISTICS BASED ON THE CYST LOCATION WITH PRIMARY FOCUS ON RECURRENCE – Silky Chotai, Yi Liu, Jun Pan, Songtao Qi, MD, PhD; Nanfang Hospital, Southern Medical University, Guangzhou, China

**063:** BIFRONTAL BASAL INTERHEMISPHERIC TRANSLAMINATERMINALIS APPROACH FOR RESECTION OF SUPRASELLAR LESIONS: ANALYSIS OF 17 CASES – Shamsul Alam, MD, B S M Medical University

**Questions & Answers**
**065: PREDICTORS OF SINONASAL QUALITY OF LIFE AND NASAL MORBIDITY AFTER ENDOSCOPIC TRANSSPHENOIDAL SURGERY: A MULTICENTER STUDY** – Andrew S Little,1 Daniel Kelly,2 John Milligan,2 Chester Griffiths2,3 Ricardo Carrau,2 Daniel Prevedello,2 Gail Rosseau,1 Garni Barkhoudarian,2 William White1,3 ‘Barrow Neurological Institute, 1John Wayne Cancer Institute, 2The Ohio State University, 3NorthShore University Health System

**066: THE ENDOSCOPIC ENDONASAL APPROACH FOR ORBITAL AND ORBITAL APEX LESIONS: A SERIES OF 77 PATIENTS** – Nathan T Zwagerman, MD, Susan Stefko, MD, Eric Wang, Juan Fernandez-Miranda, Carl Snyderman, MD, Paul A Gardner, MD, University of Pittsburgh Medical Center

**Questions & Answers**

**067: WHAT IS THE ROLE OF ENDOSCOPE DURING MICROSURGERY IN THE POSTERIOR CRANIAL FOSSA?** – Guillerme R Montibeller, Joachim Oertel; Department of Neurosurgery, Saarland University

**068: ENDOSCOPIC SURGERY OF THE CEREBELLOPONTINE ANGLE: BARRIERS TO ADOPTION** – John Y Lee, MD, Kalil Abdullah, MD, Jayesh P Thawani, Dmitry Petrov, MD, Jason Brant, MD, Douglas Bigelow, MD, Michael Ruckenstein, MD, University of Pennsylvania

**069: ENDOSCOPIC ENDONASAL APPROACH TO PETROUS APEX CHOLESTEROL GRANULOMAS: OUTCOMES OF A SERIES OF 28 PATIENTS** – Chirag R Patel, MD, Carl H Snyderman, MBA, Juan C Fernandez-Miranda, MD, Paul A Gardner, MD, Eric W Wang, MD; University of Pittsburgh Medical Center

**Questions & Answers**

**070: TRANSSPHENOIDAL APPROACH FOR PITUITARY METASTASES** – Matteo Zoli, MD, Diego Mazzatenta,1 Adelaide Valluzzi,2 Marco Faustini-Fustini1, Ernesto Pasquini, MD,2 Giorgio Frank, MD,1 Center of pituitary and endoscopic skull base surgery, IRCCS delle Scienze Neurologiche, Bologna (IT), 2ENT Department, Azienda USL, Bologna, Italy

**071: ENDOSCOPIC ENDONASAL APPROACH TO THE PETROUS APEX, A RETROSPECTIVE STUDY AND OUTCOMES** – Robert A Miller, MD, Maria Koutourousiou, MD, Eric W Wang, MD, Juan C Fernandez-Miranda, MD, Carl H Snyderman, MD, MPH, Paul A Gardner, MD; University of Pittsburgh Medical Center

**072: ENDOSCOPIC ENDONASAL SURGERY FOR CLIVAL CHORDOMA** – Matteo Zoli, MD, Diego Mazzatenta, MD,1 Adelaide Valluzzi,1 Pasquini Ernesto,2 Giorgio Frank1; Center of pituitary and endoscopic skull base surgery, IRCCS delle Scienze Neurologiche, Bologna (IT), 2ENT Department, Azienda USL Bologna, Italy

**Questions & Answers**

**PROFFERED PAPER IX:** Reconstruction/CSF Leak II

(ORAL PRESENTATIONS ARE 9 MINUTES IN LENGTH AND Q&A SESSIONS ARE 3 MINUTES)

MODERATORS: Mark Varvares, MD & Eric W. Wang, MD

**073: AUTOLOGOUS FAT GRAFT-ASSISTED INTERNAL AUDITORY CANAL CLOSURE TECHNIQUE AFTER RETROSIGMOID TRANSMEATAL RESECTION OF ACOUSTIC NEUROMA** – Tareq Azad, BS, Zachary S Mendelson, BS, Anni Wong, MS, Robert W Jyung, MD, James K Liu, MD; Rutgers New Jersey Medical School

**074: THE REVERSE-FLOW FACIAL ARTERY BUCCINATOR FLAP FOR SKULL BASE RECONSTRUCTION: KEY ANATOMIC AND TECHNICAL CONSIDERATIONS** – Zainab Farzal, BS, Ana M Lemos, MD, Rounak B Rawal, MD, Lewis J Overton, MD, Satyan B Sreenath, BS, Adam M Zanation, MD; University of North Carolina at Chapel Hill

**075: PERIOPERATIVE AND LONG-TERM OUTCOME COMPARISON OF PERICRANIAL VS FREE TISSUE TRANSFER RECONSTRUCTION OF THE ANTERIOR CRANIAL BASE** – Andrew Kroeker, MD, Erin McKean, MD, MBA, Kyle VanKoelevering, MD, Stephen Sullivan, MD, Lawrence Marentette, MD; University of Michigan

**Questions & Answers**

**076: BILATERAL NASOSEPTAL RESCUE FLAP WITH OLFACTORY EPITHELIUM PRESERVATION: A PROSPECTIVE STUDY ANALYZING POSTOPERATIVE OLFACTIA AND EPISTAXIS** – Chester F Griffiths1, Garni Barkhoudarian, MD,1 Aaron Cutler, MD,1 Huy Duong, MD,2 Bjorn Lobo, MD,2 Kian Karimi, MD,2 Olivia Doyle, PAC2, Ricardo Carrau, MD,3 Daniel F Kelly, MD,1 John Wayne Cancer Institute at Providence Saint Johns Health Center, 2Pacific Eye and Ear Specialists, 3Ohio State University Medical Center

**077: ENDOSCOPIC RECONSTRUCTION OF LARGE ANTERIOR SKULL BASE DEFECTS USING SINGLE LAYER OF ACELLULAR DERMAL ALLOGRAFT** – Ralph Abi Hachem, MD, Mallory Raymond, BA, Mohammad Al-Bar, MD, Zoukaa Sargi, MD, Roy R Casiano, MD; Department of Otolaryngology Head and Neck Surgery, Miller School of Medicine, University of Miami

**078: RELAXING SPHENOIDAL SLIT INCISION: A SIMPLE TECHNIQUE TO EXTEND THE ANTERIOR AND POSTERIOR REACH OF PEDICLED NASOSEPTAL FLAPS DURING ENDOSCOPIC SKULL BASE RECONSTRUCTION OF TRANSSPHENIFORM DEFECTS** – James K Liu, MD, Zachary S Mendelson, BS, Jean A Eloy, MD; Rutgers New Jersey Medical School

**Questions & Answers**
### Scientific Program

**079:** CRANIAL BASE RECONSTRUCTION AFTER ENDOSCOPIC ENDONASAL SURGERY: VALIDATION OF AN ALGORITHM IN 832 CASES – Tyler J Kenning, MD, Maria Peris-Celda, MD, PhD, Carlos D Pinheiro-Neto, MD, PhD, Saurabh Singhal, MS, Jay Agarwal, Marc R Rosen, MD, James J Evans, MD; 1Albany Medical Center, 2Thomas Jefferson University Hospital

**080:** RISK FACTORS OF POSTOPERATIVE CSF LEAK IN PERI-SELLAR PATHOLOGIES: CLINICAL AND STATISTICAL STUDY – Akram Awadalla; Zagazig university

**081:** PROMINENT INFERIOR INTERCAVERNOUS SINUS IN INTRACRANIAL HYPOTENSION – Lyne Noel de Tilly, Paula Alcaide-Leon, E Fanou, Aditya Bhartha, Walter Kucharczyk; 1St Michels Hospital, 2Toronto Western Hospital, 3Toronto General Hospital

### Questions & Answers

**PROFFERED PAPER X: Miscellaneous II**

(ORAL PRESENTATIONS ARE 9 MINUTES IN LENGTH AND Q&A SESSIONS ARE 3 MINUTES)

MODERATORS: Florian Roser, MD & Tonya Stefko, MD

**082:** FRACTIONATED STEREOTACTIC RADIOTHERAPY FOR FACIAL NERVE SCHWANNOMA – Wenyin Shi, MD, PhD, Hyun Kim, MD, Colin Champ, MD, Haisong Liu, PhD, Maria Werner-wasik, MD, David Andrews, MD, Gregory Artz, James Evans, MD; 1Thomas Jefferson University, 2University of Pittsburg

**083:** RESPECTIVE REVIEW OF NON-VESTIBULAR SCHWANNOMAS TREATED WITH STEREOTACTIC RADIOSURGERY – Perry Mansfield, MD, FRCSC, Tahir Ijaz, MD, FRCP, Jocelyn Tisch; 1Senta Clinic, 2Cyberknife Centers of San Diego, 3Clemson University

**084:** SURGICAL MANAGEMENT OF JUGULAR FORAMEN TUMORS: A SERIES OF 255 CONSECUTIVE CASES – Zhen Wu; Beijing Tiantan Hospital, Capital Medical University, China

### Questions & Answers

**085:** LONG TERM OUTCOMES FOLLOWING SURGICAL RESECTION OF SKULL BASE ESTHESIONEUROBLASTOMAS - Naweed Chowdhury, MD, Joshua Mark, David Beahm, MD, Roukouz Chamoun, MD, Terry T Tsue, MD, Paul Camarata, MD, Larry Hoover, MD; University of Kansas Medical Center

**086:** COMPARISON OF OUTCOMES FOR OPEN VERSUS ENDOSCOPIC APPROACHES FOR ESTHESIONEUROBLASTOMA: A SYSTEMATIC REVIEW AND INDIVIDUAL PATIENT-LEVEL POOLED ANALYSIS – Terence S Fu, MBA, Eric Monteiro, MD, David P Goldstein, MD, Nidal Muhanna, MD, PhD, John de Almeida, MD; 1University of Toronto, Faculty of Medicine, 2Department of Otolaryngology – Head and Neck Surgery, University of Toronto

**087:** GENE EXPRESSION PROFILING OF FIBROUS DYSPLASIA REVEALS ADAMTS2 OVEREXPRESSION AS A POTENTIAL MARKER – Shanghui Zhou, PhD, Wenjun Yang, Shengwen Liu, Jiang Li, Chunye Zhang, Yun Zhu, Chenping Zhang; 1Department of Oral & Maxillofacial-Head & Neck Oncology, Ninth Peoples Hospital, Shanghai Jiao Tong, 2Department of Oral Pathology, Ninth Peoples’s Hospital, Shanghai Jiao Tong University School of Medicine

### Questions & Answers

**088:** IDENTIFICATION OF NOVEL GERMLINE AND TUMOR-SPECIFIC NUCLEOTIDE VARIANTS AND COPY NUMBER VARIATION IN CLIVAL CHORDOMAS BY EXOME SEQUENCING – Georgios Zenonos, MD, Peter G Howard, BS, Maureen A Lyons-Weiler, BS, Wang Eric, MD, William A LaFambroise, PhD, Paul Gardner, MD; 1University of Pittsburgh Department of Neurosurgery, 2Department of Pathology, University of Pittsburgh Cancer Genomics Facility, 3Department of Otorhinolaryngology

**089:** FACTORS PREDICTING RECURRENCE AFTER RESECTION OF CLIVAL CHORDOMA USING VARIABLE SURGICAL APPROACHES AND RADIATION MODALITIES – Arman Jahangiri, BS, Aaron Chin, Jeffrey R Wagner, Sandeep Kunwar, Christopher Ames, Dean Chou, Igor Barani, Andrew T Parsa, Arnau Benet, Michael W McDermott, Ivan El-Sayed, Manish K Aghi; UCSF

**165:** CAVERNOUS SINUS COMPARTMENTS FROM AN ENDOSCOPIC ENDONASAL APPROACH: PROPOSED ANATOMICAL COMPARTMENTS AND SURGICAL RELEVANCE – Juan C Fernandez-Miranda, MD, Kumar Abhinav, MD, Eugenio Cardenas, MD, Eric W Wang, MD, Carl H Synderman, MD, MBA, Paul A Gardner; University of Pittsburgh Medical Center

### Questions & Answers

5:30 pm – 6:30 pm  
**Skull Base Jeopardy**  
HOST: John Golfinos, MD  

6:30 pm – 7:45 pm  
**Welcome Reception & Poster Viewing in Exhibit Hall**
**BS5: Vestibular Schwannoma: Management of the Most Challenging Cases**

**MODERATOR:** Matthew Carlson, MD

**SPEAKERS:**
- Derald E Brackmann, MD – *Management of VS in the Only Hearing Ear*
- Mario Sanna, MD – *Salvage Surgery for Recurrent VS Following Prior Microsurgery or Radiotherapy*
- Johnny B. Delashaw, MD – *Management of Very Large VS*
- All – *Case Presentations*

At the conclusion of this session, participants will be able to:
1. Identify the controversies associated with VS management in the three presented areas
2. Demonstrate an understanding of treatment options for patients with complex VS
3. Develop management strategies aimed at reducing treatment-associated morbidity while optimizing tumor control

*The North American Skull Base Society gratefully acknowledges an unrestricted educational grant from DePuy Synthes/Codman in support of this session.*

**BS6: Esthesioneuroblastomas**

**MODERATOR:** Abraham Boskovitz, MD – *Esthesioneuroblastomas: Introduction*

**SPEAKERS:**
- Jamie Van Gompel, MD – *Esthesioneuroblastoma: Mayo Treatment Algorithms for Primary and Recurrent Tumors*
- Paul Levine, MD – *Principles of Treatment for Esthesioneuroblastoma: The University of Virginia Experience*
- Andrew Little, MD – *Surgical Options and Approach Selection in Esthesioneuroblastoma*
- Abraham Boskovitz, MD – *Discussion*

At the conclusion of this session, participants will be able to:
1. Discuss the diagnosis, treatment, and outcome of Esthesioneuroblastomas
2. Recognize and compare two broadly different medical treatment strategies for these tumors
3. Develop endoscopic versus open surgical plans to resect these tumors

**BS7: Management of Challenging Aneurysms**

**MODERATOR:** Mustafa Baskaya, MD

**SPEAKERS:**
- Anil Nanda, MD, MPH – *Giant Aneurysms*
- Giuseppe Lanzino, MD – *Contemporary Treatment of Complex Aneurysms*
- Paul Gardner, MD – *Endoscopic Management of Challenging Aneurysms*
- All – *Case Presentations*

At the conclusion of this session, participants will be able to:
1. Distinguish challenging aneurysms from simple aneurysms
2. Recognize different modalities of treatment
3. Construct their treatment paradigms based on this seminar

**BS8: CSF Leak Management in Anterior and Lateral Skull Base Surgery**

**MODERATOR:** Vijay Anand, MD – *Introduction*

**SPEAKERS:**
- Simon Angeli, MD – *Body Mass Index and Diagnostic Imaging Abnormalities in Spontaneous Cerebrospinal Fluid*
- Ricardo Carrau, MD – *Advances in Nasoseptal Flaps: Advantages and Effectiveness*
- James Evans, MD – *Neurosurgical Perspectives in Management of Encephelocles*

At the conclusion of this session, participants will be able to:
1. Discuss the role of obesity in the pathophysiology of idiopathic intracranial hypertension
2. Discuss the role of nasoseptal flap to the treatment of spontaneous CSF rhinorrhea
3. Discuss the role of cerebrospinal fluid diversion in the management of medically refractory idiopathic intracranial hypertension
8:00 am – 9:00 am  CONCURRENT SESSIONS

**CS9: Avoiding Complications in Lateral Skullbase Surgery**  
MODERATOR: K. Paul Boyev, MD – *Introduction: Complications of Lateral Skullbase Surgery and Physician Error*

SPEAKERS:
- L. Madison Michael, MD – *Complications in Retrosigmoid Surgery*
- Kyle Weaver, MD – *Complications in the Middle Fossa Approaches*
- Carl Heilman, MD – *Complications in the Translabyrinthine Approaches*
- K. Paul Boyev, MD – *Complications in Jugular Fossa Surgery*

At the conclusion of this session, participants will be able to:
1. Understand which complications are most prevalent in three major lateral skullbase approaches
2. Devise surgical strategies that proactively minimize patient risks for these foreseeable complications
3. Gain both conceptual and technical solutions to common skullbase surgery challenges

*The North American Skull Base Society gratefully acknowledges an unrestricted educational grant from Stryker in support of this scientific session.*

**CS10: Diagnosis and Management of Intracranial Hypertension**  
MODERATOR: Christopher H. Rassekh, MD – *Introduction of Concept and Speakers*

SPEAKERS:
- M. Sean Grady, MD – *Pathophysiology of Cerebrospinal Fluid and Clinical Applications*
- James A. Garrity, MD – *The Ophthalmologic Evaluation and Treatment of Pseudotumor Cerebri*
- Rodney J. Schlosser, MD – *The Role of Intracranial Hypertension in Spontaneous Cerebrospinal Fluid Leaks*

At the conclusion of this session, participants will be able to:
1. Recognize risk factors for altered CSF physiology and identify signs and symptoms of intracranial hypertension
2. Coordinate an evaluation of patients with suspected increased intracranial pressure
3. Classify and explain the major causes of increased intracranial pressure
4. Understand management options for patients with increased intracranial pressure in different clinical settings
5. Recommend evaluation by colleagues in other specialties and subspecialties for help with difficult intracranial pressure problems when appropriate
6. Choose and integrate appropriate medical and surgical treatments for patients with increased intracranial pressure

**CS11: Competency of Future Skull Base Surgeons: More Surgeons, Fewer Surgeries, Tougher Cases**  
MODERATOR: Daniel Nuss, MD, FACS

SPEAKERS:
- Carl Snyderman, MD, MBA – *Who Should Be Doing Skull Base Surgery?*
- Ian Witterick, MD, MSc, FRCSC – *Measuring Competency*
- Harry van Loveren, MD – *Increasing Complexity of Skull Base Cases*

At the conclusion of this session, participants will know about the following current and future concerns of skull base surgery:
1. The growing number of ‘skull base fellowships’ in ENT and Neurosurgery and the diversity of backgrounds from which they are offered (Rhinology, Neurotology, Interventional Radiology, etc.)
2. The increasing management of skull base cases by individuals who have the technology and the interest, but not necessarily the expertise (i.e., “cherry-picking” of cases that ought to be done in major centers)
3. The increased pressure from third-party payers to avoid expensive skull base care
4. The pressure we are facing to show evidence that our treatments are clinically effective and cost-effective as well
5. The degree to which skull base practitioners pay attention to Quality and Safety metrics

**CS12: Clival Chordomas Management Strategies**  
MODERATOR: Mario Ammirati, MD

SPEAKERS:
- Robert Malyapa, MD, PhD – *Intensity-Modulated Proton Therapy (IMPT) for Skull Base Chordomas*
- Jean Anderson Eloy, MD – *Endoscopic Endonasal Strategies for Skull Base Chordomas: Technical Pearls and Pitfalls*
- John Grecula, MD – *Emerging Radiotherapy Techniques in the Management of Chordomas/Chondrosarcomas*

At the conclusion of this session, participants will be able to:
1. Understand the role of surgery in the management of chordomas
2. Understand the role of Radiation Therapy in the management of chordomas
3. Understand the role of emerging Radiotherapy techniques (i.e. carbon ions) in the management of chordomas
### Scientific Program

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<th>Time</th>
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<tr>
<td>9:00 am – 9:30 am</td>
<td><strong>Break with Exhibitors</strong></td>
<td>Ballroom B</td>
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<td>9:30 am – 12:15 pm</td>
<td><strong>PLENARY SESSION</strong></td>
<td>Ballroom A</td>
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<td>9:30 am</td>
<td><strong>Honored Guest Speaker:</strong> “Stereotactic Radiosurgery: Birth to Midlife Crisis” – L. Dade Lunsford, MD</td>
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<td>Introduction by Michael Link, MD</td>
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<td>10:00 am</td>
<td><strong>Distinguished Service Award</strong> – Presented to Jon Robertson, MD</td>
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<td>Presidential Address: “25 Years of NASBS: The Whole Is Greater Than the Sum of the Parts” – Michael Link, MD</td>
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<td>10:45 am</td>
<td><strong>International Guest:</strong> “Constructing Skull Base Centers of Excellence, What Are the Key Ingredients?” – Mario Sanna, MD</td>
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<td>Introduction by Siverio Agazzi, MD, MBA</td>
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<td>11:15 am</td>
<td><strong>Keynote Speaker:</strong> “Failure Is Not an Option” – Fred Haise</td>
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<td>Introduction by Michael Link, MD</td>
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<td>12:15 pm – 1:30 pm</td>
<td><strong>Lunch &amp; Poster Viewing in the Exhibit Hall</strong></td>
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<td><strong>CONCURRENT SESSIONS</strong></td>
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<td><strong>CS13:</strong></td>
<td><strong>Novel Technologies and Imaging in Skull Base Surgery</strong></td>
<td>Room 13/14</td>
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<td><strong>MODERATOR:</strong></td>
<td>Lee Zimmer, MD, PhD – <strong>Introduction</strong></td>
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<td><strong>SPEAKERS:</strong></td>
<td>- Robert Labadie, MD – <strong>Role of Image-Guided Surgery in Skull Base Applications</strong></td>
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<td>- Eugene Yu, MD – <strong>Dual Energy CT</strong></td>
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<td>- Ossama Al-Mefty, MD – <strong>The Value of Multi-Modality, Intra-Operative Imaging in Skull Base Surgery</strong></td>
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<td>- Ian Dunn, MD – <strong>Dynamic CT Angiography</strong></td>
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<td>At the conclusion of this session, participants will be able to:</td>
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<td>1. Understand the different systems available</td>
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<td>3. Review the basics of CT image generation and demonstrate the concept dual energy CT imaging and its potential use</td>
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<td>4. Gain knowledge of the appropriate indications and benefits of dual energy CT imaging in head and neck oncology</td>
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*The North American Skull Base Society gratefully acknowledges an unrestricted educational grant from Medtronic Surgical Technologies in support of this session.*

| **CS14:**         | **Outcomes in Lateral Skull Base Surgery: What Really Matters**       | Room 15/16       |
| **MODERATOR:**    | Michael Link, MD – **Introduction and Explanation of Session Objectives** |                  |
| **SPEAKERS:**     | - Myles Pensak, MD – **Gross total vs. Near total vs. Subtotal Resection: What Does It Really Mean in Lateral Skull Base Tumors?** |                  |
|                   | - Morten Lund-Johansen, MD, PhD – **What Drives Quality of Life in Lateral Skull Base Tumors?** |                  |
|                   | - Reid Thompson, MD – **VII and VIII Nerve Outcomes, What Is Optimal Intraoperative Monitoring and What Is Optimal Postoperative Grading?** |                  |
|                   | At the conclusion of this session, participants will be able to:      |                  |
|                   | 1. Distinguish the difference between gross total, near total and subtotal resections of lateral skull base tumors and their implications for overall outcomes |                  |
|                   | 2. Prioritize quality of life measures and recognize what factors most drive quality of life in patients with lateral skull base tumors |                  |
|                   | 3. Select appropriate intraoperative monitoring techniques for lateral skull base tumors and evaluate optimal postoperative grading systems |                  |

| **CS15:**         | **Multidisciplinary Approach to Perineural Invasion**                 | Room 18/19       |
| **MODERATOR:**    | Richard Wong, MD – **Mechanisms of Perineural Invasion**             |                  |
| **SPEAKERS:**     | - Clementino Solares, MD – **Surgical Management of Perineural Invasion** |                  |
|                   | - Robert Foote, MD – **Radiation Based Management of Perineural Invasion** |                  |
|                   | - Robert Sinard, MD – **Outcomes of Management of Perineural Invasion, and the Role of Systemic Therapy** |                  |
|                   | - All – Panel Discussion of Cases                                     |                  |
|                   | At the conclusion of this session, participants will be able to:      |                  |
|                   | 1. Define perineural invasion (PNI), and describe the basic molecular and cellular mechanisms underlying PNI |                  |
|                   | 2. Employ surgery, radiation, systemic therapy, or combinations of these therapies appropriately for tumors exhibiting PNI |                  |
|                   | 3. Understand the different histological tumor types associated with PNI, and the morbidity associated with PNI |                  |
|                   | 4. Counsel patients on outcomes for tumors with PNI, and the potential efficacy of different therapeutic interventions for PNI |                  |
CS16: Controversies in Skull Base Pathologic Interpretations
MODERATOR: Diana Bell, MD – Sinonasal Carcinomas: Updated Phenotypic and Molecular Characterization

SPEAKERS:
• Franco DeMonte, MD – Meningiomas - Gene Expression Analysis as a Basis for Postoperative Management Decisions
• Mark Jentoft, MD – Aggressive Sellar Lesions
• Nevo Margalit, MD – Prognostic Factors in Skull Base Tumors- When is Conservative Surgery Not Enough?

At the conclusion of this session, participants will be able to:
1. Recognize new pathologic entities
2. Develop pertinent and discriminating immunohistochemical and molecular studies to assist in diagnosis
3. Demonstrate that histological grade is an important prognosticator
4. Integrate and apply genomics, molecular and biomarkers for further management/targeted therapy

2:30 pm – 4:00 pm PROFFERED PAPERS

PROFFERED PAPER XI: Meningioma II
(ORAL PRESENTATIONS ARE 9 MINUTES IN LENGTH AND Q&A SESSIONS ARE 3 MINUTES)
MODERATORS: Carlos David, MD & Carl Heilman, MD

091: SURGICAL MANAGEMENT AND OUTCOMES OF PETROCLIVAL MENINGIOMAS: SERIES OF 17 PATIENTS – Yury Shulev, PhD, Ovanes Akobyan; City Hospital #2

092: ANTERIOR TRANSPETROSAL APPROACH COMBINED WITH PARTIAL POSTERIOR PETROSECTOMY FOR PETROCLIVAL MENINGIOMAS WITH EXTENSION TO THE CONVEXITY – Shunsuke Shibao, MD, Hamid Borghi-Razavi, MD, Kazunari Yoshida, PhD;

1Department of Neurosurgery, Keio University School of Medicine, Tokyo, J, 2Department of Neurosurgery, Clemens Hospital, Münster University, Münster, Germany

093: PRESENT DAY SURGICAL STRATEGY FOR SPHENOID WING MENINGIOMAS – Devon H Haydon, MD, Manuel Ferreira, Jr., MD, PhD, Louis J Kim, MD, Laligam N Sekhar, MD; University of Washington, Department of Neurosurgery, Harborview Medical Center

Questions & Answers

094: PRE-OPERATIVE EDEMA AND IMMEDIATE POST-OPERATIVE TUMOR BED HEMORRHAGE ARE PREDICTORS OF INTRACRANIAL MENINGIOMA RECURRENCE FOLLOWING SURGICAL RESECTION – George Klironomos, Shervin Taslimi, Alireza Mansouri, Alexandra Kilian, Osaama H Khan, Fred Gentili, Gelareh Zadeh; Toronto Western Hospital

095: SURGICALLY-RESECTED SKULL BASE MENINGIOMAS DEMONSTRATE A DIVERGENT POSTOPERATIVE RECURRENCE PATTERN COMPARED WITH SUPERFICIAL MENINGIOMAS – Alireza Mansouri, George Klironomos, Shervin Taslimi, Alexandra Kilian, Osaama H Khan, Fred Gentili, Gelareh Zadeh; Toronto Western Hospital

096: GENETIC ALTERATIONS IN SKULL BASE MENINGIOMAS – Wenya Linda Bi, MD, PhD, Malak Abedalthagafi, MD, Yu Mei, MD, PhD, Brian M Alexander, MD, MPH, Rameen Beroukhim, MD, PhD, Azra H Ligon, PhD, Sandro Santagata, MD, PhD, Ossama Al-Mefty, MD, Ian F Dunn, MD;

1Dept of Neurosurgery, Brigham and Womens Hospital, Boston, MA, 2Dept of Pathology, Brigham and Womens Hospital, Boston, MA, 3Dept of Radiation Oncology, Brigham and Womens Hospital, Boston, MA, 4Dept of Cancer Biology, Dana-Farber Cancer Institute, Boston, MA

Questions & Answers

097: I-125 BRACHYTHERAPY FOR RECURRENT ATYPICAL AND MALIGNANT SKULL BASE MENINGIOMAS: COMPLICATIONS AND OUTCOME – Stephen T Magill, MD, PhD, Penny K Sneed, MD, Michael W McDermott, MD; University of California, San Francisco

098: V-REX: VESTIBULAR SCHWANNOMA - RADIOSURGERY OR EXPECTATION. A PROSPECTIVE RANDOMIZED STUDY – Morten Lund-Johansen, MD, PhD; Haukeland University Hospital

099: SURGICAL OUTCOMES IN INTRACRANIAL NEURENTERIC CYSTS – RETROSPECTIVE REVIEW OF A 15-YEAR INSTITUTIONAL EXPERIENCE – Jonathan D Breshears, MD, Tarik Tihan, MD, PhD, Michael W McDermott, MD, Philip V Theodosopoulos, MD; 1UCSF Department of Neurosurgery, 2UCSF Department of Neuropathology

Questions & Answers
PROFFERED PAPER XII: Pituitary II
(ORAL PRESENTATIONS ARE 9 MINUTES IN LENGTH AND Q&A SESSIONS ARE 3 MINUTES)
MODERATORS: Mario Ammirati, MD & Madison Michael, MD

100: VISUAL OUTCOMES FOR GIANT PITUITARY ADENOMAS – Gulam Zilani, MB, BChir, MRCS, MA, MSc, Cindy Yee, Pablo Goetz, Caroline Hayhurst, FRCS, SN, Cardiff


102: FACTORS PREDICTIVE OF POSTOPERATIVE COMPLICATIONS OF TRANS-SPHENOIDAL PITUITARY SURGERY – Lewis J. Overton, MD, Jose P Zevallos, MD, MPH, FACS, Zainab Farzal, BS, Charles S Ebert, Jr., MD, MPH, Brent A Senior, MD, FACS, Deanna Sasaki-Adams, MD, Matthew Ewend, MD, Adam M Zanation, MD, FACS; University of North Carolina - Chapel Hill

Questions & Answers

103: THERE IS NO DIFFERENCE IN 30-DAY UNPLANNED READMISSION RATES BETWEEN MICROSCOPIC AND ENDOSCOPIC TRANSSPHENOIDAL SURGERY FOR PITUITARY TUMORS – Andrew S Little, MD, Michael Bohl, MD, Shah Ahmad, BS, Laura Knecht, MD, William L White, MD, Barrow Neurological Institute

104: EARLY POST-OPERATIVE (POD#1) DISCHARGE IN PITUITARY ADENOMA PATIENTS: THE EFFECT OF SOCIOECONOMIC FACTORS – Christopher A Sarkiss, MD, James Lee, MD, Joseph A Papin, BS, Satish Govindaraj, MD, Raj K Shrivastava, MD; 1Icahn School of Medicine at Mount Sinai, Department of Neurosurgery, 2University of Michigan Health System, 3Icahn School of Medicine at Mount Sinai, Department of Otolaryngology

105: POST OPERATIVE MANAGEMENT TO SAFELY DISCHARGE PITUITARY ADENOMAS HOME ON POST OPERATIVE DAY 1 – Alexander A Farag, MD, Sonia Geschwindt, MD, Gurston Nyquist, MD, James Evans, MD, Marc Rosen, MD; Thomas Jefferson University

Questions & Answers

106: IMPACT OF SELECTIVE PITUITARY GLAND RESECTION OR INCISION ON HORMONAL FUNCTION IN ENDONASAL TUMOR OR CYST REMOVAL – Garni Barkhoudarian, MD, Aaron Cutler, MD, Sam Yost, BS, MPH, Amy Eisenberg, RN, Daniel F Kelly, MD; 1John Wayne Cancer Institute, 2University of Utah, 3Wayne State Medical School

107: ENDOSCOPIC ENDONASAL TREATMENT OF PITUITARY ADENOMAS INVADING THE CAVERNOUS SINUS: SURGICAL OUTCOME IN 374 PATIENTS – Matteo Zoli, MD, Diego Mazzatenta, MD, Adelaide Valluzzi, Marco Faustini-Fustini, Ernesto Pasquini, Giorgio Frank; 1Center of pituitary and endoscopic skull base surgery, IRCCS delle Scienze Neurologiche,Bologna (IT), 2ENT Department, Azienda USL, Bologna, Italy

108: THE ENDONASAL MICROSCOPIC SURGERY VS FULLY ENDOSCOPIC ENDONASAL SURGERY FOR PITUITARY ADENOMAS – Aguinaldo P Catanoce, Feres Chaddad, Jose Campos Filho, Roberto Zuanì, Carlos Melro, Marcos Marins, Augusto Amato, Tiago F Gonçalves; 1Hospital Vera Cruz Campinas Hospital Santa Catarina São Paulo, 2Hospital Santa Catarina, 3Hospital Vera Cruz Campinas, 4Hospital Puc de Campinas

Questions & Answers

PROFFERED PAPER XIII: Vestibular Schwannoma II
(ORAL PRESENTATIONS ARE 9 MINUTES IN LENGTH AND Q&A SESSIONS ARE 3 MINUTES)
MODERATORS: Jacques J. Morcos, MD, FRCS & Jamie Van Gompel, MD

109: SURGICAL RESECTION OF ACOUSTIC NEUROMAS: COMPARISON OF HEARING AND FACIAL NERVE OUTCOMES BETWEEN PRIMARY AND REDO OPERATIONS – Randall W Porter, MD, Andrew J Meeusen, MA; 1Barrow Neurological Institute, 2Barrow Neurosurgical Associates

110: LESSONS LEARNED IN THE MANAGEMENT OF LARGE PREVIOUSLY TREATED VESTIBULAR SCHWANNOMAS – William R Copeland, MD, Brian A Neff, MD, Colin Driscoll, MD, Michael J Link, MD; Mayo Clinic

111: REVISION SURGERY IN AUDITORY BRAINSTEM IMPLANTATION (ABI) – Robert Behr, PhD; Klinikum Fulda

Questions & Answers

112: LONG-TERM AUDITORY SYMPTOMS IN PATIENTS WITH SPORADIC VESTIBULAR SCHWANNOMA – Oystein V Tetten, MD, Matthew L Carlson, MD, Michael J Link, MD, Morten Lund-Johansen, MD, PhD; 1Department of Neurosurgery, Haukeland University Hospital, Bergen, Norway, 2Department of Otorhinolaryngology, Mayo Clinic School of Medicine, Rochester, MN, USA, 3Department of Neurologic Surgery, Mayo Clinic School of Medicine, Rochester, MN, USA
113: THE EFFECT OF GRANULOCYTE-COLONY STIMULATING FACTOR (G-CSF) ON THE COCHLEAR NERVE AFTER PARTIAL LESION. AN EXPERIMENTAL STUDY ON RATS – Guilherme R Montibeller, Benjamin Schackmann, Joachim Oertel; Department of Neurosurgery, Saarland University

114: EFFECT OF VESTIBULAR NERVE LESIONING BY GENTAMICIN ON OUTCOMES OF SURGICALLY TREATED VESTIBULAR SCHWANNOMAS – Abdulrahman AL-Shudifat, MD, Fredrik Tjernstrom, PhD, Peter Siesjo, PhD; 1The University of Jordan-Faculty of Medicine, 2Lund University

Questions & Answers

115: TUMOR VOLUME THRESHOLD FOR ACHIEVING IMPROVED CONFORMITY INDEX IN VMAT AND GAMMA KNIFE STEREOTACTIC RADIOSURGERY FOR VESTIBULAR SCHWANNOMA – Hyun Kim, MD,1 Peter Potrebko, PhD,1 Amanda Rivera,1 Haisong Liu, PhD,1 Harriet B Eldredge-Hindy, MD,1 Vickie Gunn,1 Maria Werner-Wasik, MD,1 David W Andrews, MD,2 James J Evans, MD,2 Christopher J Farrell, MD,2 Kevin Judy, MD,2 Wenyin Shi, MD, PhD; 1Department of Neurosurgery, Saarland University, 2Department of Neurosurgery, Saarland University

Questions & Answers

116: STEREOTACTIC RADIOSURGERY FOR CYSTIC VESTIBULAR SCHWANNOMAS – Christopher D Frisch, MD,2 Jeffrey T Jacob, MD,1 Matthew L Carlson, MD,2 Colin L Driscoll, MD,2 Brian A Neff, MD,2 Michael J Link, MD,2; 1Mayo Clinic, Department of Otolaryngology-Head and Neck Surgery, 2Mayo Clinic, Department of Neurologic Surgery

Questions & Answers

117: WHAT IS THE ROLE OF ENDOSCOPY DURING MICROSURGICAL REMOVAL OF VESTIBULAR SCHWANNOMAS? – Joachim Oertel, Guilherme Montibeller; Department of Neurosurgery, Saarland University

Questions & Answers

PROFFERED PAPER XIV: Vascular

163: PICA BYPASS AND TRAPPING IN RUPTURED FUSIFORM VERTEBRO-PICA ORIGIN ANEURYSMS. RATIONALE AND CASE ILLUSTRATIONS – Andrew P Carlson, MD; University of New Mexico

119: THE LATERAL MESENCEPHALIC VEIN (LMV): SURGICAL ANATOMY AND ITS ROLE IN THE DRAINAGE OF TENTORIAL DURAL ARTERIOVENOUS FISTULAE (DAVFs) – Delia Cannizzaro, MD,3 Stylianos K Rammos, MD,1 Adel El-Nashar, MD,2 Andrew G Grande, MD,2 Giuseppe Lanzino, MD,3; 1Department of Neurologic Surgery Mayo Clinic, 2Arkansas Neuroscience Institute Little Rock, 3Department of Neurosurgery, University of Minnesota

120: ENDOVASCULAR AND SURGICAL TREATMENT OF TENTORIAL DURAL AV FISTULAS: A META-ANALYSIS – Waleed Brininjki, MD, Delia Cannizzaro, MD, Mohammad H Murad, MD, MPH, Giuseppe Lanzino, MD; Mayo Clinic

Questions & Answers

121: MINIMALLY INVASIVE TRANSPALPEBRAL “EYELID” CRANIOTOMY FOR ANTERIOR CIRCULATION ANEURYSMS: EXPERIENCE WITH 71 CASES – Abraham Sabersky, MD, Kenan Alkhali, Mohab Darwish, MD, Gasser Alshyal, MD, Khaled M Aziz, MD, PhD; Allegheny General Hospital

122: THE EXPANDED ENDOSCOPIC ENDONASAL APPROACH TO ANTERIOR COMMUNICATING ARTERY ANEURYSMS: A CADAVERIC MORPHOMETRIC STUDY – Ajay S Unnithan, BS,1 Ana Maria Lemos, MD,1 Satyan B Sreenath, BS,1 Oluwaseun Omofoye, MD, MS,1 Vivian Doan, BS,1 Pablo Recinos, MD,2 Adam Zanation, MD,1 Deanna Sasaki-Adams, MD,1; 1University of North Carolina- Chapel Hill, 2Cleveland Clinic

123: THE ROLE OF ANTERIOR CIRCULATION PATTERNS IN PROTECTING FROM THE DETRIMENTAL EFFECT OF VASOSPASM AFTER ANEURYSMAL SAH DUE TO ANTERIOR COMMUNICATING ARTERY RUPTURE – Piyush Kalakoti, MD, Richard D Murray, MD, Shyamal Bir, MD, Osama Ahmed, MD, Papireddy Bollam, MD, Anil Nanda, MD; LSUHSC Shreveport Neurosurgery

Questions & Answers

124: MINI-PTERIONAL APPROACH FOR UNRUPTURED MIDDLE CEREBRAL AND CAROTID ARTERY BIFURCATION ANEURYSMS: EXPERIENCE IN 51 CASES – Abraham E Sabersky, MD, Kenan Alkhali, Mohab Darwish, MD, Gasser Alshyal, MD, Khaled M Aziz, MD, PhD; Allegheny General Hospital

125: ENDOVASCULAR FLOW DIVERSION FOR CAROTIDO-OPHTHALMIC ANEURYSMS – Anthony M Burrows, MD, Ross C Puffer, MD, Giuseppe Lanzino, MD; Mayo Clinic

126: PREVENTION OF VISUAL FUNCTION IN THE OPERATION OF PARAACLINOID ANEURYSMS – Yutaka Mine, MD, PhD; Saiseikai Yokohamashi Tobu Hospital

Questions & Answers
PROFFERED PAPER XV: Skull Base Malignancies

(ORAL PRESENTATIONS ARE 9 MINUTES IN LENGTH AND Q&A SESSIONS ARE 3 MINUTES)
MODERATORS: Franco DeMonte, MD & Daniel Nuss, MD, FACS

127: EVOLUTION OF SKULL BASE SURGERY FOR SINONASAL MALIGNANCY AT MASSACHUSETTS EYE AND EAR INFIRMARY – Matthew R Naunheim, MD, MBA1, Neerav Goyal, MD, MPH2, Matthew M Dedmon, MD, PhD1, Kyle J Chambers, MD1, Ahmad R Sedaghat, MD, PhD1, Benjamin S Bleier, MD1, Eric H Holbrook, MD1, William T Curry, MD1, Stacey T Gray, MD1, Derrick T Lin, MD1, 1Massachusetts Eye and Ear Infirmary, 2Massachusetts General Hospital

128: ADVANCED SINONASAL MALIGNANT TUMORS TREATED BY ENDOSCOPY-ASSISTED APPROACHES – Ronaldo N Toledo, PhD, Joao Gonçalves Filho, Sergio H Suzuki, Thiago C Chulam, Renan B Lira, Jose G Vartanian, Jose Magrin, Luiz P Kowalski; ACCamargo Cancer Hospital

129: ENDOSCOPIC VERSUS OPEN APPROACHES IN MANAGEMENT OF SINONASAL MELANOMA – Brittny N Tillman, MD1, Tiffany A Glazer, MD1, Andrew D Kroeker, MD1, Katayoon Sebetsarvastani1, Stephen E Sullivan, MD2, Scott A McLean, MD, PhD1, Lawrence J Marentette, MD, PhD1, Erin L McKean, MD1; 1The University of Michigan Department of Otolaryngology - Head and Neck Surgery, 2The University of Michigan Department of Neurosurgery

Questions & Answers

130: ENDOSCOPIC ANTERIOR SKULL BASE RESECTION RESECTION FOR OLFACTORY NEUROBLASTOMA – Ralph Abi Hachem, MD, Mallory Raymond, BA, Shawn Allen, MD, Zoukaa Sargi, MD, Roy R Casiano, MD; Department of Otolaryngology Head and Neck Surgery, Miller School of Medicine, University of Miami

131: ADENOID CYSTIC CARCINOMA OF THE SKULL BASE: RESULTS WITH AN AGGRESSIVE MULTIDISCIPLINARY APPROACH – Rohan Ramakrishna, MD, Shaan Raza, Michael Kuperman, Ehab Hanna, Franco DeMonte; MD Anderson Cancer Center

132: SINONASAL ADENOID CYSTIC CARCINOMA: THE MICHIGAN EXPERIENCE – Aaron L Thatcher, MD, Katayoon Sabetarvestani, Erin L Mckean, MD; University of Michigan

Questions & Answers

133: CEREBELLO-PONTINE ANGLE CHONDROSARCOMAS: ENDOSCOPIC ENDO-NASAL MANAGEMENT – Paulo M Mesqita Filho, MD, Daniel M Prevedello, MD, Leo F Ditzel Filho, MD, Edward E Kerr, MD, Cristian N Martinez, MD, Mariano E Fiore, MD, Ricardo L Dolci, MD, Bradley A Otto, MD, Ricardo L Carrau, MD; Ohio State University

134: THE ROLE OF MULTIMODALITY THERAPY IN THE MANAGEMENT OF SKULL BASE CHONDROSARCOMAS – Shaan M Raza, MD, Franco DeMonte; MD, The University of Texas MD Anderson Cancer Center

135: STEREOTACTIC RADIATION FOR SKULL BASE RECURRENCES OF SALIVARY CARCINOMAS: IMPLICATIONS FOR TUMOR TARGETING – Zaid A Siddiqui, BS1, Edward Melian, MD2, Anil Sethi, PhD3, Vikram C Prabhu, MD4, Bahman Emami, MD5, Iris A Rusu, MS3, John P Leonetti, MD6, Douglas E Anderson, MD6, 1Stritch School of Medicine, 2Departments of Radiation Oncology and Neurological Surgery, Stritch School of Medicine, 3Department of Radiation Oncology, Stritch School of Medicine, 4Departments of Neurological Surgery and Radiation Oncology, Stritch School of Medicine, 5Departments of Otolaryngology and Neurological Surgery, Stritch School of Medicine, 6Department of Neurological Surgery, Stritch School of Medicine

Questions & Answers

PROFFERED PAPER XVI: Imaging

(ORAL PRESENTATIONS ARE 9 MINUTES IN LENGTH AND Q&A SESSIONS ARE 3 MINUTES)
MODERATOR: Jonathan Morris, MD

136: HIGH-FIELD INTRA-OPERATIVE MAGNETIC RESONANCE IMAGING DURING EXTENDED ENDO-NASAL ENDOSCOPIC RESECTION OF COMPLEX SKULL BASE TUMORS – Peter Sylvester, John Evans, Greg Zipfel, Richard Chole, Ravindra Uppaluri, Bruce Haughey, Keith Rich, Albert Kim, Ralph Dacey, Michael Chicoine; Washington University

137: MAGNETIC RESONANCE ELASTOGRAPHY FOR PRE-SURGICAL ASSESSMENT OF SKULL BASE LESIONS – J Huston, MD, A Arani, PhD, J Hughes, MD, N Fattahi, MD, J Van Gompel, MD, M Link, MD, R Ehman, MD; Mayo Clinic

138: RADIOLOGICAL PREDICTION OF SKULL BASE MENINGIOMA CONSISTENCY FOR ENDO-SCOPIC RESECTION – Majed Aldosari, MD, Reza Forghani, Denis Sirhan, Anthony Zeitouni, Marie-Christine Guiot, Salvatore Di Maio, Marc Tewfik; McGill University Health Centre

Questions & Answers
139: HIGHER RESOLUTION MAGNETIC RESONANCE ELASTOGRAPHY (MRE) FOR THE EVALUATION OF INTRATUMORAL HETEROGENEITY IN MENINGIOMAS – J D Hughes, MD, N Fattahi, MD, J Van Gompel, MD, A Arani, G Lanzino, MD, M Link, MD, F Meyer, MD, R Erhman, J Huston, MD; Mayo Clinic

140: PREDICTION OF TUMOR CONSISTENCY OF MENINGIOMAS USING DIFFUSION TENSOR IMAGING – John Y Lee, MD, Dmitry Petrov, MD, Kalil Abdullah, MD, Peter Syre, MD, Maria Martinez-Lage, MD, PhD, Suemei Wang, MD; University of Pennsylvania

141: PREDICTION OF CONSISTENCY OF PITUITARY ADENOMAS BY MAGNETIC RESONANCE IMAGING – Kyle A Smith, MD, John D Leever, MD, Roukoz B Chamoun, MD; University of Kansas Medical Center

Questions & Answers

142: RELIABILITY OF DIFFUSION TENSOR IMAGING TRACTOGRAPHY FOR FACIAL NERVE IMAGING IN PATIENTS WITH VESTIBULAR SCHWANNOMA – Nolan Ung, BS, Lawrance K Chung, BS, Nicole Cremer, BS, Monica Mathur, BS, Brittany Voth, BS, Kimberly Thill, Ishani Mathur, BS, Isaac Yang, MD; University of California, Los Angeles

143: INDIVIDUALIZED SURGICAL APPROACH PLANNING FOR PETROCLIVAL MENINGIOMAS USING A 3D PRINTER – Thomas J Muelleman, MD, Alison Rasband-Lindquist, MD, Jeremy Peterson, MD, James Lin, MD, Paul Camarata, Hinrich Staecker, Roukoz Chamoun, University of Kansas

144: PRE-MOULDED CUSTOM IMPLANTS FOR SPHENO-ORBITAL RECONSTRUCTION – A NOVEL MULTI-DISCIPLINARY APPROACH – Sam G Evans, BSc, BMBS, FRCO, C M Lane, S Bhatia, J Martin, D S Morris, C Hayhurst; University Hospital of Wales

Questions & Answers

PROFFERED PAPER XVII: Vestibular Schwannoma/QOL/TORS
(ORAL PRESENTATIONS ARE 9 MINUTES IN LENGTH AND Q&A SESSIONS ARE 3 MINUTES)

MODERATORS: Marc Schwartz, MD & Christopher J. Danner, MD, FACS

145: IMPACT OF EDUCATIONAL COURSES ON QUALITY OF LIFE IN VESTIBULAR SCHWANNOMA – Monica K Finnkirk, RN, Oystein V Tveiten, MD, Morten Lund-Johansen, MD, PhD; Dept of Neursurgery, Haukeland University Hospital, Bergen, Norway

146: PATTERNS AND PREDICTORS OF HEARING LOSS IN OBSERVED VESTIBULAR SCHWANNOMA – Michael Olson, MD, Matthew Carlson, MD, Oystein Tveiten, MD, Federik Goplen, MD, PhD, Morten Lund-Johansen, MD, PhD, Michael Link, MD, Colin Driscoll, MD; Mayo Clinic, Rochester, Bergen University Hospital, Bergen, Norway

147: RETRACTORLESS MICROVASCULAR DECOMPRESSION FOR TRIGEMINAL NEURALGIA: TECHNICAL NUANCES AND RESULTS IN 25 CASES – James K Liu, MD, Zachary S Mendelson, BS, Ahmed B Sheikh, BA, Gary M Heir, DMD; 1Rutgers New Jersey Medical School, 2Rutgers School of Dental Medicine

Questions & Answers

148: NASOPHARYNGEAL EVALUATION IN THE TRANSORAL ROBOTIC SURGERY (TORS) APPROACH TO THE HEAD AND NECK CARCINOMA UNKNOWN PRIMARY (HNCUP) IN THE ERA OF HUMAN PAPILLOMAVIRUS (HPV) PANDEMIC: HOW WE DO IT AND WHY – William W Thomas, MD, Chris Rassekh, MD, Alex Kejner, MD, Greg Weinstein, MD, Bert W O’Malley Jr., MD; Hospital of the University of Pennsylvania

149: RESECTION OF PITUITARY LESIONS IN A PHANTOM MODEL USING CONCENTRIC TUBE ROBOTS WITH ENDOSCOPIC VISUALIZATION – Philip Swaney, Hunter Gilbert, Robert Webster, Paul Russell, Kyle Weaver; Vanderbilt University

150: TRANSORAL ROBOTIC SURGERY FOR PARAPHRARYNGEAL SPACE TUMORS REDUCES RISK OF POSTOPERATIVE FIRST BITE SYNDROME – Christopher H Rassekh, MD, Jared S Huber, Ara A Chalian, Gregory S Weinstein, Bert W O’Malley, Jr., MD; University of Pennsylvania

Questions & Answers

151: TELEOPERATION OF CONCENTRIC TUBE ROBOTS FOR SKULL BASE APPLICATIONS: PITUITARY SURGERY AT A DISTANCE? – Raiz Wiz, Luis Torres, Philip Swaney, Hunter Gilbert, Ron Alterovitz, Robert Webster, Kyle Weaver, Paul Russell; 1Vanderbilt University, 2University of North Carolina-Chapel Hill

152: OUTCOMES OF TRANSORAL ROBOTIC SURGERY FOR PARAPHRARYNGEAL SPACE SALIVARY GLAND NEOPLASMS – Christopher H Rassekh, MD, Gregory S Weinstein, MD, Laurie A Loevner, MD, Ara A Chalian, MD, Bert W O’Malley, Jr., MD; University of Pennsylvania

153: THE ROLE OF INTRAOPERATIVE NEUROMONITORING IN ADULTS WITH CHIARI I MALFORMATION – Florian Roser, MD, PhD, Georgios Naros, MD, Florian H Ebner, MD, PhD, Marcos S Tatagiba, MD, PhD; 1Cleveland Clinic Abu Dhabi, 2University Hospital Tuebingen

Questions & Answers
PROFFERED PAPER XVIII: Vascular/Trauma/Infectious Diseases/SSC
(ORAL PRESENTATIONS ARE 9 MINUTES IN LENGTH AND Q&A SESSIONS ARE 3 MINUTES)
MODERATOR: See Final Changes Flyer for Moderator

154: ENDOVASCULAR MANAGEMENT OF ACUTE AND DELAYED INTERNAL CAROTID ARTERY INJURIES SECONDARY TO TRANSSPHENOIDAL RESECTION OF PITUITARY ADENOMA – Peter Sylvestor, Christopher Moran, Colin Derdeyn, Dewitte Cross, Ralph Dacey, Gregory Zipfel, Albert Kim, Ravi Uppaluri, Bruce Haughey, Rene Tempelhoff, Keith Rich, John Schneider, Richard Chole, Michael Chicoine; Washington University

155: ACCURACY OF CTA IN PREDICTING THE PRESENCE OF A FETAL PCA – Osama I Ahmed, MD, Benjamin L Brown, MD, Shihao Zhang, MD, Bharat Guthikonda, MD, Hugo Cuellar, MD, Louisiana State University Health Sciences Center Shreveport, Mayo Clinic Jacksonville

156: RESOLUTION OF OCULOMOTOR NERVE PALSY SECONDARY TO POSTERIOR COMMUNICATING ARTERY ANEURYSMS: COMPARISON BETWEEN CLIPPING AND COILING – D. Jay McCracken, MD, Brendan P Lovasik, BS, Courtney E McCracken, PhD, MS, C. Michael Cawley, MD, Daniel L Barrow, MD, Raphael Tamargo, MD, Gustavo Pradilla, MD, Emory University

Questions & Answers

157: TRAUMATIC SKULL BASE INJURIES – A RETROSPECTIVE STUDY OF INCIDENCE, MANAGEMENT, COMPLICATIONS AND OUTCOMES – Agnelio Cardentey, Daniel R Klinger, MD, Samuel L Barnett, MD; UT Southwestern Medical Center

158: EXTENSIVE ANTERIOR CRANIAL BASE FRACTURES: ANATOMIC AND SURGICAL DESCRIPTION OF COMBINATION FLAPS – Jacob Archer, Sam Safavi-Abbasi, MD, PhD, Noritaka Komune, MD, PhD, Michael Sughrue, MD, Albert Rhoto, MD, Andrew Little, MD, Jose Sanclent, MD, Robert Spetzler, Hai Sun, MD, PhD, Department of Neurosurgery, University of Oklahoma Health Science Center, Barrow Neurological Institute, St Josephs Hospital, Department of Neurosurgery, University of Florida, Department of Otorhinolaryngology, University of Oklahoma Health Science Center

159: CLASSIFICATION AND REPAIR OF EXTENSIVE ANTERIOR SKULL BASE FRACTURES – Jacob Archer, Sam Safavi-Abbasi, MD, PhD, Michael Sughrue, MD, Jeffery James, MD, DDS, Andrew Little, MD, Jared Heibert, MD, Robert Spetzler, MD, Department of Neurosurgery, University of Oklahoma Health Sciences Center, Barrow Neurological Institute, St Josephs Hospital, Department of Oral and Maxillofacial Surgery, University of Oklahoma Health Science Center, Department of Otolaryngology, University of Oklahoma Health Science Center

Questions & Answers

160: AN EXAMINATION OF INTRACRANIAL INVOLVEMENT IN INVASIVE FUNGAL SINUSITIS PATIENTS – James Foshee, Gurston Nyquist, MD, Marc Rosen, MD; Thomas Jefferson University

161: INCIDENCE AND CLINICAL IMPLICATIONS OF SUPERIOR SEMICIRCULAR CANAL DEHISCENCE WITH ENCEPHALOCELE – Aaron M Metrailer, MD, Jessica LaRouere, Sean O’Leary, Seilesh Babu, MD, Michael LaRouere, MD, Bojrab Dennis, Michigan Ear Institute, University of Notre Dame

162: CLINICAL OUTCOMES OF MIDDLE FOSSA CRANIOTOMY FOR SUPERIOR SEMICIRCULAR CANAL DEHISCENCE REPAIR – Lawrance K Chung, Nolan Ung, Daniel T Nagasawa, Panayiotis Pelargos, Kimberly Thill, Quinton Gopen, Isaac Yang; UCLA

Questions & Answers

6:00 pm – 7:00 pm  New Member Reception with Leadership  On board the StarShip docked outside the Convention Center
Boarding for the New Member Reception is at 6:00 pm. You must have your badge to board.

7:00 pm  President’s Reception on the StarShip Yacht  On board the StarShip docked outside the Convention Center
Enjoy a beautiful evening twilight cruise of Tampa Bay while networking with your peers. Boarding for the President’s Reception will begin at 7:00 pm. You must have your name badge or guest ticket with you to board. The yacht will set sail at 7:45 pm and return to dock at 9:00 pm. Cocktail/Business Attire (Bring a sweater or jacket).
### BS9: Primary Tumors of the Facial Nerve
**MODERATOR:** Sam Marzo, MD

**SPEAKERS:**
- Simon Angeli, MD – *Clinical Anatomy and Presenting Symptoms*
- Ajay Niranjan, MD – *Differential Diagnosis and Imaging*
- John Leonetti, MD – *Surgical Approaches and Adjuvant Therapy*
- All – *Case Discussions/Questions and Answer Session*

At the conclusion of this session, participants will be able to:
1. Discuss the clinical presentation of patients with primary facial nerve neoplasms and relevant clinical anatomy
2. Describe the differential diagnosis, imaging characteristics, and role of observation in facial nerve neoplasms
3. Discuss the indications for surgical therapy, approaches, and adjuvant therapy

### BS10: Contemporary Management of SNUC
**MODERATOR:** Michael Kupferman, MD – *Overview of SNUC-gnostic Dilemmas and Biological Behavior*

**SPEAKERS:**
- Ehab Hanna, MD – *Role of Chemo-Radiotherapy for SNUC*
- Daniel Price, MD – *Surgical Approaches for SNUC – When and Why?*
- All – *Case Presentations*

At the conclusion of this session, participants will be able to:
1. Understand the evaluation of patients with SNUC
2. Recognize the role of chemotherapy and radiotherapy in the current management of SNUC
3. Prioritize patients for surgical treatments with SNUC

### BS11: Petroclival Meningiomas
**MODERATOR:** Ketan R. Bulsara, MD

**SPEAKERS:**
- Harry van Loveren, MD – *Extensive Skull Base Approaches to Petroclival Meningiomas: “and the Truth will Set you Free”*
- Jacques Morcos, MD – *A Tailored Approach to Petroclival Meningiomas: Determinants of Selection*
- Juan Fernandez-Miranda, MD – *Endoscopic Endonasal Approach for Petroclival Meningiomas*
- Panel – *Case Discussions*

At the conclusion of this session, participants will be able to:
1. Understand the different approaches for petroclival meningiomas
2. Understand the goals/rationale and different philosophies for the management of petroclival meningiomas
3. Understand the advantages, limitations, and indications of endoscopic endonasal approach for petroclival meningiomas

### BS12: Management of Cervical Paragangliomas – Carotid Body Tumors and Glomus Vagale
**MODERATOR:** Edward Melian, MD – *Introduction of Speakers*

**SPEAKERS:**
- Kerry Olsen, MD, FACS – *Cervical Paragangliomas: Presentation, Anatomy*
- Michael Gleeson, MD, FRCS, FRACS, FDS – *Surgical Management of Cervical Paragangliomas*
- James Liu, MD, FACS, FAANS – *Management of Paragangliomas Involving the Jugular Foramen: Challenges, Pearls, and Pitfalls*

At the conclusion of this session, participants will be able to:
1. Understand anatomy, physiology, and histology of cervical paragangliomas
2. Obtain clarification of presentation diagnosis, and natural history of paragangliomas
3. Review factors important in decision making for management and treatment
4. Better understand the surgical management of these complex lesions
5. Recognize the inherent difficulties in dealing with tumor as it extends to the jugular foramen
6. Understand when to consider and employ non-surgical management of the cervical paragangliomas
8:00 am – 9:00 am  CONCURRENT SESSIONS

**CS17: The Da Vinci Code: Seeking Truth in Traditional Dogma of Lateral Skull Base Surgery**  
MODERATOR: Michael Gluth, MD – Introduction and Overview of an Evidence-Based Skull Base Surgical Practice

**SPEAKERS:**
- Michael Gluth, MD – Proactive Microsurgery for Acoustic Neuroma Based on Hearing Preservation Intent: Is it Justified?
- Anil Nanda, MD – The Far-Lateral Approach: Complications and Lessons Learned
- John Lee, MD – The Role of the Endoscope in Modern Cerebellopontine Angle Surgery
- Jon Robertson, MD – Management of Lateral Skull Base CSF Leak: Options and Evidence

At the conclusion of this session, participants will be able to:
1. Distinguish potential benefits and avoid complications associated with the far lateral approach
2. Integrate the potential role of the endoscope as a tool in cerebellopontine angle surgery
3. Appraise the potential role of proactive acoustic neuroma surgery when hearing preservation intent is the major factor prompting intervention

**CS18: Chemotherapy – Where is it Useful in Skull Base Tumors**

MODERATOR: Katherine Price, MD – Chemotherapy for Sino-Nasal Undifferentiated Carcinoma and Esthesioneuroblastoma

**SPEAKERS:**
- Cherie-Ann Nathan, MD, FACS – Chemotherapy for Squamous Cell Carcinoma
- Heather Leeper, MD – Chemotherapy for Meningioma

At the conclusion of this session, participants will be able to:
1. Discuss the timing of chemotherapy in the management of patients with skull base malignancies
2. Appraise the challenges for chemotherapy in meningioma in neuro-oncology
3. Review the evidence for chemotherapy in the primary treatment of sino-nasal undifferentiated carcinoma
4. Assess the value of chemotherapy for metastatic/recurrent sino-nasal undifferentiated carcinoma

**CS19: Skull Base Surgery in Private Practice – How to Make it Work? How to Build a Practice?**

MODERATOR: George Bovis, MD

**SPEAKERS:**
- Hamad Farhat, MD
- Brian Milligan, MD

At the conclusion of this session, participants will be able to:
1. Describe the difference between private practice and academic practice
2. Recognize the challenge of setting up a private skull base practice
3. Understand the relationship between practitioner and the hospital

**CS20: Skull Base Tumors in Pediatric Patients**

MODERATOR: Jeremy Greenlee, MD – Introduction and Overview

**SPEAKERS:**
- William Gump, MD – Skull Base Tumors in Children: The Good News and the Bad News
- Ken Kazahaya, MD, MBA, FACS – Congenital Skull Base Masses: Presentation and Management Options
- William Couldwell, MD, PhD – Skull Base Tumors in Children- Technical Nuances and Lessons Learned
- All – Questions and Discussion

At the conclusion of this session, participants will be able to:
1. Identify differences in the spectrum of disease processes in children
2. Understand the role of intraoperative adjuncts in pediatric skull base surgery
3. Recognize the presentation and management of congenital skull base masses and lesions
4. Describe unique technical challenges in pediatric skull base surgery
5. Describe methods to overcome these challenges

9:00 am – 10:00 am  CONCURRENT SESSIONS

**CS21: Jugular Foramen Tumors**

MODERATOR: Matthew Carlson, MD

**SPEAKERS:**
- James Netterville, MD – Evolution in Surgical Management of Jugular Foramen Paragangliomas
- Andrew Parsa, MD, PhD – Contemporary Management of Jugular Foramen Meningiomas
- Robert Foote, MD – Radiation Therapy for Jugular Foramen Tumors
- All – Review of Cases

At the conclusion of this session, participants will be able to:
1. Review the advantages and disadvantages of radiosurgery and microsurgery for treatment of jugular foramen tumors
2. Recognize situations where surgery remains advisable over radiosurgery
3. Recommend an individualized treatment strategy that maximizes tumor control while minimizing cranial nerve morbidity
### CS22: Temporal Bone Tumors
MODERATOR: Richard Gurgel, MD

**SPEAKERS:**
- Edward Duckworth, MD
- Mark Linskey, MD

At the conclusion of this session, participants will be able to:
1. Evaluate and appropriately diagnose patients with temporal bone neoplasms
2. Manage patients with temporal bone neoplasms

### CS23: Skull Base Surgery in Developing Countries – What Is Our Role?
MODERATOR: William Copeland III, MD

**SPEAKERS:**
- Bharat Guthikonda, MD – *Neurosurgery in Kurdistan Iraq*
- Michael Chicoine, MD – *Opportunities in East Africa*
- Morten Lund-Johansen, MD – *Collaboration with Addis Ababa University Hospital in Ethiopia*

At the conclusion of this session, participants will be able to:
1. Recognize some of the current neurosurgery efforts in developing countries
2. Understand the challenges to performing skull base surgery in developing countries
3. Identify ways to participate in neurosurgery in developing countries

### CS24: Cochlear Implants, Auditory Brainstem Implants, Auditory Midbrain Implants, What Does the Future Hold?
MODERATOR: George Wanna, MD

**SPEAKERS:**
- Craig Buchman, MD – *Cochlear Implants: When They Work and What to Expect*
- Marc Schwartz, MD – *Auditory Brainstem Implant: The Next Generation*
- Thomas Lenarz, MD – *Auditory Rehabilitation in Patients with Neural Deafness: The Auditory Midbrain Implant*

At the conclusion of this session, participants will be able to:
1. Recognize the limitation of the Cochlear Implant
2. Know the indications of the Auditory Brainstem Implant
3. Comprehend the indications and limitations of Auditory Midbrain Implant

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10:00 am – 10:30 am  Break with Exhibitors

10:30 am – 12:30 pm  PLENARY SESSION

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<tr>
<td>10:30 am</td>
<td>Poster Awards Announcement – Chris Rassekh, MD</td>
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<td>The North American Skull Base Society gratefully acknowledges an unrestricted educational grant from Stryker in support of this lecture.</td>
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<td>11:00 am</td>
<td>Radiology – Jonathan Morris, MD, <em>Introduction by Michael Link, MD</em></td>
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<td>11:30 pm</td>
<td>Medical Malpractice Special Session: “So, You Have Been Sued...Now What?”</td>
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<td>Come and learn how to avoid the mistakes that will cost you the case.</td>
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<td><em>Introductions by Siviero Agazzi, MD</em></td>
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<td>SPECIAL PRESENTATIONS BY:</td>
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<td>• The Honorable Gregory Holder, Circuit Court Judge, 13th Judicial Circuit of Florida</td>
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<td>• Henry Valenzuela Esq, Personal Injury Attorney</td>
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<td>• Ronald Bush Esq, Medical Malpractice Defense Attorney</td>
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12:30 pm  Meeting Adjourned
P001: QUANTITATIVE ANALYSIS OF DECISION MAKING IN ENDOSCOPIC VERSUS OPEN SKULL BASE CANCER SURGERY – Adam M Zanation, MD, Allison M Deal, Rounak B Rawal, MD, Justin D Miller, MD; University of North Carolina at Chapel Hill Hospitals

P002: TRANSGLOBLARS COMBINED EXTENDED APPROACH AND RECONSTRUCTION IN ANTERIOR SKULL BASE TUMORS – Gerveth Reyes Soto, PROFESSOR, OF: NEUROONCOLOGY, Alejandro Monroy Sosa, MD, Bernardo Cacho Diaz, Professor of Neurooncology, Angel Herrera Gomez, Professor of Surgical Oncology, Martin Granados Garcia, Professor of Head and Neck Surgery; Instituto Nacional De Cancerologis Mexico

P003: FRONTAL SINUS VIOLATION AND MANAGEMENT OF COMPLICATIONS – Alexander A Farag, MD, Waseem Mohiuddin, MS, Sonia Geschwindt, MD, Gurston Nyquist, MD, James Evans, MD, Marc Rosen, MD; Jefferson University

P004: SURGICAL LANDMARKS FOR THE ENDOSCOPIC ENDONASAL APPROACH TO THE MEDIAL INTRACONAL ORBITAL APEX: A CADAVERIC STUDY – Dmitriy Petrov, MD, John Craig, MD, Nithin Adappa, MD, James Palmer, MD, John Y Lee, MD; University of Pennsylvania

P005: DIFFUSE LARGE B-CELL LYMPHOMA OF THE FRONTAL SINUS PRESENTING AS A POTT’S PUFFY TUMOR: CASE REPORT – Kenan Arnaoutovic, MD, Nickalus R Khan; Semmes Murphey, University of Tennessee

P006: CASE REPORT OF MECKEL’S CAVE MASS AND UNILATERAL MASSETER HYPERTROPHY MANAGED WITH SERIAL BOTOX INJECTIONS – Kyle K VanKoevering, MD, Stephen E Sullivan, MD, Erin L McKean, University of Michigan

P007: THE BUCCAL FLAP PAD VASCULARIZED ROTATIONAL FLAP FOR RECONSTRUCTION OF VENTRAL SKULL BASE DEFECTS – Jeff D Markey, MD, Arnau Benet, MD, Ivan El-Sayed, MD; University of California-San Francisco

P008: ANTERIOR SKULL BASE DESCENT AND SPONTANEOUS CEREBROSPINAL FLUID RHINORRHEA DUE TO PROLONGED INTRACRANIAL HYPERTENSION – Chirag R Patel, MD, Juan C Fernandez-Miranda, MD, Carl H Snyderman, MD, MBA, Paul A Gardiner, MD, Eric W Wang, MD; University of Pittsburgh Medical Center

P009: MANAGEMENT OF DELAYED OSTEORADIONECROSIS AFTER CRANIOFACIAL RESECTION – Daniel L Price, MD, Michael J Link, MD, Eric J Moore, MD; Mayo Clinic Rochester, MN

P010: UTILIZATION OF FREE FLAPS FOR ENDOSCOPIC ANTERIOR SKULL BASE RECONSTRUCTION – Zainab Farzal, BS; Trevor G Hackman, MD, Adam M Zanation, MD; University of North Carolina at Chapel Hill

P011: MANAGER OF OSTEORADIONECROSIS AFTER CRANIOFACIAL RESECTION – Daniel L Price, Michael J Link, MD, Eric J Moore, MD; Mayo Clinic Rochester, MN

P012: CAN ESTHESIONEUROBLASTOMA METASTASIZE TO THE PARANASAL SINUSES?: CLINICAL REPORT AND LITERATURE REVIEW – Lamia Buohliqah, MD, Smita Upadhyay, MD, Ricardo Dolci, MD, Daniel Pravedelo, MD, Ricardo Carrau, MD; Wexner Medical Center at The Ohio State University, Columbus, Ohio, USA

P013: MANAGEMENT OF CLIVAL CHORDOMAS IN THE PEDIATRIC POPULATION: REPORT OF 2 CASES – Shaun D Rodgers, MD, Jeffrey C Rastatter, MD, Cedric Pritchett, MD, Tord D Alden, MD; Ann and Robert H Lurie Childrens Hospital of Chicago

P014: ATYPICAL PATHOLOGIC FEATURES IN CLIVAL CHORDOMA – Jeffrey T Jacob, MD, Aditya Raghunathan, MD, Joshua D Hughes, MD, Jeffrey R Janus, MD, Caterina Giannini, MD, Colin L Driscoll, MD, Eric J Moore, MD, Michael J Link, MD, Jamie J Van Gompel, MD; Mayo Clinic

P015: EXTENDING THE INFERIOR LIMIT OF ENDOSCOPIC ENDO NASAL SURGERY TO THE CERVICAL SPINE UTILIZING AN ENDOSCOPIC ENDO NASAL POSTERIOR PALATECTOMY – Mariano Fiore, MD, Edward E Kerr, MD, Paulo Mesquita Filho, MD, Ricardo Dolci, MD, Smita Upadhyay, MD, Lamia Buohliqah, MD, Gerival Vieira, MD, Leo Ditzel Filho, MD, Bradley A Otto, MD, Ricardo L Carrau, MD, Daniel M Prevedello, MD; Ohio State University Wexner Medical Center

P016: BILAYER BUTTON GRAFT FOR ENDOSCOPIC REPAIR OF HIGH-FLOW CRANIAL BASE DEFECTS – Marc L Otten, MD; Alfred M Iloreta, Pranay Soni, BS, Christopher Luminais, Waseem Mohiuddin, Natalie Ziegler, Gurston Nyquist, Christopher Farrel, Marc Rosen, James Evans, Columbia University, Mount Sinai School of Medicine, Thomas Jefferson University

P017: EFFECT OF INCREMENTAL MAXILLECTOMY ON EXPOSURE OF THE PTERYOPALATINE AND INFRATEMPORAL FOSSA. A CADAVERIC STUDY WITH COMPARATIVE ANALYSIS OF RADIAL ACCESS, AREA OF EXPOSURE AND SURGICAL FREEDOM – Smita Upadhyay, MD, Lamia Buohliqah, MD, Ricardo L Dolci, MD, Mariano E Fiore, MD, Daniel Prevedello, MD, Brad A Otto, MD, Ricardo L Carrau, MD, Ohio State University

P018: EXPANDED ENDO NASAL APPROACH TO THE INTRACONAL ORBIT. A COMPARATIVE ANATOMIC STUDY BEFORE AND AFTER RELEASE OF THE ANNULUS OF ZINN – Lewis J Overton, MD, Rounak B Rawal, MD, Ana M Lemos, MD, Zainab Farzal, BS, Deanna Sasaki-Adams, MD, Matthew Ewens, MD, Charles S Ebert, Jr, MD, MPH, Brent A Senior, MD, FACS, Adam M Zanation, MD, FACS, University of North Carolina – Chapel Hill

P019: ENDOSCOPIC MEDIAL RECTUS MUSCLE RETRACTION: COMPARISON OF TECHNIQUES TO MAXIMIZE ENDOSCOPIC EXPOSURE OF THE MEDIAL ORBIT – Giant C Lin, MD, Suzanne K Freitag, MD, Armine Kocharyan, MD, Michael K Yoon, MD, Daniel R Lefebvre, Benjamin S Bleier, MD, Massachusetts Eye and Ear Infirmary
P020: SUBLABIAL ANTERIOR MAXILLOTOMY OR ENDOSCOPIC DENKER’S APPROACH: COMPARATIVE ANALYSIS OF TWO MINIMALLY INVASIVE APPROACHES TO THE INFRATEMPORAL FOSSA – Smita Upadhyay, MD, Ricardo L Dolci, MD, Lamia Buohliqah, MD, Leo F Ditzel, MD, Daniel Prevedello, MD, Brad A Otto, MD, Ricardo L Carrau, MD; Ohio State University Wexner Medical Centre

P021: EXPANDED ENDONASAL APPROACH TO THE INTRACONAL ORBIT: A COMPARATIVE ANATOMIC STUDY WITH AND WITHOUT EXTERNAL RECTUS MUSCLE DISPLACEMENT – Pounak B Rawal, MD, Lewis J Overton, MD, Ana L Rodriguez, MD, Zainab Farzal, BS, Deanna Sasaki-Adams, MD, Matthew Ewend, Charles S Ebert, MD, MPH, Brent A Senior, MD, FACS, Adam M Zanation, MD, FACS; University of North Carolina - Chapel Hill Hospitals

P022: TRANSNASAL ENDOSCOPIC REPAIR OF ORBITAL FLOOR FRACTURE WITH ALLOPLASTIC IMPLANT – Robert D Engle, MD, Anna Butrymowicz, MD, Mark B Chaskes, BS, MBA, Edward J Wladis, MD, Tyler J Kenning, MD, Carlos D Pinheiro-Neto, MD, PhD; Albany Medical College

P023: ENDOSCOPIC ENDONASAL GREATER PALATINE ARTERY CAUTERIZATION AT THE INCISIVE FORAMEN FOR CONTROL OF ANTERIOR EPISTAXIS: AN ANATOMICAL STUDY AND CASE SERIES – Anna Butrymowicz, MD, Adam Weisstuch, Jay Agarwall, Carlos D Pinheiro-Neto; Division of Otolaryngology and Head-Neck Surgery, Department of Surgery, Albany Medical College

P024: A NEW WINDOW FOR THE TREATMENT OF POSTERIOR CEREBRAL ARTERY, SUPERIOR CEREBELLAR ARTERY AND BASILAR APEX ANEURYSM: THE EXPANDED ENDOSCOPIC ENDONASAL APPROACH – Ana M Lemos-Rodriguez, MD, Satyan B Sreenath, BS, Ayaj Unnithan, BS, Vivian Doan, BS, Pablo F Recinos, MD, Adam M Zanation, MD, FACS, Deanna Sasaki-Adams, MD, FACS; University of North Carolina at Chapel Hill, Cleveland Clinic

P025: ENDOSCOPIC ENDONASAL TRANSCONVYDLAR APPROACH FOR FORAMEN MAGNUM MENINGIOMA: ANATOMICAL AND TECHNICAL NOTE – Wei Hsin Wang, MD, Paul A Gardner, MD, Eric Wang, MD, Carl H Snyderman, MD, MBA, Juan C Fernandez-Miranda, MD; Department of Neurological Surgery, University of Pittsburgh, Pennsylvania

P026: USING THE ENDOSCOPIC ENDONASAL TRANSCONVYDLAR APPROACH TO ACCESS AICA, PICA, AND VERTEBRAL ARTERY: A NEW SURGICAL APPROACH FOR CLIPPING THESE INTRACRANIAL ANEURYSMS? – Vivian Doan, BS, Ana M Lemos-Rodriguez, MD, Satyan B Sreenath, BS, Ayaj Unnithan, BS, Pablo F Recinos, MD, Adam M Zanation, Deanna Sasaki-Adams, MD, University of North Carolina School of Medicine, Cleveland Clinic

P027: VOLUMETRIC ANALYSIS OF ENDOSCOPIC AND MAXILLARY SWING SURGICAL APPROACHES FOR NASOPHARYNGECTOMY – Nidal Mahunna, MD, PhD, Jimmy Qiu, MSc, Harley Chan, PhD, Michael Daly, PhD, Robert Weersink, PhD, Ralph Gilbert, MD, Ian Witterick, MD, Allan Vescan, MD, David Goldstein, MD, Gelareh Zadeh, MD, PhD, Eric Monteiro, MD, MSc, Jonathan Irish, John R de Almeida, Department of Otolaryngology – Head & Neck Surgery, University of Toronto, TECHNA Institute, University Health Network, Toronto, Department of Otolaryngology-Head & Neck Surgery, Mount Sinai Hospital, Toronto, Department of Neurosurgery, University Health Network

P028: ENDOSCOPIC MEDIA MAXILLECTOMY APPROACH FOR REMOVAL OF ECTOPIC TOOTH IN THE MAXILLARY SINUS – Jose G Gurrola, MD, C. Arturo Solares, MD, C Arturo Solares, MD, University of Virginia Health System, Georgia Regents University

P029: RETROLABYRINTHINE TRANSPETROSAL VS. ENDOSCOPIC ENDONASAL APPROACH TO THE CEREBELLOPONTINE ANGLE: AN ANATOMICAL AND COMPUTED TOMOGRAPHIC STUDY – Eric Mason, BS, C. Arturo Solares, MD, Ramon Figueroa, MD, Georgia Regents University

P030: TRANSNASAL ENDOSCOPIC MEDIA MAXILLARY SINUS WALL TRANSPOSITION WITH PRESERVATION OF THE INFERIOR TURBINATE AND NASOLACRIMAL DUCT – Alice S Zhao, MD, Kristina Piastro, MD, Anna Butrymowicz, MD, Tiffany T Chen, MD, Tyler Kenning, MD, Carlos D Pinheiro-Neto, MD; Albany Medical College

P031: ENDOSCOPIC ENDONASAL STUDY OF THE CAVERNOUS SINUS AND QUADRANGULAR SPACE: ANATOMICAL RELATIONSHIPS – Ricardo L Dolci, MD, Ricardo L Carrau, MD, Smita Upadhyay, MD, Leo F Ditzel, MD, Mariano E Fiore, MD, Lamia Buohliqah, MD, Gerard Vieira Junior, MD, Paulo R Lazarini, MD, Bradley A Otto, MD, Daniel M Prevedello, MD; Ohio State University, Santa Casa Misericórdia de São Paulo

P032: TRANSNASAL ODONTOID RESECTION: IS THERE AN ANATOMIC EXPLANATION FOR DIFFERING SWALLOWING OUTCOMES? – Kathryn M Van Abel, MD, Grant W Mallory, MD, Jan L Kasperbauer, MD, Eric J Moore, MD, Dan L Price, MD, Erin K O’Brien, MD, Kerry D Olsen, MD, William E Krauss, MD, Michelle J Clarke, MD, Mark E Jentoft, MD, Jamie J Van Gompel, MD; Division of Otolaryngology Head and Neck Surgery, Department of Neurologic Surgery, Department of Anatomic Pathology, Mayo Clinic, Rochester, MN

P033: 3D ENDOSCOPIC FOR POSTERIOR FOSSA SURGERY: AN EXPERIMENTAL CADECERIC STUDY – George Kilronomos, Osaama H Khan, MD, Ali Reza Mansouri, MD, Allan Vescan, MD, John de Almeida, MD, MSc, Fred Gentili, MD, Ian Radovanovic, MD, PhD, Gelareh Zadeh, MD, PhD; Toronto Western Hospital, Mt Sinai Hospital, Princess Margaret Hospital
P034: ENDONASAL MANAGEMENT OF A PEDIATRIC PTERYGOPALATINE FOSSA AND SKULL BASE MYOFIBROMA – Jeffrey C. Rastatter, MD, Shaun D Rodgers, MD, Santino Cervantes, Tord D Alden; Ann and Robert H Lurie Childrens Hospital of Chicago

P035: ENDOSCOPIC ENDONASAL RESECTION OF MEDIAL ORBITAL TUMORS – Kristina Piastro, MD, Edward J Wladis, MD, Tyler J Kenning, MD, Carlos D Pinheiro-Neto, MD, PhD; Albany Medical Center

P036: ENDOSCOPIC ENDONASAL REPAIR OF CONGENITAL DEFECTS OF THE ANTERIOR SKULL BASE: DEVELOPMENTAL CONSIDERATIONS AND SURGICAL OUTCOMES – William C Gump, MD; Norton Neuroscience Institute

P037: UPPER NASOPHARYNGEAL CORRIDOR FOR TRANSCLIVAL ENDOSCOPIC-ASSISTED ACCESS TO THE PETROUS APEX IN PATIENTS WITH CONCAHAL SPHENOIDAL ANATOMY: APPLICATION IN CHOLESTEROL GRANULOMAS – Nezir Turan, MD, Griffin R Baum, MD, Christopher M Holland, MD, PhD, Oswaldo A Henriquez, MD, Gustavo Pradilla, MD; Department of Neurological Surgery, Emory University School of Medicine, Department of Otorhinolaryngology, Emory University School of Medicine

P038: VERMONT SKULL BASE COURSE: HISTORY, CHALLENGES, FUTURE – Eric Akture, MD, Michael A Horgan, MD; University of Vermont Medical Center

P039: SKULL BASE SURGERY TRAINING AND PRACTICE PATTERNS AMONG RECENT OTOLARYNGOLOGY FELLOWSHIP GRADUATES – Matthew M Dedmon, MD, PhD, Garrett Locketz, Kyle J Chambers, MD, Matthew R Naunheim, MD, MBA, Derrick T Lin, MD, Stacey T Gray, MD; Department of Otolaryngology—Head and Neck Surgery, Massachusetts Eye and Ear Infirmary, Sackler School of Medicine, Tel Aviv University

P040: CAROTID HEMORRHAGE DURING SKULL BASE SURGERY: REVIEW OF THE LITERATURE, META-ANALYSIS, AND RECOMMENDATIONS – Glenn W Knox, MD; UF Health - Jacksonville

P041: ELUCIDATING THE ROLE OF INCIDENTAL USE OF BETA BLOCKERS IN PATIENTS WITH METASTATIC BRAIN TUMORS IN CONTROLLING TUMOR PROGRESSION AND SURVIVABILITY – Piyush Kalakoti, Shyamal C Bir, Richard Murray, Osama Ahmed, Papireddy Bollam, Anil Nanda; Louisiana State University Health Sciences Center

P042: A NOVEL TECHNIQUE OF ARACHNOID RETRACTION IN MICRONEUROSURGICAL RESECTION – Kutluay Uluc, MD, Ulas Cikla, MD, Christopher D Baggett, MD, Mustafa K Baskaya; University of Wisconsin Department of Neurological Surgery

P043: USE OF COBLATOR FOR ENDOSCOPIC RESECTION OF A FRONTOETHMOID ENCEPHALOCELE – Marc J Gibber, MD, Andrew Tassler, MD, Rani Nasser, MD; Albert Einstein College of Medicine

P044: SKULL BASE RENAL CELL CARCINOMA METASTASIS MIMICKING TRIGEMINAL SCHWANNOMA – Adesh Tandon, MD, Raj Murali, MD, FACS, Arthur Wang, MD; New York Medical College

P045: QUANTITATIVE COMPARISON AND TARGET-SPECIFIC MANEUVERABILITY OF THE MEDIAN INFRATENTORIAL SUPRACEREBELLAR VERSUS THE OCCIPITAL TRANSVENTORIAL APPROACHES TO THE PINEAL REGION – J Brodar, M Jaggersberg, J Falset, W Kucharczyk, J Qi, K Schaller, J Radovanovic, Spine Unit, Schultess Klinik, Zurich, Switzerland, Department of Neurosurgery, University of Geneva Medical Center, Switzerland, Department of Anatomy, University of Geneva Medical Center, Switzerland, Joint Department of Medical Imaging and MaRS Institute, University of Toronto, Canada, Division of Neurosurgery, Toronto Western Hospital, University Health Network, University of Toronto

P046: PRELIMINARY RESULTS OF THE SKULL BASE INVENTORY: A QUALITY OF LIFE INSTRUMENT FOR SKULL BASE PATHOLOGIES – Soroush Larjani, HBSc, Eric Monteiro, MD, Allan Vescan, MD, Gelareh Zadeh, MD, PhD, Fred Gentili, MD, John R de Almeida, MD, MSc; Princess Margaret Hospital, University Health Network, Mount Sinai Hospital, Toronto Western Hospital, University Health Network

P047: TROCLEAR NERVE PALSY ASSOCIATED WITH PINCEAL CYST – T. Benton Ableman, MD, Steven A Newman, MD; University of Virginia

P048: LONG TERM MANAGEMENT OF CHRONIC INVASIVE SKULL BASE ASPERGILLOMA WITH ORAL VORICONAZOLE – Rebecca Harvey, MD, Erin McKean, MD; University of Michigan

P049: A NEW CLINICAL CLASSIFICATION OF TRIGEMINAL NEURALGIA – Mauro Segura, MD, PhD, Juan Carlos Torres, MD, Antonio Duran, MD, José Antonio Martinez, MD, Ramiro Pérez, MD, Cuahhtemoc Gil, MD, Carlos Segura, MD; General Hospital of Morelia, Institute of Security and Social Service of State Workers, General Hospital of Tepic, General Hospital of Querétaro, Social Security Mexican Institute

P050: GLOMANGIOPERICYCTOMA SIMULATING Cavernous Meningioma – Mohamed Labib, MDCF, FRCS, C, Hussam Abou Al-Shaar, University of Ottawa, College of Medicine, Alfaisal University, Riyadh, Saudi Arabia

P051: BENIGN CALCIFYING PSEUDOTUMOR OF THE CRANIOCERVICAL JUNCTION: RARE PRESENTATION IN AN INFANT – William C Gump, MD, Robert F Debski, MD, Matthew P Thompson, DO; Norton Neuroscience Institute, Kosair Children's Hospital

P052: GIANT PAROTID CARCINOSARCOMA (TRUE MALIGNANT MIXED TUMOR) ARISING IN A PLEOMORPHIC ADENOMA: PRESERVATION OF THE FACIAL NERVE BY RETROGRADE DISSECTION AND FREE FLAP RECONSTRUCTION – Tiffany N. Chao, Christopher H Rassekh, MD, Laurie A Loewner, MD, Steven B Cannady, MD, Virginia A LiVolsi, MD; University of Pennsylvania
**P053:** HETEROPTROPHIC OSSIFICATION OF A PRE-PONTINE MASS: IDIOPATHIC OR FOLLOWING STROKE?  – Piyush Kalakoti, MD, Osama Ahmed, Richard Menger, Richard Murray, Shyamal C Bir, Connor David, Anil Nanda; Louisiana State University Health Sciences Center, Shreveport

**P054:** INCIDENCE AND DEGREE OF MUCOSAL THICKENING OF THE CONTRALATERAL SINUSES FOLLOWING TREATMENT FOR SINOSALAR CARCINOMA  – Kyle J Chambers, MD, Matthew Dedmon, MD, PhD, Matthew Naunheim, MD, Neerav Goyal, MD, Stacey T Gray, MD, Derrick T Lin, MD; Harvard Medical School

**P055:** PRIMARY SOLITARY RETRO-CLIVAL AMYLOIDOMA: A CASE REPORT AND REVIEW OF THE LITERATURE  – Kevin Kwan, MD, Stephanie Colantonio, Scott Safir, Tina Loven, Jian Li, Karen Black, Bob T Schaeffer, Mark Eisenberg; NSLIJ

**P056:** PROBABLE IMMUNOGLOBULIN SUBTYPE-G4 RELATED DISEASE IN THE HEAD AND NECK FROM FOREIGN BODY INJECTION: A CASE REPORT  – Mallory J Highstein, Jonathan Mallen, Tristan Tham, MD, Tara Brennan, MD, Alexandra Boubour, Elana Opher, MD, Vira Wolf, MD, Prabhjot Singh, MD, MSc, FRCSC, Peter Costantino, MD, FACS; Hofstra NS-LIJ School of Medicine, New York Head and Neck Institute - Lenox Hill Hospital - North Shore LIJ Health System, Lenox Hill Hospital

**P057:** A SYSTEMATIC REVIEW OF SKULL BASE OSTEOBLASTOMA: CLINICAL FEATURES, TREATMENT, AND OUTCOMES  – Panayiotis E Pelargos, Daniel T Nagasawa, MD, Nolan Ung, Lawrence K Chung, Kimberly Till, Quinton Gopen, MD, Steve Tenn, PhD, Isaac Y Yang, MD; Department of Neurosurgery, UCLA, Department of Otolaryngology, UCLA, Radiation Oncology, UCLA

**P058:** SOFT TISSUE SARCOMA OF THE NASAL CAVITY AND PARAMASAL SINUSES: A CASE SERIES IDENTIFYING COMMON FEATURES IN DIVERSE PATHOLOGY  – Jessica Somerville, MD, Sandeep Samant, MD, FAACS, Faisal Mohamed, Kenneth Kennedy; University of Tennessee

**P059:** RECONSTRUCTION OF LATERAL SKULL BASE DEFECTS USING THE CERVICOPECTORAL FLAP  – Guyan A Channer, MD, R. W. Kwesi Davis, MD; Kingston Public Hospital, Cornwall Regional Hospital

**P060:** TECHNICAL NOTE: USAGE OF A ULTRASONIC KNIFE TO PERFORM KEY OSTEOTOMIES IN A CRANIO-ORBITAL ZYGOMATIC APPROACH  – Leopold Arko IV, MD, Shahin Manoochehri, MD, Kadir Erkmen, MD; Temple University Hospital

**P061:** DIRECT ETHANOL PUNCTURE TECHNIQUE FOR PREOPERATIVE EMBOLIZATION OF BULKY SKULL BASE SARCOMA: CASE REPORT  – Bohdan W Chopko, PhD, MD; Stanford University

**P062:** INTRAOPERATIVE AUTOLOGOUS BONE GRAFTING WITH 3D CAD/CAM  – Glenn W Knox, MD; UF Health - Jacksonville

**P063:** THE USE OF A BIPOLAR SEALER SYSTEM IN ENDOSCOPIC ENDONASAL SURGERY OF THE SKULL BASE: A TECHNICAL NOTE  – Ali O Jamshidi, MD, Ahmed Mohyeldin, MD, PhD, Jun Muto, MD, PhD, Leo F Ditzel Filho, MD, Edward E Kerr, MD, Daniel M Prevedello, MD, Bradley A Otto, MD, Ricardo L Carrau, MD; Ohio State University Medical Center

**P064:** TRANSTUBULAR MICROSURGICAL DISEMPRESSION FOR TRIGEMINAL NEURALGIA  – Antonio Bernardo, MD, Alexander I Evins, MD, Philip E Stieg, PhD, MD; Weill Cornell Medical College

**P065:** ENDOSCOPIC SKULL BASE SURGERY KINETICS: A NOVEL APPROACH TO INSTRUMENT MOTION ANALYSIS  – Angelique Berens, MD, Jed White, Richard Harbison, MD, Randy A Bly, MD, Kristen S Moe, MD, FACS, Manual Ferreira, MD, PhD, Sharon Newman; University of Washington - Department of Otolaryngology, University of Washington - Applied Biomechanics Laboratory, University of Washington - Department of Neurosurgery, University of Washington - Department of Bioengineering

**P066:** 3D ENDOSCOPE-ASSISTED TRANSTUBULAR APPROACHES TO THE PINEAL REGION  – Antonio Bernardo, MD, Alexander I Evins, MD, Philip E Stieg, PhD, MD; Weill Cornell Medical College

**P067:** POTENTIAL OF A 3D DISPLAY SYSTEM FOR NEUROSURGICAL SIMULATION IN CADAVERIC STUDY  – Kazuhiko Kurozumi, Tomohito Hishikawa, Masahiro Kameda, Takao Yasuhara, Yoshimasa Takeda, Aiji Ohtsuka, Isao Date; Department of Neurosurgery, Okayama University, Japan, Department of Anesthesiology and Resuscitology, Okayama University, Japan, Department of Human Morphology, Okayama University, Japan

**P068:** CRANIAL-BASE SURGERY FOR DRUG DELIVERY VIA MASTOID CAVITY: A NOVEL PROCEDURE FOR VESTIBULAR/ AUDITORY SYNDROMES  – Al-Rahim A Tailor, MD, Lamia Buohliqah, MD, Mario Ammirati, MD, MBA, Ricardo Carrau, MD, Tariq Lamki, MD, Martin Lubow, MD; The Ohio State University Wexner Medical Center

**P069:** THE USE OF INTRAOPERATIVE ULTRASOUND IN ENDOSONAL ENDONASAL SURGERY OF THE CRANIOVERTEBRAL JUNCTION: A TECHNICAL NOTE  – Ali Jamshidi, Ahmed Mohyeldin, MD, Jon Chan, MD, Leo F Ditzel Filho, MD, Edward E Kerr, MD, Bradley A Otto, MD, Ricardo L Carrau, MD, Daniel M Prevedello, MD; The Ohio State University Medical Center

**P070:** THE USE OF INTRAOPERATIVE ULTRASOUND DURING ENDOSONAL, ENDONASAL APPROACH TO THE ANTERIOR SKULL BASE FOR RESECTION OF A TUBERCULUM SELLA MENINGIOMA: A TECHNICAL NOTE  – Ali O Jamshidi, MD, Jon Chan, MD, Leo F Ditzel Filho, MD, Edward E Kerr, MD, Ahmed Mohyeldin, MD, PhD, Ricardo L Carrau, MD, Daniel M Prevedello, MD; The Ohio State University Medical Center
P071: OPTIMIZATION OF THE ULTRASONIC BONE ASPIRATOR IN RETROSIGMOID VESTIBULAR SCHWANNOMA REMOVAL
- Justin S Golub, MD\(^1\), Natalie R Pottschimidt\(^1\), Jon D Weber, BS\(^1\), Mario Zuccarello, MD\(^2\), Myles L Pensak, MD\(^3\), Norberto Andaluz, MD\(^4\), Ravi N Samy, MD\(^5\); \(^1\)University of Cincinnati, \(^2\)University of Cincinnati/Mayfield Clinic

P072: THE ROLE OF ADJUVANT RADIOTHERAPY IN ATYPICAL (WHO GRADE II) MENINGIOMAS: META-ANALYSIS AND SYSTEMATIC REVIEW OF LITERATURE
- Maged D Fam, MD, MSc\(^1\), Sam Eljamel, MBCh, MD, FRCSIr, FRCSEd, FRCSNS, ACG; \(^1\)Dundee University Hospital

P073: THE ROLE OF ADJUVANT RADIOTHERAPY IN THE TREATMENT OF ATYPICAL TREATMENT OF ATYPICAL MENINGIOMAS: IMPLICATIONS IN STRATEGIC MANAGEMENT OF SKULL BASE MENINGIOMAS
- Jigar S Gandhi, PharmD, RPh, Zachary S Mendelson, BS, James K Liu, MD, FAANS; Rutgers New Jersey Medical School

P074: PRIMARY EXTRADURAL MENINGIOMA PRESENTING AS A NECK MASS
- Rami E Saade, MD, Amy Hessel, Lawrence Ginsberg, MD, Greg Fuller, MD, PhD, Diana Bell, MD; MD Anderson Cancer Center

P075: HYPEROSTOTIC EN PLAQUE MENINGIOMA MIMICKING FIBROUS DYSPLASIA OF THE TEMPORAL BONE
- Katie Mingo, BS\(^1\), Alex D Sweeney, MD\(^2\), Reid C Thompson, MD\(^2\), Alejandro Rivas, MD\(^2\); \(^1\)University of Minnesota Medical School, \(^2\)Vanderbilt University

P076: PROPOSAL FOR A MULTICENTER, PROSPECTIVE, COHORT STUDY COMPARING EXTENT OF TUMOR RESECTION IN PATIENTS WITH NONFUNCTIONING PITUITARY ADENOMAS UNDERGOING FULLY ENDOSCOPIC TRANSSPHENOIDAL TO MICROSCOPIC TRANSSPHENOIDAL SURGERY: THE TRANSSPHENOIDAL EXTENT OF
- Andrew S Little, MD\(^1\), Daniel Kelly, MD\(^2\), William White, MD\(^1\), Timothy Smith, MD, PhD\(^2\), Edward Laws, M\(^3\); \(^1\)Barrow Neurological Institute, \(^2\)John Wayne Cancer Center, \(^3\)Brigham and Womens Hospital

P077: ANATOMIC COMPARISON OF THE ENDONASAL AND TRANSPETROSAL APPROACH FOR INTERPEDUNCULAR FOSSA ACCESS
- Kenichi Oyama, MD, PhD\(^1\), Daniel M Prevedello, MD\(^1\), Leo F.S. Ditzel Filho, MD\(^1\), Jun Muto, MD, PhD\(^1\), Ramazan Gun, MD\(^2\), Edward E Kerr, MD, PhD\(^2\), Bradley A Otto, MD\(^2\), Ricardo L Carrau, MD\(^2\); \(^1\)Department of Neurological Surgery, The Ohio State University, \(^2\)Department of Otolaryngology - Head & Neck Surgery, The Ohio State University

P078: CHONDROBLASTOMA OF THE CLIVUS: CASE REPORT AND REVIEW
- Jonathan J Liu, MD, Arjag Ahamedpour, BS, Arnaud F Bewley, MD, PhD, Mirna Lechpammer, MD, PhD, Matthew Bobinski, MD, PhD, KiaraR Shahlaie, MD, PhD; University of California-Davis

P079: THE ULTIMATE SKULL BASE APPROACH DOESN’T INVOLVE CUTTING BONE: QUANTIFYING THE RELATIVE BENEFIT OF INTERFASCIAL TEMPORALIS DISSECTION
- Sabih Effendi, MD, Loyola Gressot, MD, Vikas Rao, MD, Eric Momin, Edward Duckworth, MD, MS; Baylor College of Medicine

P080: OPTIC CANAL DECOMPRESSION: COMPARING THE ENDONASAL ENDOSCOPIC AND TRANSCRANIAL APPROACHES
- Paolo M Mesquita Filho, MD, Daniel M Prevedello, MD, Leo F Ditzel Filho, MD, Edward E Kerr, MD, Cristian N Martinez, MD, Mariano E Fiore, MD, Ricardo L Dolci, MD, Bradley A Otto, MD, Ricardo L Carrau, MD; Ohio State University

P081: A PROGRESSIVE ANATOMIC ALGORITHM FOR TRANSCEVICAL APPROACHES TO THE INTERNAL CAROTID ARTERY AT THE SKULL BASE: A COMPARATIVE ANATOMIC STUDY
- Ana M Lemos-Rodriguez, MD, Satyan B Sreenath, BS, Rounak B Rawal, MD, Lewis J Overton, MD, Zainab Farzal, BS, Adam M Zanation, MD; University of North Carolina at Chapel Hill

P082: ANALYSIS OF THE EXPANDED ENDONASAL AND FAR MEDIAL TRANSORAL ENDOSCOPIC APPROACHES TO THE INFRATEMPORAL FOSSA: FEASIBILITY STUDY FOR A MULTI-PORTAL MINIMALLY INVASIVE APPROACH
- Hafiz Patwa, MD, Smita Upadhyay, MBBS, Daniel Prevedello, MD, Ricardo Carrau, MD; Ohio State University

P083: THE SITTING POSITION IN NEUROSURGERY: A CLINICAL STUDY IN 96 CASES
- Shamsul Alam, MD; B S M Medical University

P084: ENDOSCOPIC ENDONASAL ANATOMICAL STUDY OF THE CAVERNOUS SINUS SEGMENT OF THE OPHTHALMIC NERVE
- Ricardo Dolci, MD\(^1\), Ricardo Carrau, MD\(^1\), Lamia Buohligah\(^1\), Leo Ditzel Filho\(^1\), Mateo Zoli\(^1\), Paulo Mesquita Filho\(^1\), Cristian N Martinez\(^1\), Paulo Lazzarini\(^1\), Bradley A Otto, MD\(^1\), Daniel Prevedello\(^1\); \(^1\)Ohio State University, "santa casa de misericordia de sao paulo

P085: THE RELATIONSHIP BETWEEN AGE, GENDER, AND THE CRANIOCERVICAL JUNCTION
- Grant W Mallory, MD, Grigory Arutyunyan, MD, Meghan Murphy, Elvis Francois, Laurence Eckel, Nicholas Wetjen, Michelle Clarke, MD, Jamie Van Gompel, MD; Mayo Clinic

P086: MICROVASCULAR MAPPING IN A CADAVERIC MODEL: IMPLICATIONS FOR ENDOSCOPIC SKULL BASE RECONSTRUCTION
- Adrian House, Mary Orczykowski, Donald Siwek, Ann Zumwalt; Boston University School of Medicine

P088: ENDOSCOPIC ENDOASAL APPROACH TO THE OPTIC CANAL: ANATOMICAL CONSIDERATIONS AND SURGICAL RELEVANCE
- Kumar Abhinav, MD, Yancy Acosta, MD, Luis Bonilla, MD, Wei Hsin Wang, MD, Maria Koutourouisiou, MD, Carl H Snyderman, MD, MBA, Paul A Gardner, MD, Juan C Fernandez-Miranda, MD; University of Pittsburgh Medical Center
**Poster Sessions**

POSTERS WILL BE OPEN DURING ALL EXHIBIT HALL HOURS IN THE EXHIBIT ROOM.

**P114:** SINGLE PIECE CRANIO-ORBITO-ZYGOMATIC APPROACH, TRANS KEY BURR HOLE ORBITAL ROOF OSTEOTOMY; A NEW MODIFICATION. SURGICAL TECHNIQUE AND REPORT OF EIGHT CASES – Mohamed A Ismail, MSc, MD, Neurosurgery, MRCS, Eng; Ain Shams University Cairo- Egypt Saudi German Hospital- KSA

**P115:** BILATERAL AUDITORY BRAINSTEM STIMULATION WITH SINGLE IMPLANT – Robert Behr, PhD; Klinikum Fulda

**P117:** SKULL BASE CHOLESTEROL GRANULOMA: A DISTINCT ENTITY? – Christine T Dinh, MD, Stefania Goncalves, MD, Rita Bhatia, MD, Kim Truong, MD, Fred F Telischi, MD, Simon I Angeli, MD, Jacques Morcos, MD, Adrien Eshraghi, MD; University of Miami

**P118:** BILATERAL ELECTRICAL STIMULATION OF THE COCHLEAR NUCLEUS – SURGICAL AND TECHNICAL FEASIBILITY – Robert Behr, PhD; Klinikum Fulda

**P119:** HEREDITARY ATYPICAL HYALINE CARTILAGINOUS TUMORS OF THE MASTOID – Ian J Lalich, MD, Brian A Neff, MD; Mayo Clinic Rochester

**P120:** DOES THE PRESENCE OF CYSTIC CHANGE ALTER THE FACIAL NERVE PROGNOSIS IN SURGICALLY TREATED LARGE ACOUSTIC NEUROMAS? – Candice C Colby, MD, Meredith Adams, Tina Huang, Samuel Levine, Stephen Haines; University of Minnesota

**P121:** CENTRAL GIANT CELL LESION OF THE TEMPORAL BONE RESULTING IN FACIAL NERVE WEAKNESS AND HEARING LOSS – Peter M Vila, MD, MSPH; Albert H Kim, MD, PhD, Jonathan L McJunkin, MD; Washington University School of Medicine

**P122:** CHRONIC LYMPHOCYTIC LEUKEMIA PRESENTING AS A TUMOR OF THE INTERNAL AUDITORY CANAL – Marcus Gates, Jeffery Jacob, Maya Babu, Colin Driscoll, Mike Link; Mayo Clinic

**P123:** TEMPORAL LOBE ENCEPHALOCELES: A POTENTIALLY CURABLE CAUSE OF SEIZURES – Peter J Morone, MD1; Matthew L Carlson, MD2; Alex D Sweeney, MD2; Joseph S Neimat, MD, MS1; Kyle D Weaver, MD1; Pradumna Singh, MD1; George B Wanna, MD1; 1Vanderbilt Department of Neurosurgery, 2Vanderbilt Department of Otolaryngology, 3Vanderbilt Department of Neurology

**P125:** PATHOLOGICALLY CONFIRMED CEREBELLOPONTINE ANGLE ARACHNOID GRANULATION: CASE REPORT – Patrick R Maloney, MD; William R Copeland, MD, Michael J Link, MD, John I Lane, MD, Mark E Jentoft, MD; Mayo Clinic
Abstract submissions will open Summer 2015
Registration Opens November 2015
NASBS will be accepting online submissions for oral or poster presentations.

PRESIDENT: Carl Snyderman, MD, MBA
PROGRAM CHAIRS: James Liu, MD & Allan Vescan, MD
PRE-MEETING COURSE CHAIR: Devyani Lal, MD

CALL FOR ABSTRACTS!

NASBS will be accepting online submissions for oral or poster presentations. Topics include:

- Anatomy of the Skull Base
- Biologic Behavior of Skull Base Tumors
- Complications
- Craniopharyngiomas
- Endoscopic Techniques
- Head and Neck Tumors
- Imaging Techniques
- Innovative Technologies
- Meningiomas
- Orbital Tumors
- Pediatric Skull Base
- Pituitary Tumors
- Quality of Life
- Radiosurgery
- Reconstruction
- Surgical Techniques
- Temporal Bone/Acoustic Tumors
- Training and Education
- Trauma
- Vascular Lesions

For general information regarding the meeting, please contact Adriana Michaels at adriana@nasbs.org.