

2018 FINAL PROGRAM



North American Skull Base Society

# 28<sup>th</sup> Annual Meeting

## “Dynamic Mentoring of the Skull Base Surgeon: Training Our Future”

**February 16-18, 2018**

Loews Coronado Bay Hotel, Coronado, California

**Pre-Meeting Course: February 14-15, 2018**

UCSD Center for the Future of Surgery

PRESIDENT: Ian Witterick, MD

PROGRAM CHAIRS: Amir Dehdashti, MD & Zoukaa Sargi, MD

PRE-MEETING COURSE CHAIRS: Ricardo Carrau, MD & James Evans, MD

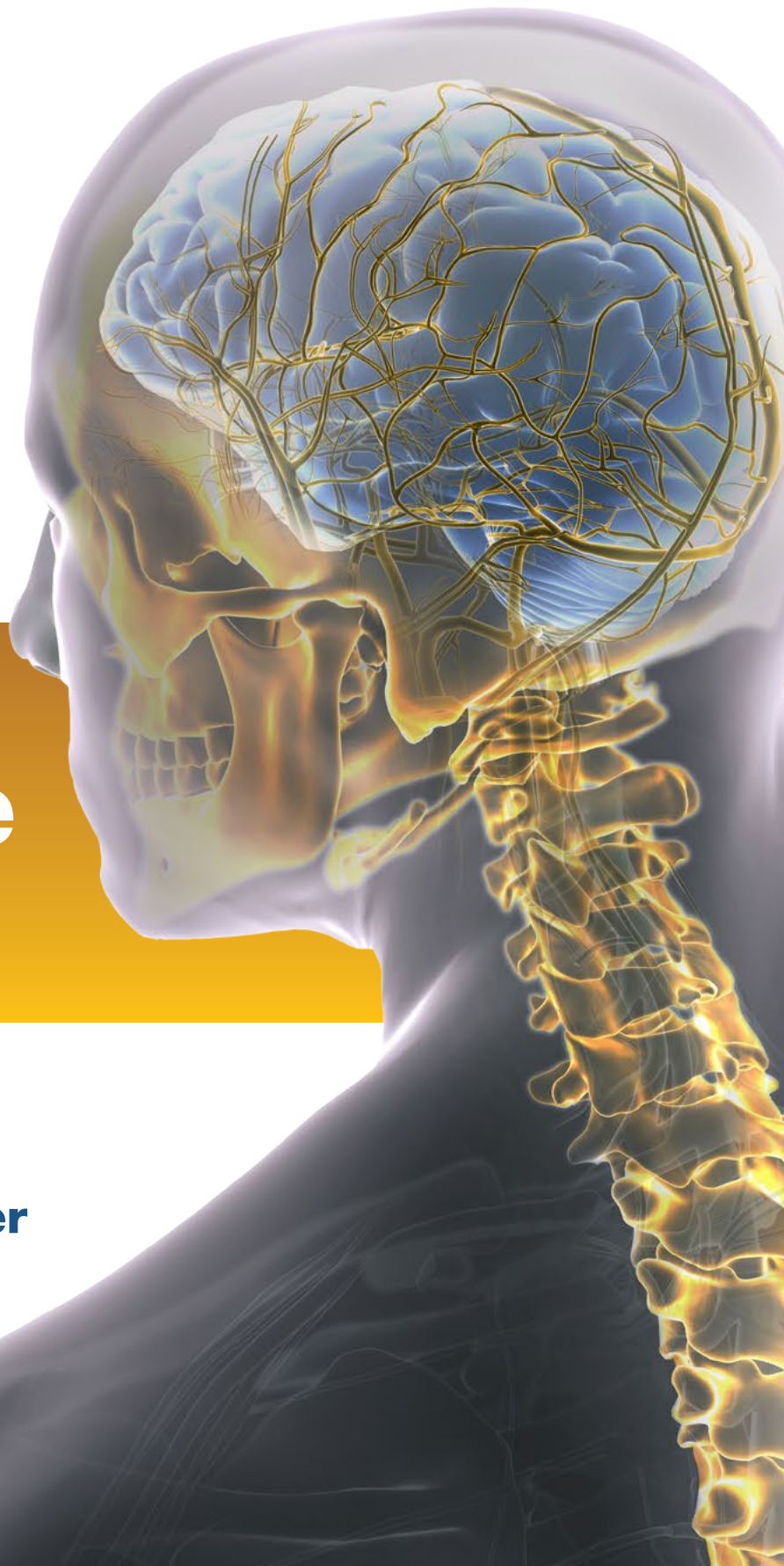
SCIENTIFIC PROGRAM COMMITTEE: Siviero Agazzi, MD, Matt Carlson, MD, Ian Dunn, MD, Ivan El-Sayed, MD, Nagy Elsayyad, MD, Bharat Guthikonda, MD, Perry Mansfield, MD, Rahul Mehta, MD, Kris Moe, MD, George Wana, MD, Eugene Yu, MD, & Gelareh Zadeh, MD

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## Dear Colleagues and Friends,

Welcome to the **28<sup>th</sup> Annual Meeting of the North American Skull Base Society!**

The Program Committee has put together a most impressive array of pre-courses, keynote lectures, panels, hot topics, debates, video sessions, and proffered paper sessions. I want to thank each and every member of our Program Committee for their enormous contributions to the success of this meeting and especially to our two Program Co-Chairs, Dr. Zoukaa Sargi and Dr. Amir Dehdashti who have worked tirelessly to make this a great educational meeting.

The BSC Management team has done a spectacular job in organizing this meeting and keeping us all on target. I am also very grateful to Dr. Perry Mansfield who was so helpful with local arrangements.

The main theme of the meeting: **Dynamic Mentoring of the Skull Base Surgeon: Training our Future** is about the current and next generations of physicians and allied health professionals who will manage skull base disease. All of us have had mentors who have helped shape our careers. My hope is that we all learn more about what makes a great mentor/mentee relationship and how all of us can “pay it forward”.

The pre-courses include a **Hands-On Course** led by Drs. James Evans and Ricardo Carrau, a **Meningioma Education Day** led by Drs. Gelareh Zadeh and Ian Dunn and a **Skull Base Primer Course** led by Drs. Eric Monteiro and Scott Wait. The meningioma theme will continue on the first day of the main meeting. On the last day, we will have a **Pituitary Forum** in conjunction with the **International Society of Pituitary Surgeons**.

A new feature this year is **The Rhoton Room** covering specific anatomical areas starting with 3D anatomy followed by pertinent diagnostic imaging along with and then two teams of surgeons performing simultaneous dissections on cadaveric specimens with commentary. Day 1 (February 16<sup>th</sup>) will feature open procedures, Day 2 (February 17<sup>th</sup>) will feature endoscopic procedures and Day 3 (February 18<sup>th</sup>) will feature temporal bone and neck anatomy plus radiology (no dissections).

There will be an opportunity to test your skills in stopping carotid bleeding with **Carotid Bleeding Simulators**. We will have a **Three Minute Thesis** competition on Saturday February 17<sup>th</sup>. Ten of the top scoring abstracts will participate in a contest where the presenters will have three minutes and one slide only to describe their work (1st, 2nd and 3rd place prizes will be awarded). There is also a resident and fellow skull base trivia “Jeopardy” contest on February 17<sup>th</sup> in the afternoon.

I have invited three of my mentors as Guests of Honor; these are Dr. Patrick Gullane (University of Toronto), Dr. Fred Gentili (University of Toronto) and Dr. Peter Neligan (University of Washington). Dr. Gentili was an honored guest at last year’s meeting but he has played such an important role in my career, I had to invite him back. These three surgeons, representing head and neck oncology, neurosurgery and plastic surgery respectively, have all been instrumental in shaping the lives of so many “mentees”, including myself, and have had a profound influence on skull base surgery in North America.

In addition, Dr. Robert Miller who just stepped down as the Executive Director of the American Board of Otolaryngology will tell us about networking and career development. Dr. Dan Fliss from Israel will give us an overview of skull base surgery in the 21<sup>st</sup> century and Dr. Harry van Loveren will give us his insights on knowing when and how to “hand over the scalpel” to residents and fellows. Mr. David DeLong will give us a keynote lecture on February 17<sup>th</sup> on Making Experience Pay Off: Maximizing the Value of mentoring.

The **Research Committee** led by Drs. Anand Devaiah and Shaan Raza have vetted over 40 research applications for new funding awards approved by the NASBS Board. The winners will be announced at the annual meeting as well as winners of awards from submitted manuscripts in three categories (basic science, clinical science and international). We will also be announcing an exciting endowment and the creation of the NASBS Foundation to support research and education going forward.

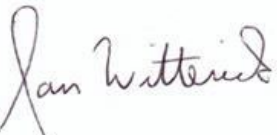
I want to thank the fellowship programs and individuals who generously supported the **2018 NASBS International Travel Scholarship**. With their support, we were able to fund four awards to allow Dr. Anthony Thomas (South Africa), Dr. Idoya Zazpe (Spain), Dr. Hermantkumar Nemade (India) and Dr. Olli-Pekka Kamarainen (Finland) to attend this meeting. Please join me in welcoming these four colleagues.

I hope you enjoy the resort and the surrounding beauty of the Coronado peninsula. You will have down time and fun time to catch up with friends and colleagues. We will have a **Welcome Reception**, poster viewing and poster tours on Friday night. On Saturday night, we are planning a **New Members Reception** followed by a **“Beach Blowout”** on Silver Strand Beach, a short walk from the Loews Coronado.

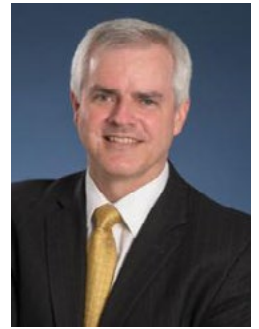
The interest in our society is strong and growing. The **Membership Committee** under the leadership of Dr. Madison Michael has done another outstanding job in showcasing our society with more than 120 new applications to join the NASBS this year. We have had record attendance (exceeding 700 attendees), sponsorship and abstract submissions for this meeting. The future of the NASBS looks GREAT!

Thank you for allowing me to serve as your President; it is an honor and privilege. I sincerely hope you find this meeting and all of its components exceed your expectations.

Relax, enjoy, connect and learn!



Ian J. Witterick MD  
NASBS President 2017-2018



Ian J. Witterick MD

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FAX: 310-437-0585  
[www.nasbs.org](http://www.nasbs.org)

## Hotel Contact

**Loews Coronado Bay Resort**  
4000 Coronado Bay Road  
Coronado, CA 92118  
PHONE: 619-424-4000

## NASBS is managed by BSC Management, Inc.

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# General/CME Information

## ANNUAL MEETING OBJECTIVES

Upon completion of this course, participants will be able to:

- Understand and explain most recent recommendations for management of skull base pathology.
- Describe recent advances in instrumentation and technology in skull base surgery.
- Gain knowledge in challenging skull base pathology from experienced leaders in the field.
- Collaborate in multidisciplinary working groups to identify state of the art management for select skull base pathology.
- Gain knowledge on optimal technical surgical management of complex skull base pathology through video analysis and expert critique of intraoperative video.
- Establish consensus statement on management of complex skull base pathology through review of existing medical literature.



## WHO SHOULD ATTEND

The NASBS meeting is open to NASBS members and non-members.

## TARGET AUDIENCE


- Otolaryngologists, head and neck surgeons, neurosurgeons, reconstructive surgeons, radiation oncologists, radiologists, medical oncologists, physical rehabilitation physicians, ophthalmologists, neurologists, maxillofacial surgeons, maxillofacial prosthodontists and endocrinologists.
- Targeted allied health professionals include physical therapists, oncology nurses, oral health specialists, occupational therapists, speech and language pathologists, optometrists and psychologists.

**CONTINUING MEDICAL EDUCATION CREDIT INFORMATION**

**Accreditation**  
This activity has been planned and implemented in accordance with the Essential Areas and Policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of the American College of Surgeons and 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™ - Pre-Meeting Course**  
The American College of Surgeons designates this live activity for a maximum of **15.00 AMA PRA Category 1 Credits™**. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

**AMA PRA Category 1 Credits™ - 28<sup>th</sup> Annual Meeting**  
The American College of Surgeons designates this live activity for a maximum of **19.00 AMA PRA Category 1 Credits™**. Physicians should claim only the credit commensurate with the extent of their participation in the activity.



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## DISCLOSURE INFORMATION

In compliance 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. All reported conflicts are managed by a designated official to ensure a bias-free presentation. Please see the insert to this program for the complete disclosure list.

# General Information

## MEMBERSHIP BENEFITS

- **Scientific Journal:** Members will receive the official journal of the society, *The Journal of Neurological Surgery Part B*, a bimonthly publication that contains peer reviewed original articles, review articles, and position papers. It also presents 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 education opportunities in skull base surgery, as well as scientific courses sponsored by the NASBS and will receive reduced registration fees for national scientific meetings.
- **Membership Directory:** Online access to all members contact information.
- **NASBS Website Access:** Members will have access to Member-Only discussion areas on the Society's website.

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



# Meeting Leadership

## NASBS Scientific Program Committee

Ian Witterick, MD, *President*  
Amir Dehdashti, MD, *Co-Chair*  
Zoukaa Sargi, MD, *Co-Chair*  
Ricardo Carrau, MD, *Pre-Meeting Chair*  
James Evans, MD, *Pre-Meeting Chair*  
Siviero Agazzi, MD  
Matt Carlson, MD  
Ian Dunn, MD  
Ivan El-Sayed, MD  
Nagy Elsayyad, MD  
Bharat Guthikonda, MD  
Perry Mansfield, MD  
Rahul Mehta, MD  
Kris Moe, MD  
George Wanna, MD  
Eugene Yu, MD  
Gelareh Zadeh, MD

## NASBS Executive Committee

PRESIDENT: Ian Witterick, MD  
PRESIDENT-ELECT: James Evans, MD  
IMMEDIATE PAST PRESIDENT: Jacques Morcos, MD  
VICE PRESIDENT: Ricardo Carrau, MD  
SECRETARY: John Golfinos, MD  
TREASURER: Lee Zimmer, MD

## Directors at Large

Siviero Agazzi, MD  
Matthew Carlson, MD  
Ivan El-Sayed, MD  
Steven Frank, MD  
Paul Gardner, MD  
Madison Michael, MD  
Kris Moe, MD  
Thomas Roland, MD  
George Wanna, MD  
Gelareh Zadeh, MD  
Adam Zanation, MD

## Board of Advisors

Ehab Hanna, MD  
Carl Heilman, MD  
Dennis Kraus, MD  
Michael Link, MD  
Carl Snyderman, MD

# Meeting Hours

## REGISTRATION HOURS

**Thursday, February 15, 2018**

**Friday, February 16, 2018**

**Saturday, February 17, 2018**

**Sunday, February 18, 2018**

*Constellation Foyer*

12:30 pm – 7:00 pm

6:00 am – 6:30 pm

6:30 am – 6:00 pm

6:30 am – 12:00 pm

## SPEAKER READY ROOM HOURS

**Thursday, February 15, 2018**

**Friday, February 16, 2018**

**Saturday, February 17, 2018**

**Sunday, February 18, 2018**

*Lenore*

2:00 pm – 7:00 pm

6:00 am – 6:00 pm

6:00 am – 6:30 pm

6:00 am – 12:50 pm

## EXHIBIT HALL/POSTER HOURS

**Friday, February 16, 2018**

9:00 am – 4:30 pm and 6:15 pm – 7:45 pm

9:30 am – 10:15 am

12:15 pm – 1:15 pm

3:30 pm – 4:15 pm

6:15 pm – 7:45 pm

Exhibit Hall Open

Refreshment Break

Lunch in Exhibit Hall

Refreshment Break

Welcome Reception in Exhibit Hall

**Saturday, February 17, 2018**

9:00 am – 4:30 pm

9:30 am – 10:15 am

12:15 pm – 1:15 pm

3:30 pm – 4:15 pm

Exhibit Hall Open

Refreshment Break

Lunch for Non-Members in Exhibit Hall

Refreshment Break

## DISMANTLE & REMOVAL OF EXHIBITS

**Saturday, February 17, 2018**

4:30 pm – 7:30 pm

## Past Presidents

**1990** Paul J. Donald, MD

**1991** Laligam N. Sekhar, MD

**1992** Ivo P. Janecka, MD

**1993** Peter G. Smith, MD, PhD

**1994** Albert L. Rhoton, Jr., MD

**1995** Hugh Curtin, MD

**1996** Derald E. Brackmann, MD

**1997** Ossam Al Mefty, MD

**1998** Steven A. Newman, MD

**1999** John P. Leonetti, MD

**2000** Robert F. Spetzler, MD

**2001** Ian T. Jackson, MD

**2002** Vinod K. Anand, MD

**2003** Jon H. Robertson, MD

**2004** Jatin Shah, MD

**2005** Patrick J. Gullane, MD

**2006** Anil Nanda, MD

**2007** Guy J. Petruzzelli, MD

**2008** Franco DeMonte, MD

**2009** Daniel Nuss, MD

**2010** Peter Neligan, MD

**2011** Dennis Kraus, MD

**2012** Carl Heilman, MD

**2013** Ehab Hanna, MD, FACS

**2014** Michael Link, MD

**2015** Carl Snyderman, MD, MBA

**2016** Jacques Morcos, MD, FRCS, FAANS



## ACKNOWLEDGEMENT OF EDUCATIONAL GRANTS

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

### DIAMOND LEVEL MARKETING SUPPORT

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Olympus America, Inc.  
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Stryker  
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TrueVision Systems

## Keynote Lecturer

### David DeLong

#### MIT AgeLab Research Fellow & Expert in Workforce Development, Corporate Culture & Knowledge Retention

Dr. David DeLong helps leaders implement practical solutions to address critical skill shortages created by major changes in workforce demographics, shifts in generational values and new technologies.

President of Smart Workforce Strategies, David is also a research fellow at the MIT AgeLab and has been an adjunct professor at Babson College where he teaches "Leading & Managing Organizational Change."

He is co-author of *The Executive Guide to High-Impact Talent Management* (McGraw-Hill), and author of the widely-praised book *Lost Knowledge: Confronting the Threat of an Aging Workforce* (Oxford University Press). His most recent book is *Graduate to a Great Job: Make Your College Degree Pay Off in Today's Market*.

David has spoken for and consulted with organizations such as MetLife, American Council of Life Insurers, the Federal Reserve Bank, Farm Credit System, Microsoft, MasterCard, Lockheed Martin, U.S. Nuclear Regulatory Commission, Ernst & Young and Accenture.

David's work has been widely cited in the *New York Times*, *Fortune Magazine*, the *Wall Street Journal*, the *Financial Times*, *Harvard Business Review Blog*, *CIO Magazine*, *US News & World Report* and *The Boston Globe*. He has also been interviewed on NPR's "Morning Edition" and "Talk of the Nation".

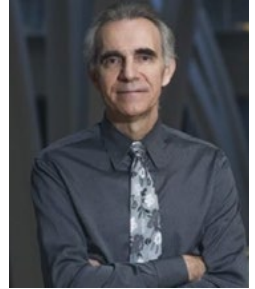


David DeLong

# Honored Guest Lecturers

## Fred Gentili, MD, MSc, FRCSC, FACS

Dr. Fred Gentili completed his medical training at the University of Toronto. After a surgical internship, he completed a Masters degree in the Institute of Medical Sciences at University of Toronto. Dr. Gentili entered Neurosurgical Training (Gallie Program) at the University of Toronto and completed his training and became a Fellow of the Royal College of Physicians and Surgeons of Canada (FRCSC) in 1980. He was awarded a McLaughlin Fellowship to pursue advanced training in skull base and micro-neurosurgery, completing clinical Fellowships at the University of Zurich with Professor G. Yasargil and at the National Hospital Queen Square in London England with Professor L. Symon in 1981. Dr. Gentili was certified by the American Board of Neurological Surgery in 1986 and is a Fellow of the American College of Surgeons (FACS).



Fred Gentili, MD,  
MSc, FRCSC, FACS

Dr. Gentili joined the Neurosurgical staff at the Toronto General Hospital in 1982 and is currently Professor in the Division of Neurosurgery at the Toronto Western Hospital, University Health Network and University of Toronto. Dr. Gentili is a founding member of the North American Skull Base Society and a member of the Skull Base Surgery Committee of the World Federation of Neurosurgical Societies (WFNS) as well as a member of the WFNS Neuro-Endoscopy Committee. He helped establish the first interdisciplinary Skull Base Surgery Group in Canada at the University of Toronto and has promoted in collaboration with his ENT colleagues innovations in skull base surgery including endonasal endoscopic skull base techniques.

Dr. Gentili has been a dedicated teacher and educator having received numerous teaching awards. He is a member of local, national and international committees on education. He is currently the Director of Under-Graduate Surgical Education at University Health Network.

Dr. Gentili is the former Chair of the Examination Board on Neurosurgery of the Royal College of Physicians and Surgeons of Canada and is a former member of Evaluation Committee of the Royal College of Physicians and Surgeons of Canada. He is a member of the WFNS Education and Training Committee. He is a former member of the Advisory Board for Neurosurgery of the American College of Surgeons. He is a delegate to the WFNS representing the Canadian Neurosurgical Society. Dr. Gentili is a member of numerous Neurosurgical Societies and is on the Editorial Board of several International Journals.

He has received numerous honors/awards during his career including the Gold Medal from the University of Messina and the College of Physicians and Surgeons of Ontario Council Award recognizing clinical excellence in patient care. He has been the honored guest at many international meetings and has been visiting professor at multiple institutions in both North America and abroad. He was made an honorary member of the Italian Neurosurgical Society in 2005.

Dr. Gentili currently holds two Academic Chairs, the Alan and Susan Hudson Chair in Neuro-Oncology as well as the Crean Hotson Chair in Skull Base Surgery at the University of Toronto and University Health Network.

Dr. Gentili's main interests are in Skull Base Surgery using both open and minimally invasive endoscopic techniques, Pituitary Surgery and Radiosurgery.

# Honored Guest Lecturers

## Patrick Gullane

Dr Patrick Gullane was born in Ireland and received his medical degree from NUI-Galway, Ireland in 1970. He is a Fellow of the Royal College of Surgeons of Canada and certified by the American Board of Otolaryngology-Head and Neck Surgery. In 1975 he was selected as the McLaughlin Fellow and then pursued advanced Fellowship training in Head and Neck Oncology in Pittsburgh, and New York.

In 1978 Dr. Gullane was appointed to the Department of Otolaryngology-Head and Neck Surgery at the University of Western Ontario, Canada. He was subsequently recruited to the Department of Otolaryngology-Head and Neck Surgery at the University of Toronto in 1983. He currently holds the Wharton Chair in Head and Neck Surgery at the University Health Network and University of Toronto. In 1989 he was appointed as Otolaryngologist-in-Chief within the University Health Network and in 2002 appointed as Professor and Chair of the Department of Otolaryngology-Head and Neck Surgery, University of Toronto. In 2012 he concluded his twenty four year period as Otolaryngologist-in-Chief at the University Health Network and his second and final term as Chair University of Toronto.

Dr Gullane is a member of numerous Surgical Societies, nationally/internationally and has been invited as a Visiting Professor to over 85 countries lecturing on all aspects of Head and Neck Oncology. He has delivered over 835 invited and Keynote presentations nationally/internationally including the Eugene Myers International lecture in September 2006, received the 2007 Medtronic Alumni Award from the National University of Ireland(Galway) for contributions to Health Care and Medical Science, delivered the Sir Peter Freyer Memorial lecture to the Irish Surgical Forum NUI-Galway in 2009, the John J. Conley lecture to the American Head and Neck Society in 2012, the 87th Abraham Colles lecture at the Royal College of Surgeons in Ireland in February 2012 and the Hayes Martin lecture at the 5th World Congress of IFHNOS and annual meeting of the Head and Neck Society in New York in July 2014. He was one of the six International Faculty leaders who conducted the IFHNOS Head and Neck World Tour Program in 2008. Dr Gullane has published 335 papers in peer-reviewed journals and 92 chapters in textbooks. In addition he has published 10 books on various aspects of Head and Neck Surgery. His textbook, "Head & Neck Surgery and Oncology", was awarded the George Davey Howells Prize from the University of London, cited as the best published book in Otolaryngology-Head and Neck Surgery in the preceding five years. Currently, Dr Gullane is a member of the Editorial Board of 10 Journals. He has served as President of the American Head & Neck Society, The North American Skull Base Society, President of the Canadian Society of Otolaryngology-Head and Neck Surgery and Vice President of the Triological Society. In recognition of his distinguished achievements, Professor Gullane was awarded an Honorary Fellowship of the Royal Australasian College of Surgeons in 2006, Honorary Fellowship of the Royal College of Surgeons of England in 2010 and an Honorary Fellowship in the Royal College of Surgeons of Ireland in 2012. He was elected to Fellowship in the Canadian Academy of Health Sciences in 2011 and in 2010 was appointed as a Member to the Order of Canada by the Governor General of Canada, Cited for his inspiration of young surgeons and his contributions to the field of Head and Neck Surgery. In 2014, in recognition of his outstanding contributions an endowed Chair was named in his honour at the University Health Network/University of Toronto. In February 2015, Dr Gullane was appointed as a Member to the Order of Ontario by the Lieutenant Governor of Ontario for his achievements in the field of Head and Neck Surgery. Finally, he has facilitated the establishment of four University-Hospital Chairs: Head & Neck Surgery, Reconstruction, Radiation Oncology, and Basic Science, from private funding donations in excess of \$15.5 M., with continual funding up to the present time.



Patrick Gullane

# Honored Guest Lecturers

## Peter Neligan

Dr. Neligan is a Professor of Surgery and Director of the Center for Reconstructive Surgery, University of Washington Medical Center in Seattle. He specializes in microvascular surgery. A past-President of NASBS, he has published many papers on head and neck reconstruction and more particularly on cranial base reconstruction. He has also edited a textbook on Microvascular Reconstruction of the Head and Neck.



Peter Neligan

## Brainlab Satellite Symposium

Friday, February 16, 2018 • 7:30pm – 9:30pm

LOCATION: Commodore A



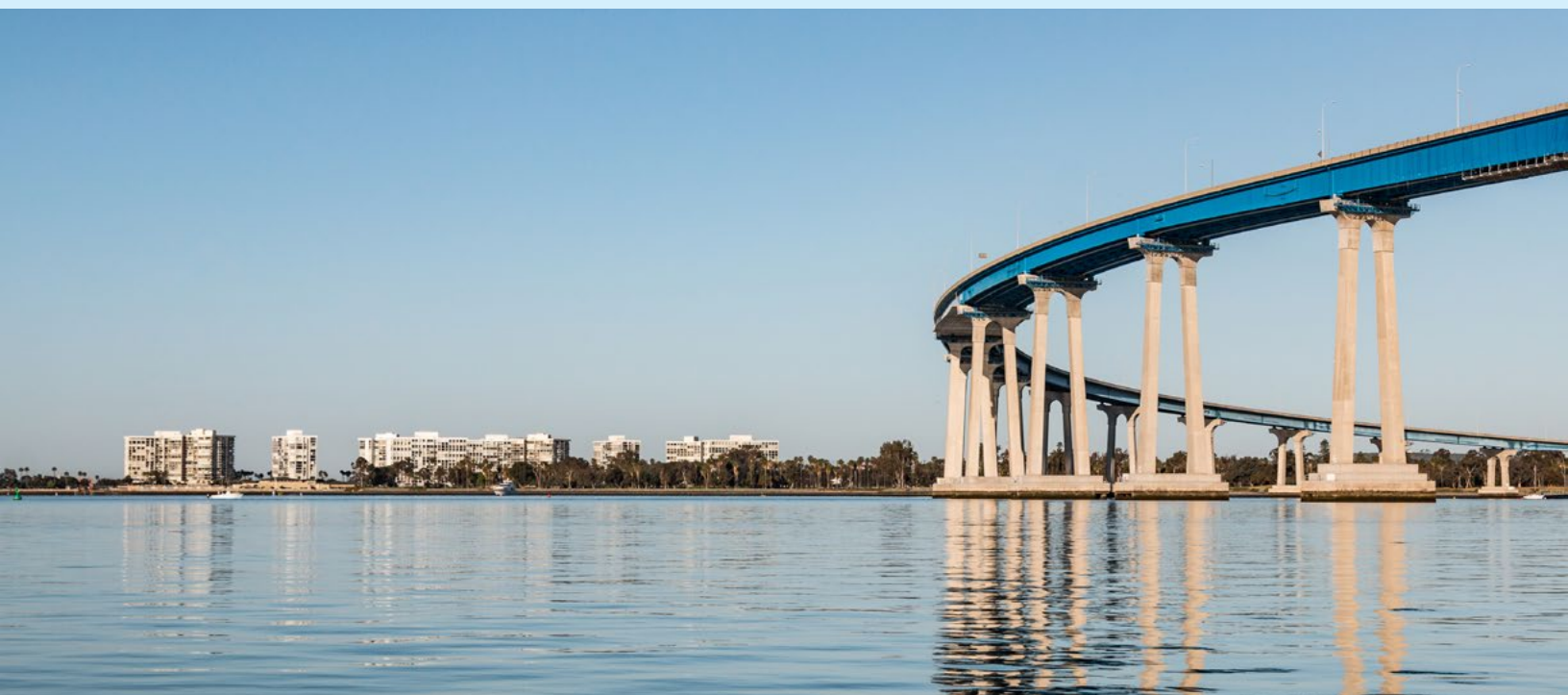
### NOVALIS CIRCLE SYMPOSIUM

#### Innovations in Management of Vestibular Schwannomas

- **The Use of HUD for Posterior CPA Tumor Resections**  
Joshua Bederson, MD, Mount Sinai Health System
- **Improved Intraoperative Visualization Enhances Resection of Skull Base Tumors**  
Orin Bloch, MD, Northwestern Memorial Hospital
- **The Role of Surgical Planning for Vestibular Schwannoma Surgery**  
Isaac Yang, MD, University of California, Los Angeles (UCLA)

Hors d'oeuvres to be served. Open bar.

*This event is not part of the official program of the North American Skull Base Society Annual Meeting.*



# Invited Guest Speakers

## Dan Fliss

Professor Dan M. Fliss M.D. is the Chairman of the Department of Otolaryngology Head and Neck and Maxillofacial Surgery and the Interdisciplinary Center for Head and Neck Surgical Oncology at Tel-Aviv Sourasky Medical Center, affiliated to the Sackler Faculty of Medicine Tel-Aviv University. He is also the Head of the Department of Otolaryngology Head and Neck Surgery at the Sackler Faculty of Medicine, Tel-Aviv University, and on the Scientific Staff at the Department of Otolaryngology Head and Neck Surgery, Mount Sinai Hospital, Toronto, and the University of Toronto, Canada. He is currently the Scientific Secretary of the Asian Society of Head and Neck Oncology, Councilor of the International Academy of Oral Oncology (IAOO), a member of the Executive Committee of the International Federation of Head and Neck Oncology Societies (IFHNOS), and an Honorary Member of many International Head and Neck Societies. He is a frequent invited guest speaker at many international academic events among which the prestigious Eugene N. Myers International Lecture on Head and Neck Cancer. Prof. Fliss serves on the editorial boards of The Head and Neck Journal and is the editor of the Head and Neck Section of the Skull Base Journal, The Otolaryngology – Head and Neck Surgery Journal, Oral Oncology, The Journal of Operative Techniques in Otolaryngology Head and Neck Surgery, the European Journal of Otolaryngology Head and Neck Surgery, and others. Prof. Fliss is the author of 300 articles and book chapters and the author of four books on Head and Neck and Skull Base Surgery: Atlas of Head and Neck Surgery (J.P. Medical), Tumors of the Skull Base and Paranasal Sinuses (Springer), Pearls and Pitfalls in Head and Neck Surgery (Karger) and Atlas of Surgical approaches to paranasal Sinuses and Skull base (Springer).



Dan Fliss

## Robert Miller

A native of New Orleans, Dr. Miller attended Tulane University for his undergraduate and medical school education. Following completion of an otolaryngology – head and neck surgery residency at UCLA in 1978, he joined the faculty at Baylor College of Medicine. In 1987, he was appointed Professor and Chairman of Tulane's Department of Otolaryngology – Head and Neck Surgery. Dr. Miller received an MBA degree from Tulane's Freeman School of Business in 1996, and was a Robert Wood Johnson Health Policy Fellow from 1996 to 1997 during which time he worked in the office of Senator John Breaux focusing on health policy issues including diabetes, hospice care, colorectal cancer screening, and Medicare reform. Dr. Miller returned to Tulane as Vice-Chancellor for Clinical Affairs following his Washington sojourn. In 1999, he became the Dean of the University of Nevada School of Medicine, a role he served until September, 2001. Dr. Miller is currently the Executive Director of the American Board of Otolaryngology and a Visiting Professor of Otolaryngology-Head and Neck Surgery at Baylor College of Medicine.



Robert Miller

## Harry van Loveren

Harry van Loveren is a graduate of the University of Cincinnati College of Medicine, completed Neurosurgical training in the combined program of the University of Cincinnati and the Mayfield Neurological Institute, and fellowship training in Neurophysiology at the UniversitätsSpital, Zurich. He currently serves as the David W. Cahill Professor and Chairman of the Department of Neurological Surgery and Brain Repair at the University of South Florida Morsani College of Medicine, vice-Dean of Clinical Affairs USF Health, CEO of the Byrd Alzheimer's Center and Research Institute, Director of the USF Health Neuroscience Institute, and the USF Health Delegate to the AMA.



Harry van Loveren

# Scholarship Winners & Journal Awards

## INTERNATIONAL TRAVEL SCHOLARSHIP WINNERS 2018

The International Travel Scholarship was first introduced at the NASBS 2016 Annual Meeting. The fellowship promotes international participation and gives the opportunity for international academic skull base surgeons to study at an NASBS Fellowship. Awardees receive \$2,000 in travel funds and free registration to the annual meeting. For more information, please visit: [www.nasbs.org/international-travel-scholarship](http://www.nasbs.org/international-travel-scholarship). Submissions for the 2019 International Travel Scholarship will open September 2018.



**Olli-Pekka Kamarainen, MD**  
*Kuopio University Hospital  
Kuopio, Finland*



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Johannesburg, South Africa*



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*Basavatarakam Indo  
American Cancer Hospital  
and Research Institute  
Hyderabad, India*



**Idoya Zazpe, MD**  
*Hospital of Navarra  
Pamplona, Navarra,  
Spain*

NASBS is grateful to the following supporters of our International Scholarship program:

**University of Pittsburgh Medical Center**, Department of Otolaryngology and Department of Neurosurgery

**University of Toronto**, Department of Otolaryngology

**Pablo Recinos, MD**, Cleveland Clinic

**Theodore Schwartz, MD**, Cornell University

**Lee Zimmer, MD**, University of Cincinnati

## INSTITUTIONS WITH THE MOST PUBLICATIONS IN 2016

David Geffen School of Medicine at UCLA: 10  
University of California, Los Angeles: 8  
Mayo Clinic: 6  
Ohio State University: 4  
Massachusetts Eye and Ear Infirmary: 4  
University of Washington, Seattle: 4  
Rush University Medical Center: 4  
New York Head & Neck Institute: 4  
Harvard Medical School: 3  
Boston Medical Center: 3  
Loyola University of Chicago: 3

Vanderbilt University: 3  
Rutgers New Jersey Medical School: 3  
Rutgers New Jersey Medical School Neurological  
Institute of New Jersey: 3  
Boston University School of Medicine: 3  
University of Pittsburgh Medical Center: 3  
Stanford University: 3  
University of Pittsburgh: 3  
Children's Hospital and Regional Medical Center: 3  
University of Utah: 3

## TOP 20 REVIEWERS IN 2016

Michael Chicoine - completed 12 reviews  
Carl Snyderman - completed 11 reviews  
Paul Gardner - completed 10 reviews  
Mustafa Başkaya - completed 9 reviews  
Carl Heilman - completed 9 reviews  
James Evans - completed 8 reviews  
Jacques Morcos - completed 8 reviews  
Chandra Sen - completed 8 reviews  
Samy Youssef - completed 8 reviews  
Shirley Su - completed 7 reviews

Amir Dehdashti - completed 6 reviews  
Siviero Agazzi - completed 5 reviews  
Michael Link - completed 4 reviews  
Kenji Ohata - completed 4 reviews  
Vikram Prabhu - completed 4 reviews  
Mark Varvares - completed 4 reviews  
Khaled Aziz - completed 3 reviews  
Roy Casiano - completed 3 reviews  
Franco DeMonte - completed 3 reviews  
Gordon Li - completed 3 reviews

# Faculty Listing

**Ralph Abi Hachem, MD**

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Ankara, Turkey

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## **Ketan Bulsara, MD**

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## **James Byrd, MD**

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## **Paul Camarata, MD**

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## **Matthew Carlson, MD**

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## **Joseph Chabot, DO**

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## **David Chalif, MD**

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## **Lola Chambless, MD**

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Center  
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## **Michael Chicoine, MD**

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of Medicine  
St Louis, MO

## **Rebecca Chiffer, MD**

LSU Health Shreveport  
Shreveport, LA

## **Christopher Chin, MD**

Dalhousie University  
Saint John, NB, Canada

## **Garret Choby, MD**

Mayo Clinic  
Rochester, MN

## *Thank you to our valued members who have helped the NASBS continue to grow!*

Below are the members who have sought out new members for our Society. Their commitment to the NASBS is the key to our success. We look forward to welcoming our new members at the New Member Reception at Silver Strand Beach on Saturday, February 17 from 6:45 pm to 7:30 pm. Please help us reach even more Skull Base Programs in 2017-2018.

Nithin Adappa	Kadir Erkmen	Derrick Lin	Theodore Schwartz
Siviero Agazzi	James Evans	Michael Link	Laligam Sekhar
Ovanes Akobyan	Christopher Farrell	James Liu	Raj Sindwani
Tord Alden	Rui Fernandes	Perry Mansfield	Timothy Smith
Andres Almendral	Juan Fernandez-Miranda	Eric Marvin	Mark Smith
Michelle Alonso-Basanta	Rick Friedman	Michael McDermott	Carl Snyderman
Jeremiah Alt	Kathleen Gallagher	Erin McKean	Jeffrey Sorenson
Rony Aouad	Gary Gallia	Madison Michael	Andrew Tassler
Seilesh Babu	Paul Gardner	Dan Miulli	Marc Tewfik
Mustafa Baskaya	Fred Gentili	Kris Moe	Philip Theodosopoulos
Ricardo Carrau	Stacey Gray	Jacques Morcos	Brian Thorp
Roy Casiano	Bharat Guthikonda	Anil Nanda	Xiao Guang Tong
Lola Chambless	Ehab Hanna	Steven Newman	Jamie van Gompel
Roukoz Chamoun	Richard Harvey	Daniel Nuss	Harry van Loveren
Michael Chicoine	Carl Heilman	James Palmer	Prasad Vannemreddy
Aaron Cohen-Gadol	John Jane	Vikram Prabhu	Eugenia Vining
Martin Cote	Walter Jean	Gustavo Pradilla	Scott Wait
William Couldwell	Amin Kassam	Daniel Prevedello	Marilene Wang
William Curry Jr	Daniel Kelly	Omar Ramirez-	Eric Wang
Arthur Day	Tyler Kenning	Hernandez	Jason Wilson
Kenneth De Los Reyes	Osaama Khan	Christopher Rassekh	Ricky Wong
Timothy DeKlotz	Howard Krauss	Shaan Raza	Bradford Woodworth
Johnny Delashaw	Devyani Lal	Pablo Recinos	Gelareh Zadeh
Aaron Dumont	Donald Lanza	Jon Robertson	Adam Zanation
Ian Dunn	Michael LaRouere	Robert Rosenwasser	
Ivan El-Sayed	Edward Laws	Zoukaa Sargi	

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**Jacques Morcos, MD, FRCS,  
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**Akio Morita, MD, PhD**

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**Richard Murray, MD**

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**Peter Neligan, MD**

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**Steven Newman, MD**

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**Gurston Nyquist, MD**

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**Michael O'Leary, MD**

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**Ben Panizza, MD**

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**Arjun Parasher, MD**

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**Maria Peris-Celda, MD, PhD**

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Rochester, MN

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Acoustic Neuroma Controversies  
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**David Raleigh, MD, PhD**

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# Faculty Listing

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	Medtronic	Consultant	Consulting Fee
	AxioSonic	Consultant	Consulting Fee
	Spirox	Consultant	Consulting Fee
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Gene Barnett	Elekta AB	Speaking/Teaching	Honoraria
Joshua Bederson	Surgical Theater	Consultant	Ownership Interest
George Blumenschein	AbbVie	Consultant	Consulting Fee
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	ARIAD	Consultant	Consulting Fee
	AstraZeneca	Clinical Research Support	Research
	AstraZeneca	Consultant	Consulting Fee
	Bayer	Clinical Investigator	Research
	Bayer	Clinical Research Support; Advisory	Research
	Bayer	Consultant	Consulting Fee
	Bristol-Myers Squibb	Clinical Investigator	Research
	Bristol-Myers Squibb	Clinical Research Support	Research
	Bristol-Myers Squibb	Consultant	Consulting Fee
	Celgene	Clinical Research Support	Research
	Celgene	Consultant	Consulting Fee
	Clovis	Consultant	Consulting Fee
	Genentech	Clinical Research Support	Research
	Genentech	Consultant	Consulting Fee
	GlaxoSmithKline	Clinical Investigator	Research
	Immatics	Clinical Investigator	Research
	KITE	Clinical Investigator	Research
	Macogenetics	Clinical Investigator	Research
	Merck	Clinical Research Support	Research
	Merck	Consultant	Consulting Fee
	Novartis	Clinical Research Support	Research
	Novartis	Consultant	Consulting Fee
	Xcovery	Clinical Investigator	Research

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	Merck	Speaking/Teaching	Honoraria
Matt Carlson	Cochlear Corp	Consultant	Travel support
	MED-EL GmbH	Consultant	Honorarium/Consulting Fee
	Advanced Bionics Corp	Consultant	Honorarium
Ricardo Carrau	Medtronic Corporation	Consulting Services	Honoraria
Michael Chicoine	IMRIS, Inc	Principal investigator for IMRIS sponsored database, clinical outcomes research	Research
	Medtronic, Inc	Consultant	Consulting Fee
Carlos David	ELUM technologies	Stock ownership	Ownership Interest
	Kogent Surgical	Private stock share ownership	Ownership Interest
Amir Dehdashti	Mizuho	Speaking/Teaching	Educational grant
Anand Devaiah	Medal, LLC	Investor and advisor	equity stake
	HealthSeer, LLC	CEO	N/A
	Optim, LLC	Consultant	Consulting Fee
Mark Eisenberg	Stryker	Consultant	Consulting Fee
Ivan El-Sayed	Stryker	Educational Consultant	Honoraria and Consulting Fee
Adrien Eshraghi	Auris Medical	Research Support	Research
	Medel GmbH	Grant support through University	Research
James Evans	Mizuho	Surgical instrument development	Royalty
	Stryker	Consultant	Consulting Fee
Rick Friedman	Otonomy Inc.	Consultant	Royalty
Paul Gardner	Peter Lazic US, Inc.	Consultant	Royalty
	SPIWay, LLC	Consultant	Ownership Interest
Soha Ghossaini	Centocor / Janssen Biotech	Principal Investigator	Research support
John Golfinos	Surgical Theater	Speaking/Teaching	Angel investment, personal
	View Ray	Shareholder	Ownership Interest
Peter Gooderham	Stryker Canada	Consultant	Consulting Fee
Richard Gurgel	Cochlear Corp and Advanced Bionics	Consultant	Research
	Med El	Advisory Committee	Honoraria
Carl Heilman	Cerevasc LLC	Consultant	Ownership Interest
Amin Kassam	KLS Martin	Consultant	Consulting Fee
	Medtronic	Consultant	Consulting Fee
	Synaptive Medical	Consultant	Consulting Fee
Daniel Kelly	Mizuho, Inc	Consultant	Royalty
Claudia Kirsch	Idiopathic Intracranial Hypertension Foundation	Research	Grant Funding
	Northwell Health	Employment	Salary
	Primal Pictures 3D anatomy - Informa	Consultant	Consulting Fee
	RTOG	Research	Grant Funding
David Langer	Olympus	Consultant	Consulting Fee
John Lee	VisionSense	Advisory Committee	Ownership Interest
Stella Lee	Allakos Inc.	Principal Investigator, clinical trial	Research
	Sanofi	Principal Investigator, clinical trial	Research
Gerald Lemole Jr	Sony-Olympus Medical	Consultant	Consulting Fee
Kevin Lillehei	KLS Martin	Independent Contractor	Royalty
Andrew Little	Kogent Surgical	Stockholder	Ownership Interest
	Spiway	Consultant	Ownership Interest
Nyall London	Cooltech	Consultant	Consulting Fee
	Navigen Pharmaceuticals	Received -8 years ago while a consultant	Stock currently held of no value
Perry Mansfield	Amersleep Diagnostics	President	Ownership Interest
	Senta Imaging LLC	President	Ownership Interest
	Chears Inc	President	Ownership Interest
	MSAI, Inc	President	Ownership Interest
	PMI, Inc	President	Ownership Interest

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Shlomo Melmed	Chiasma	Consultant	Consulting Fee
	Ionis	Consultant	Consulting Fee
	Ipsen	Consultant	Consulting Fee
	Midatech	Consultant	Consulting Fee
	Novartis	Consultant	Consulting Fee
	Ono	PI	Research
	Pfizer	PI	Research
	Stonebridge	Consultant	Consulting Fee
Kris Moe	SpiSurgical LLC	Board Member	IP Rights
Jacques Morcos	Kogent	Stock owner	Ownership Interest
Zara Patel	Intersect ENT	Speaking/Teaching	Honoraria
	Medtronic	Consultant	Consulting Fee
	Optinose	Advisory Committee	Consulting Fee
Jack Phan	Accuray Inc	Advisory Committee	Honoraria
Randall Porter	Founder, Chairman, The Medical Memory	Board Member	Ownership Interest
Daniel Prevedello	Codman	Consultant	Consulting Fee
	Elum	Board Member	Ownership Interest
	KLS-Martin	Royalties	Royalty
	Leica	Speaking/Teaching	Honoraria
	Medtronic	Speaking/Teaching	Company paid travel expenses for a CME symposium
	Three Rivers	Investor	Ownership Interest
Pablo Recinos	Acera Surgical	Advisory Committee	Ownership Interest
Leslie Schlachter	Surgical Theater	Consultant	Consulting Fee
Marc Schwartz	Cochlear Americas	Researcher	Research
	Cochlear Americas	Consultant	Consulting Fee
Laligam Sekhar	SPI Surgical, Inc	Stockholder	Ownership Interest
	Viket Medical, Inc	Stockholder	Ownership Interest
Chandranath Sen	penumbra inc	Shareholder	Ownership Interest
James Shin	Exofix Labs, LLC	Founder	Ownership Interest
	Veterinary Imaging Precision, LLC	Founder	Ownership Interest
Raj Sindwani	Acclarent	Consultant	Consulting Fee
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	Medtronic	Consultant	Consulting Fee
	Olympus	Consultant	Honoraria
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Ali Sultan	Medtronic	Speaking/Teaching	Honoraria
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Jamie Van Gompel	Codman	Consultant	Honoraria
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Eric Wang	Stryker	Speaking/Teaching	Honoraria
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	Advanced Bionics AND Oticon Medical	Consultant	Consulting Fee
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	COMPANY	ROLE	RECEIVED
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	Cortice Bioscience	Consultant	Consulting Fee
	GW Pharmaceuticals	Advisory Committee	Consulting Fee
	Insys	Consultant	Consulting Fee
	Kadmon	Consultant	Consulting Fee
	Merck	Speaking/Teaching	Honoraria
	Roche	Consultant	Consulting Fee
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	Cook Medical	Consultant	Research
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	AxioSonic	Consultant	Consulting Fee
	Spirox	Consultant	Consulting Fee
Matt Carlson	Cochlear Corp	Consultant	Travel support
	MED-EL GmbH	Consultant	Honorarium/Consulting Fee
	Advanced Bionics Corp	Consultant	Honorarium
Ricardo Carrau	Medtronic Corporation	Consulting Services	Honoraria
Amir Dehdashti	Mizuho	Speaking/Teaching	Educational grant
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	HealthSeer, LLC	CEO	N/A
	Optim, LLC	Consultant	Consulting Fee
Ivan El-Sayed	Stryker	Educational Consultant	Honoraria and Consulting Fee
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	Chears Inc	President	Ownership Interest
	MSAI, Inc	President	Ownership Interest
	PMI, Inc	President	Ownership Interest
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Eugene Yu  
Gelareh Zadeh

## FRIDAY, FEBRUARY 16, 2018

### 7:30 am – 8:30 am **SCIENTIFIC SESSIONS: Main Topics**

- MAIN TOPIC: Management of Recurrent Meningiomas
- MAIN TOPIC: Orbital Complications of Skull Base Surgery: Prevention and Treatment
- MAIN TOPIC: Diseases of the Craniocervical Junction
- MAIN TOPIC: Controversies in Management of Lateral Skull Base Malignancies

### 8:35 am – 9:35 am **EXPERT DEBATES**

- EXPERT DEBATE: Management of Spheno-Orbital Meningioma
- EXPERT DEBATE: How to Train Balanced Skull Base Surgeons: An International Panel
- EXPERT DEBATE: Optimal Strategy for Reconstruction after Endoscopic Skull Base Surgery
- EXPERT DEBATE: Vestibular Schwannomas: Debate on Treatment Type and Approaches

### 9:35 am – 10:15 am **Break in Exhibit Hall**

### 10:15 am – 10:22 am **Welcome & Meeting Overview**

### 10:22 am – 10:32 am **Historical Video**

### 10:15 am – 10:57 am **Presidential Address**

### 10:57 am – 11:04 am **Research**

### 11:04 am – 11:11 am **Special Announcement**

### 11:11 am – 11:26 am **Honored Guest Lecturer**

### 11:26 am – 11:46 am **Invited Guest Speaker**

### 11:46 am – 12:01 pm **Honored Guest Lecturer**

### 12:01 pm – 12:08 pm **Journal Presentation**

### 12:15 pm – 1:15 pm **Lunch in Exhibit Hall for Non-Members**

### 12:15 pm – 1:15 pm **Business Meeting and Lunch for Members**

### 1:20 pm – 2:20 pm **SPECIAL SESSION & HOT TOPICS**

- SPECIAL SESSION: Women in Skull Base Surgery
- HOT TOPIC: Vascular Considerations in Open and Endoscopic Skull Base Surgery: Dealing with Encased Arteries and Veins
- HOT TOPIC: Augmented Reality in Skull Base Surgery: A Novel Concept
- HOT TOPIC: Advances in Radiation Therapy for Skull Base Diseases

### 2:20 pm – 3:25 pm **SPECIAL SESSION & VIDEO SESSIONS**

- SPECIAL SESSION: Mentorship: Why, How, and When
- VIDEO SESSION: Neurosurgery – Endoscopic Endonasal Procedures
- VIDEO SESSION: Otolaryngology/Rhinology
- VIDEO SESSION: Otology/Neurotology

### 3:30 pm – 4:15 pm **Break in Exhibit Hall**

### 4:15 pm – 6:15 pm **Proffered Paper Sessions**

### 6:15 pm – 7:45 pm **Welcome Reception in Exhibit Hall**

## SATURDAY, FEBRUARY 17, 2018

### 7:30 am – 8:30 am **SCIENTIFIC SESSIONS: Main Topics**

- MAIN TOPIC: Complex Cranio-Orbito-Facial Defects: Reconstructive Challenges
- MAIN TOPIC: Chordomas: Have We Improved the Care in the Past Decade?
- MAIN TOPIC: The Hidden Role of Neurovascular Interventions in Skull Base Surgery from Indications to Management Complications
- MAIN TOPIC: Genomics, Molecular Biology, and Targeted Therapy for Skull Base Lesions

### 8:35 am – 9:35 am **EXPERT DEBATES**

- EXPERT DEBATE: Head and Neck Malignancies with Skull Base Involvement: Controversies in Management
- EXPERT DEBATE: Craniopharyngiomas: From Molecular to Surgical Advances
- EXPERT DEBATE: Management of Bad Complications in Skull Base Surgery: How Could it Have Been Avoided?
- EXPERT DEBATE: Update on Management of Paragangliomas, When is Surgery Indicated?

### 9:35 am – 10:15 am **Break in Exhibit Hall**

### 10:15 am – 10:50 am **Three-Minute Thesis**

### 10:50 am – 11:20 am **Keynote Speaker**

### 11:20 am – 11:40 am **Invited Guest Speaker**

### 11:40 am – 11:55 am **Invited Guest Speaker**

### 11:55 am – 12:10 pm **Honored Guest Lecturer**

### 12:10 pm – 12:15 pm **Awards**

### 12:15 pm – 1:15 pm **Lunch in Exhibit Hall**

### 1:20 pm – 2:20 pm **SPECIAL SESSION & HOT TOPICS**

- SPECIAL SESSION: Resident/Fellow Jeopardy
- HOT TOPIC: Intracranial Hypertension and Intracranial Pseudotumor
- HOT TOPIC: Value Based Healthcare in Skull Base Surgery
- HOT TOPIC: Cerebrovascular Surgery & Skull Base Surgery: The Perfect Match

### 2:25 pm – 3:25 pm **SPECIAL SESSION & VIDEO SESSIONS**

- SPECIAL SESSION: Certification of the Skull Base Surgeon
- VIDEO SESSION: Neurosurgery Open Anterior Skull Base Procedures (3D presentation)
- VIDEO SESSION: Neurosurgery Open Lateral Skull Base Approaches (3D presentation)
- VIDEO SESSION: Neurosurgery Expanded Endoscopic Endonasal Procedures

### 3:30 pm – 4:15 pm **Break in Exhibit Hall**

### 4:15 pm – 6:15 pm **Proffered Papers Sessions**

### 6:45 pm – 7:30 pm **New Member Reception**

### 7:30 pm – 10:00 pm **Gala Celebration**

# Schedule-at-a-Glance

FRI

SAT

SUN

## SUNDAY, FEBRUARY 18, 2018

7:30 am – 8:30 am **SCIENTIFIC SESSIONS & PITUITARY FORUM**

- PITUITARY FORUM: Updates on Functional Adenomas
- MAIN TOPIC: Hearing Preservation and Restoration
- HOT TOPIC: Update on Management of Anterior Skull Base Trauma
- HOT TOPIC: Endoscopic/Standard Transorbital Surgery, 360 Degrees Approach

8:35 am – 9:35 am **SCIENTIFIC SESSIONS & PITUITARY FORUM**

- PITUITARY FORUM: Avoiding Complications and Optimizing Outcome in Pituitary Surgery
- EXPERT DEBATE: Sinonasal Cancer – Surgical vs. Non Surgical Management
- HOT TOPIC: Vascular and Lymphatic Diseases of the Head, Neck, & Skull Base
- HOT TOPIC: Inflammatory and Infectious Diseases of the Skull Base

9:35 am – 10:05 am **Break**

10:10 am – 12:00 pm **Proffered Papers Sessions**

12:00 pm – 12:30 pm **General Session, Awards & Closing Remarks**

## NASBS Skull Base Surgery SUMMER WORKSHOP

**July 26-29, 2018** • 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 Surgery Summer Workshop at LSU.

**This course is not to be missed!**

Registration will be first-come, first served and opens Spring 2018.

For more information, visit [www.nasbs.org/nasbs-courses](http://www.nasbs.org/nasbs-courses) or contact NASBS Senior Meeting Planner, Paula Kupiec, at **310-424-3326 ext. 161** or [paula@nasbs.org](mailto:paula@nasbs.org).

*Celebrating the 300<sup>th</sup> Anniversary!* **NEW ORLEANS TRICENTENNIAL 1718-2018**



# Pre-Meeting Course

## 2018 NASBS Skull Base Dissection Course

**WEDNESDAY, FEBRUARY 14 & THURSDAY, FEBRUARY 15, 2018**

*UCSD Center for the Future of Surgery*

The pre-meeting dissection workshop of the 28th Annual NASBS Meeting offers participants with hands-on cadaver dissection sessions and didactic sessions. Modules will take participants through open and endoscopic exercises to the central, lateral, and posterior skull base. The two-day cadaveric course is to promote anatomical understanding and practice of complex approaches to the skull base. Where possible different approaches to the same region will be employed with the benefit of contrasting and comparing the achieved exposure.

**COURSE OBJECTIVE:** Two-day cadaveric course to promote anatomical understanding and practice of complex approaches to the skull base. Where possible, different approaches to the same region will be employed with the benefit of contrasting and comparing the achieved exposure.

### Transportation

DATE	TIME	PICK UP LOCATION	DROP OFF LOCATION
02/14/18	6:45 am	Loews Coronado Bay Resort 4000 Coronado Bay Road, Coronado, CA	UCSD Center for the Future of Surgery 9500 Gilman Drive, La Jolla, CA
02/14/18	5:45 pm	UCSD Center for the Future of Surgery 9500 Gilman Drive, La Jolla, CA	Loews Coronado Bay Resort 4000 Coronado Bay Road, Coronado, CA
02/15/18	6:45 am	Loews Coronado Bay Resort 4000 Coronado Bay Road, Coronado, CA	UCSD Center for the Future of Surgery 9500 Gilman Drive, La Jolla, CA
02/15/18	5:45 pm	UCSD Center for the Future of Surgery 9500 Gilman Drive, La Jolla, CA	Loews Coronado Bay Resort 4000 Coronado Bay Road, Coronado, CA

### Shuttles

#### Wednesday, February 14, 2018

- 6:45 am: Shuttle will pick up attendees at the Loews Coronado Bay Resort and bring to UCSD Center for the Future of Surgery. The shuttle will leave on time, please be prompt.
- 5:45 pm: Shuttle will pick up attendees to UCSD Center for the Future of Surgery and return to the Loews Coronado Bay Resort.

#### Thursday, February 15, 2018


- 6:45 am: Shuttle will pick up attendees at the Loews Coronado Bay Resort and bring to UCSD Center for the Future of Surgery. The shuttle will leave on time, please be prompt.
- 5:45 pm: Shuttle will pick up attendees to UCSD Center for the Future of Surgery and return to the Loews Coronado Bay Resort.

**CONTINUING MEDICAL EDUCATION CREDIT INFORMATION**

**Accreditation**  
This activity has been planned and implemented in accordance with the Essential Areas and Policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of the American College of Surgeons and 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™ - Pre-Meeting Course**  
The American College of Surgeons designates this live activity for a maximum of **15.00 AMA PRA Category 1 Credits™**. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

**AMA PRA Category 1 Credits™ - 28th Annual Meeting**  
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### DISCLOSURE INFORMATION

In compliance 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. All reported conflicts are managed by a designated official to ensure a bias-free presentation. Please see the insert to this program for the complete disclosure list.

# Pre-Meeting Course Schedule

## DAY 1: WEDNESDAY, FEBRUARY 14, 2018

UCSD Center for the Future of Surgery

7:45 am – 8:00 am	<b>Welcome</b> TARGET: Anterior Cranial Base & Suprasellar – <i>James Evans &amp; Ricardo Carrau</i>
8:00 am – 8:15 am	<b>Subfrontal-transbasal Approach</b> Transbasal Approach: Step by Step – <i>Dan Nuss</i>
8:15 am – 8:30 am	<b>Supraorbital Approaches</b> LECTURE: Supraorbital Approach: Step by Step – <i>Daniel Kelly</i>
8:30 am – 8:40 pm	<b>Mini-Pterional Approaches</b>
8:40 am – 8:55 am	<b>Endoscopic Transcribriform Approach</b> LECTURE: Endoscopic Transcribriform Approach: Step by Step – <i>Garrett W. Choby, MD</i>
8:55 am – 9:10 am	<b>Endonasal Planum-tuberculum Approach</b> LECTURE: Extended Endonasal Transplanum Approach: Step by Step – <i>Andrew Little</i>
	<b>Break</b>
9:30 am – 11:30 am	<b>Two Concurrent Prosections</b> Prosection of Transbasal Approach – <i>Bharat Guthikonda</i> Dissection by Participants
10:00 am – 12:00 pm	<b>Two Concurrent Prosections</b> Prosection of Extended Endonasal Approach to ABS – <i>James Evans &amp; Marc Rosen</i> Dissection by Participants
12:00 pm – 1:00 pm	<b>Lunch with History Presentation</b> – <i>Michael O’Leary</i> TARGET: Cavernous Sinus and Meckel’s Cave
1:00 pm – 1:15 pm	<b>Cavernous Sinus: Transcranial Approach</b> LECTURE: Dolenc Approach: Step by Step – <i>Harry van Loveren</i>
1:15 pm – 1:30 pm	<b>Cavernous Sinus: Endonasal Approach</b> – <i>Douglas Hardesty</i>
1:30 pm – 1:45 pm	<b>Transorbital Approaches</b> LECTURE: Anatomy of Orbit – <i>Kris Moe</i>
1:45 pm – 2:00 pm	<b>Endonasal Approaches to the Orbit</b> LECTURE: Transorbital Approach: Step by Step – <i>Ralph Abi Hachem</i>
	<b>Break</b>
2:30 pm – 4:30 pm	<b>Two Concurrent Prosections</b> Prosection of Dolenc Approach – <i>Ali Krist</i> Dissection by Participants
3:00 pm – 5:00 pm	<b>Two Concurrent Prosections</b> Prosection of Transorbital & Endonasal Approach – <i>Kris Moe &amp; Adam Zanation</i> Dissection by Participants
5:00 pm – 5:30 pm	<b>Open Discussion</b> Case Presentations - Anterior Fossa, Orbit, and/or Cavernous Sinus

# Pre-Meeting Course Schedule

## DAY 2: THURSDAY, FEBRUARY 15, 2018

UCSD Center for the Future of Surgery

7:45 am – 8:00 am	<b>Welcome</b> TARGET: Petrous Apex – <i>James Evans &amp; Ricardo Carrau</i>
8:00 am – 8:15 am	<b>Kawase Approach</b> LECTURE: Anatomy of Middle Fossa – <i>A. Samy Youssef</i>
8:15 am – 8:30 am	<b>Open Lateral Approaches to Petrous Apex</b> LECTURE: Kawase approach: Step by step – <i>Rahul Mehta</i>
8:30 am – 8:45 am	<b>Endonasal Approach to Petrous Apex</b> LECTURE: Anatomy of Endonasal Transpterygoid Approach – <i>Rick Friedman</i>
8:45 am – 9:00 am	<b>Endonasal Expanded Transpterygoid Approach</b> LECTURE: Endonasal Transpterygoid Approach: Step by Step – <i>Ivan El Sayed</i>
	<b>Break</b>
9:30 am – 11:30 am	<b>Two Concurrent Prosections TBD</b> Prosection of Kawase Approach – <i>Carlos David</i> Dissection by Participants
10:00 am – 12:00 pm	<b>Two Concurrent Prosections TBD</b> Prosection of Endonasal Transpterygoid approach – <i>Adam Zanation &amp; Anand Germanwala</i> Dissection by Participants
12:00 pm – 1:00 pm	<b>Lunch</b> TARGET: Clivus and CV Junction – <i>Siviero Agazzi</i>
1:00 pm – 1:20 pm	<b>Far Lateral Approach</b> LECTURE: Far Lateral Approach: Step by Step – <i>A. Samy Youssef</i>
1:20 pm – 1:40 pm	<b>Endonasal Trans-clival Approach</b> LECTURE: Endonasal Trans-clival Approach: Step by Step – <i>Arturo Solares</i>
1:40 pm – 2:00 pm	<b>Endonasal Approach to Odontoid and CVJ</b> LECTURE: Endonasal Approach to Odontoid and CVJ – <i>Zoukaa Sargi</i>
	<b>Break</b>
2:30 pm – 4:30 pm	<b>Prosection of Far Lateral Approach</b> Prosection of Far Lateral Approach – <i>Chandra Sen</i> Dissection by Participants
3:00 pm – 5:00 pm	<b>Prosection of Endonasal Transclival Approach</b> Prosection of Endonasal Approach to CVJ – <i>Paul Gardner &amp; Carl Snyderman</i> Dissection by Participants
5:00 pm – 5:30 pm	<b>Open Discussion</b> Case Presentations - Middle Fossa and Posterior Fossa

## THURSDAY, FEBRUARY 15, 2018

### Meningioma Education Day

Commodore AB

The Education Day this year will focus on meningiomas: a look at the past, the present, and a peak into what the future might hold. The pillars of the education day will surround surgical lessons in skull base meningiomas, pathological and molecular advancements in meningiomas, and integration of advancements in imaging for meningiomas. The Education Day is open to NASBS members and non-members. The content of the Education Day may be of interest to trainees and faculty with interests in neurosurgery, otolaryngology, radiology, radiation oncology, medical oncology, and pathology.

7:30 am – 10:30 am

#### **SESSION 1: Surgical Lessons in Skull Base Meningiomas**

MODERATORS: Farshad Nassiri, MD, MD & Ian Witterick, MD, MSc, FRCSC

SPEAKERS: Ossama Al-Mefty, MD; Douglas Hardesty, MD; Allan Vescan, MD; William Couldwell, MD, PhD; Manish Aghi, MD, PhD; Paul Gardner, MD; Kenji Ohata, MD, PhD; Jacques Morcos, MD, FRCS, FAANS; Lalgam Sekhar, MD, FACS, FAANS; Marcos Tatagiba, MD, PhD; Chandranath Sen, MD; Fred Gentili, MD, MSc, FRCSC, FACS; Joao Paulo Almeida, MD; Michael McDermott, MD

- Principles of Expanded Endoscopic Endonasal Approach – *Allan Vescan, MD*
- Anterior Cranial Fossa Meningiomas: Opportunities and Limitations – *Douglas Hardesty, MD*
- Meningiomas of the Cavernous Sinus : What is the Ideal Management? – *William Couldwell, MD, PhD*
- Spheno-Orbital Meningioma: Approach and Reconstruction – *Kenji Ohata, MD, PhD*
- Discussion – *Karolyn Au, MD; Manish Aghi, MD, PhD; Paul Gardner, MD*
- Lateral Skull Base Meningiomas: Philosophies and Techniques – *Jacques Morcos, MD, FRCS, FAANS*
- Foramen Magnum Meningiomas: Principles of Management – *Lalgam Sekhar, MD, FACS, FAANS*
- Overview of Rare Skull Base Surgical Approaches – *Marcos Tatagiba, MD, PhD*
- Clival Meningiomas: Approach and Nuances – *Chandranath Sen, MD*
- Meningiomas: The Past, Present, and Future – *Ossama Al-Mefty, MD*
- Discussion – *Fred Gentili, MD, MSc, FRCSC, FACS; Joao Paulo Almeida, MD; Michael McDermott, MD*

11:00 am – 12:30 pm

#### **SESSION 2: Pathology and Molecular Advances in Management of Meningiomas**

MODERATORS: Suganth Suppiah, MD & Ian Dunn, MD

SPEAKERS: Ken Aldape, MD; Priscilla Brastianos, MD, PhD; Orin Bloch, MD; Gelareh Zadeh, MD, PhD, FRCS(c)

- Molecular Advances in Benign Meningiomas: What's new? – *Ian Dunn, MD*
- Mutational Landscape of Aggressive Meningiomas – *Ian Dunn, MD*
- From WHO to Methylation – *Ken Aldape, MD*
- Towards Precision Medicine for Meningiomas – *Priscilla Brastianos, MD, PhD*
- Immune Checkpoints in Meningiomas – *Orin Bloch, MD*
- Discussion – *Ken Aldape, MD & Gelareh Zadeh, MD, PhD, FRCS(c)*

1:45 pm – 3:30 pm

## **SESSION 3: Integration of Imaging Technology to Advance Surgery**

MODERATORS: Tim Kaufmann, MD & Patrick Wen, MD

SPEAKERS: Lola Chambless, MD; Gelareh Zadeh, MD, PhD, FRCS(c); John YK Lee, MD; Orin Bloch, MD; David Raleigh, MD, PhD; Tim Kaufmann, MD, MS

- RANO Update – *Patrick Wen, MD*
- What can MRI tell us about Meningiomas? – *Lola Chambless, MD*
- PET imaging in Meningiomas – *Gelareh Zadeh, MD, PhD, FRCS(c)*
- Imaging Guided Surgery for Meningiomas – *John YK Lee, MD*
- Reverse Hybrid Radiation Planning for Skull Base Tumors – *Orin Bloch, MD*
- RadioSurgery of Skull Base Meningioma: What is There to Consider? – *David Raleigh, MD, PhD*
- Discussion – *Tim Kaufmann, MD, MS & David Raleigh, MD, PhD*

4:00 pm – 6:00 pm

## **SESSION 4: Frontiers and Opportunities for Meningiomas**

MODERATORS: Manish Aghi, MD, PhD & Amir Dehdashti, MD

SPEAKERS: Frederick Barker II, MD; Timothy Smith, MD, PhD, MPH; Michael McDermott, MD, MD; Juan Fernandez-Miranda, MD; Suganth Suppiah, MD; Kenji Ohata, MD, PhD; Farshad Nassiri, MD; Gelareh Zadeh, MD, PhD, FRCS(c); Ian Dunn, MD

- The History and Future of Meningiomas in the Field of Skull Base Surgery – *Frederick Barker II, MD*
- Digital Phenotyping of Meningioma Patients: A Novel Approach to Quality of Life Assessment – *Timothy Smith, MD, PhD, MPH*
- Neuro-Cognitive Outcomes – Innovative Care – *Michael McDermott, MD, MD*
- From the Lab to the OR in Skull Base Surgery – *Juan Fernandez-Miranda, MD*
- Patient Initiated App: For Symptom Registry – *Suganth Suppiah, MD*
- Update of International Meningioma and Cerebral Veins Society – *Kenji Ohata, MD, PhD*
- International Consortium on Meningiomas and SNO – *Farshad Nassiri, MD*
- Concluding Remarks – *Gelareh Zadeh, MD, PhD, FRCS(c) & Ian Dunn, MD*

1:00 pm – 5:00 pm

## **Skull Base Primer Course**

*Britannia & Cambria*

MODERATORS: Eric Monteiro, MD & Scott Wait, MD

SPEAKERS: Patrick Gullane, MD, CM, OOnt, MB, FRCSC, FACS, Hon FRACS, Hon FRCS, Hon FRCSI; Maria Peris-Celda, MD, PhD; Eugene Yu, MD; Eric Monteiro, MD; Perry Mansfield, MD; Brian Thorp, MD; Jon Grant, MD; Steven Kossman, MD; Jayson Sack, MD; John de Almeida, MD, MSc, FRCSC; Trina Sheedy, PA

- History of Skull Base Surgery and the NASBS – *Patrick Gullane, MD, CM, OOnt, MB, FRCSC, FACS, Hon FRACS, Hon FRCS, Hon FRCSI*
- Anatomy of the Skull Base – *Maria Peris-Celda, MD, PhD*
- Imaging of the Skull Base – *Eugene Yu, MD*
- Overview of Pathology in the Skull Base – *Eric Monteiro, MD*
- Treatment Strategy Basics – *Scott Wait, MD*
- Open Craniofacial Surgery – *Perry Mansfield, MD*
- Expanded Endoscopic Surgery – *Brian Thorp, MD*
- Principles and Practice of Radiation for Skull Base Tumors – *Jon Grant, MD*
- Chemotherapy and Immunotherapy for Skull Base Malignancy – *Steven Kossman, MD*
- Complications and Management – *Jayson Sack, MD*
- Outcomes – *John de Almeida, MD, MSc, FRCSC*
- Role of the NP/PA in Skull Base Practice – *Trina Sheedy, PA*

## FRIDAY, FEBRUARY 16, 2018

6:00 am – 6:30 pm	<b>Registration</b>	<i>Constellation Foyer, 2<sup>nd</sup> Floor</i>
7:00 am – 7:30 am	<b>Breakfast</b>	<i>Commodore Foyer, 1<sup>st</sup> Floor &amp; Constellation Foyer, 2<sup>nd</sup> Floor</i>
7:30 am – 8:30 am	<b>MAIN TOPIC SESSIONS</b>	

### MAIN TOPIC 1: Management of Recurrent Meningiomas

*Commodore CDE*

MODERATOR: Carl Heilman, MD

SPEAKERS: Kenan Arnautovic, MD, PhD; Ian Dunn, MD; David Chalif, MD; Kibwei McKinney, MD; Michael Chicoine, MD

- Recurrent Meningiomas after Gross Total Resection – *Kenan Arnautovic, MD, PhD*
- Implications from Tumor Genomics for Treatment of Recurrent Meningiomas – *Ian Dunn, MD*
- Case Presentation of recurrent SW Meningioma S/P 5 Operations Including Endoscopic and Enucleation – *David Chalif, MD*
- Complications/Pitfalls in the Surgical Management of Recurrent Meningiomas – *Kibwei McKinney, MD*
- Re-Irradiation of Recurrent Meningiomas – *Michael Chicoine, MD*

This session is a review of management paradigms for recurrent meningiomas. It will cover surgical treatment option as well as adjunctive therapies and provide case examples, to be attended by neurosurgeons as well as radiation oncologists.

At the conclusion of this session, participants will be able to:

1. Discuss the best management strategies for recurrent meningiomas.
2. Classify meningioma subtypes and the best treatment strategies in cases of recurrence.
3. Choose the most efficient treatment options based on literature data for recurrent meningiomas.

### MAIN TOPIC 2: Orbital Complications of Skull Base Surgery: Prevention and Treatment

*Commodore AB*

MODERATORS: Shaan Raza, MD, FAANS & Sara Wester, MD

SPEAKERS: Rataphol Chris Dhepnorrarat, MBBS, FRACS; Zara Patel, MD; Amy Anstead, MD; Francois Lavigne, MD, FRCSC; Reid Thompson, BA, MD; Bobby Korn, MD, PhD, FACS

- Orbital Complications of Frontoethmoidal Mucocele – *Rataphol Chris Dhepnorrarat, MBBS, FRACS*
- Avoidance/Prevention of Orbital Complications of Skull Base Surgery (The Endoscopic Surgeon's Perspective) – *Zara Patel, MD*
- Orbital Complications of Endoscopic Resection of Skull Base Surgery and Treatment Options – *Amy Anstead, MD*
- Orbital Complications of Resection of Bony Skull Base Lesions – *Francois Lavigne, MD, FRCSC*
- Spheno-Orbital Meningiomas: Strategies to Optimize Orbital Outcomes – *Reid Thompson, BA, MD*
- Identification and Management of Orbital Complications of Skull Base Surgery – *Bobby Korn, MD, PhD, FACS*
- Panel Discussion – *A//*

This session will cover the prevention and management of orbital complications that can be seen with the spectrum of skull base procedures. This session will be relevant to Neurosurgeons, Rhinologists, Head and Neck Surgeons, Oculoplastic Surgeons.

At the conclusion of this session, participants will be able to:

1. Plan surgical approaches in a manner to reduce the risk of orbital complications.
2. Recognize postoperative orbital complications after skull base surgery.
3. Manage postoperative orbital complications after skull base surgery.

## MAIN TOPIC 3: Diseases of the Craniovertebral Junction

Britannia & Cambria

MODERATORS: Paul Gardner, MD & Randall Porter, MD

SPEAKERS: Claudia Kirsch, MD; Karolyn Au, MD; Siviero Agazzi, MD, MBA, FACS; Jamie van Gompel, MD; Ondrej Choutka, MD, FAANS, BMBCh, MA Hons (Oxon)

- Introduction – *Paul Gardner, MD*
- Key RadioGraphic Findings in Congenital Anomalies: Catastrophic Trauma and Cancer – *Claudia Kirsch, MD*
- Degenerative Pathology – *Karolyn Au, MD*
- Skin Incisions and Management of Suboccipital Soft Tissues to Approach the Craniovertebral Junction – *Paul Gardner, MD*
- Anterior Approaches to Craniocervical Pathology – *Jamie van Gompel, MD*
- Reconstruction of the Craniovertebral Junction after Resections Compromising Craniovertebral Junction Stability – *Ondrej Choutka, MD, FAANS, BMBCh, MA Hons (Oxon)*
- Panel Discussion – *All*

This session will cover all aspects of craniovertebral junction disease including preoperative planning, approaches and reconstruction. This session is ideal for otolaryngologists, neurosurgeons, plastic surgeons, radiation oncologists, and radiologists of all levels.

At the conclusion of this session, participants will be able to:

1. Correctly identify craniovertebral junction pathologies including degenerative, trauma and tumor.
2. Plan approaches to the craniovertebral junction from all corridors.
3. Understand challenges with reconstruction of the craniovertebral junction.

## MAIN TOPIC 4: Controversies in Management of Lateral Skull Base Malignancies

Sovereign

MODERATORS: Giovana Thomas, MD & John Golfinos, MD

SPEAKERS: David Schramm, MD, FACS, FRCS; Steve Braunstein, MD, PhD; Carleton Corrales, MD; Carleton Corrales, MD; Aaron Wieland, MD; Cordula Matthies, MD, PhD; Giovanni Danesi, MD; Elizabeth Nicolli, MD

INTRODUCTION: Giovana Thomas, MD

CASE PRESENTATIONS: David Schramm, MD, FACS, FRCS; Steve Braunstein, MD, PhD; Carleton Corrales, MD; Carleton Corrales, MD; Aaron Wieland, MD; Cordula Matthies, MD, PhD; Giovanni Danesi, MD; Elizabeth Nicolli, MD

Malignancies involving the lateral skull base are considered rare. They comprise of advanced skin cancers involving the ear or preauricular skin; advanced parotid cancers involving the ear or temporal bone; cancers of the external and middle ear; and cancers involving the infratemporal fossa and temporomandibular joints. As treatment may involve specialized surgical resections, reconstruction and radiotherapy, multidisciplinary treatment approach should be provided to patients diagnosed with LSBM. This section will involve a panel of distinguished speakers providing multiple case presentations and discussions concerning the management of lateral skull base malignancies.

At the conclusion of this session, participants will be able to:

1. Be better able to diagnose lateral skull base malignancies.
2. Formulate a treatment plan with a multidisciplinary approach.
3. Recognize challenges in management of lateral skull base malignancies.

7:30 am – 9:35 am **RHOTON ROOM**

Constellation AB

## RHOTON ANATOMY: Anatomy of Clinoid Region, Cavernous Sinus, and Anterior Petrous Bone

SPEAKER: Antonio Bernardo, MD

### RADIOLOGY

SPEAKER: Amy Lin, MD

## DUELING DISSECTIONS: FTOZ/Anterior Clinoidectomy/Cavernous Sinus/Kawase

MODERATORS: John Golfinos, MD & Antonio Bernardo, MD

PARTICIPANTS: Carlos David, MD & Siviero Agazzi, MD, MBA, FACS

8:35 am – 9:35 am **EXPERT DEBATE SESSIONS**

## **EXPERT DEBATE 1: Management of Spheno-Orbital Meningiomas**

*Commodore CDE*

MODERATORS: Ivan Radovanovic, MD, PhD & Don Kikkawa, MD, FACS

SPEAKERS: William Couldwell, MD, PhD; Harry van Loveren, MD, FAANS; Michael McDermott, MD; Howard Krauss, MD; Osaama Khan, MD, MS; Francesco Acerbi, MD, PhD

- Surgical Strategies for Recurrent Meningioma – *William Couldwell, MD, PhD*
- Intraoperative Imaging During Meningioma Resection – *Harry van Loveren, MD, FAANS*
- Complications Following Meningioma Resection – *Michael McDermott, MD*
- When Should the Optic Canal Be Decompressed in Patients With Skull Base Meningioma? – *Howard Krauss, MD*
- Radiosurgery for Meningioma – *Osaama Khan, MD, MS*
- Role of ICG Angiography in Meningioma Surgery – *Francesco Acerbi, MD, PhD*

This session will cover controversial topics in Management of Spheno-Orbital Meningiomas.

At the conclusion of this session, participants will be able to:

1. Identify current management techniques of Spheno-Orbital Meningiomas.
2. Distinguish between different treatment modalities.
3. Integrate newer concepts into Management of Spheno-Orbital Meningiomas.

## **EXPERT DEBATE 2: How to Train Balanced Skull Base Surgeons: An International Panel**

*Commodore AB*

MODERATORS: Jacques Morcos, MD, FRCS, FAANS & Ehab Hanna, MD

SPEAKERS: Dan Fliss, MD; Cem Mecoc, MD; Patrick Gullane, MD, CM, OOnt, MB, FRCSC, FACS, Hon FRACS, Hon FRCS, Hon FRCSI; Dennis Kraus, MD; Basant Misra, MD; Robert Behr, MD

The session will address the scope and challenges of two specific topics in Skull Base Surgery: how to train the next generation of skull base surgeons, and how to ensure that they are “balanced.” The moderators will be posing a series of questions to six panelists from the world of neurosurgery, head and neck, neuro otology and rhinology, encompassing the concepts of defining the field, the meaning of balance, the required skill sets, the pros and cons of the team approach, the duties of training programs, and many other pertinent topics. There are no lectures. The session should be of enormous interest to all, including trainees and practitioners of skull base surgery. Audience participation will be encouraged.

At the conclusion of this session, participants will be able to:

1. Articulate the ingredients that are felt to be essential to the formation of a great skull base surgeon.
2. Recognize the distinction between skull base surgery and related fields.
3. Implement changes in their own training programs to better prepare their trainees for a future career in skull base surgery.

## **EXPERT DEBATE 3: Optimal Strategy for Reconstruction after Endoscopic Skull Base Surgery** *Britannia & Cambria*

MODERATORS: Ali Zomorodi, MD & Eric Wang, MD

SPEAKERS: Raj Sindwani, MD; Arif Janjua, MD, FRCSC; Ricardo Carrau, MD; Adam Zanation, MD; Daniel Kelly, MD; Jose Gurrola, MD; Lee Zimmer, MD, PhD

There is some debate and heterogeneity around the optimum reconstruction strategies following endoscopic skull base surgery. We will present different clinical scenarios requiring skull base reconstruction after endoscopic surgery and discuss the best strategies to be used. Anyone with an interest in endoscopic skull base surgery should attend this session.

At the conclusion of this session, participants will be able to:

1. Develop an effective strategy for reconstruction following pituitary tumor resection.
2. Develop a consensus strategy for repair of defects following suprasellar tumor resection.
3. Discuss a consensus strategy for the repair of defects following resection of posterior fossa tumor resection.

## EXPERT DEBATE 4: Vestibular Schwannomas: Debate on Treatment Type and Approaches

*Sovereign*

MODERATOR: Michael Link, MD

SPEAKERS: Marcos Tatagiba, MD, PhD; Mia Miller, MD; Amir Dehdashti, MD; Akio Morita, MD, PhD; Gene Barnett, MD, MBA

- Retrosigmoid Craniotomy in the Semi-sitting Position – *Marcos Tatagiba, MD, PhD*
- Translabyrinthine Surgery for Large VS – *Mia Miller, MD*
- Hearing Preservation Surgery for Small Tumors – *Amir Dehdashti, MD*
- Techniques to Improve Facial Nerve Outcomes – *Akio Morita, MD, PhD*
- Gamma Knife Radiosurgery for VS – *Gene Barnett, MD, MBA*

During this one hour debate the panelists will discuss various approaches to removing vestibular schwannomas and the nuances involved. Additionally, as time allows, demonstrative cases will be reviewed with the expert panel providing opinions about how they would manage a variety of common scenarios.

At the conclusion of this session, participants will be able to:

1. Articulate the different surgical approaches available to treat a vestibular schwannoma and expectations for cranial nerve preservation.
2. Demonstrate an understanding of the role of stereotactic radiosurgery in the treatment of vestibular schwannoma.
3. Recognize some of the perils and pitfalls that can occur when operating a vestibular schwannoma.

9:35 am – 10:15 am **Morning Break in Exhibit Hall**

*Exhibit Pavilion*

10:15 am – 12:15 pm **GENERAL SESSION**

*Commodore CDE*

10:15 am – 10:22 am **Welcome & Meeting Overview**

SPEAKER: Ian Witterick, MD, MSc, FRCSC

10:22 am – 10:32 am **Historical Video**

10:15 am – 10:57 am **PRESIDENTIAL ADDRESS: Dynamic Mentoring of the Skull Base Surgeon: Training our Future**

SPEAKER: Ian Witterick, MD, MSc, FRCSC

10:57 am – 11:04 am **Research**

SPEAKERS: Shaan Raza, MD, FAANS; Anand Devaiah, MD

11:04 am – 11:11 am **Special Announcement**

SPEAKER: Ian Witterick, MD, MSc, FRCSC

11:11 am – 11:26 am **HONORED GUEST LECTURER: The Evolution of the NASBS from Inception to Present**

SPEAKER: Patrick Gullane, MD, CM, OOnt, MB, FRCSC, FACS, Hon FRACS, Hon FRCS, Hon FRCSI

11:26 am – 11:46 am **INVITED GUEST SPEAKER: The Making of a Neurosurgeon: From Your Hands to Theirs**

SPEAKER: Harry van Loveren, MD, FAANS

11:46 am – 12:01 pm **HONORED GUEST LECTURER: The Skull Base Surgeon of the Future**

SPEAKER: Fred Gentili, MD, MSc, FRCSC, FACS

12:01 pm – 12:08 pm **Journal Presentation**

PRESENTERS: Michael Link, MD & Dennis Kraus, MD

12:15 pm – 1:15 pm **Business Lunch for Members**

Non-Member Lunch in Exhibit Pavilion

*Avalon*

1:20 pm – 2:20 pm **HOT TOPIC SESSIONS**

## **HOT TOPIC 1: Vascular Considerations in Open and Endoscopic Skull Base Surgery: Dealing with Encased Arteries and Veins**

*Commodore B*

MODERATORS: Harry van Loveren, MD, FAANS & Kadir Erkmen, MD

SPEAKERS: Amir Dehdashti, MD; Gavin Britz, MD; Ossama Al-Mefty, MD; Daniel Prevedello, MD; Anil Nanda, MD; B. Gregory Thompson, MD

- Dealing with Arterial Encasement in Clinoidal and Tuberculum Sella Meningiomas – *Amir Dehdashti, MD*
- Evolution of Indications for Bypass Surgery with Changes in Technology, Patient Expectations for Normal Cranial Nerve Function, and the Emergence of Radiosurgery – *Gavin Britz, MD*
- Prevention and Treatment of Serious Vascular Complications in Open Skull Base Surgery – *Ossama Al-Mefty, MD*
- Vascular Considerations in Endoscopic Endonasal Procedures – *Daniel Prevedello, MD*
- Immediate and Delayed Vascular Complications with Skull Base Meningiomas – *Anil Nanda, MD*
- Vascular Considerations and Strategies in Handling Large and Complex Hemangioblastomas – *B. Gregory Thompson, MD*

This session will deal with the nuances of avoiding vascular complications in open and endoscopic skull base surgery and repairing vascular injuries should they occur. This session should be attended by all neurosurgeon, rhinologists and head and neck surgeons who participate in endoscopic or open skull base surgical procedures.

At the conclusion of this session, participants will be able to:

1. Recognize potential vascular complication of skull base surgery on preoperative imaging.
2. Describe nuanced surgical repairs for vascular injuries in skull base surgery.
3. Discuss aspect of residency training to deal with vascular complications.

## **HOT TOPIC 2: Augmented Reality in Skull Base Surgery: A Novel Concept**

*Commodore A*

MODERATORS: Joshua Bederson, MD & Amin Kassam, MD

SPEAKERS: Neil Martin, MD; Raj Shrivastava, MD; Alfred Marc Calo Iloreta, MD; Philippe Bijlenga, MD, PhD; Ben Dixon, MBBS(Hons), PhD, FRACS

- Overview and Introduction to Augmented Reality in Neurosurgery – *Joshua Bederson, MD*
- Introduction of Speakers – *Amin Kassam, MD*
- Patient Engagement Enhanced by Virtual Reality – *Neil Martin, MD*
- Augmented and Virtual Reality for Surgical Planning in Endoscopic and Skull Base – *Raj Shrivastava, MD*
- Expansion of the Endoscopic Portal Through Augmented and Virtual Reality in Skull Base Surgery – *Alfred Marc Calo Iloreta, MD*
- A Discussion on Intraoperative Registration – *Philippe Bijlenga, MD, PhD*
- Inattentional Blindness and Augmented Reality Surgical Navigation – *Ben Dixon, MBBS(Hons), PhD, FRACS*

This session is for all levels of neurosurgeons reviewing current and future generation simulation, modeling, and visualization approaches to augment the pre- and intraoperative skull base surgical workflow. Though these are nascent tools, their clinical application has led to significant advances for skull base surgery especially in the areas of pre-operative planning and intraoperative navigation. Next-generation tools on the horizon hold the promise to expand the use case for skull base modeling and lead to pervasive adoption across the industry.

At the conclusion of this session, participants will be able to:

1. Distinguish the different types of advanced digital technologies underlying augmented and virtual reality in skull base surgery.
2. Categorize the different types of advanced digital technologies underlying augmented and virtual reality in skull base surgery and application of these tools to benefit pre- and intraoperative surgical planning.
3. Identify a best-practices picture for successful clinical implementations of next-generation simulation, modeling, and visualization tools.

## HOT TOPIC 3: Advances in Radiation Therapy for Skull Base Diseases

Sovereign

MODERATORS: Nagy Elsayyad, MD, FACP & Robert Malyapa, MD, PhD

SPEAKERS: Normand Laperriere, MD, FRCPC; William Mendenhall, MD; Maged Ghaly, MD; John Ben Wilkinson, MD; Aashish Bhatt, MD

- Role of Pencil Beam Scanning Protons in Radiotherapy for Skull Base Diseases – *Robert Malyapa, MD, PhD*
- Advances in Photon RT in Skull Base Chordomas and Chondrosarcomas – *Normand Laperriere, MD, FRCPC*
- Radiotherapy for Skull Base Paragangliomas – *William Mendenhall, MD*
- Advances in Stereotactic Radiation for Vestibular Schwannomas – *Maged Ghaly, MD*
- Re-Irradiation of the Skull Base – *John Ben Wilkinson, MD*
- Radiotoxicity at the Skull Base – *Aashish Bhatt, MD*

This is a session designed to address a brief update to skull base surgeons on radiotherapy of the skull base including: emerging technologies, state of the art literature on tumors at the skull base commonly treated with radiation therapy and an update on radio-toxicity at the skull base.

At the conclusion of this session, participants will be able to:

1. Review emerging new technologies in radiation therapy for skull base diseases.
2. Discuss current status of radiotherapeutic options for some common skull base tumors.
3. Review current literature on radiotoxicity at the skull base.

## 1:20 pm – 2:20 pm SPECIAL SESSIONS

### SPECIAL SESSION 1: Women in Skull Base Surgery

Commodore CDE

MODERATORS: S. Tonya Stefko, MD & Darlene Lubbe, MD

SPEAKERS: Lori Lemonnier, MD; Soha Ghossaini, MD; Corinna Levine, MD, MPH; Stacey Grey, MD; Deanna Sasaki-Adams, MD; Maria Koutourousiou, MD

- Introduction – *S. Tonya Stefko, MD*
- What Do We Know? – *Darlene Lubbe, MD; Lori Lemonnier, MD; Soha Ghossaini, MD; Corinna Levine, MD, MPH; Stacey Grey, MD; Deanna Sasaki-Adams, MD; Maria Koutourousiou, MD*
- What Do You Know?

We would like to enjoy a lively and far-reaching discussion examining our many diverse experiences in this unique, highly skilled, highly demanding, and team based specialty. Anyone with interest in recognition and cultivation of other's talents is welcome.

At the conclusion of this session, participants will be able to:

1. Integrate the experience of other, more senior faculty, into their practices and their considerations of what type of example they would like to set for their trainees and partners.
2. Prepare to discuss one significant, non-technical issue with their fellows.

## 1:20 pm – 3:25 pm RHOTON ROOM

Constellation AB

### RHOTON ANATOMY: Anatomy of Petrous Bone, Semicircular Canal, Facial Canal, CP Angle Through Both the Presigmoid and Retrosigmoid Approach

SPEAKER: Maria Peris-Celda, MD, PhD

### RADIOLOGY

SPEAKER: Eugene Yu, MD

### DUELING DISSECTIONS: Presigmoid Retrolabyrinthine Approach

MODERATORS: Harry van Loveren, MD, FAANS & Raul Mehta, MD, FRCS

PARTICIPANTS: Richard Friedman, MD, PhD/Marc Schwartz, MD & Matthew Carlson, MD/Michael Link, MD

2:25 pm – 3:25 pm **SPECIAL SESSIONS**

## **SPECIAL SESSION 2: Mentorship: Why, How, and When**

*Commodore CDE*

MODERATORS: Devyani Lal, MD & Ian Witterick, MD, MSc, FRCSC

SPEAKERS: Jacques Morcos, MD, FRCS, FAANS; Jatin Shah, MD; John Leonetti, MD; Stacey Gray, MD; Paul Gardner, MD; Stella Lee, MD

- Introduction – *Devyani Lal, MD & Ian Witterick, MD, MSc, FRCSC*
- The Value of Mentorship for Skull Base Surgeons – *Jacques Morcos, MD, FRCS, FAANS*
- Junctures When Mentorship is Most Critical for Success – *Jatin Shah, MD*
- Characteristics that Distinguish Successful Mentees – *John Leonetti, MD*
- Mentoring Surgeons of the New Millennium – *Stacey Gray, MD*
- Finding the Right Mentors: Practical Pearls – *Paul Gardner, MD*
- Mentorship for Women and Minorities in Surgery – *Stella Lee, MD*
- Panel Discussion – *All*

The session will focus on practical take-away points on the value of mentorship, the junctures when mentorship is critical to success and how to seek and provide successful mentorship. The panel will also discuss mentoring surgeons of the new millennium, female and minority candidates. This session will be valuable to junior and senior skull base surgeons who are interested in the mentorship as mentors or mentees.

At the conclusion of this session, participants will be able to:

1. Assess the value of mentorship.
2. Employ strategies to create meaningful mentor-mentee relationships.
3. Integrate personalized approaches to negotiate barriers imposed by generational, minority and gender issues.

2:25 pm – 3:25 pm **VIDEO SESSIONS**

## **VIDEO SESSION 1: Neurosurgery – Endoscopic Endonasal Procedures**

*Commodore B*

MODERATORS: Garni Barkhoudarian, MD & Christopher Farrell, MD

SPEAKERS: John Jane, Jr, MD, PhD, FACS, FRCS; Francesco Doglietto, MD, PhD; James Liu, MD; Pablo Recinos, MD; Gabriel Zada, MD; A Samy Youssef, MD, PhD

- Pituitary Adenoma Resection – Pseudo Capsular Dissection – *John Jane, Jr, MD, PhD, FACS, FRCS*
- Surgical Management of Pituitary Adenoma with Cavernous Sinus Invasion – *Francesco Doglietto, MD, PhD*
- Craniopharyngioma Resection and Infundibulum Preservation – *James Liu, MD*
- Surgical Nuances of Endonasal Meningioma Resection – *Pablo Recinos, MD*
- Surgical Nuances of Endonasal Chordoma Resection – *Gabriel Zada, MD*
- Surgical Nuances of Endonasal Schwannoma Resection – *A Samy Youssef, MD, PhD*

This session is aimed to neurosurgeons, ENT surgeons, radiation oncologists, radiologists and ophthalmologists who treat patients with parasellar tumors. The session will demonstrate surgical nuances involved in the resection of various parasellar pathologies and discuss implications of surgical outcomes and post-operative management.

At the conclusion of this session, participants will be able to:

1. Recognize pertinent pituitary anatomy to preserve function.
2. Demonstrate surgical techniques for cavernous sinus dissection.
3. Demonstrate surgical techniques for skull-base non-adenomatous tumor resection.

## VIDEO SESSION 2: Otolaryngology/Rhinology

Commodore A

MODERATORS: Zara Patel, MD & Arjuna Kuperan

SPEAKERS: Patricia Loftus, MD; Eng Ooi, FRACS, PhD, MBBS; Arjun Parasher, MD; Clementino Solares, MD; Cristine Klatt-Cromwell, MD

- Microadenomas – *Patricia Loftus, MD*
- Macroadenomas – *Eng Ooi, FRACS, PhD, MBBS*
- Craniopharyngioma and Rathke's Cleft Cyst – *Arjun Parasher, MD*
- Esthesioneuroblastoma and Meningioma – *Clementino Solares, MD*
- Endoscopic Skull Base Reconstruction Beyond the Nasoseptal Flap – *Cristine Klatt-Cromwell, MD*

This session will provide the otolaryngology and rhinology perspective of multiple common endoscopic skull base procedures. Some of these procedures are performed in combination with our neurosurgical colleagues and some are performed alone. Otolaryngology residents, rhinology fellows, rhinologists and otolaryngologists with a desire to perform more or increasingly complex endoscopic skull base procedures will benefit from attending this session.

At the conclusion of this session, participants will be able to:

1. Identify the common endoscopic approaches to the anterior and middle cranial fossa.
2. Recognize the differences in surgical technique needed to approach and resect tumors in different skull base locations and with different pathology.
3. Compare multiple methods for reconstructing the skull base endoscopically.

## VIDEO SESSION 3: Otology/Neurotology

Sovereign

MODERATOR: J. Thomas Roland, Jr.

SPEAKERS: Rebecca Chiffer, MD; Daniel Jethanamest, MD; Esther Vivas, MD; Neal Jackson, MD; Richard Gurgel, MD; Neil Patel, MD

- Repair of Lateral Skull Base CSF Leak, Combined Approach – *Rebecca Chiffer, MD*
- Intracochlear Schwannoma and Cochlear Implantation in Patient with NF2 – *Daniel Jethanamest, MD*
- Repair of CSF Leak to Temporal Bone: Middle Cranial Fossa Approach – *Esther Vivas, MD*
- Management of Retained Bullet and Shrapnel after Gunshot Wound to the Temporal Bone – *Neal Jackson, MD*
- Giant Cell Skull Base Tumor – A Rare Lesson Illustrating the Benefits of a Multidisciplinary Surgical Collaboration – *Richard Gurgel, MD*
- Resection of Geniculate Hemangioma with Interposition Nerve Graft – *Neil Patel, MD*

In this session, presenters will deliver a short presentation followed by an edited video of a neurotological skull base procedure. The presenters will discuss important aspects of the procedure covering anatomical and decision making paradigms. The session is appropriate for all lateral skull base surgeons.

At the conclusion of this session, participants will be able to:

1. Apply principles learned at this session to the everyday practice setting.
2. Employ multidisciplinary engagement for complex medical/surgical issues.
3. Recognize that traditional thinking and management can be questioned and new concepts applied to clinical issues.

3:30 pm – 4:15 pm **Afternoon Break in Exhibit Hall**

Exhibit Pavilion

4:00 pm – 5:00 pm **JNLS-B Meeting** (invite only)

Avalon

4:15 pm – 6:15 pm **PROFFERED PAPERS SESSION**

## PROFFERED PAPERS 1: Meningioma

Commodore CDE

MODERATORS: Philippe Biljenga, MD, PhD & Kibwei McKinney, MD

**001: NEAR-INFRARED FLUORESCENT SURGERY FOR SKULL BASE AND INTRACRANIAL MENINGIOMA** – Shayoni Nag, BA, Love Buch, BS, Jun Jeon, BS, Steve Cho, BS, Sunil Singhal, MD, John YK Lee, MD, MSCE; University of Pennsylvania

**002: EXTENT OF PERITUMORAL EDEMA AND MENINGIOMA LOCATION PREDICTS FUNCTIONAL OUTCOMES AND 1-YEAR MORTALITY AFTER RESECTION IN OLDER-AGED PATIENTS** – Joshua Loewenstern, BA, Amit Aggarwal, MD, Margaret Pain, MD, Ernest Barthelemy, MD, Joshua Bederson, MD, Raj K Shrivastava, MD; Icahn School of Medicine at Mount Sinai

**003: PREOPERATIVE EMBOLIZATION OF SKULL BASE MENINGIOMAS: OUTCOMES IN THE ONYX ERA** – Colin J. Przybylowski, MD<sup>1</sup>, Jacob F Baranoski, MD<sup>1</sup>, Alfred See, MD<sup>2</sup>, Rami Almefty, MD<sup>1</sup>, Dale Ding, MD<sup>1</sup>, Andrew F Ducruet, MD<sup>1</sup>, Felipe C Albuquerque, MD<sup>1</sup>; <sup>1</sup>Barrow Neurologic Institute, <sup>2</sup>Brigham and Women's Hospital

**004: RETRACTORLESS SURGERY: STROKES, EDEMA, AND GLIOSIS OUTCOMES FOLLOWING SKULL BASE SURGERY** – Christina Jackson<sup>1</sup>, Jeffrey Ehresman, BS<sup>1</sup>, Tito Vivas-Buitrago<sup>2</sup>, Chetan Bettgowda<sup>1</sup>, Alessandro Olivi<sup>1</sup>, Alfredo Quinones-Hinojosa<sup>2</sup>, Kaisorn Chaichana<sup>2</sup>; <sup>1</sup>Johns Hopkins, <sup>2</sup>Mayo Clinic Florida

**005: RISK OF DEVELOPING POSTOPERATIVE DEFICITS BASED ON TUMOR LOCATION AFTER SURGICAL RESECTION OF AN INTRACRANIAL MENINGIOMA** – Jeff Ehresman, BS, Tomas Garzon-Muvdi, MD, Davis Rogers, BA, Michael Lim, MD, Gary L Gallia, MD, PhD, Jon Weingart, MD, Henry Brem, Chetan Bettgowda, MD, PhD, Kaisorn L Chaichana, MD; Johns Hopkins University School of Medicine

**006: EXCESS CHARGES IN INTRACRANIAL MENINGIOMA SURGERY: THE INFLUENCE OF PATIENT AND HOSPITAL CHARACTERISTICS** – Sean McKee, Anthony Yang, Anthony Del Signore, Joshua Bederson, Alfred Illoreta, Raj Shrivastava; Icahn School of Medicine at Mount Sinai

**007: ENDOSCOPIC ENDONASAL AND SUPRAORBITAL KEYHOLE SURGERY FOR THE MANAGEMENT OF ANTERIOR SKULL BASE MENINGIOMAS: OVERCOMING THE BARRIERS BETWEEN ABOVE AND BELOW APPROACHES** – Davide Nasi, MD<sup>1</sup>, Maurizio Iacoangeli, MD<sup>2</sup>, Massimo Re<sup>2</sup>, Mauro Dobran, MD<sup>1</sup>, Alessandro Di Rienzo<sup>1</sup>, Maurizio Gladi<sup>1</sup>, Fabrizio Mancini<sup>1</sup>, Massimo Scerrati, MD<sup>1</sup>; <sup>1</sup>Department of Neurosurgery, Section of Minimally Invasive and Skull Base Surgery, Università Politecnica delle Marche, Umberto I General Hospital, Ancona, Italy, <sup>2</sup>Department of ENT, Università Politecnica delle Marche, Umberto I General Hospital, Ancona, Italy

**008: A SINGLE INSTITUTION REVIEW OF 84 WHO II MENINGIOMAS, 38 LOCATED IN THE SKULLBASE, CONTINUES TO SUPPORT SURGERY AS THE PRIMARY TREATMENT MODALITY** – Philip D Tatman, BS, Joshua W Osbun, MD, Owais Ahmad, MD, Tina Busald, Carolina Parada, PhD, Luis Gonzalez-Cuyar, MD, Donald Born, MD, PhD, Manuel Ferreira, MD, PhD; University of Washington

**009: A NOVEL RISK STRATIFICATION TOOL TO PREDICT HOSPITAL LENGTH OF STAY AFTER SURGERY FOR MENINGIOMA** – Peter J Morone, MD, MSCI<sup>1</sup>, Thomas G Stewart, PhD<sup>2</sup>, Scott L Zuckermen, MD, MPH<sup>1</sup>, Michael C Dewan, MD, MSCI<sup>1</sup>, Akshikumar Mistry, MD<sup>1</sup>, Siviero Agazzi, MD, MBA<sup>3</sup>, Harry R van Loveren, MD<sup>3</sup>, Reid C Thompson, MD<sup>1</sup>; <sup>1</sup>Vanderbilt Department of Neurosurgery, <sup>2</sup>Vanderbilt Department of Biostatistics, <sup>3</sup>University South Florida Department of Neurosurgery

**010: DIFFERENTIAL USAGE OF RETROSIGMOID APPROACH EXTENSIONS (SUPRAMEATAL EXTENSION AND TENTORIOTOMY) IN PETROCLIVAL MENINGIOMAS MANAGEMENT** – Yury Shulev, MD, PhD, Ovanes Akobyan, MD; North-Western State Medical University named after I.I. Mechnikov, City Hospital #2

**011: CLINICAL VALIDATION OF A PROPOSED INTRAOPERATIVE CONSISTENCY GRADING SYSTEM FOR MENINGIOMAS** – Kyohei Itamura, Ki-Eun Chang, Joshua Lucas, Gabriel Zada; University of Southern California

**012: DIFFERENTIAL GENE EXPRESSION AND PATHWAY ANALYSIS OF RADIATION-INDUCED MENINGIOMAS** – Suganth Suppiah, MD, Jeff Liu, PhD, Shirin Karimi, Ken Aldape, Gelareh Zadeh, PhD, FRCSC; University of Toronto

**013: T2/FLAIR CHARACTERISTICS OF MENINGIOMA BORDERS ON MRI MAY BE ASSOCIATED WITH BRAIN INVASION** – Gillian Harrison, MD<sup>1</sup>, Rajeev Sen, MD<sup>2</sup>, Girish Fatterpekar, MD<sup>1</sup>, Donato Pacione, MD<sup>1</sup>, Chandranath Sen, MD<sup>1</sup>; <sup>1</sup>NYU Langone Health, <sup>2</sup>University of Washington Medical Center

## PROFFERED PAPERS 2: Vestibular Schwannomas

Commodore B

MODERATORS: Neal Jackson, MD & Walter Jean, MD

**014: LONG TERM HEARING OUTCOMES FOLLOWING STEREOTACTIC RADIOSURGERY IN PATIENTS WITH VESTIBULAR SCHWANNOMAS** – Peter L Santa Maria, MD, PhD<sup>1</sup>, Yangyang Shi, BS<sup>1</sup>, Richard K Gurgel, MD<sup>2</sup>, Carleton E Corrales, MD<sup>3</sup>, Scott G Soltys, MD<sup>4</sup>, Chloe Santa Maria<sup>1</sup>, Steven D Chang<sup>5</sup>, Nikolas H Blevins<sup>1</sup>, Iris C Gibbs<sup>4</sup>, Robert K Jackler<sup>1</sup>; <sup>1</sup>Department of Otolaryngology, Head and Neck Surgery, Stanford University, Palo Alto, CA, USA, <sup>2</sup>Department of Otolaryngology, Head and Neck Surgery, University of Utah, Salt Lake City, UT, USA, <sup>3</sup>Division of Otolaryngology-Head and Neck Surgery, Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA, <sup>4</sup>Department of Radiation Oncology, Stanford University, Palo Alto, CA, USA, <sup>5</sup>Department of Neurosurgery, Stanford University

**015: PRE-HABILITATION WITH INTRA-TYMPANIC GENTAMYCIN IN VESTIBULAR SCHWANNOMA PATIENTS AND POST-OPERATIVE CONTRALATERAL BENEFITS: A PROSPECTIVE STUDY** – Natasha Amiragh, FRCSEd, ORL, HNS, DOHNS, MBChB, Margaret Gaggini, Ms, John A Crowther, Mr, Richard Locke, Lorna Hastings, Ms, William Taylor, Mr, Georgios Kontorinis, Mr; NHS Greater Glasgow and Clyde

**016: SURGEON-PLANNED SUBTOTAL RESECTION OF VESTIBULAR SCHWANNOMA DIVERGES FROM THE OPTIMAL RADIOSURGICAL TARGET DEFINED BY ADAPTIVE HYBRID SURGERY SOFTWARE** – John P Sheppard, MS<sup>1</sup>, Carlito Lagman, MD<sup>2</sup>, Thien Nguyen, BS<sup>1</sup>, Yasmine Alkhalid, BS<sup>2</sup>, Courtney Duong, BS<sup>2</sup>, Giyarpuram Prashant, MD<sup>1</sup>, Orin Bloch, MD<sup>3</sup>, Isaac Yang, MD<sup>1</sup>; <sup>1</sup>David Geffen School of Medicine at UCLA, <sup>2</sup>Department of Neurosurgery, UCLA, <sup>3</sup>The Northwestern Brain Institute at the Feinberg School of Medicine

**017: QUALITY OF LIFE IN VESTIBULAR SCHWANNOMA PATIENTS: A LONGITUDINAL STUDY** - [Lauren E. Miller<sup>1</sup>](#), Jason A Brant, MD<sup>2</sup>, James Naples, MD<sup>2</sup>, Douglas C Bigelow, MD<sup>2</sup>, John Y Lee, MD<sup>3</sup>, Michael J Ruckenstein, MD<sup>2</sup>; <sup>1</sup>Perelman School of Medicine at the University of Pennsylvania, <sup>2</sup>Department of Otorhinolaryngology - Head and Neck Surgery at the Hospital of the University of Pennsylvania, <sup>3</sup>Department of Neurosurgery at Pennsylvania Hospital

**018: FUNCTIONAL PRESERVATION RATE OF FACIAL NERVE AFTER EXCISION OF GIANT VESTIBULAR SCHWANNOMAS FOLLOWING TWO DIFFERENT SURGICAL TECHNIQUES** - [Sunil K Gupta, Prof](#); PGIMER

**019: MODIFIED EXCLUSIVE ENDOSCOPIC TRANSCANAL TRANSPROMONTORIAL APPROACH FOR VESTIBULAR SCHWANNOMAS** - [In Seok Moon, MD, PhD<sup>1</sup>](#), Hyun-Jin Lee<sup>2</sup>, Sung-Il Nam<sup>3</sup>, Michelle Jiyoung Suh<sup>1</sup>, Dongchul Cha<sup>1</sup>, Jae Young Choi<sup>1</sup>; <sup>1</sup>Department of Otorhinolaryngology, Yonsei University, College of Medicine, <sup>2</sup>Department of Otorhinolaryngology, Gyeongsang National University Changwon Hospital, <sup>3</sup>Department of Otorhinolaryngology, Keimyung University, College of Medicine

**020: EFFECT OF HOSPITAL VOLUME ON ACOUSTIC NEUROMA SURGERY OUTCOMES IN THE MODERN TREATMENT ERA** - [Daniel Heiferman, MD](#), Caroline Szujewski, Giselle Malina, Brendan Martin, Adrienne Cobb, MD, Kurt Grahnke, Ryan Hofler, MD, Douglas Anderson, MD; Loyola University Medical Center

**021: CEREBROVASCULAR COMPLICATIONS DURING VESTIBULAR SCHWANNOMA SURGERY** - [Christopher S. Graffeo, MD](#), Avital Perry, MD, Tarek Rayan, MD, PhD, Lucas P Carlstrom, MD, PhD, Christopher Marcellino, MD, Joshua D Hughes, MD, Maria Peris-Celda, MD, Michael J Link, MD; Mayo Clinic

**022: INCREASED HOSPITAL SURGICAL RESECTION VOLUME DECREASES THE RATE OF 30- AND 90- DAY READMISSION AFTER ACOUSTIC NEUROMA SURGERY** - [Robin M Babadjouni, MS](#), Timonhy Wen, MD, Daniel Donoho, MD, Ian Buchanan, MD, Steven Y Cen, MD, Rick A Friedman, Arun Amar, MD, Jonathan Russin, Steven L Giannotta, MD, William J Mack, MD, Frank J Attenello, MD; Keck School of Medicine of USC

**023: DIAGNOSTIC ACCURACY OF INTRAOPERATIVE NEUROPHYSIOLOGIC AUDITORY MONITORING IN PREDICTING HEARING OUTCOME IN ACOUSTIC NEUROMA SURGERY: A SYSTEMATIC REVIEW** - [Steven A Zuniga, MD](#), Brandon Kamrava, BS, Pamela C Roehm, MD, PhD; Lewis Katz School of Medicine at Temple University

**024: A CROSS-SECTIONAL SURVEY OF THE NORTH AMERICAN SKULL BASE SOCIETY ON VESTIBULAR SCHWANNOMA: CURRENT PRACTICE PATTERNS OF VESTIBULAR SCHWANNOMA EVALUATION AND MANAGEMENT IN NORTH AMERICA** - [Matthew L Carlson, MD<sup>1</sup>](#), Jamie J van Gompel<sup>1</sup>, Mark Wiet<sup>2</sup>, Nicole M Tombers, RN<sup>1</sup>, Anand K Devaiah, MD<sup>3</sup>, Devyani Lal, MD<sup>1</sup>, Jacques J Morcos, MD<sup>4</sup>, Michael J Link, MD<sup>1</sup>; <sup>1</sup>Mayo Clinic, <sup>2</sup>Rush University Medical Center, <sup>3</sup>Boston University School of Medicine, <sup>4</sup>University of Miami

**025: A CROSS-SECTIONAL SURVEY OF THE NORTH AMERICAN SKULL BASE SOCIETY ON VESTIBULAR SCHWANNOMA: PART 2: PERI-OPERATIVE PRACTICE PATTERNS OF VESTIBULAR SCHWANNOMA IN NORTH AMERICA** - [Jamie J van Gompel<sup>1</sup>](#), [Matthew L Carlson<sup>1</sup>](#), Mark Wiet<sup>2</sup>, Anand K Devaiah<sup>3</sup>, Jacques J Morcos<sup>4</sup>, Michael J Link<sup>1</sup>; <sup>1</sup>Mayo Clinic, <sup>2</sup>Rush University Medical Center, <sup>3</sup>Boston University, <sup>4</sup>University of Miami

**026: DEFINING THE MINIMALLY CLINICALLY IMPORTANT DIFFERENCE FOR PATIENTS WITH VESTIBULAR SCHWANNOMA** - [Michael J Link](#), Panagiotis Kerezoudis, Nicole M Tombers, Maria Peris Celda, Matthew L Carlson; Mayo Clinic

**027: DELAYED FACIAL NERVE PARALYSIS AFTER VESTIBULAR SCHWANNOMA RESECTION** - [Robert J Yawn, MD](#), Matthew M Dedmon, MD, PhD, Reid C Thompson, MD, Matthew R O'Malley, MD, Marc L Bennett, MD, MMHC, Alejandro Rivas, David S Haynes, MD, MMHC; Vanderbilt University Medical Center

## PROFFERED PAPERS 3: Sinonasal Neoplasms

Commodore A

MODERATORS: Ralph Abi Hachem, MD & Elizabeth Niccolli, MD

**028: DURAL INVASION PREDICTS NECK METASTASES IN ESTHESIONEUROBLASTOMA** - [John P Marinelli, BS<sup>1</sup>](#), Jeffrey R Janus, MD<sup>2</sup>, Jamie J van Gompel, MD<sup>3</sup>, Michael J Link, MD<sup>3</sup>, Eric J Moore, MD<sup>2</sup>, Kathryn M Van Abel, MD<sup>2</sup>, Brandon W Peck, MD<sup>2</sup>, Christine M Lohse, MS<sup>4</sup>, Daniel L Price, MD<sup>2</sup>; <sup>1</sup>Mayo Clinic School of Medicine, <sup>2</sup>Department of Otolaryngology-Head and Neck Surgery, Mayo Clinic, Rochester Minnesota, <sup>3</sup>Department of Neurosurgery, Mayo Clinic, Rochester MN, <sup>4</sup>Department of Biomedical Statistics and Informatics, Mayo Clinic, Rochester MN

**029: RARE MALIGNANCIES OF SINONASAL TRACT** - [Kaberi Kakati](#), Prathamesh Pai; Tata Memorial Hospital

**030: ADENOCARCINOMA OF THE SINONASAL TRACT: A REVIEW OF THE NATIONAL CANCER DATABASE** - [Edward C Kuan, MD, MBA](#), Ryan M Carey, Alan D Workman, Charles C Tong, Michael A Kohanski, James N Palmer, Nithin D Adappa, Jason G Newman, Jason A Brant; University of Pennsylvania

**031: THE EVOLVING ROLE OF IMMUNOTHERAPY IN LATE STAGE SINONASAL MELANOMA** - Perry T Mansfield, MD, FRCSC, [Kathryn M Liang](#), Hannah G Goldman; Senta Clinic

**032: EXPRESSION OF PROGRAMMED CELL DEATH-LIGAND 1 IN ESTHESIONEUROBLASTOMA** - [Nyall R London Jr, MD, PhD<sup>1</sup>](#), Justin Bishop, MD<sup>2</sup>, Lisa Rooper, MD<sup>1</sup>, Janis Taube, MD<sup>1</sup>, Masaru Ishii, MD, PhD<sup>1</sup>, Gary Gallia, MD, PhD<sup>1</sup>; <sup>1</sup>Johns Hopkins, <sup>2</sup>University of Texas - Southwestern

## 033: ADENOID CYSTIC CARCINOMA OF THE SINONASAL TRACT: A REVIEW OF THE NATIONAL CANCER

**DATABASE** – [Michael A Kohanski, MD, PhD](#), Edward C Kuan, MD, MBA, Ryan M Carey, MD, Alan D Workman, BA, Charles C Tong, MD, James N Palmer, MD, Nithin D Adappa, MD, Jason G Newman, MD, Jason A Brant, MD; University of Pennsylvania

**034: NON SURGICAL APPROACHES IN SINONASAL UNDIFFERENTIATED CARCINOMA** – [Moran Amit<sup>1</sup>](#), Ahmed Salama Abdelmeguid<sup>2</sup>, Teeramatwanich Watchareporn<sup>1</sup>, Shierly Su<sup>2</sup>, Michael E Kupferman<sup>1</sup>, Diana Roberts<sup>1</sup>, Shaan Raza<sup>2</sup>, Franco Demonte<sup>1</sup>, Ehab Hanna<sup>1</sup>; <sup>1</sup>MD Anderson, <sup>2</sup>MDA

## 035: INDUCTION CHEMOTHERAPY FOR CHEMOSELECTION IN ADVANCED SINONASAL MUCOSAL

**MELANOMA** – [Moran Amit](#), Ehab Hanna, Ahmed Salama Abdelmeguid, Shaan Raza, Diana Roberts, Franco Demonte, Michael Kupferman, Rodabe Amaria, Shierly Su; MDA

## 036: INTRAOPERATIVE ARTERY LIGATION REDUCES BLEEDING DURING JUVENILE NASOPHARYNGEAL

**ANGIOFIBROMA SURGERY: AN ALTERNATIVE TO PREOPERATIVE EMBOLIZATION** – M Tabai, MD, M H Sampaio, MD, PhD, A J Graciano, MSc, MD, J R Paschoal, MD, PhD, E Sakano, MD, PhD, [C T Chone, MD, PhD](#); Department of Otolaryngology - Faculty of Medical Sciences - University of Campinas

## 037: MENTAL HEALTH DISORDERS ASSOCIATED WITH SINONASAL AND SKULL BASE MALIGNANCIES: A LARGE

**COHORT STUDY** – [Ji Hyae Lee, AB<sup>1</sup>](#), Brad Zacharia, MD, MS<sup>2</sup>, Douglas Leslie, PhD<sup>1</sup>, Guodong Liu, PhD<sup>1</sup>, Djibril Ba, MPH<sup>1</sup>, Neerav Goyal, MD, MPH<sup>2</sup>; <sup>1</sup>Penn State College of Medicine, <sup>2</sup>Penn State Milton S. Hershey Medical Center

## 038: SINONASAL MELANOMA: A SINGLE INSTITUTION ANALYSIS AND FUTURE DIRECTIONS

– [Taylor Manton, MD](#), Brittny Tillman, MD, Jonathan McHugh, MD, Emily Bellile, MS, Erin McKean, MD, MBA, Scott McLean, MD, PhD; University of Michigan

## 039: ACTIVATION OF THE TGF BETA SIGNALING PATHWAY IN NON-RESPONDERS TO INDUCTION

**CHEMOTHERAPY IN SINONASAL UNDIFFERENTIATED CARCINOMA** – [Yoko Takahashi, PhD](#), Frederico O Gleber-Netto, MSc, DDS, PhD, Diana Bell, MD, Moran Amit, MD, PhD, Dianna Roberts, PhD, Curtis Pickering, Jeffrey N Myers, MD, PhD, Ehab Hanna, MD; The University of Texas MD Anderson Cancer Center

## 040: RADIOGRAPHIC PREDICTORS FOR MALIGNANT TRANSFORMATION OF INVERTED PAPILLOMA

– [Carol Yan, MD<sup>1</sup>](#), Mrudula Penta, MD<sup>1</sup>, Vishal S Patel, BS<sup>2</sup>, Zara M Patel, MD<sup>1</sup>; <sup>1</sup>Stanford University, <sup>2</sup>Weil Cornell School of Medicine

## 041: ROLE OF INDUCTION CHEMOTHERAPY IN ORBITAL PRESERVATION IN THE MANAGEMENT OF ADVANCED

**STAGED SINONASAL MALIGNANCIES: A SYSTEMATIC REVIEW** – [Tawfiq Khoury, MD](#), Kevin Choi, MD, Ralph Abi-Hachem, Greg Samsa, PhD, David Jang, MD, Ralph Abi-Hachem; Duke

## PROFFERED PAPERS 4: Anatomical Studies

*Sovereign*

MODERATORS: Seth Lieberman, MD & Gabriel Zada, MD

## 042: THE TRANSVERSE PROCESS OF THE ATLAS AS AN EXTENSION OF SKULL BASE ANATOMY AND

**SURGICAL FOCAL POINT** – [Jaafar Basma, MD<sup>1</sup>](#), Vincent N Nguyen, MD<sup>1</sup>, Hassan Saad, MD<sup>2</sup>, Madison Michael, MD<sup>3</sup>, Jon Robertson<sup>3</sup>, Jeffrey Sorenson<sup>3</sup>; <sup>1</sup>University of Tennessee Health Science Center, Memphis, Tennessee, <sup>2</sup>Arkansas Neuroscience Institute, CHI St. Vincent Infirmary, Little Rock, Arkansas, <sup>3</sup>Semmes-Murphey Clinic, Memphis, Tennessee

## 043: THE SUPERIOR HYPOPHYSEAL ARTERY FROM THE ENDOSCOPIC ENDONASAL PERSPECTIVE:

**ANATOMICAL VARIATIONS AND SURGICAL NUANCES FOR ITS MOBILIZATION AND PRESERVATION** – [Huy Q Truong, MD](#), Robert Zanabria, MD, Edinson Najera, MD, Emrah Celtikci, MD, Xicai Sun, MD, PhD, Hamid Borghei-Razavi, MD, Paul A Gardner, MD, Juan C Fernandez-Miranda, MD; UPMC Center for Cranial Base Surgery

## 044: A LINE THROUGH THE DIGASTRIC POINT AND POSTERIOR EDGE OF THE CONDYLE: AS A NEW

**SURFACE LANDMARK FOR FINDING THE HORIZONTAL PART OF THE SIGMOID SINUS IN SUBOCCIPITAL CRANIOTOMIES** – [Satoshi Matsuo, PhD<sup>1</sup>](#), Noritaka Komune, PhD<sup>2</sup>, Ryota Kurogi<sup>3</sup>, Yojiro Akagi<sup>3</sup>, Koji Iihara, PhD<sup>3</sup>; <sup>1</sup>Department of Neurosurgery, National Hospital Organization, Kyushu Medical Center, <sup>2</sup>Department of Otorhinolaryngology, Graduate School of Medical Sciences, Kyushu University, <sup>3</sup>Department of Neurosurgery, Graduate School of Medical Sciences, Kyushu University

## 045: LATERAL TRANSORBITAL VS ENDONASAL TRANSPTERYGOID APPROACH TO THE LATERAL RECESS OF

**THE SPHENOID SINUS – A COMPARATIVE ANATOMICAL STUDY** – [Joao Tiago A Belo, MD<sup>1</sup>](#), Huy Q Truong, MD<sup>1</sup>, Joao Paulo Mangussi-Gomes, MD<sup>1</sup>, Eric W Wang, MD<sup>2</sup>, Juan C Fernandez-Miranda, MD<sup>3</sup>; <sup>1</sup>Surgical Neuroanatomy Lab, UPMC Center for Cranial Base Surgery, <sup>2</sup>Department of Otolaryngology, University of Pittsburgh School of Medicine, <sup>3</sup>Department of Neurological Surgery, University of Pittsburgh School of Medicine

## 047: THINNING OR DEHISCENCE OF BONE IN STRUCTURES OF THE MIDDLE CRANIAL FOSSA FLOOR

**IN SUPERIOR SEMICIRCULAR CANAL DEHISCENCE** – [John J Arsenault<sup>1</sup>](#), Tyler K Miao<sup>2</sup>, Regan Ferraro, MD<sup>3</sup>, Noriko Salamon, MD<sup>4</sup>, Issac Yang, MD<sup>5</sup>, Quinton Gopen, MD<sup>6</sup>; <sup>1</sup>The Warren Alpert Medical School of Brown University, <sup>2</sup>University of California, Los Angeles, <sup>3</sup>Department of Radiology, University of California, Los Angeles, <sup>4</sup>Department of Radiology, UCLA David Geffen School of Medicine, <sup>5</sup>Department of Neurosurgery, University of California, Los Angeles, <sup>6</sup>Department of Head and Neck Surgery, University of California, Los Angeles

**048: PROXIMAL BRANCHES OF THE ANTERIOR CEREBRAL ARTERY: ANATOMICAL STUDY AND APPLICATIONS TO ENDOSCOPIC ENDONASAL SURGERY** – Edinson Najera, MD<sup>1</sup>, Ana Carolina Igami Nakassa, MD<sup>1</sup>, Salomon Cohen, MD<sup>1</sup>, Huy Quang Truong, MD<sup>1</sup>, Hamid Borghei-Razavi, MD, PhD<sup>1</sup>, Paul A Gardner, MD<sup>2</sup>, Juan C Fernandez-Miranda, MD<sup>2</sup>; <sup>1</sup>Surgical Neuroanatomy Lab, UPMC Center for Cranial Base Surgery, <sup>2</sup>Department of Neurological Surgery, University of Pittsburgh School of Medicine

**049: THE MEDIAL WALL OF THE CAVERNOUS SINUS: SURGICAL ANATOMY, LIGAMENTS, AND SURGICAL APPLICATION** – Huy Q Truong, MD<sup>1</sup>, Edinson Najera, MD<sup>1</sup>, Joao Tiago A Belo, MD<sup>1</sup>, Eric W Wang, MD<sup>2</sup>, Carl H Snyderman, MD, MBA<sup>2</sup>, Paul A Gardner, MD<sup>3</sup>, Juan C Fernandez-Miranda, MD<sup>3</sup>; <sup>1</sup>Surgical Neuroanatomy Lab, UPMC Center for Cranial Base Surgery, <sup>2</sup>Department of Otolaryngology, University of Pittsburgh School of Medicine, <sup>3</sup>Department of Neurological Surgery, University of Pittsburgh School of Medicine

**050: SURGICAL MANAGEMENT OF GENICULATE NEURALGIA, CLINICAL SERIES AND ANATOMICAL STUDY** – Maria Peris-Celda, MD, PhD, Soliman Oushy, MD, Avital Perry, MD, Christopher S Graffeo, Lucas P Carlstrom, MD, PhD, Michael J Link, MD; Mayo Clinic, Rochester, MN

**051: TRANSMAXILLARY ENDOSCOPIC APPROACH TO THE LATERAL RECESS OF THE SPHENOID SINUS – AN ANATOMICAL STUDY** – Joao Mangussi-Gomes, MD<sup>1</sup>, Huy Q Truong, MD<sup>1</sup>, Joao Tiago A Belo, MD<sup>1</sup>, Paul A Gardner, MD<sup>2</sup>, Eric W Wang, MD<sup>3</sup>, Juan C Fernandez-Miranda, MD<sup>2</sup>, Carl H Snyderman, MD, MBA<sup>3</sup>; <sup>1</sup>Surgical Neuroanatomy Lab, UPMC Center for Cranial Base Surgery, <sup>2</sup>Department of Neurological Surgery, <sup>3</sup>Department of Otolaryngology, University of Pittsburgh School of Medicine

**052: DEVELOPING SEE-THROUGH VISION FOR MIDDLE FOSSA SURGERY, A SURGICAL ANATOMY STUDY** – Maria Peris-Celda, MD, PhD<sup>1</sup>, Avital Perry, MD<sup>1</sup>, Lucas P Carlstrom, MD, PhD<sup>1</sup>, Christopher S Graffeo, MD<sup>1</sup>, Colin L Driscoll, MD<sup>2</sup>, Michael J Link, MD<sup>1</sup>; <sup>1</sup>Department of Neurosurgery Mayo Clinic, Rochester, MN, <sup>2</sup>Department of Otolaryngology Mayo Clinic, Rochester, MN

**053: THE DURAL ARCHITECTURE OF THE CAVERNOUS SINUS' ANTERIOR ROOF AND CLINOID SPACE. MICROSURGICAL ANATOMY AND TECHNICAL NUANCES FOR INTRACAVERNOUS AND PERISELLAR ENDOSCOPIC SURGERY** – Stefan Lieber, MD<sup>1</sup>, Wei-Hsin Wang, MD<sup>1</sup>, Maximiliano Nunez, MD<sup>1</sup>, Eric W Wang, MD<sup>2</sup>, Carl H Snyderman, MD, MBA<sup>2</sup>, Paul A Gardner, MD<sup>1</sup>, Juan C Fernandez-Miranda, MD<sup>1</sup>; <sup>1</sup>Department of Neurological Surgery, University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania, United States, <sup>2</sup>Department of Otolaryngology, University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania, United States

**054: THREE DIFFERENT ROUTES TO REACH TO THE MECKEL'S CAVE REGION: AN ANATOMICAL STUDY** – Alejandro Monroy-Sosa, MD, Srikant Chakravarthi, MD, MSc, Lior Gonen, MD, Melanie Fukui, MD, Jonathan Jennings, MD, Richard Rovin, MD, Amin Kassam, MD; Aurora Neuroscience Innovation Institute

**055: PICTORIAL REVIEW OF THE MICROVASCULATURE ARISING FROM THE CAVERNOUS SEGMENT OF THE ICA (C4), AND THE VENOUS CONNECTIONS OF THE CAVERNOUS SINUS** – Stefan Lieber, MD<sup>1</sup>, Maximiliano Nunez, MD<sup>1</sup>, Wei-Hsin Wang, MD<sup>1</sup>, Cristian Ferrareze Nunes, MD<sup>1</sup>, Eric W Wang, MD<sup>2</sup>, Carl H Snyderman, MD, MBA<sup>2</sup>, Paul A Gardner, MD<sup>1</sup>, Juan C Fernandez-Miranda, MD<sup>1</sup>; <sup>1</sup>Department of Neurological Surgery, University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania, United States, <sup>2</sup>Department of Otolaryngology, University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania, United States

## PROFFERED PAPERS 5: Innovative Techniques

Britannia

MODERATORS: Suha Beton, MD & Patrick Codd, MD

**056: 7T STRUCTURAL, VASCULAR, AND DIFFUSION IMAGING OF TRIGEMINAL NEURALGIA: PRELIMINARY RESULTS IN PATIENTS** – Judy Alper<sup>1</sup>, Rafael O'Halloran<sup>2</sup>, Josh Bederson<sup>3</sup>, Bradley Delman<sup>4</sup>, Raj Shrivastava<sup>3</sup>, Priti Balchandani<sup>5</sup>; <sup>1</sup>Radiology, Translational and Molecular Imaging Institute; Biomedical Engineering, City University of New York, <sup>2</sup>Radiology, Mount Sinai Medical Center, Icahn School of Medicine at Mount Sinai, <sup>3</sup>Neurosurgery and Otolaryngology, Mount Sinai Medical Center, <sup>4</sup>Neuroradiology, Mount Sinai Medical Center, <sup>5</sup>Radiology, Translational and Molecular Imaging Institute

**058: CEREBROVASCULAR PATHOLOGY TREATED VIA THE OCULOMOTOR-TENTORIAL TRIANGLE** – Justin Mascitelli, Sirin Gandhi, Michael Lawton; BNI

**059: SKULL BASE 3D MODELING AND RAPID PROTOTYPING OF RIGID BUTTRESS FOR GASKET-SEAL CLOSURE USING OPERATIVE ENDOSCOPIC IMAGING: CADAVERIC FEASIBILITY** – James Shin, MD, MSc<sup>1</sup>, Jonathan Forbes, MD<sup>2</sup>, Kurt Lehner, BS<sup>3</sup>, Hilarie Tomasiewicz, MD<sup>2</sup>, Theodore Schwartz, MD<sup>1</sup>, C. Douglas Phillips, MD, FACR<sup>1</sup>; <sup>1</sup>Weill Cornell Medicine, <sup>2</sup>NewYork-Presbyterian/Weill Cornell Medical Center, <sup>3</sup>Hofstra-Northwell Health School of Medicine

## **060: PRIMARY DURAL REPAIR AFTER ENDOSCOPIC ENDONASAL APPROACHES TO THE CRIBRIFORM USING NONPENETRATING TITANIUM CLIPS: INITIAL EXPERIENCE AND SURGICAL TECHNIQUE** – [Chad A Glenn, MD](#)<sup>1</sup>,

Thomas Ostergard, MD<sup>1</sup>, Robert G Briggs, BS<sup>2</sup>, Simone E Dekker, MD, PhD<sup>1</sup>, Kibwei A McKinney, MD<sup>3</sup>, Kenneth Rodriguez, MD<sup>4</sup>, Nicholas C Bambakidis, MD<sup>1</sup>, Cordell M Baker, BA<sup>2</sup>, Andrew K Conner, MD<sup>2</sup>, Michael E Sughrue, MD<sup>2</sup>; <sup>1</sup>Department of Neurosurgery, Case Western Reserve University, <sup>2</sup>Department of Neurosurgery, University of Oklahoma Health Sciences Center, <sup>3</sup>Department of Otolaryngology, University of Oklahoma Health Sciences Center, <sup>4</sup>Department of Otolaryngology, Case Western Reserve University

## **061: A DIRECT COMPARISON OF NEAR-INFRARED IMAGING CAMERA SYSTEMS FOR DETECTING**

**INTRACRANIAL TUMORS** – Steve S Cho, BS<sup>1</sup>, Love Buch, BS<sup>2</sup>, Shayoni Nag, BS<sup>2</sup>, Brendan McShane, BS<sup>2</sup>, Jun Jeon, BS<sup>1</sup>, Sophie Su, MD<sup>2</sup>, Sunil Singhal, MD<sup>3</sup>, [John Y Lee, MD, MSCE](#)<sup>2</sup>; <sup>1</sup>Perelman School of Medicine at the University of Pennsylvania, <sup>2</sup>Department of Neurosurgery at the Hospital of the University of Pennsylvania, <sup>3</sup>Department of Surgery at the Hospital of the University of Pennsylvania

**062: ERGONOMICS OF 3-D EXOSCOPE FOR LATERAL TEMPORAL BONE RESECTION** – [Ryan Belcher, MD](#), Arturo Solares, MD; Emory University School of Medicine, Department of Otolaryngology - Head and Neck Surgery

**063: IDEAL TRAJECTORY PLANNING FOR COMBINED ENDOSCOPIC THIRD VENTRICULOSTOMY AND PINEAL REGION BIOPSY: A VOLUMETRIC ANALYSIS OF BRAIN AT RISK** – [Brandon D Liebelt, MD](#), Fangxiang Chen, Antonio Biroli, Peter Nakaji, MD; Barrow Neurological Institute

**057: FULLY ENDOSCOPIC MVD APPROACH FOR HEMIFACIAL SPASM** – Tracy S Ma, MD, Sanford Roberts, Brendan McShane, Dmitriy Petrov, MD, [John Y Lee, MD](#); University of Pennsylvania

**064: THE SUPRACEREBELLAR TRANSTENTORIAL APPROACH FOR TREATMENT OF VASCULAR LESIONS OF THE MEDIAL TEMPORO-OCCIPITAL REGION** – Georgios Klironomos, Shamik Chakraborty, David Chalif, Avi Setton, Amir Dehdashti; Department of Neurosurgery, Hofstra North Shore-Long Island Jewish School of Medicine, and North Shore-Long Island Jewish Health System, Manhasset, New York.

**065: META-ANALYSIS OF TREATMENT OUTCOMES OF NON-SACCCULAR ANEURYSMS IN THE POSTERIOR CIRCULATION BY FLOW DIVERTERS** – [Satoshi Kiyofuji, MD](#)<sup>1</sup>, Christopher S Graffeo, MD<sup>2</sup>, Avital Perry, MD<sup>2</sup>, Hassan M Murad, MD<sup>2</sup>, Kelly D Flemming, MD<sup>2</sup>, Giuseppe Lanzino, MD<sup>2</sup>, Leonardo Rangel-Castilla, MD<sup>3</sup>, Waleed Brinjikji, MD<sup>2</sup>; <sup>1</sup>Tokyo Metropolitan Police Hospital, <sup>2</sup>Mayo Clinic, <sup>3</sup>Wayne State University

**066: SURGICAL NAVIGATION AND MIRROR IMAGE OVERLAY: A NOVEL APPROACH FOR ORBITAL RECONSTRUCTION AFTER SKULL BASE TUMOR RESECTION** – [Sarah R Akkina, MD, MS](#), Randall A Bly, MD, Kris S Moe, MD; University of Washington Department of Otolaryngology - Head and Neck Surgery

**067: TRANS-GLABELLAR APPROACH FOR ANTERIOR SKULL BASE AND SINUNASAL TUMORS** – Raúl A Hernández-Estrada, MD, Ramsés U Ortiz-Leyva, MD, [Gervith Reyes-Soto, MD](#), Bernardo Cacho-Díaz, MD, Martin Granados-García, MD; National Cancer Institute Mexico

**068: CONTRALATERAL TRANSMAXILLARY CORRIDOR: SURGICAL PLANNING AND PATHWAY ANALYTICS** – [Rajeev Sen, MD](#)<sup>1</sup>, Rajeev C. Saxena, MD, MBA<sup>1</sup>, Nava Aghdasi, PhD<sup>1</sup>, Yangming Li, PhD<sup>1</sup>, Randall Bly, MD<sup>1</sup>, Paul Gardner, MD<sup>2</sup>, Carl Snyderman, MD<sup>2</sup>, Kris S Moe, MD<sup>1</sup>; <sup>1</sup>Univ. of Washington, <sup>2</sup>Univ. of Pittsburgh

**069: COMPARISON OF TRANSBASAL, ENDOSCOPIC ENDONASAL, AND COMBINED APPROACHES FOR OLFACTORY GROOVE MENINGIOMAS: A SINGLE SURGEON S EXPERIENCE** – [Nicole A Silva, BS](#), Ilesha A Sevak, BA, Jean Anderson Eloy, MD, FACS, James K Liu, MD, FACS, FAANS; Rutgers New Jersey Medical School

## **PROFFERED PAPERS 6: Craniopharyngiomas**

*Cambria*

(only one hour, 4:15 pm – 5:15 pm)

MODERATORS: Garni Barkhoudarian, MD & David Jang, MD

**071: HEMORRHAGIC RATHKE'S CLEFT CYST: CLINICAL PRESENTATION AND TRANSSPHENOIDAL SURGICAL OUTCOMES IN A SERIES OF 6 PATIENTS** – [Lauren K Schooner, BS](#), Phillip A Bonney, MD, Michelle A Wedemeyer, MD, PhD, Michelle Lin, MD, Martin H Weiss, MD, John D Carmichael, MD, Gabriel Zada; Keck School of Medicine, University of Southern California

**072: SURGICAL MANAGEMENT OF RECURRENT RATHKE'S CLEFT CYSTS** – [Michelle A Wedemeyer, MD, PhD](#), Michelle Lin, BA, Vance L Fredrickson, MD, Anush Arakelyan, MPH, Daniel Bradley, MD, Daniel A Donoho, MD, Martin H Weiss, MD, John D Carmichael, MD, Gabriel Zada, MD; University of Southern California

**073: A CONSIDERATION OF POTENTIAL MODIFICATIONS IN CURRENT GRADING SCALES OF CRANIOPHARYNGIOMA IN CHILDREN** – [Reid Hoshida](#), Robert Rennert, Mark Calayag, Michael Levy; UC-San Diego

**074: CRANIOPHARYNGIOMA: AN 18-YEAR EXPERIENCE** – [Sheri K Palejwala, MD](#), Andrew Conger, MD, Amy Eisenberg, ARNP, Chester Griffiths, MD, Pejman Cohan, MD, Sarah Rettinger, MD, Robert Wollman, MD, Howard Krauss, MD, Garni Barkhoudarian, MD, Daniel F Kelly, MD; Pacific Neuroscience Institute

4:15 pm – 5:15 pm

**RHOTON ROOM**

Constellation AB

**RHOTON ANATOMY: 3D Anatomy of Far Lateral, Extreme Lateral, and Transcondylar Approach, Lower Cranial Nerve Trajectory, Jugular Foramen, Neck Dissection**

SPEAKER: Jeffrey Sorenson, MD

**RADIOLOGY**

SPEAKER: Tanya Rath, MD

**DUELING DISSECTIONS: Lateral/Jugular Foramen, Extreme Lateral and Neck Dissection of IJV and Lower Cranial Nerves**

MODERATORS: Siviero Agazzi, MD, MBA, FACS & Dennis Kraus, MD

PARTICIPANTS: Daniel Nuss, MD, FACS/Chandranath Sen, MD & Ehab Hanna, MD/Amir Dehdashti, MD

5:15 pm – 6:00 pm

**JNLS-B Skull Base: Operative Video Meeting** (Invite only)

Avalon

6:15 pm – 7:45 pm

**Welcome Reception & Poster Reception**

Exhibit Pavillion

7:30 pm – 10:00 pm

**Past President's Dinner** (Invite Only)

Sunset Terrace

7:30 pm - 10:00 pm

**Brain Lab Symposium**

Commodore A

## SATURDAY, FEBRUARY 17, 2018

6:30 am – 6:00 pm	<b>Registration</b>	<i>Constellation Foyer, 2<sup>nd</sup> Floor</i>
7:00 am – 7:30 am	<b>Breakfast</b>	<i>Commodore Foyer, 1<sup>st</sup> Floor &amp; Constellation Foyer, 2<sup>nd</sup> Floor</i>
7:30 am – 8:30 am	<b>MAIN TOPIC SESSIONS</b>	

### MAIN TOPIC 5: Complex Cranio-Orbito-Facial Defects: Reconstruction Challenges

*Commodore CDE*

MODERATORS: Jason Leibowitz & Benjamin Erickson

SPEAKERS: Jason Toronto, MD; Peter Costantino, MD; Joseph Curry, MD; Ralph Gilbert, MD; Chrisfouad Alabiad, MD; Peter Neligan, MD

- Mandibular Reconstruction with 3D Printing – *Jason Toronto, MD*
- Reconstruction Following Endoscopic Nasopharyngectomy – *Peter Costantino, MD*
- Free flaps for skull base reconstruction – *Joseph Curry, MD*
- Orbito Maxillary Reconstruction Following Skull Base Surgery – *Ralph Gilbert, MD*
- Reconstructing the Orbital Roof After Cranio-Orbital Tumor Resection – *Chrisfouad Alabiad, MD*
- Facial Re-Animation Following Skull Base Surgery – *Peter Neligan, MD*

This session will explore techniques for addressing a variety of reconstructive challenges engendered by complex cranio-orbital-facial defects resulting from skull base surgery. The panel includes perspectives from head & neck, craniofacial plastic and oculoplastic surgeons.

At the conclusion of this session, participants will be able to:

1. Articulate advanced approaches to orbital, maxillary and mandibular reconstruction in the setting of complex craniofacial defects.
2. Implement optimal strategies for facial reanimation following skull base surgery.
3. Evaluate reconstructive techniques following endoscopic nasopharyngectomy.

### MAIN TOPIC 6: Chordomas: Have We Improved the Care in the Past Decades?

*Commodore B*

MODERATORS: Gustavo Pradilla & Pietro Mortini

SPEAKERS: Luis Borba, MD, PhD, IFAANS; Fred Gentili, MD, MSc, FRCSC, FACS; Osama Al-Mefty, MD; Ian Dunn, MD; Chandranath Sen, MD

- Surgical Strategies in The Management of Skull Base Chordomas – *Luis Borba, MD, PhD, IFAANS*
- Have Endoscopic Techniques Made a Difference in Patient Outcomes in Chordomas? – *Fred Gentili, MD, MSc, FRCSC, FACS*
- Chordomas: Have We Improved the Care in the Past Decades? – *Ossama Al-Mefty, MD*
- Genomics/Genetics of Skull Base Chordomas – *Ian Dunn, MD*
- Impact of the Chordoma Foundation – *Chandranath Sen, MD*

This session will provide an updated perspective on surgical treatment options for skull base chordomas, contrast open and endoscopic approaches, discuss evolutions in adjuvant therapies, and review the impact of research and patient support organizations in the development of new therapies for this challenging condition.

At the conclusion of this session, participants will be able to:

1. Integrate open and endoscopic options for surgical treatment of skull base chordomas.
2. Formulate patient-specific treatment goals considering the efficacy of currently available adjuvant therapies.
3. Support the mission of patient advocacy groups as non-governmental sources of research.

## MAIN TOPIC 7: Hidden Role of Neuroendovascular Interventions in Skull Base Surgery from Indications to Management Complications

Commodore A

MODERATOR: Ketan Bulsara, MD

SPEAKERS: Alexander Khalessi, MD; Henry Woo, MD; Ali Alaraj, MD; Babu Welch, MD; Brian Jankowitz, MD; B. Gregory Thompson, MD; Ali Sultan, MD

- Introduction – *Ketan Bulsara, MD & Mohamed Elhammady, MD*
- Indications for Skull Base Surgery Planning – *Alexander Khalessi, MD*
- Preoperative Embolization (Non Liquid Embolics) – *Henry Woo, MD*
- Embolization with Liquid Embolic Agents – *Ali Alaraj, MD*
- Indication to Avoid Endovascular Treatment as Adjunct for Skull Base Surgery – *Ali Sultan, MD*
- Adjunct for Proximal Control – *B. Gregory Thompson, MD*
- Complication Management Non Endoscopic – *Babu Welch, MD*
- Complication Management Endoscopic Injury – *Brian Jankowitz, MD*

All health care providers treating skull base pathologies would benefit from this session.

At the conclusion of this session, participants will be able to:

1. Identify available preoperative endovascular techniques for skull base pathologies.
2. Understand the role of endovascular techniques in complication management.
3. Understand the limitations of endovascular techniques for skull base pathologies.

## MAIN TOPIC 8: Genomics, Molecular Biology, and Targeted Therapy for Skull Base Lesions

Sovereign

MODERATORS: Mario Ammirati, MD, MBA & Gelareh Zadeh, MD, PhD, FRCS( c)

SPEAKERS: Cem Meco, MD; Yoko Takahashi, MD; Akash Patel, MD; Manjari Pandey, MD; Lola Chambless, MD

- Modern Immunological Markers for CSF Leak Detection: Guidelines and Pitfalls for Reliable Clinical Use – *Cem Meco, MD*
- Sino-Nasal Cancer: Genetic Alterations and its Prognostic/Therapeutic Implications – *Yoko Takahashi, MD*
- Genomics of Meningiomas and Biological Behavior. Is it Possible to Predict Which Meningioma is at High Risk for Recurrence/Progression? – *Akash Patel, MD*
- Targeted Chemotherapeutic Options for Atypical and Anaplastic Meningiomas – *Manjari Pandey, MD*
- Targeted Therapy for Craniopharyngiomas – *Lola Chambless, MD*

This session will discuss the current status of targeted therapy for skull base lesions based on genomics and molecular biology. In addition, one presenter will discuss “Modern Immunological Markers for CSF Leak Detection: Guidelines and Pitfalls for Reliable Clinical Use,” a relevant topic in the era of endoscopic skull base surgery with its heightened potential for CSF leak. Neurosurgeons, ENT surgeons and Neuro-oncologists should, among others, should attend.

At the conclusion of this session, participants will be able to:

1. Outline novel molecular discoveries in skull base tumors.
2. Have an understanding of available targeted therapies and clinical trials advancing care of skull base patients.
3. Identify how to contribute to active ongoing research in this area.

7:30 am – 9:35 am **RHOTON ROOM**

Constellation AB

## RHOTON ANATOMY: 3D Anatomy of Clinoid region, Cavernous Sinus and Anterior Petrous Bone, IAC

SPEAKER: Juan Fernandez-Miranda, MD

### RADIOLOGY

SPEAKER: Amy Lin, MD

## DUELING DISSECTIONS: Septal Flap, Endoscopic Corridor, Sphenoidotomy, Sella Drill Out, Transplanum Exposure, Intrasellar Anatomy

MODERATOR: Marc Rosen, MD

PARTICIPANTS: Gabriel Zada, MD/Bozena Wrobel, MD & Jean Anderson Eloy, MD/James Liu, MD

8:35 am – 9:35 am **EXPERT DEBATE SESSIONS**

## **EXPERT DEBATE 5: Head and Neck Malignancies with Skull Base Involvement: Controversies in Management** *Commodore CDE*

MODERATORS: Ivan El-Sayed, MD & Seo Moon, MD

SPEAKERS: Ben Panizza, MD; John de Almeida, MD, MSc, FRCSC; Zoukaa Sargi, MD; Michael McDermott, MD; Christopher Rassekh, MD; Peter Costantino, MD

The rare nature of skull base malignancy and different capabilities of managing institutions limits data acquisition of optimal treatment strategies. A panel of experts will debate evolving modern treatment strategies in a series of challenging cases.

At the conclusion of this session, participants will be able to:

1. Recognize and prioritize importance of histopathology and genetic markers in formulation of treatment plan.
2. Identify indications and limitations of endoscopic and open surgical approaches.
3. Appraise evolving role of chemotherapy and radiation in management of skull base malignancy.

## **EXPERT DEBATE 6: Craniopharyngiomas: From Molecular to Surgical Advances** *Commodore B*

MODERATORS: Marvin Bergsneider, MD & David Jang, MD

SPEAKERS: Sacit Omay, MD; James Evans, MD; Kenji Ohata, MD, PhD; Apio Atunes, MD, PhD; Samuel Barnett, MD

Craniopharyngioma cases will be presented to a panel of experts, consisting of neurosurgeons and otolaryngologists. There will be an emphasis on controversies and recent advances in the management of craniopharyngiomas.

At the conclusion of this session, participants will be able to:

1. Compare the various surgical approaches to craniopharyngiomas.
2. Identify non-surgical treatment options for craniopharyngiomas.
3. Implement a multidisciplinary treatment plan for patients with complex craniopharyngiomas.

## **EXPERT DEBATE 7: Management of Bad Complications in Skull Base Surgery: How Could it Have Been Avoided?** *Commodore A*

MODERATORS: Corinna Levine, MD, MPH & William Couldwell, MD, PhD

SPEAKERS: Corinna Levine, MD, MPH; Ralph Abi Hachem, MD; Mustafa Baskaya, MD; William Couldwell, MD, PhD; Peter Nakaji, MD; Marc Tewfik, MDCM, MSc, FRCSC; Daniel Barrow, MD

This session reviews some of the common and less common complications in skull base surgery. Specifically, the cases will focus on pre-operative, intra-operative, and post-operative care that will help to minimize or avoid these complications.

At the conclusion of this session, participants will be able to:

1. Recognize preoperative issues that can lead to intra-or postoperative problems.
2. Manage intraoperative complications such as bleeding or tumor involvement of cranial nerves and vessels.
3. Employ postoperative strategies to limit complications such as vascular problems or CSF leak.

## **EXPERT DEBATE 8: Update on Management of Paragangliomas, When is Surgery Indicated?** *Sovereign*

MODERATOR: Daniel Nuss, MD, FACS

SPEAKERS: Rita Bhatia, MD; Sandeep Samant, MD; Simon Angeli, MD; Luis Borba, MD, PhD, IFAANS; Paul Camarata, MD

- Imaging of Paragangliomas – *Rita Bhatia, MD*
- Recent Changes in the Paradigm for Treatment of Paraganglioma Patients – *Sandeep Samant, MD*
- Clinical Decision-making for Best Outcomes in Paraganglioma Patients – *Simon Angeli, MD*
- Neurosurgical Indications for Surgical Paragangliomas – *Luis Borba, MD, PhD, IFAANS*
- Technical Considerations to Reduce Morbidity in Paraganglioma Surgery – *Paul Camarata, MD*

Historically, management of skull base paragangliomas was heavily weighted toward surgical resection, but recent trends have shifted toward more conservative management, symptom control, and radiation, with surgery reserved for selected cases. This session, with representation from experts in Radiology, Otolaryngology and Neurosurgery, will explore the issues of proper patient selection and a focus on optimal decision-making for patients with paragangliomas.

At the conclusion of this session, participants will be able to:

1. Distinguish between those paraganglioma patients who must have surgery from those who may do just as well or better with nonsurgical therapy.
2. Prioritize clinical and radiographical findings that help stratify patients toward or away from surgical therapy.
3. Organize surgical and perioperative strategies that reduce morbidity in paraganglioma patients who do undergo surgical treatment.

9:35 am – 10:15 am **Morning Break in Exhibit Hall**

*Exhibit Pavilion*

10:15 am – 12:15 pm **GENERAL SESSION**

*Commodore CDE*

10:15 am – 10:50 am **THREE-MINUTE THESIS**

MODERATOR: Ian Witterick, MD, MSc, FRCSC

The Three Minute Thesis competition will highlight ten of the top rated abstracts submitted to this year's NASBS meeting. The presenters will also be giving a presentation in one of the proffered paper sessions.

Each presenter will have a maximum of three minutes with one slide, and no props, sound, video, animation, costumes, poems or songs are permitted. Presentations will be judged by members of the NASBS Research Committee based on comprehension, content, engagement and communication. First, second and third prizes will be awarded.

**T001: USE OF INTRAOPERATIVE INDOCYANINE GREEN ENDOSCOPY IN ASSESSMENT OF VASCULARITY OF INTRANASAL FLAPS**

– [Ana Carolina Igami Nakassa, MD<sup>1</sup>](#), Mathew N Geltzeiler, MD<sup>2</sup>, Benita Valappil, MPH<sup>1</sup>, Yue-Fang Chang, PhD<sup>3</sup>, Georgios A Zenonos, MD<sup>3</sup>, Eric W Wang, MD<sup>2</sup>, Juan C Fernandez-Miranda, MD<sup>3</sup>, Carl H Snyderman, MD, MBA<sup>2</sup>, Paul A Gardner, MD<sup>3</sup>; <sup>1</sup>UPMC Center for Cranial Base Surgery, <sup>2</sup>Department of Otolaryngology, University of Pittsburgh School of Medicine, <sup>3</sup>Department of Neurological Surgery, University of Pittsburgh School of Medicine

**T002: LONG TERM OUTCOMES OF MANAGEMENT OF OLFACTORY NEUROBLASTOMA: MD ANDERSON EXPERIENCE**

– [Ahmed S Abdelmeguid, MD, PhD<sup>1</sup>](#), Watchareporn Teeramatwanich, MD<sup>1</sup>, Dianna Roberts, PhD<sup>1</sup>, Michael E Kupferman, MD<sup>1</sup>, Shirley Y Su, MD<sup>1</sup>, Shaan M Raza, MD<sup>2</sup>, Franco DeMonte<sup>2</sup>, Ehab Y Hanna, MD<sup>1</sup>; <sup>1</sup>Department of Head and Neck Surgery, The University of Texas MD Anderson Cancer Center, <sup>2</sup>Department of Neurosurgery, The University of Texas MD Anderson Cancer center

**T003: ADENOCARCINOMA OF THE SINONASAL TRACT: A REVIEW OF THE NATIONAL CANCER**

**DATABASE** – [Edward C Kuan, MD, MBA](#), Ryan M Carey, Alan D Workman, Charles C Tong, Michael A Kohanski, James N Palmer, Nithin D Adappa, Jason G Newman, Jason A Brant; University of Pennsylvania

**T004: DURAL INVASION PREDICTS NECK METASTASES IN ESTHESIONEUROBLASTOMA**

– [John P Marinelli, BS<sup>1</sup>](#), Jeffrey R Janus, MD<sup>2</sup>, Jamie J van Gompel, MD<sup>3</sup>, Michael J Link, MD<sup>3</sup>, Eric J Moore, MD<sup>2</sup>, Kathryn M Van Abel, MD<sup>2</sup>, Brandon W Peck, MD<sup>2</sup>, Christine M Lohse, MS<sup>4</sup>, Daniel L Price, MD<sup>2</sup>; <sup>1</sup>Mayo Clinic School of Medicine, <sup>2</sup>Department of Otolaryngology-Head and Neck Surgery, Mayo Clinic, Rochester Minnesota, <sup>3</sup>Department of Neurosurgery, Mayo Clinic, Rochester MN, <sup>4</sup>Department of Biomedical Statistics and Informatics, Mayo Clinic, Rochester MN

**T005: TUMOR-ASSOCIATED MACROPHAGE EXPRESSION OF PD-L1 IS ASSOCIATED WITH RECURRENCE**

**AFTER SUBTOTAL RESECTION OF VESTIBULAR SCHWANNOMA** – [Avital Perry](#), Lucas P Carlstrom, Christopher S Graffeo, Aditya Raghunathan, Mark E Jentoft, Colin L Driscoll, Brian A Neff, Matthew L Carlson, Maria Peris Celda, Jamie J van Gompel, Michael J Link; Mayo Clinic

**T006: A SINGLE INSTITUTION REVIEW OF 84 WHO II MENINGIOMAS, 38 LOCATED IN THE SKULLBASE,**

**CONTINUES TO SUPPORT SURGERY AS THE PRIMARY TREATMENT MODALITY** – [Philip D Tatman, BS](#), Joshua W Osburn, MD, Owais Ahmad, MD, Tina Busald, Carolina Parada, PhD, Luis Gonzalez-Cuyar, MD, Donald Born, MD, PhD, Manuel Ferreira, MD, PhD; University of Washington

**T007: A PROSPECTIVE OUTCOMES STUDY OF PROTON THERAPY FOR SKULL-BASE CHONDROSARCOMAS**

– Adam L Holtzman, MD, [Ronny L Rotondo, MD, CM, FRCPC](#), Michael S Rutenberg, MD, PhD, Daniel J Indelicato, MD, Christopher G Morris, MS, William M Mendenhall, MD; University of Florida College of Medicine

**T008: SELECTIVE SURGICAL RESECTION OF THE MEDIAL WALL OF THE CAVERNOUS SINUS FOR INVASIVE PITUITARY ADENOMAS: SURGICAL TECHNIQUE AND OUTCOMES IN 49 PATIENTS**

– [Salomon Cohen Cohen, MD<sup>1</sup>](#), Edinson Najera MD<sup>1</sup>, Ana Carolina Igami Nakassa MD<sup>1</sup>, Huy Q Truong MD<sup>1</sup>, Nathan T Zwagerman MD<sup>2</sup>, Carl Snyderman MD<sup>3</sup>, Eric Wang MD<sup>3</sup>, Paul Gardner MD<sup>4</sup>, Juan C Fernandez-Miranda MD<sup>2</sup>; <sup>1</sup>Surgical Neuroanatomy Lab, UPMC Center for Cranial Base Surgery, <sup>2</sup>Department of Neurological Surgery, University of Pittsburgh School of Medicine, <sup>3</sup>Departments of Otolaryngology and Center for Cranial Base Surgery, University of Pittsburgh Medical Center, <sup>4</sup>Departments of Neurological Surgery and Center for Cranial Base Surgery, University of Pittsburgh Medical Center

**T009: LONG TERM HEARING OUTCOMES FOLLOWING STEREOTACTIC RADIOSURGERY IN PATIENTS WITH VESTIBULAR SCHWANNOMAS**

– Peter L Santa Maria, MD, PhD<sup>1</sup>, [Yangyang Shi, BS<sup>1</sup>](#), Richard K Gurgel, MD<sup>2</sup>, Carleton E Corrales, MD<sup>3</sup>, Scott G Soltys, MD<sup>4</sup>, Chloe Santa Maria<sup>1</sup>, Steven D Chang<sup>5</sup>, Nikolas H Blevins<sup>1</sup>, Iris C Gibbs<sup>4</sup>, Robert K Jackler<sup>1</sup>; <sup>1</sup>Department of Otolaryngology, Head and Neck Surgery, Stanford University, Palo Alto, CA, USA, <sup>2</sup>Department of Otolaryngology, Head and Neck Surgery, University of Utah, Salt Lake City, UT, USA, <sup>3</sup>Division of Otolaryngology-Head and Neck Surgery, Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA, <sup>4</sup>Department of Radiation Oncology, Stanford University, Palo Alto, CA, USA, <sup>5</sup>Department of Neurosurgery, Stanford University

**T010: PREDICTORS OF RECURRENCE AFTER GAMMA KNIFE RADIOSURGERY FOR CAVERNOUS SINUS**

**MENINGIOMAS** – [Georgios A Zenonos, MD<sup>1</sup>](#), A Chu, MD<sup>1</sup>, A Niranjan, MD<sup>1</sup>, P A Gardner, MD<sup>1</sup>, J C Fernandez-Miranda, MD<sup>1</sup>, J C Flickinger, MD<sup>2</sup>, Edward Monaco III, MD, PhD<sup>1</sup>, L D Lunsford, MD<sup>1</sup>; <sup>1</sup>University of Pittsburgh Medical Center, Department of Neurosurgery, <sup>2</sup>University of Pittsburgh, Department of Radiation Oncology

10:50 am – 11:20 am **KEYNOTE ADDRESS: Making Experience Payoff: Maximizing the Value of Mentoring**  
SPEAKER: David DeLong

11:20 am – 11:40 am **GUEST SPEAKER: Skull Base Surgery in the 21st Century**  
SPEAKER: Dan Fliss, MD

11:40 am – 11:55 am **GUEST SPEAKER: The Value of Networking in Career Development**  
SPEAKER: Robert Miller, MD, MBA

11:55 am – 12:10 pm **GUEST SPEAKER: There's No I in TEAM: We Learn From Each Other**  
SPEAKER: Peter Neligan, MD

12:10 pm – 12:15 pm **Awards**  
PRESENTERS: Shaan Raza, MD, FAANS & Anand Devaiah, MD

12:15 pm – 1:15 pm **Lunch in Exhibit Hall**

*Exhibit Pavilion*

1:20 pm – 2:20 pm **Resident/Fellow Jeopardy**

*Commodore CDE*

1:20 pm – 2:20 pm **HOT TOPIC SESSIONS**

## **HOT TOPIC 4: Intracranial Hypertension and Intracranial Pseudotumor**

*Commodore B*

MODERATORS: Tyler Kenning, MD & Richard Murray, MD

SPEAKERS: Ramsey Ashour, MD; Claudia Kirsch, MD; Joshua Pasol, MD; Mark Eisenberg, MD; Babu Welch, MD

- Etiology, Pathogenesis and Clinical Presentation – *Ramsey Ashour, MD*
- Radiology and Imaging Findings – *Claudia Kirsch, MD*
- Neuro-Ophthalmological findings and management – *Joshua Pasol, MD*
- Medical and Non-Neurosurgical Management – *Mark Eisenberg, MD*
- Neurosurgical Management – Venous Sinus Stenting and Shunting Procedures – *Babu Welch, MD*

This session will focus on the etiology and pathogenesis, clinical presentation, and medical and surgical management of idiopathic or benign intracranial hypertension and intracranial pseudotumor.

At the conclusion of this session, participants will be able to:

1. Categorize the pathogenesis and clinical manifestations of benign intracranial hypertension.
2. Select the best diagnostic tests and medical management for this condition.
3. Apply the optimal surgical strategy with an understanding of the risks and benefits.

## **HOT TOPIC 5: Value Based Healthcare in Skull Base Surgery**

*Commodore A*

MODERATORS: Erin McKean, MD, MBA & Jarrett Walsh, MD, PhD

SPEAKERS: Lawrence Marentette, MD; Ehab Hanna, MD; Marvin Bergsneider, MD; Carl Snyderman, MD, MBA; Varun Kshetry, MD; Perry Mansfield, MD; Neil Martin, MD

- Introduction – *Erin McKean, MD, MBA*
- What is Value-Based Care? – *Lawrence Marentette, MD*
- Outcome Measurement: Why, What, and How? – *Ehab Hanna, MD*
- Value-Based Care in Pituitary Surgery – *Marvin Bergsneider, MD*
- Relationship of Volume and Outcomes – *Carl Snyderman, MD, MBA*
- Cost: the Ugly Denominator, Grass Root Efforts, and National Implications – *Varun Kshetry, MD*
- Optimizing Skull Base Patient Revenue Cycle – *Perry Mansfield, MD*
- Value-Based Surgical Redesign – NERVS (Neurosurgery With Enhanced Recovery, Value, And Safety) – *Neil Martin, MD*
- Conclusion and Q&A – *Jarrett Walsh, MD, PhD*

This session will introduce the topic of value-based care in skull base surgery, define current outcomes measures and the relationship of surgical costs, volumes and outcomes. This topic is important and timely for all members, especially when attempting to define measures for quality and outcomes as a multispecialty society.

At the conclusion of this session, participants will be able to:

1. Evaluate value, cost and quality and their impact in skull base surgery.
2. Identify and contribute to identification of new value-based metrics and recommendations in a multidisciplinary society.
3. Discuss how healthcare policy may impact the future of value-based care.

## HOT TOPIC 6: Cerebrovascular Surgery & Skull Base Surgery: The Perfect Match

Sovereign

MODERATORS: Daniel Barrow, MD & Bernard Bendok, MD

SPEAKERS: Luca Regli, MD; Ali Krisht, MD; Michael Lawton, MD; David Langer, MD; Basant Misra, MD; Rokuya Tanikawa, MD, PhD; Jacques Morcos, MD, FRCS, FAANS

- Introduction – *Daniel Barrow, MD & Bernard Bendok, MD*
- Transcavernous Approach to the Rostral Basilar Artery – *Ali Krisht, MD*
- Giant Basilar Aneurysm – *Basant Misra, MD*
- Combined Supra- and Infratentorial Petrosal for Lower Basilar Aneurysms – *Rokuya Tanikawa, MD, PhD*
- Transcavernous and Far Lateral for Cavernous Malformations – *Jacques Morcos, MD, FRCS, FAANS*
- Role & Indications for Bypass Today – *Luca Regli, MD*
- V3 Vertebral Artery for Bypass – *Michael Lawton, MD*
- Use Of Internal Maxillary Artery for Bypass – *David Langer, MD*

This session will discuss a variety of skull base approaches used for vascular neurosurgical procedures. The idea is to emphasize the value of skull base techniques to access and address complicated cerebrovascular disorders.

At the conclusion of this session, participants will be able to:

1. Recognize the value of incorporating skull base techniques in their practice.
2. Better predict when a skull base approach will improve outcomes.
3. Better plan future surgical procedures.

2:25 pm – 3:25 pm **VIDEO SESSIONS**

## VIDEO SESSION 4: Neurosurgery Open Anterior Skull Base Procedures

Commodore B

MODERATORS: Norberto Andaluz, MD & Carl Heilman, MD

SPEAKERS: Daniel Roy, MD; Maurizio Iacoangeli, MD; Ivan Radovanovic, MD, PhD; Gerald Lemole Jr, MD; Jose Landeiro, MD, PhD; Kesava Reddy, MBBS, FRCSC

- Clinoidal Meningiomas – *Daniel Roy, MD*
- Minimally Invasive Keyhole Surgery for Anterior Skull-Base and Orbital Lesions: Bridging the Gap Between Open and Endoscopic Procedures – *Maurizio Iacoangeli, MD*
- Modified Lateral Supraorbital Approach to the Cavernous Sinus and Extradural Anterior Clinoidectomy for Clipping of a Clinoidal Segment Transitional Aneurysm – *Ivan Radovanovic, MD, PhD*
- Combined Approaches for Anterior Skull Base Malignancy – *Gerald Lemole Jr, MD*
- Cavernous Sinus Tumors – *Jose Landeiro, MD, PhD*
- Meningiomas in the Anterior Cranial Fossa – *Kesava Reddy, MBBS, FRCSC*

This video session will showcase presentations from accomplished skull base surgeons presenting on their techniques for the approach of challenging lesions of the anterior skull base. This session should be of interest to all skull base surgeons interested in learning different techniques for the approach of anterior skull base lesions.

At the conclusion of this session, participants will be able to:

1. Discuss different techniques for the approach of anterior skull base lesions.
2. Present modern combined techniques for the approach of anterior skull base lesions.
3. Discuss modifications to standard approaches to anterior skull base lesions.

## VIDEO SESSION 5: Neurosurgery Open Lateral Skull Base Approaches

Commodore A

MODERATORS: Bharat Guthikonda, MD & Jason Ellis, MD

SPEAKERS: Laligam Sekhar, MD, FACS, FAANS; John YK Lee, MD; Elisabetta Zanoletti, MD; Paul Camarata, MD; Marc Schwartz, MD; Keki Turel, MBBS, MS

- Introduction – *Bharat Guthikonda, MD*
- Extreme Lateral Approach – *Laligam Sekhar, MD, FACS, FAANS*
- Endoscopic Retrosigmoid Craniotomy with Suprameatal Extension – *John YK Lee, MD*
- Retrosigmoid Approach with Retrolabyrinthine Meatotomy in Hearing Preservation Surgery for Acoustics – *Elisabetta Zanoletti, MD*
- Far Lateral Approach for Lateral Skull Base Lesions – *Paul Camarata, MD*
- Translabyrinthine Approach to the Lateral Skull Base – *Marc Schwartz, MD*
- Middle Fossa/Anterior Petrosal Approach to the Lateral Skull Base – *Keki Turel, MBBS, MS*
- Discussion/Conclusions – *Bharat Guthikonda, MD*

This session will be a comprehensive video journey through lateral skull base surgery as described through the experiences of experts in skull base neurosurgery and neuro-otology. We encourage all registered participants to attend this session.

At the conclusion of this session, participants will be able to:

1. Recognize which approaches will be best suited for neoplastic and vascular lesions of the lateral skull base.
2. Develop intraoperative technical skills that allow better management of the eloquent structures of the lateral skull base.
3. Recognize how best to avoid complications in lateral skull base surgery.

## VIDEO SESSION 6: Neurosurgery Expanded Endoscopic Endonasal Procedures

Sovereign

MODERATORS: Gary Gallia, MD, PhD & Seth Lieberman, MD

SPEAKERS: Amin Kassam, MD; Eric Monteiro, MD; Fred Gentili, MD, MSc, FRCSC, FACS; John Craig, MD; Jose Gurrola, MD; James Evans, MD; Paul Gardner, MD

In this session, surgeons will illustrate techniques and indications of expanded endoscopic endonasal approaches to the skull base.

- Ventral Neural Road Map: A 360-degree Anatomic and Radiologic Tour of the Neural Network via the Expanded Endonasal Approach – *Amin Kassam, MD*
- The Transpterygoid Approach to the Lateral Sphenoid Recess – *Eric Monteiro, MD*
- Chordoma – The Advantages of the Endoscopic Approach – *Fred Gentili, MD, MSc, FRCSC, FACS*
- Endoscopic Repair of CSF Leaks – *John Craig, MD*
- Endoscopic Assisted ASB Resection with Pericranial Flap – *Jose Gurrola, MD*
- Neurosurgery Expanded Endoscopic Endonasal Procedures – *James Evans, MD*
- Extreme EEA, What Are the Limits? – *Paul Gardner, MD*

At the conclusion of this session, participants will be able to:

1. Convey the indications for the expanded endonasal approach to treat ventral skull base pathology.
2. Develop an algorithm for utilization and selection of an endoscopic endonasal approach.
3. Articulate the limitations of the endoscopic endonasal approach.

2:25 pm – 3:25 pm **SPECIAL SESSIONS**

## **SPECIAL SESSION 4: Certification of the Skull Base Surgeon**

*Commodore CDE*

MODERATORS: Carl Snyderman, MD, MBA & Ian Witterick, MD, MSc, FRCSC

SPEAKERS: Richard Friedman, MD, PhD; Tom Roland, MD; Robert Behr, MD, PhD; Jacques Morcos, MD, FRCS, FAANS; Daniel Kelly, MD

- Introduction – *Ian Witterick, MD, MSc, FRCSC*
- Credentialing Issues: Perspectives of Stakeholders – *Richard Friedman, MD, PhD*
- What is a Skull Base Surgeon? Otolaryngological Perspective – *Tom Roland, MD*
- What is a Skull Base Surgeon? Neurosurgical Perspective – *Robert Behr, MD, PhD*
- Measures of Proficiency – *Jacques Morcos, MD, FRCS, FAANS*
- Centers of Excellence: Is It Time? – *Daniel Kelly, MD*

This session will address issues that are important for the credentialing and certification of skull base surgeons at all types of institutions. This topic is important for skull base surgeons at all stages of their careers.

At the conclusion of this session, participants will be able to:

1. Identify key issues for credentialing of skull base surgeons.
2. Prioritize credentialing issues.
3. Formulate current best practices.

1:20 pm – 3:25 pm **RHOTON ROOM**

*Constellation AB*

## **RHOTON ANATOMY: 3D Anatomy of Infratemporal Fossa**

SPEAKER: Maria Peris-Celda, MD, PhD

## **RADIOLOGY**

SPEAKER: Eugene Yu, MD

## **DUELING DISSECTIONS: Medial Maxillectomy, Pterygoid Fossa Exposure, V2 Nerve Dissection To Rotundum, V3 Nerve Identification, Transpterygoid Plate, Carotid Artery Identification**

MODERATOR: Allan Vescan, MD

PARTICIPANTS: Clementino Solares, MD/Daniel Cox, MD & Shirley Su, MD/Ivan El-Sayed, MD

3:30 pm – 4:15 pm **Afternoon Break in Exhibit Hall**

*Exhibit Pavilion*

4:15 pm – 6:15 pm **PROFFERED PAPERS SESSION**

## **PROFFERED PAPERS 7: Spheno-Orbital, Petro-Clival, Cavernous Sinus Meningiomas**

*Commodore CDE*

(one hour only, 4:15 pm – 5:15 pm)

MODERATORS: Jason Ellis, MD & Abdullah Albader, MD, FRCSC

### **075: ANTERIOR CLINOID LINE: A PREDICTOR FOR OPERATIVE OUTCOME OF MEDIAL SPHENOID WING MENINGIOMAS**

– [Ala Arab](#)<sup>1</sup>, Aysha Hawsawi<sup>2</sup>, Mohammed Bafaquh, MD<sup>3</sup>, Yasser Orz, MD, PhD<sup>3</sup>, Mahmoud AlYamany<sup>3</sup>, Abdullah Al Obaid<sup>3</sup>; <sup>1</sup>King Abdulaziz Medical City, <sup>2</sup>AlMaarefa Colleges, <sup>3</sup>King Fahad Medical City

### **076: INDIVIDUALIZED MANAGEMENT STRATEGY OF PETROCLIVAL MENINGIOMAS BASED ON A RADIOGRAPHIC CLASSIFICATION**

– [Zhen Wu, MD](#), Da Li, Li-Wei Zhang, Jun-Ting Zhang; Beijing Tiantan Hospital, Capital Medical University

### **077: PREDICTORS OF RECURRENCE AFTER GAMMA KNIFE RADIOSURGERY FOR CAVERNOUS SINUS MENINGIOMAS**

– [Georgios A Zenonos, MD](#)<sup>1</sup>, A Chu, MD<sup>1</sup>, A Niranjan, MD<sup>1</sup>, P A Gardner, MD<sup>1</sup>, J C Fernandez-Miranda, MD<sup>1</sup>, J C Flickinger, MD<sup>2</sup>, Edward Monaco III, MD, PhD<sup>1</sup>, L D Lunsford, MD<sup>1</sup>; <sup>1</sup>University of Pittsburgh Medical Center, Department of Neurosurgery, <sup>2</sup>University of Pittsburgh, Department of Radiation Oncology

### **078: PETROUS FACE MENINGIOMAS: CLASSIFICATION, PRESENTATION SYNDROMES AND SURGICAL OUTCOMES**

– [Stephen T Magill, MD, PhD](#), Jonathan W Rick, BS, William Chen, BS, David Haase, BS, Manish K Aghi, MD, PhD, Philip Theodosopoulos, MD, Michael W McDermott, MD; University of California, San Francisco

### **079: RESECTION OF SPHENO-ORBITAL MENINGIOMAS: VISUAL OUTCOMES FROM A MODERN COHORT**

– [Vijay Agarwal, MD](#)<sup>1</sup>, Nealey Cray<sup>2</sup>, Andrea A Tooley, MD<sup>2</sup>, Olivia Crum, MD<sup>2</sup>, Pradeep Mettu, MD<sup>3</sup>, James Garrity, MD<sup>2</sup>, Michael J Link, MD<sup>2</sup>; <sup>1</sup>Emory University Hospital, <sup>2</sup>Mayo Clinic, <sup>3</sup>Raleigh Ophthalmology

## PROFFERED PAPERS 8: Vestibular Schwannomas

Commodore B

MODERATORS: Christine Dinh, MD & Daniel Roy, MD

### 080: CYBERKNIFE RADIOSURGERY FOR ACOUSTIC NEUROMAS: TUMOR CONTROL AND CLINICAL

**OUTCOMES** – [Colin J Przybylowski, MD<sup>1</sup>](#), [Jacob F Baranoski, MD<sup>1</sup>](#), [Gabriella Paisan, BS<sup>2</sup>](#), [Kristina M Chapple, PhD<sup>1</sup>](#), [Andrew Meeusen, BS<sup>1</sup>](#), [Stephen Sorenson, PhD<sup>1</sup>](#), [Kaith Almefty, MD<sup>1</sup>](#), [Randall Porter, MD<sup>1</sup>](#); <sup>1</sup>Barrow Neurologic Institute, <sup>2</sup>University of Virginia School of Medicine

### 082: FACIAL NERVE OUTCOMES FOLLOWING ADJUVANT GAMMA KNIFE RADIOSURGERY FOR SUBTOTALLY

**RESECTED VESTIBULAR SCHWANNOMAS: IMMEDIATE VERSUS DELAYED TIMING OF THERAPY** – [Robert Heller, MD](#), [Isaac Ng](#), [Carl Heilman, MD](#), [Julian Wu, MD](#); Tufts Medical Center

### 083: CONSERVATIVE MANAGEMENT OF SMALL ACOUSTIC NEUROMAS: COMPLIANCE RATES AND OUTCOMES

**OVER 5 YEARS AT A SINGLE INSTITUTION** – [Galit Almosnino, MD](#), [Daniel M Zeitler, MD, FACS](#); Virginia Mason Medical Center, Department of Otolaryngology/Head and Neck Surgery

### 084: RECONSIDERING THE MANDATE FOR SIX-MONTH POST-RADIOSURGERY MRI IN THE TREATMENT OF VESTIBULAR SCHWANNOMA: CLINICAL REVIEW AND COST ANALYSIS

– [Avital Perry](#), [Christopher S Graffeo, Lucas P Carlstrom, Joshua D Hughes, Maria Peris Celda, Bruce E Pollock, Michael J Link](#); Mayo Clinic

### 085: UTILITY OF NON-CONTRAST MAGNETIC RESONANCE IMAGING FOR DETECTION OF RECURRENT VESTIBULAR SCHWANNOMA

– [Christoph M Prummer<sup>1</sup>](#), [Williams C Jamie<sup>2</sup>](#), [Carrie M Carr<sup>2</sup>](#), [Laurence J Eckel<sup>2</sup>](#), [Amy L Kotsensas<sup>2</sup>](#), [Christopher H Hunt<sup>2</sup>](#), [John I Lane<sup>2</sup>](#), [Matthew L Carlson<sup>1</sup>](#); <sup>1</sup>Mayo Clinic Rochester- Department of Otorhinolaryngology, <sup>2</sup>Mayo Clinic Rochester- Department of Radiology

### 086: DURATION AND TIMING OF TRANSIENT TUMOR ENLARGEMENT AFTER GAMMA KNIFE RADIOSURGERY FOR VESTIBULAR SCHWANNOMAS

– [Jonathan D Breshears, MD](#), [Joseph Chang, MD](#), [Annette Molinaro, PhD](#), [Penny Sneed, MD](#), [Michael W Mcdermott, Aaron Tward, MD, PhD](#), [Philip V Theodosopoulos, MD](#); University of California, San Francisco

### 087: FACIAL NERVE OUTCOME AND EXTENT OF RESECTION IN CYSTIC VERSUS SOLID VESTIBULAR SCHWANNOMAS IN RADIOSURGERY ERA: IS NEAR-PERFECT POSSIBLE?

– [Pinar Eser Ocak, MD<sup>1</sup>](#), [Ihsan Dogan, MD<sup>1</sup>](#), [Umut Ocak, MD<sup>1</sup>](#), [Cem Dinc, MD<sup>1</sup>](#), [Sam Gubbels, MD<sup>2</sup>](#), [Mark Pyle<sup>1</sup>](#), [Mustafa Kemal Baskaya, MD<sup>1</sup>](#); <sup>1</sup>University of Wisconsin, <sup>2</sup>University of Colorado

### 088: CONTRAST ENHANCED CISS MRI IMPROVES VISUALISATION AND PLANNING IN VESTIBULAR SCHWANNOMAS

– [Cordula Matthies, Prof, MD, PhD<sup>1</sup>](#), [Nadine Lilla, MD<sup>1</sup>](#), [Kathrin Engel<sup>1</sup>](#), [Maria Hummel<sup>1</sup>](#), [Robert Nickl<sup>1</sup>](#), [Laszlo Solymosi, Prof, MD, PhD<sup>2</sup>](#), [Ralf-Ingo Ernestus, Prof, MD, PhD<sup>1</sup>](#); <sup>1</sup>Department of Neurosurgery, Wuerzburg University Hospital, <sup>2</sup>Center of Neuroradiology, Wuerzburg University Hospital

### 089: HYDROCEPHALUS IN PATIENTS WITH VESTIBULAR SCHWANNOMA: INSTITUTIONAL EXPERIENCE WITH TEMPORARY AND PERMANENT CSF DIVERSION

– [Joshua Hughes, MD](#), [Christopher Graffeo, MD](#), [Avital Perry, MD](#), [Lucas Carlstrom, MD](#), [Christopher Marcellino, MD](#), [Jamie J van Gompel, MD](#), [Brian Neff, MD](#), [Matthew Carlson, MD](#), [Colin Driscoll, MD](#), [Michael J Link, MD](#); Mayo Clinic Rochester MN

### 090: FACIAL NERVE ELONGATION IN VESTIBULAR SCHWANNOMAS: A USEFUL ASPECT WITH REGARD TO FUNCTIONAL PRESERVATION

– [Cordula Matthies, Prof, MD, PhD<sup>1</sup>](#), [Nadine Lilla, MD<sup>1</sup>](#), [Robert Nickl, MD<sup>1</sup>](#), [Maria Hummel, MD<sup>1</sup>](#), [Laszlo Solymosi, Prof, MD, PhD<sup>2</sup>](#), [Ralf-Ingo Ernestus, Prof, MD, PhD<sup>1</sup>](#); <sup>1</sup>Department of Neurosurgery, Wuerzburg University Hospital, <sup>2</sup>Center of Neuroradiology, Wuerzburg University Hospital

### 091: MODERN MANAGEMENT OF LARGE VESTIBULAR SCHWANNOMA

– [Cormac G Gavin, FRCSI, FRCSSN](#), [Greta Brezgyte, BSc, MSc](#), [Howard I Sabin, BMSc, FRCSE, FRCS](#); St. Bartholomew's Hospital

### 092: TUMOR-ASSOCIATED MACROPHAGE EXPRESSION OF PD-L1 IS ASSOCIATED WITH RECURRENCE AFTER SUBTOTAL RESECTION OF VESTIBULAR SCHWANNOMA

– [Avital Perry](#), [Lucas P Carlstrom, Christopher S Graffeo, Aditya Raghunathan, Mark E Jentoft, Colin L Driscoll, Brian A Neff, Matthew L Carlson, Maria Peris Celda, Jamie J van Gompel, Michael J Link](#); Mayo Clinic

### 093: SURGERY OF VESTIBULAR SCHWANNOMAS IN THE ERA OF WITH GAMMA-KNIFE RADIOSURGERY: A TWO-CENTERS COMPARATIVE STUDY WITH 702 CASES

– [Marcos Tatagiba, MD, PhD](#); Department of Neurosurgery, University Hospital Tuebingen, Germany

### 081: RECURRENCE OF VESTIBULAR SCHWANOMMA AFTER SUBTOTAL AND NEAR TOTAL RESECTION

– [Ben A Strickland<sup>1</sup>](#), [Ksenia Aaron, MD<sup>2</sup>](#), [Jonathan J Russin, MD<sup>1</sup>](#), [Richard Friedman, MD<sup>2</sup>](#), [Steven L Giannotta, MD<sup>1</sup>](#); <sup>1</sup>University of Southern California, Department of Neurosurgery, <sup>2</sup>University of Southern California, Department of Otolaryngology

## PROFFERED PAPERS 9: Non-Sinonasal H&N Tumors

Commodore A

MODERATORS: Joseph Curry, MD & Nagy Elsayyad, MD, FACP

### 102: GLOMUS VAGALE OF THE PARAPHARYNGEAL SPACE: WORKING TOWARDS A SIMPLIFIED TREATMENT

**PARADIGM** – [Avital Perry](#), Christopher S Graffeo, Lucas P Carlstrom, Christopher M Low, Maria Peris Celda, Eric J Moore, Michael J Link, Kathryn M Van Abel; Mayo Clinic

### 094: THE NATURAL HISTORY OF FACIAL SCHWANNOMAS: A META-ANALYSIS OF CASE SERIES

– John P Leonetti, MD, [Matthew R Bartindale, MD](#), Jeffrey Heiferman, Cara Joyce, PhD, Neelam Balasubramanian; Loyola University Medical Center

### 095: INDIVIDUAL DESIGNED APPROACHES AND MICROSURGERY FOR HUGE PETROUS BONE-INVASIVE

**TUMORS: REPORT OF 57 CASES** – [Xuesong Liu](#); West China Hospital

### 096: CLINICAL AND PATHOLOGICAL PARAMETERS PROGNOSTIC IN TEMPORAL BONE RESECTION FOR

**LOCALLY ADVANCED MALIGNANT PAROTID TUMOR** – [Liviana S Dechen](#), Ronaldo N Toledo, Jose Ricardo G Testa, Genival B Carvalho, Luiz P Kowalski; A.C.Camargo Center

### 098: CXCR4 AND PD-1 EXPRESSION IN HEAD AND NECK CANCER WITH PERINEURAL SPREAD

– [Catherine Barnett](#), BSc, MSc, MPhil, MBBS, Ryan Sommerville, BSc, MBBS, FRACS, Charles Lin, MBBS, FRANZCR, Brett Hughes, MBBS, FRACP, Touraj Taheri, MBBS, FRCPA; Royal Brisbane and Women's Hospital, Brisbane, QLD, Australia

### 099: CLINICAL PROGNOSTIC VALUE OF THE ISOCITRATE DEHYDROGENASE 1 SINGLE-NUCLEOTIDE

**POLYMORPHISM RS11554137 IN GLIOBLASTOMA** – [Akshikumar Mistry, MD](#), Cindy Vnencak-Jones, PhD, Bret Mobley, MD; Vanderbilt University Medical Center

### 100: GIANT VERTEBRO-BASILAR DISSECTION ANEURYSM AND DOLICHOECTASIA BYPASS TREATMENT

– [Xiao Guang Tong, MD, PhD](#); Tian Jin Huan Hu Hospital

### 101: RE-IRRADIATION OF SMALL SKULL BASE TUMORS: A COMPARISON OF PATIENT OUTCOMES AFTER STEREOTACTIC BODY RADIOTHERAPY (SBRT), INTENSITY MODULATED RADIOTHERAPY (IMRT) AND PROTON

**THERAPY (PRT)** – Sweet Ping Ng, MBBS, He Wang, PhD, Clifton D Fuller, MD, PhD, G Brandon Gunn, MD, Adam S Garden, MD, William Morrison, MD, Shalin Shah, MD, Ehab Hanna, MD, Shirley Su, MBBS, David Rosenthal, MD, Steven J Frank, MD, [Jack Phan, MD, PhD](#); The University of Texas MD Anderson Cancer Center

### 103: PATIENT SURVIVAL AFTER TEMPORAL BONE RESECTION FOR MALIGNANCY

– [Anne C Kane](#)<sup>1</sup>, Rahul Mehta, Assistant Professor<sup>1</sup>, Moises Arriaga, Clinical Professor<sup>1</sup>, Anna Pou, Professor and Administrative Vice Chair<sup>1</sup>, Michael DiLeo, Clinical Assistant Professor<sup>1</sup>, Rohan Walvekar, Associate Professor<sup>1</sup>, Daniel Nuss, Professor and Chairman<sup>1</sup>, Leslie Son, PhD<sup>2</sup>; <sup>1</sup>LSUHSC New Orleans, <sup>2</sup>Our Lady of the Lake Regional Medical Center

### 104: EXPANDED ENDONASAL APPROACHES FOR SKULL BASE LESIONS IN THE VERY YOUNG: IS IT SAFE

**AND EFFECTIVE?** – [Javan Nation, MD](#)<sup>1</sup>, Alexander Schuppper<sup>2</sup>, Adam Deconde, MD<sup>3</sup>, Michael Levy, MD<sup>1</sup>; <sup>1</sup>UCSD/Rady Children's Hospital San Diego, <sup>2</sup>UCSD school of medicine, <sup>3</sup>UCSD

### 105: PATHOLOGICAL FINDINGS IN RETROPHARYNGEAL NODES REMOVED DURING TRANSORAL ROBOTIC SURGERY FOR OROPHARYNGEAL CARCINOMA

– [Christopher H Rassekh, MD](#), Bert W O'Malley, Jr., MD, Ellie Paul, Jason A Brant, MD, Gregory S Weinstein, MD; University of Pennsylvania

### 106: ADVANCES IN THE MANAGEMENT OF SKULL BASE AND CAROTID PARANGLIOMAS

– [Khalid Chowdhury, MD, MBA, FRCSC](#)<sup>1</sup>, Robert Muckle, MD<sup>2</sup>, Roderick Lamond, MD<sup>3</sup>; <sup>1</sup>Center for Craniofacial Disorders & University of Colorado Health Sciences Center, <sup>2</sup>Denver Ear Associates, <sup>3</sup>Denver Neurosurgery and Spine

## PROFFERED PAPERS 10: Quality of Life

Sovereign

MODERATORS: Christopher Chin, MD & Anthony Zeitouni, MD

### 117: REPERCUSSION OF PRESERVATION OF BILATERAL MIDDLE TURBINATES DURING PITUITARY SURGERY ON MAXILLARY, ETHMOID AND FRONTAL SINUSES

– [Mamie Higgins, MD](#)<sup>1</sup>, Robert Scagnelli, BA<sup>2</sup>, Tyler Kenning, MD<sup>3</sup>, Carlos Pinheiro-Neto, MD, PhD<sup>1</sup>; <sup>1</sup>Division of Otolaryngology, Department of Surgery, Albany Medical Center, Albany, NY, <sup>2</sup>Albany Medical School, <sup>3</sup>Department of Neurosurgery, Albany Medical Center, Albany, NY

### 107: REVISION MICROVASCULAR DECOMPRESSION FOR TRIGEMINAL NEURALGIA AND HEMIFACIAL SPASM:

**RISK FACTORS FOR SURGICAL FAILURE** – [Ben A Strickland, MD](#), Joshua Bakhsheshian, MD, Vance L Fredrickson, Steven L Giannotta, MD; University of Southern California Department of Neurosurgery

### 108: AGE AND GENDER EFFECTS ON THE REPAIR OF SUPERIOR SEMICIRCULAR CANAL DEHISCENCE THROUGH MIDDLE CRANIAL FOSSA APPROACH

– [Yasmine Alkhalid, BS](#), Thien Nguyen, BS, Courtney Duong, BS, John P Sheppard, MS, Prasanth Romiyo, BS, Daniel Azzam, BS, Quinton Gopen, MD, Isaac Yang, MD; David Geffen School of Medicine of the University of California, Los Angeles

- 109: THIRTY-DAY POSTOPERATIVE EMERGENCY DEPARTMENT UTILIZATION AND HOSPITAL READMISSION AFTER 559 SEQUENTIAL ENDONASAL OPERATIONS** – [Douglas Hardesty, MD](#), Michael Mooney, MD, Chesney S Oravec, BA, Gabriella M Paisan, BA, Morteza Sadeh, MS, Michael Bohl, MD, John P Sheehy, MD, Andrew S Little, MD; Barrow Neurological Institute
- 110: ANALYSIS OF OTOLOGIC DRILL ENTANGLEMENT USING SLOW MOTION VIDEOGRAPHY** – [Matthew M Dedmon, MD, PhD<sup>1</sup>](#), Robert J Yawn, MD<sup>1</sup>, Brendan P O'Connell, MD<sup>2</sup>, Matthew R O'Malley, MD<sup>1</sup>, Marc L Bennett, MD<sup>1</sup>; <sup>1</sup>Vanderbilt, <sup>2</sup>UNC-Chapel Hill
- 111: FORAMEN MAGNUM DECOMPRESSION FOR SYMPTOMATIC CHIARI TYPE 1 MALFORMATION : ANALYSIS OF CLINICAL AND RADIOLOGICAL FACTORS** – [Sunil K Gupta, MD](#), N Majumdar, A Aggarwal, C Ahuja; PGIMER
- 112: EXTENDED ENDOSCOPIC ENDONASAL APPROACH WITH OR WITHOUT C1-C2 ANTERIOR ENDOSCOPIC SCREW FIXATION FOR CRANIO-VERTEBRAL JUNCTION LESIONS: LESSON LEARNED AND TECHNICAL NUANCES** – [Maurizio Iacoangeli, MD<sup>1</sup>](#), Lucia Giovanna Maria Di Somma, MD<sup>1</sup>, Massimo Re, MD<sup>2</sup>, Davide Nasi, MD<sup>1</sup>, Alessandro Di Rienzo<sup>1</sup>, Roberta Benigni<sup>1</sup>, Nicola Specchia, MD<sup>3</sup>, Massimo Scerrati, MD<sup>1</sup>; <sup>1</sup>Department of Neurosurgery, Università Politecnica delle Marche, Umberto I General Hospital, Ancona, Italy, <sup>2</sup>Department of EN, Università Politecnica delle Marche, Umberto I General Hospital, Ancona, Italy, <sup>3</sup>Department of Orthopedic, Università Politecnica delle Marche, Umberto I General Hospital, Ancona, Italy
- 113: OUTCOMES AND TECHNIQUE FOR PALLIATIVE ORBITAL AND OPTIC NERVE DECOMPRESSION** – [Kyle K VanKoeveering](#), Raymond Cho, Ricardo L Carrau, Daniel Prevedello; Ohio State University
- 114: OUR EXPERIENCES WITH PROPHYLAXIS OF POSTOPERATIVE THROMBOEMBOLIC COMPLICATIONS** – [Jan Hemza, MD, PhD, PhD, MPA](#); Dpt. of Neurosurgery, Faculty Hospital about saint Ann
- 115: ENDOSCOPIC APPROACH TO PETROUS APEX: CLINICAL SERIES** – [Matias Gomez G., MD<sup>1</sup>](#), Cristian Naudy<sup>1</sup>, Homero Sarioeg<sup>1</sup>, Katherine Walker<sup>1</sup>, Ricardo Carrau, MD<sup>2</sup>, Daniel Prevedello, MD<sup>2</sup>, Bradley Otto<sup>2</sup>, Alaa Montaser, MD<sup>2</sup>, Juan C. Yanez-Siller, MD, MPH<sup>2</sup>; <sup>1</sup>Instituto de Neurocirugía Dr Asenjo, Chile, <sup>2</sup>Wexner medical Center, The Ohio State University
- 116: INCIDENCE OF EMPTY NOSE SYNDROME FOLLOWING ENDOSCOPIC ENDONASAL SKULL BASE SURGERY: A PRELIMINARY TRIAL** – [Guillermo Maza, MD<sup>1</sup>](#), Juan C Yanez-Siller, MD, MPH<sup>1</sup>, Somasundaram Subramaniam, MD<sup>1</sup>, Bradley A Otto, MD<sup>1</sup>, Prevedello M Daniel, MD<sup>2</sup>, Ricardo L Carrau, MD, FACS<sup>1</sup>; <sup>1</sup>Department of Otolaryngology. Ohio State University, <sup>2</sup>Department of Neurosurgery. Ohio State University
- 118: TRANSCRANIAL ORBITAL DECOMPRESSION AS A SALVAGE PROCEDURE FOR GRAVES' OPHTHALMOPATHY: A 26 YEAR EXPERIENCE** – [Vijay Agarwal, MD<sup>1</sup>](#), Pradeep Mettu, MD<sup>2</sup>, Benjamin Himes, MD<sup>3</sup>, James Garrity, MD<sup>3</sup>, Michael J Link, MD<sup>3</sup>; <sup>1</sup>Emory University Hospital, <sup>2</sup>Raleigh Ophthalmology, <sup>3</sup>Mayo Clinic
- 119: ENDOSCOPIC ENDONASAL APPROACHES FOR ARTERIAL LIGATION WITHIN THE PTERYGOPALATINE FOSSA: WHAT'S THE RISK OF XEROPHTHALMIA?** – [Karthik S Shastri, MD](#), Daniel Lee, MD, Randall Ruffner, MD, Carlos D Pinheiro-Neto, MD, PhD; Division of Otolaryngology / Head and Neck Surgery, Department of Surgery, Albany Medical Center, Albany, New York.
- 120: SINONASAL QUALITY OF LIFE OUTCOMES AFTER EXTENDED ENDONASAL APPROACHES TO THE SKULL BASE** – Kevin J Choi, MD, MS<sup>1</sup>, [Feras Ackall, MD<sup>1</sup>](#), Tracy Truong, MS<sup>2</sup>, Ali R Zomorodi, MD<sup>1</sup>, Patrick J Codd, MD<sup>1</sup>, Peter E Fecci, MD, PhD<sup>1</sup>, Ralph Abi Hachem, MD, MSc<sup>1</sup>, David W Jang, MD<sup>1</sup>; <sup>1</sup>Duke University Medical Center, <sup>2</sup>Duke University School of Medicine

## PROFFERED PAPERS 11: Innovative Techniques

(one hour only, 4:15 pm – 5:15 pm)

MODERATORS: John YK Lee, MD & Jarrett Walsh, MD, PhD

*Britannia*

- 121: BONE METABOLIC MARKERS IN THE CLINICAL ASSESSMENT OF PATIENTS WITH SUPERIOR SEMICIRCULAR CANAL DEHISCENCE TREATED WITH MIDDLE FOSSA CRANIOTOMY** – [Thien P Nguyen, BS<sup>1</sup>](#), Carlito Lagman, MD<sup>1</sup>, John P Sheppard, MS<sup>1</sup>, Courtney Duong, BS<sup>1</sup>, Vera Ong<sup>1</sup>, Yasmeen Alkhalid, BS<sup>2</sup>, Prasanth Romiyo, BS<sup>3</sup>, Daniel Azzam, BS<sup>4</sup>, Giyarpuram Prashant, MD<sup>1</sup>, Quinton Gopen, MD<sup>1</sup>, Isaac Yang, MD<sup>1</sup>; <sup>1</sup>University of California Los Angeles, <sup>2</sup>Medical College of Georgia, <sup>3</sup>Cooper Medical School of Rowan University, <sup>4</sup>University of California Irvine
- 122: SUPERIOR PETROSAL VEIN SACRIFICE DURING MICROVASCULAR DECOMPRESSION** – [Gavin W Britz, Professor](#), Brandon Liebelt, Sean Barber; Houston Methodist
- 123: EXTENDED MIDDLE FOSSA APPROACH TO LATERALIZED PONTINE CAVERNOMAS IN CHILDREN** – [Robert Rennert](#), Reid Hoshide, Mark Calayag, Michael Levy; UC-San Diego
- 124: USE OF INTRAOPERATIVE INDOCYANINE GREEN ENDOSCOPY IN ASSESSMENT OF VASCULARITY OF INTRANASAL FLAPS** – [Ana Carolina Igami Nakassa, MD<sup>1</sup>](#), Mathew N Geltzeiler, MD<sup>2</sup>, Benita Valappil, MPH<sup>1</sup>, Yue-Fang Chang, PhD<sup>3</sup>, Georgios A Zenonos, MD<sup>3</sup>, Eric W Wang, MD<sup>2</sup>, Juan C Fernandez-Miranda, MD<sup>3</sup>, Carl H Snyderman, MD, MBA<sup>2</sup>, Paul A Gardner, MD<sup>3</sup>; <sup>1</sup>UPMC Center for Cranial Base Surgery, <sup>2</sup>Department of Otolaryngology, University of Pittsburgh School of Medicine, <sup>3</sup>Department of Neurological Surgery, University of Pittsburgh School of Medicine

**125: MINIMALLY INVASIVE APPROACHES FOR OPTIC NERVE DECOMPRESSION: COMPARISON BETWEEN EEA AND ENDOSCOPIC-ASSISTED TRANSORBITAL TRANSCONJUNCTIVAL APPROACH** – [Mostafa Shahein, MD](#), Juan Manuel M Revuelta Barbero, MD, Alaa Montaser, MD, Bradley A Otto, Carrau L Ricardo, MD, Daniel M Prevedello, MD; Ohio State University

**126: PRELIMINARY SINGLE CENTER EXPERIENCE WITH THE USE OF ICG IN ENDOSCOPIC SKULL BASE SURGERY: NEW FINDINGS AND PROPOSED INDICATIONS** – [Mostafa Shahein, MD](#)<sup>1</sup>, Thomas Beaumont, MD<sup>1</sup>, Carrau L Ricardo, MD<sup>2</sup>, Bradley A Otto<sup>2</sup>, Daniel M Prevedello<sup>1</sup>; <sup>1</sup>Department of Neurological Surgery, Wexner Medical Center, The Ohio State University College of Medicine, <sup>2</sup>Department of Otolaryngology-Head and Neck Surgery, Wexner Medical Center, The Ohio State University College of Medicine

**127: A MODULAR APPROACH FOR ACCESSING SKULL BASE PATHOLOGY USING SUBCORTICAL WHITE MATTER TRACTS AS A FRAMEWORK: THE VENTRAL ANTEROMEDIAL APPROACH** – [Srikant Chakravarthi, MD](#), Alejandro Monroy-Sosa, MD, Melanie Fukui, MD, Lior Gonen, MD Juanita Celix, MD Jonathan Jennings, MD, Richard Rovin, MD, Amin Kassam, MD; Aurora Neuroscience Innovation Institute

## PROFFERED PAPERS 12: Pituitary Adenomas

Cambria

MODERATORS: Zara Patel, MD & Zachary Litvack, MD, MCR

**128: IMMEDIATE AND DELAYED POSTOPERATIVE MORBIDITY IN PITUITARY ADENOMAS** – [Laura Salgado-López, MD](#), Fernando Muñoz, MD, PhD, Carlos Asencio, MD, Pere Tresserras, MD, PhD; Hospital de la Santa Creu i Sant Pau; Barcelona, Spain.

**129: FUNCTIONAL VS. NONFUNCTIONAL PITUITARY ADENOMAS: A REVIEW OF SURGICAL OUTCOMES** – [David W Hsu, MD](#), Karam Badran, MD, Carmen Chan, Marvin Bergsneider, MD, Marilene Wang, MD; UCLA

**130: VISUAL FIELD OUTCOME REPORTING IN NEUROSURGERY: LESSONS LEARNED FROM A PROSPECTIVE, MULTICENTER STUDY IN TRANSPHENOIDAL PITUITARY SURGERY** – [Michael A Mooney, MD](#)<sup>1</sup>, Angela Herro, MD<sup>2</sup>, Robert Fintelman, MD<sup>3</sup>, Heidi Jahnke, RN, MSN<sup>1</sup>, Marc Mayberg, MD<sup>4</sup>, Garni Barkhoudarian, MD<sup>5</sup>, Daniel Prevedello, MD<sup>6</sup>, Michael Chicoine, MD<sup>7</sup>, Daniel Kelly, MD<sup>5</sup>, Paul Gardner, MD<sup>8</sup>, James Chandler, MD<sup>9</sup>, William White, MD<sup>1</sup>, Andrew S Little, MD<sup>1</sup>; <sup>1</sup>Barrow Neurological Institute, <sup>2</sup>Horizon Eye Specialists, <sup>3</sup>Biltmore Eye Physicians, <sup>4</sup>University of Washington School of Medicine, <sup>5</sup>Pacific Brain Tumor Center and Pituitary Disorders Program, <sup>6</sup>The Ohio State University, <sup>7</sup>Washington University School of Medicine, <sup>8</sup>University of Pittsburgh School of Medicine, <sup>9</sup>Northwestern University Feinberg School of Medicine

**131: A SYSTEMATIC REVIEW OF THE PROPHYLACTIC ANTIBIOTIC USE IN ENDOSCOPIC ENDONASAL TRANSPHENOIDAL SURGERY FOR PITUITARY LESIONS** – Ioana D Moldovan, MD, MSc<sup>1</sup>, Charles Agbi, MB, BS, FRCS, FRSCed, SN, FRCSC<sup>2</sup>, Shaun J Kilty, MD, FRCSC<sup>2</sup>, Fahad Alkherayf, MD, MSc, CIP, FRCSC<sup>2</sup>; <sup>1</sup>The Ottawa Hospital/The Ottawa Hospital Research Institute, <sup>2</sup>The Ottawa Hospital/University of Ottawa/The Ottawa Hospital Research Institute

**132: TUMOR RESECTABILITY AND RECURRENCE FOLLOWING ENDOSCOPIC ENDONASAL TRANS-SPHENOIDAL PITUITARY ADENOMA SURGERY: AN SINGLE INSTITUTION EXPERIENCE** – [Mohammad Alshardan, MD](#), Fahad Alkherayf, MD, MSc, Andrea Lasso, MSc, Sepideh Mohajeri, Pourya Masoudian, Andre Lamothe, MD, Charles Agbi, MD, Lisa Caulley, MD, MSc, Fatmahalzahra Banaz, MD, Shaun Kilty, MD; The University of Ottawa

**133: PITUITARY APOPLEXY: MANAGEMENT IN A SPECIALIZED PITUITARY CENTER** – [Joao Paulo Almeida, MD](#), Miguel Marigil Sanchez, MD, PhD, Claire Karekezi, MD, Farshad Nassiri, MD, Suganth Suppiah, Mohammed Isteak Ali, MD, Mark Wilson, MD, Allan Vescan, MD, Ian Witterick, MD, Walter Kucharczyk, MD, Fred Gentili, MD, Gelareh Zadeh, MD, PhD; University of Toronto

**134: FRAILITY IS ASSOCIATED WITH WORSE SHORT-TERM OUTCOMES IN PATIENTS UNDERGOING TRANSPHENOIDAL RESECTION OF PITUITARY TUMORS** – [Anthony O Asemota, MD, MPH](#), Gary L Gallia, MD, PHD; Johns Hopkins Department of Neurosurgery

**135: WHY PATIENTS UNDERGO ENDOSCOPIC ENDONASAL TRANS-SPHENOIDAL PITUITARY ADENOMA SURGERY: CHARACTERISATION OF A LARGE NORTH AMERICAN PATIENT POPULATION** – [Fatmahalzahra Banaz, MD](#), Fahad Alkherayf, MD, MSc, Andrea Lasso, MSc, Sepideh Mohajeri, Pourya Masoudian, Andre Lamothe, MD, Charles Agbi, MD, Lisa Caulley, MD, MSc, Mohammad Alshardan, MD, Shaun Kilty, MD; University of Ottawa

**136: SELECTIVE SURGICAL RESECTION OF THE MEDIAL WALL OF THE CAVERNOUS SINUS FOR INVASIVE PITUITARY ADENOMAS: SURGICAL TECHNIQUE AND OUTCOMES IN 49 PATIENTS** – [Salomon Cohen Cohen, MD](#)<sup>1</sup>, Edinson Najera MD<sup>1</sup>, Ana Carolina Igami Nakassa MD<sup>1</sup>, Huy Q Truong MD<sup>1</sup>, Nathan T Zwagerman MD<sup>2</sup>, Carl Snyderman MD<sup>3</sup>, Eric Wang MD<sup>3</sup>, Paul Gardner MD<sup>4</sup>, Juan C Fernandez-Miranda MD<sup>2</sup>; <sup>1</sup>Surgical Neuroanatomy Lab, UPMC Center for Cranial Base Surgery, <sup>2</sup>Department of Neurological Surgery, University of Pittsburgh School of Medicine, <sup>3</sup>Departments of Otolaryngology and Center for Cranial Base Surgery, University of Pittsburgh Medical Center, <sup>4</sup>Departments of Neurological Surgery and Center for Cranial Base Surgery, University of Pittsburgh Medical Center

**137: VISUAL ACUITY OUTCOME IN PATIENTS WITH ACUTE PITUITARY APOPLEXY AFTER HYPERACUTE TRANSSPHENOIDAL SURGERY** – Nadine Ibrahim, BS, Todd Hollon, MD, Jonathan Trobe, MD, Ariel Barkan, MD, Stephen E Sullivan, MD, Erin L McKean, MD; University of Michigan

**138: THE ASSOCIATION OF POSTOPERATIVE PROLACTIN SERUM CONCENTRATION WITH RECURRENCE OF PROLACTINOMA** – Martin Rutkowski, MD, Sandeep Kunwar, MD, Lewis Blevins, MD, Manish Aghi, MD, PhD; UCSF

**139: A PROPOSED GRADING SYSTEM FOR TUMOR CONSISTENCY OF PITUITARY ADENOMAS** – Ki-Eun Chang, Kyohei Itamura, Joshua Lucas, Gabriel Zada; University of Southern California

**140: MORTALITY IN PITUITARY ADENOMA SURGERY IN TEACHING VERSUS NONTEACHING HOSPITALS** – Josephine Volovetz, Min Lang, Lu Dai, Ghaith Habboub, Paramita Das, Shahed Tish, Jaes Jones, Samantha Colby, Varun R Kshetry, Pablo F Recinos; Cleveland Clinic

**141: EVALUATION OF OUTCOMES AFTER ENDOSCOPIC ENDONASAL SURGERY FOR LARGE AND GIANT PITUITARY MACROADENOMA: A RETROSPECTIVE REVIEW OF 39 CONSECUTIVE PATIENTS** – Shamik Chakraborty, MD, Georgios Klironomos, MD, Mark Eisenberg, MD, Amir Dehdashti, MD; Hofstra Northwell School of Medicine

## PROFFERED PAPERS 13: Skull Base Reconstruction

Britannia

(one hour only, 5:15 pm – 6:15 pm)

MODERATORS: Ron Eliashar, MD & Gurston Nyquist, MD

**142: TRANSMASTOID APPROACH FOR REPAIR OF SUPERIOR SEMICIRCULAR CANAL DEHISCENCE** – Prasanth Romiyo, BS<sup>1</sup>, Thien Nguyen, BS<sup>2</sup>, Courtney Duong, BS<sup>2</sup>, Tyler Miao, BS<sup>2</sup>, Carlito Lagman, MD<sup>1</sup>, Giyarpuram Prashant, MD<sup>2</sup>, Isaac Yang, MD<sup>2</sup>; <sup>1</sup>Cooper Medical School of Rowan University, <sup>2</sup>David Geffen School of Medicine at UCLA

**143: ORBITAL WALL RECONSTRUCTION FOR TUMOR-ASSOCIATED PROPTOSIS: EFFECT OF POST-OPERATIVE ORBITAL VOLUME ON FINAL EYE POSITION** – Robert Heller, MD, Carl Heilman, MD; Department of Neurosurgery, Tufts Medical Center

**144: PEDICLED NASOSEPTAL FLAP OUTCOMES FOLLOWING PREVIOUS SINONASAL/SKULL BASE SURGERY** – Zainab Farzal, MD, Katherine Adams, BS, Satyan B Sreenath, MD, Elizabeth Stephenson, BA, Parth V Shah, MD, Maheer M Masood, BA, Douglas R Farquhar, MD, Charles S Ebert, Jr., MD, MPH, Brian D Thorp, MD, Adam M Zanation, MD; University of North Carolina at Chapel Hill

**145: THE MR IMAGING APPEARANCE OF ENDOSCOPIC ENDONASAL SKULL BASE DEFECT RECONSTRUCTION USING FREE MUCOSAL GRAFTS** – Christine S Kim, MD, Umesh Patel, MD, Mamie Higgins, MD, Gaetano Pastena, MD, Maria Peris-Celda, MD, Tyler Kenning, MD, Carlos Pinheiro-Neto, MD; Albany Medical Center

**146: ENDOSCOPIC ANTERIOR CRANIAL BASE RESECTION ON PATIENTS WITH PREVIOUS FRONTAL SINUS CRANIALIZATION: CHALLENGING RECONSTRUCTION** – Mamie Higgins, MD<sup>1</sup>, Tyler Kenning, MD<sup>2</sup>, Carlos Pinheiro-Neto, MD, PhD<sup>1</sup>; <sup>1</sup>Division of Otolaryngology, Department of Surgery, Albany Medical Center, Albany, NY, <sup>2</sup>Department of Neurosurgery, Albany Medical Center, Albany, NY

**147: USE OF COLLAGEN MATRIX FOR SKULL BASE RECONSTRUCTION FOLLOWING ENDOSCOPIC ENDONASAL RESECTION OF PITUITARY ADENOMA** – Alaa S Montaser, MD, Mostafa Shahein, MD, Juan M Revuelta Barbero, MD, Guillermo Maza Malve, MD, Alexandre Todeschini, MD, Daniel M Prevedello, MD, Bradley A Otto, MD, Ricardo L Carrau, MD; The Ohio State University Wexner Medical Center

**148: SALVAGE SKULL BASE RECONSTRUCTION IN THE ENDOSCOPIC ERA: THE VASTUS LATERALIS FREE TISSUE TRANSFER** – Stephen Y Kang, MD, Antoine Eskander, Ralph Abi-Hachem, Theodoros N Teknos, Enver Ozer, Matthew O Old, Daniel M Prevedello, Ricardo L Carrau; The Ohio State University Wexner Medical Center

4:15 pm – 6:15 pm

## RHOTON ROOM

Constellation AB

### RHOTON ANATOMY: 3D Anatomy of the Orbit and Related Structures

SPEAKER: Jeff Sorenson

### RADIOLOGY

SPEAKER: Tanya Rath, MD

### DUELING DISSECTIONS: Endonasal – Transorbital Resection Tumor (Left Eye); Supraorbital Endoscopic Approaches to Anterior Skull Base (Right Eye)

MODERATOR: Chris Bergeron

PARTICIPANTS: Kris Moe & Darlene Lubbe, MD

5:15 pm – 6:15 pm

## WORLD SKULL BASE LEADERSHIP GROUP

Commodore CDE

### **Fifteen Lessons Learned In Skull Base Surgery: An International Perspective In cooperation with the Skull Base Committee of the WFNS**

MODERATOR: Jose Alberto Landeiro

SPEAKERS: Engelbert Knosp, MD; Kenji Ohata, MD, PhD; Jacques Morcos, MD, FRCS, FAANS; Keki Turel, MBBS, MS; Ossama Al-Mefty, MD

- Three Lessons from Pituitary Adenomas – *Engelbert Knosp, MD*
- Three Lessons from Craniopharyngiomasa – *Kenji Ohata, MD, PhD*
- Three Lessons from The Cavernous Sinus – *Jacques Morcos, MD, FRCS, FAANS*
- Three Lessons from Complications – *Keki Turel, MBBS, MS*
- Three Lessons from Meningiomas – *Ossama Al-Mefty, MD*
- Panel Discussion – *All*

At the conclusion of this session, participants will be able to:

1. Select the best approach to many skull base pathologies.
2. Identify the risks involving the surgery of each tumor described in this course.
3. Solve the complications of these surgeries and how to avoid them.

6:45 pm – 7:30 pm

## **New Member Reception**

*Silver Strand Beach*

7:30 pm – 10:00 pm

## **NASBS Beach Blowout**

*Silver Strand Beach*

## SUNDAY, FEBRUARY 18, 2018

6:30 am – 12:00 pm **Registration**

*Constellation Foyer, 2<sup>nd</sup> Floor*

7:00 am – 7:30 am **Breakfast**

*Commodore Foyer*

7:30 am – 8:30 am **PITUITARY FORUM SESSION**

### **PITUITARY SESSION 1: Updates on Functional Adenomas**

*Commodore CD*

MODERATORS: Mark Eisenberg, MD & Nelson Oyesiku, MD, PhD, FACS

SPEAKERS: Shlomo Melmed, MD; Zachary Litvack, MD, MCR; Edward Laws, MD; Ajay Niranjana, MD, MBA; Marvin Bergsneider, MD; Avi Setton, MD

- Acromegaly: Updates In Management – *Shlomo Melmed, MD*
- Current Evidence and Best Practice for Radiosurgery for Management of Functional Adenoma – *Zachary Litvack, MD, MCR*
- WHO Classification of Functioning Pituitary Tumors, and Their Implication for Clinical Care – *Edward Laws, MD*
- Role of Radiosurgery for Functional Adenomas – *Ajay Niranjana, MD, MBA*
- Surgical Management of Giant Pituitary Adenomas – *Marvin Bergsneider, MD*
- Inferior Petrosal Sampling, Indications, Technique – *Avi Setton, MD*

This sessions is directed to neurosurgeons and ENT surgeons; it will provide updates in the medical and surgical management of functional pituitary adenoma.

At the conclusion of this session, participants will be able to:

1. Classify functional adenomas using the recent WHO classification and relate this to clinical care.
2. Articulate the current management of functional adenomas.
3. Implement radiosurgery management and advanced surgical techniques in the care of functional adenomas.

7:30 am – 8:30 am **MAIN TOPIC SESSIONS**

### **MAIN TOPIC 9: Hearing Preservation and Restoration**

*Commodore E*

MODERATORS: Christine Dinh, MD & Dennis Bojrab, MD

SPEAKERS: Jacob Hunter, MD; Gregory Basura, MD, PhD; Erika Woodson, MD; Amir Samii, MD; Soha Ghossaini, MD; Adrien Eshraghi, MD; Robert Behr, MD, PhD

- Hearing Preservation Outcomes with Observation for Vestibular Schwannoma – *Jacob Hunter, MD*
- Hearing Preservation Outcomes with Stereotactic Radiosurgery for Vestibular Schwannoma – *Gregory Basura, MD, PhD*
- Hearing Preservation Outcomes with Middle Cranial Fossa Craniotomy for Vestibular Schwannoma – *Erika Woodson, MD*
- Hearing Preservation Outcomes with Retrosigmoid Craniotomy for Vestibular Schwannoma – *Amir Samii, MD*
- Bone Anchored Implants for Single Sided Deafness – *Soha Ghossaini, MD*
- Cochlear Implantation after Vestibular Schwannoma Resection – *Adrien Eshraghi, MD*
- Hearing Restoration in NF2: Options and Expectations – *Robert Behr, MD, PhD*
- Case Presentation and Panel Discussion: Preserving Hearing in Vestibular Schwannoma Patients – *Christine Dinh, MD & Dennis Bojrab, MD*

This session will review short and long-term hearing preservation outcomes in the treatment of vestibular schwannoma, describe hearing restoration options and results, and discuss decision making strategies for hearing preservation. The intended audience includes skull base Neurotologists, Neurosurgeons, and Radiation Oncologists.

At the conclusion of this session, participants will be able to:

1. Integrate knowledge about hearing preservation outcomes and techniques to improve patient selection and treatment outcomes in vestibular schwannoma.
2. Differentiate different hearing restoration modalities and recognize appropriate patients for hearing rehabilitation techniques.

7:30 am – 8:30 am **HOT TOPIC SESSIONS**

## HOT TOPIC 7: Update on Management of Anterior Skull Base Trauma

Commodore B

MODERATOR: Anand Devaiah, MD

SPEAKERS: Joseph Chabot, DO; Bradford Woodworth, MD; Ralph Abi Hachem, MD, MD; Jamie Ullman; Harminder Singh

- Open Surgical Management of Frontal Sinus Fractures – *Joseph Chabot, DO*
- Transnasal Endoscopic Management of Frontal Sinus Trauma – *Bradford Woodworth, MD*
- Endoscopic Endonasal Repair of Traumatic CSF Leak – *Ralph Abi Hachem, MD*
- Management of Traumatic CSF Leak – *Jamie Ullman*
- Management of Traumatic Epistaxis and Penetrating Anterior Skull Base Trauma – *Harminder Singh*
- Panel Discussion – *All*

A review of current practices and management options for traumatic pathologies of the anterior skull base. The session is designed for practitioners in neurosurgery, otolaryngology, and ophthalmology.

At the conclusion of this session, participants will be able to:

1. Identify advances in techniques/ technology used in the management of anterior skull base trauma.
2. Recognize current practices in the management of anterior skull base trauma.
3. Prioritize complication avoidance and management.

## HOT TOPIC 8: Endoscopic/Standard Transorbital Surgery, 360 Degrees Approach

Commodore A

MODERATORS: Kris Moe & Darlene Lubbe, MD

SPEAKERS: Kris Moe; Darlene Lubbe, MD; Jean Anderson Eloy; Bitá Esmaeli; Dan Rootman; Steven Newman

- Introduction to Transorbital Surgery: Where Are We Today – *Kris Moe*
- The Role of Multiportal Surgery – *Darlene Lubbe, MD*
- Management of the Orbit In Sinonasal Malignancies – Does Transorbital Surgery Add Anything New? – *Jean Anderson Eloy*
- Transorbital Surgery for Anterior Cranial Fossa Lesions – *Kris Moe*
- What's New in Management of Lacrimal Gland Carcinomas – *Bitá Esmaeli*
- Combined Endoscopic and Transorbital Surgery: Medial and Lateral Approaches – *Dan Rootman*
- Fine Needle Biopsy of Orbital Lesions – *Steven Newman*

This session will aim to discuss transorbital surgery with regards to different pathologies that can be addressed, the multidisciplinary approach to lesions involving the orbit and skull base and the benefits and limitations of transorbital surgery. Rhinologists, neurosurgeons and ophthalmologists with an interest in orbital surgery should attend this session.

At the conclusion of this session, participants will be able to:

1. Select a specific transorbital approach to address a specific orbital or skull base lesion.
2. Recognize the importance of a multidisciplinary team approach to transorbital surgery.
3. Compare the benefits and risks of endoscopic transorbital surgery to traditional open surgery.

7:30 am – 9:35 am **RHOTON ROOM**

Constellation AB

## RHOTON ANATOMY AND RADIOLOGY: Neck & Temporal Bone

SPEAKERS: Hugh Curtin, MD & Lawrence Ginsberg, MD

8:35 am – 9:35 am **PITUITARY FORUM SESSION**

## **PITUITARY SESSION 2: Avoiding Complications and Optimizing Outcomes in Pituitary Surgery** *Commodore CD*

MODERATORS: Andrew Little, MD & Manish Aghi, MD, PhD

SPEAKERS: Daniel Kelly, MD; Marc Cohen, MD, MPH; Peter Gooderham, MD; John Jane, Jr, MD, PhD, FACS, FRCS; Engelbert Knosp, MD; Kevin Lillehei

- Avoiding CSF Leaks and Meningitis – *Daniel Kelly, MD*
- Strategies to Optimize Outcomes Before the Neurosurgeon Comes in the Room (and After They Leave) – *Marc Cohen, MD, MPH*
- Optimizing Outcomes in Patients with Acromegaly – *Peter Gooderham, MD*
- Posterior Pseudocapsule Technique and Gland Preservation – *John Jane, Jr, MD, PhD, FACS, FRCS*
- When is Cavernous Sinus Exploration Indicated – *Engelbert Knosp, MD*
- Optimizing Outcomes In Patients With Cushing's Disease – *Kevin Lillehei*

This session includes six high-yield presentations by leading pituitary experts on how to optimize surgical outcomes and limit complications. This session is appropriate for surgical residents, fellows, and faculty who are looking to learn about the surgical nuances of managing these patients.

At the conclusion of this session, participants will be able to:

1. Limit postoperative spinal fluid leak in their practice.
2. Preserve pituitary gland function.
3. Optimize Cushing's Disease surgery.

8:35 am – 9:35 am **HOT TOPIC SESSIONS**

## **HOT TOPIC 9: Vascular and Lymphatic Diseases of the Head, Neck, & Skull Base** *Commodore B*

MODERATORS: Jeff Janus, MD & Frank Hsu

SPEAKERS: Doron Sommer, MD; Pascal Jabbour, MD; M. Yashar Kalani, MD, PhD; Gurav Saigal, MD; Rafael Ortiz, MD; Randall Feingold, MD

- Introduction – *Jeff Janus, MD*
- JNA in the Pediatric Population – *Doron Sommer, MD*
- Dural Arteriovenous Fistulas and Carotid Cavernous Fistulas – *Pascal Jabbour, MD*
- Dural Lymphatics and Neck Metastasis – *M. Yashar Kalani, MD, PhD*
- Imaging of Extracranial Vascular Malformations – *Gurav Saigal, MD*
- Microcatheter Sclerotherapy for Lymphatic Malformations of the Orbit, Face, Head, and Neck – *Rafael Ortiz, MD*
- Reconstruction After Treatment of Lymphovascular Lesions – *Randall Feingold, MD*
- Q&A and Closing Remarks – *Frank Hsu*

Vascular and lymphatic diseases of the head, neck, & skull base pose diagnostic, treatment, and reconstructive challenges to Otolaryngologists, Neurosurgeons, and Reconstructive Surgeons alike. In this session, we will review case presentations of skull base, face, and neck vascular and lymphatic diseases, also addressing facial reconstruction.

At the conclusion of this session, participants will be able to:

1. Articulate the available treatment modalities for juvenile nasopharyngeal angiofibroma
2. Diagnose and prepare treatment options for dural AV fistula.
3. Recognize the role of dural lymphatics in the development of neck metastasis for skull base malignancy.
4. Understand the treatment options for lymphatic malformations, including sclerotherapy and surgery.
5. Produce a list of general reconstructive considerations after the treatment of facial lymphatic malformations.

## HOT TOPIC 10: Inflammatory and Infectious Diseases of the Skull Base

Commodore A

MODERATORS: Joe Kutz, MD & Paul Russell, MD

SPEAKERS: Perry Mansfield, MD; John Lee, MD; Anthony Zeitouni, MD; Ian Humphreys, DO; Claudia Kirsch, MD; Ken Byrd, MD

- Current Evaluation And Management Of Invasive Fungal Disease Of The Skull Base – *Perry Mansfield, MD*
- Allergic Fungal Sinusitis with Skull Base Erosion – *John Lee, MD*
- Osteoradionecrosis of the Skull Base – *Anthony Zeitouni, MD*
- Management of Skull Base Mucocoeles – *Ian Humphreys, DO*
- Imaging Features of Tumefactive Fibroinflammatory Lesions, Pseudotumor and IgG4 in the Skull Base – *Claudia Kirsch, MD*
- Diagnosis and Management of Skull Base Pseudotumors – *Ken Byrd, MD*

We will provide a forum for the discussion of skull base problems, with an emphasis on non-malignant processes. All surgeons dealing with the skull base will benefit from the discussion of these problems.

At the conclusion of this session, participants will be able to:

1. Diagnose the various skull base lesions.
2. Formulate the appropriate treatments.

## 8:35 am – 9:35 am EXPERT DEBATE SESSIONS

### EXPERT DEBATE 9: Sinonasal Cancer – Surgical vs. Non Surgical Management

Commodore E

MODERATORS: Shirley Su, MD & Mark Swanson, MD

SPEAKERS: Jack Phan, MD; Elizabeth Niccolli, MD; Gurston Nyquist, MD; Rony Aouad, MD; George Blumenschein, MD; Allan Vescan, MD; Nagy Elsayyad, MD, FACP; Marilene Wang, MD

This session will present cases with complex management decisions to an expert panel. Decisions will include surgical vs non-surgical therapy, surgical approach used, and role for neoadjuvant therapies. This session is designed for surgeons, medical oncologists, and radiation oncologists who treat anterior skull base malignancies

At the conclusion of this session, participants will be able to:

1. Evaluate the role of multimodality treatment in the management of complex sinonasal tumors.
2. Identify recent advances in multimodality treatment for sinonasal tumors.
3. Compare the indications and limitations of each modality.

## 9:35 am – 10:05 am Morning Break

Commodore Foyer

## 10:10 am – 12:00 pm PROFFERED PAPERS SESSIONS

### PROFFERED PAPERS 14: Pituitary Adenomas

Commodore CD

MODERATORS: Marc Cohen, MD, MPH & Walter Jean, MD

#### 149: STEREOTACTIC RADIOSURGERY FOR CUSHING'S DISEASE: RESULTS OF AN INTERNATIONAL, MULTICENTER STUDY – [Gautam U Mehta](#)<sup>1</sup>, Dale Ding<sup>1</sup>, Mohana R Patibandla<sup>1</sup>, Hideyuki Kano<sup>2</sup>, Nathaniel Sisterson<sup>2</sup>, Yan-Hua Su<sup>3</sup>, Michal Krsek<sup>4</sup>, Ahmed M Nabeel<sup>5</sup>, Amr El-Shehaby<sup>5</sup>, Khaled A Kareem<sup>5</sup>, Nuria Martinez-Moreno<sup>6</sup>, David Mathieu<sup>7</sup>, Brendan McShane<sup>8</sup>, Kevin Blas<sup>9</sup>, Douglas Kondziolka<sup>10</sup>, Inga Grills<sup>9</sup>, John Y Lee<sup>8</sup>, Roberto Martinez-Alvarez<sup>6</sup>, Wael A Reda<sup>5</sup>, Roman Liscak<sup>11</sup>, Cheng-Chia Lee<sup>3</sup>, L. Dade Lunsford<sup>2</sup>, Mary Lee Vance<sup>1</sup>, Jason P Sheehan<sup>1</sup>; <sup>1</sup>University of Virginia, <sup>2</sup>University of Pittsburgh Medical Center, <sup>3</sup>Taipei Veterans General Hospital, <sup>4</sup>Faculty Hospital Kralovske Vinohrady, <sup>5</sup>Gamma Knife Center Cairo, <sup>6</sup>Ruber International Hospital, <sup>7</sup>Universite de Sherbrooke, <sup>8</sup>University of Pennsylvania, <sup>9</sup>Beaumont Health System, <sup>10</sup>New York University, <sup>11</sup>Na Homolce Hospital

<sup>1</sup>University of Virginia, <sup>2</sup>University of Pittsburgh Medical Center, <sup>3</sup>Taipei Veterans General Hospital, <sup>4</sup>Faculty Hospital Kralovske Vinohrady, <sup>5</sup>Gamma Knife Center Cairo, <sup>6</sup>Ruber International Hospital, <sup>7</sup>Universite de Sherbrooke, <sup>8</sup>University of Pennsylvania, <sup>9</sup>Beaumont Health System, <sup>10</sup>New York University, <sup>11</sup>Na Homolce Hospital

#### 150: EARLY VERSUS DELAYED FRACTIONATED STEREOTACTIC RADIOTHERAPY FOR RESIDUAL AND PROGRESSIVE NONFUNCTIONING PITUITARY ADENOMAS – [Alan Siu, MD, MS](#)<sup>1</sup>, Purvee Patel, BA<sup>2</sup>, Wenying Shi, MD, PhD<sup>1</sup>, James J Evans, MD<sup>1</sup>, Christopher J Farrell, MD<sup>1</sup>; <sup>1</sup>Thomas Jefferson University, <sup>2</sup>Rutgers Robert Wood Johnson Medical School

<sup>1</sup>Thomas Jefferson University, <sup>2</sup>Rutgers Robert Wood Johnson Medical School

#### 151: SUBTOTAL RESECTION OF PITUITARY APOPLEXY IS ASSOCIATED WITH RECURRENT APOPLEXY – [Alan Siu, MD](#), Sanjeet Rangarajan, MD, Christopher Farrell, MD, Gurston Nyquist, MD, Marc Rosen, MD, James J Evans, MD; Thomas Jefferson University

<sup>1</sup>Thomas Jefferson University, <sup>2</sup>Rutgers University

#### 152: APPROACHES TO THE SELLA WITH THE PRESERVATION OF THE PEDICLE TO THE NASOSEPTAL FLAP – [Alan Siu, MD](#)<sup>1</sup>, Sanjeet Rangarajan, MD<sup>1</sup>, Purvee Patel, BA<sup>2</sup>, Eric Chen, PhD<sup>1</sup>, Michael Li, PhD<sup>1</sup>, Christopher Farrell, MD<sup>1</sup>, Gurston Nyquist, MD<sup>1</sup>, Mindy Rabinowitz, MD<sup>1</sup>, Marc Rosen, MD<sup>1</sup>, James Evans, MD<sup>1</sup>; <sup>1</sup>Thomas Jefferson University, <sup>2</sup>Rutgers University

**153: USING MACHINE LEARNING TO PREDICT TOTAL CHARGES AND DRIVERS OF COST FOLLOWING TRANSSPHENOIDAL SURGERY FOR PITUITARY TUMOR** – [Whitney E Muhlestein, BA](#), Lola B Chambless, MD; Vanderbilt University School of Medicine

**154: PREDICTION OF INTRAOPERATIVE PITUITARY ADENOMA CONSISTENCY BY PREOPERATIVE MRI EVALUATION** – [Jonathan J Yun](#), Stephen J Johans, MD, Ewa Borys, MD, Chirag R Patel, MD, Suresh Reddy, MBBS, Anand V Germanwala, MD; Loyola University Medical Center

**155: BILATERAL COAGULATION OF INFERIOR HYPOPHYSEAL ARTERY IN ENDOSCOPIC ENDONASAL TRANSCAVERNOUS APPROACH: DOES IT AFFECT PITUITARY FUNCTION?** – [Hamid Borghei-Razavi, MD, PhD](#)<sup>1</sup>, Ana Carolina Igami Nakassa, MD<sup>1</sup>, Edinson Najera, MD<sup>1</sup>, Huy Quang Truong, MD<sup>1</sup>, Eric W Wang, MD<sup>2</sup>, Carl H Snyderman, MD, MBA<sup>2</sup>, Paul A Gardner, MD<sup>1</sup>; <sup>1</sup>Department of Neurological Surgery, University of Pittsburgh School of Medicine, <sup>2</sup>Department of Otolaryngology, University of Pittsburgh School of Medicine

**156: ENDOSCOPIC TRANSSPHENOIDAL PROLACTINOMA SURGERY: IMMEDIATE POSTOPERATIVE SERUM PROLACTIN THRESHOLD LEVELS ARE PREDICTIVE FOR HORMONAL REMISSION** – [Chikezie Eseonu](#), Gagan Raghuraman, Douglas Reh, MD, Roberto Salvatori, MD, Masaru Ishii, MD, Gary Gallia, MD, PhD; Johns Hopkins University

**157: SODIUM AND WATER REGULATION AFTER PITUITARY SURGERY: RESULTS OF A PROSPECTIVE PILOT STUDY OF EARLY POSTOPERATIVE WATER LOAD** – [Michael A Mooney, MD](#), Michael A Bohl, MD, Christina E Sarris, MD, Heidi Jahnke, RN, MSN, William L White, MD, Andrew S Little, MD; Barrow Neurological Institute

**158: PREDICTING EARLY POSTOPERATIVE OUTCOMES AFTER PITUITARY ADENOMA SURGERY USING A MACHINE LEARNING APPROACH** – [Todd C Hollon, MD](#), Adish Parikh, Jamaal Tarpeh, Nadine Ibrahim, Ariel Barkan, Erin McKean, Stephen E Sullivan; University of Michigan

**159: SURGICAL OUTCOMES FOLLOWING REPEAT TRANSSPHENOIDAL SURGERY FOR NON-FUNCTIONAL PITUITARY ADENOMAS: A RETROSPECTIVE COMPARATIVE STUDY** – Joshua Bakhsheshian, MD<sup>1</sup>, Sarah Wheeler, MD<sup>2</sup>, Ben A Strickland, MD<sup>2</sup>, Martin Pham<sup>1</sup>, John Carmichael, MD<sup>3</sup>, Martin Weiss, MD<sup>1</sup>, [Gabriel Zada, MD](#)<sup>1</sup>; <sup>1</sup>Department of Neurological Surgery, Keck School of Medicine, University of Southern California, Los Angeles, CA 90033, <sup>2</sup>Department of Medicine, Keck School of Medicine, University of Southern California, Los Angeles, CA 90033, <sup>3</sup>Division of Endocrinology, Department of Medicine, Keck School of Medicine of USC, Los Angeles, CA, 90033

**160: PREDICTORS OF RECOVERY OF GLUCOSE INTOLERANCE FOLLOWING TREATMENT OF ACROMEGALY: A PROSPECTIVE STUDY OVER A DECADE** – [Rajesh Chhabra, MS, MCh](#), Pinaki Dutta, MDDM, Ashutosh Rai, PhD, Anil Bhansali, MD, DM; PGIMER

**161: THE DRIVERS OF CHARGES IN TRANSSPHENOIDAL PITUITARY SURGERY: AN ANALYSIS OF MEDICAL CENTER CHARACTERISTICS ACROSS NEW YORK STATE** – Anthony Yang, [Sean McKee](#), Joshua Bederson, Raj Shrivastava, Alfred Iloreta; Icahn School of Medicine at Mount Sinai

**162: MAMMOSOMATOTROPH PITUITARY ADENOMAS: INCIDENCE, CLINICAL FEATURES, AND TREATMENT OUTCOMES** – [Jonathan W Rick, BS](#), Arman Jahangiri, BS, Patrick M Flanagan, BS, Ankush Chandra, BS, Sandeep Kunwar, MD, Lewis Blevins, MD, Manish K Aghi, MD, PhD; University of California, San Francisco

**163: POST-OPERATIVE RADIOTHERAPY IN THE TREATMENT OF FUNCTIONING AND NON-FUNCTIONING PITUITARY ADENOMAS: A SYSTEMATIC REVIEW AND META-ANALYSIS OF 3323 PATIENTS** – Nardin Samuel, MD, PhD<sup>1</sup>, Naif Alotaibi, MD<sup>1</sup>, Vinai Gondi<sup>2</sup>, [Osaama H Khan, MD, MSc, FRCSC, FAANS](#)<sup>2</sup>; <sup>1</sup>University of Toronto, <sup>2</sup>Northwestern Medicine

## PROFFERED PAPERS 15: Vestibular Schwannomas

*Sovereign*

MODERATORS: Mark Eisenberg, MD & Zoukaa Sargi, MD

**171: MICROSURGICAL RESECTION OF LARGE AND GIANT ACOUSTIC NEUROMAS: A FOCUS ON FACIAL NERVE OUTCOMES AND COMPLICATIONS** – [Angela M Richardson](#), David J McCarthy, A Eshragi, S A Angeli, F Telischi, Jacques J Morcos; University of Miami / Jackson Memorial Hospital

**164: IMPACT OF COCHLEAR DOSE ON HEARING PRESERVATION RATES FOLLOWING GAMMA KNIFE RADIOSURGERY FOR NON-VESTIBULAR SCHWANNOMAS OF THE LATERAL SKULL BASE** – [Lucas P Carlstrom](#), Jeffrey T Jacobs, Matthew L Carlson, Marcus J Gates, Michael S Oldenburg, Robert L Foote, Bruce E Pollock, Colin L Driscoll, Michael J Link; Mayo Clinic

**165: ENDOSCOPIC ASSISTANCE IN RETROSIGMOID TRANSMEATAL APPROACH FOR THE MANAGEMENT OF CSF FISTULA IN VESTIBULAR SCHWANNOMAS** – [Marcos Tatagiba, MD, PhD](#); Department of Neurosurgery, University Hospital Tuebingen, Germany

**166: PRESENTATION AND TUMOR SIZE IN PATIENTS WITH VESTIBULAR SCHWANNOMA. ANALYSIS OF A MULTI-CHOICE QUESTIONNAIRE STUDY IN 1306 PATIENTS** – [Maria Peris-Celda, MD, PhD](#)<sup>1</sup>, Panagiotis Kerezoudis, MD<sup>1</sup>, Matthew L Carlson, MD<sup>2</sup>, Michael J Link, MD<sup>1</sup>; <sup>1</sup>Department of Neurosurgery Mayo Clinic, Rochester, MN, <sup>2</sup>Department of Otolaryngology Mayo Clinic, Rochester, MN

- 167: FACIAL NERVE FUNCTION IN A SERIES OF 494 VESTIBULAR SCHWANNOMAS - IMPROVEMENT BY TECHNOLOGICAL AMENDMENTS?** - Cordula Matthies, Prof, MD, PhD<sup>1</sup>, Robert Nickl<sup>1</sup>, Maria Hummel<sup>1</sup>, José Perez, MD<sup>1</sup>, Mario Loehr, MD, PhD<sup>1</sup>, Ralf-Ingo Ernestus, Prof, MD, PhD<sup>1</sup>, Rudolf Hagen, Prof, MD, PhD<sup>2</sup>; <sup>1</sup>Department of Neurosurgery, Wuerzburg University Hospital, <sup>2</sup>Department of Otorhinolaryngology
- 168: CHANGING CRITERIA FOR ATTEMPTS AT HEARING PRESERVATION IN ACOUSTIC NEUROMA SURGERY -** Kurt Grahnke<sup>1</sup>, Jehad Zakaria<sup>2</sup>, Caroline Szujewski<sup>1</sup>, Giselle Malina<sup>2</sup>, Adriana Russ<sup>1</sup>, Rebecca Rajasekhar<sup>1</sup>, John P Leonetti<sup>1</sup>, Douglas E Anderson<sup>1</sup>; <sup>1</sup>Loyola University Medical Center, <sup>2</sup>Loyola University Stritch School of Medicine
- 169: IMMUNE MICROENVIRONMENT OF VESTIBULAR SCHWANNOMAS** - Wenya Linda Bi, MD, PhD<sup>1</sup>, Yu Mei, MD, PhD<sup>1</sup>, Malak Abedalthagafi, MD<sup>2</sup>, Ian F Dunn, MD<sup>1</sup>; <sup>1</sup>Department of Neurosurgery, Brigham and Women's Hospital, <sup>2</sup>King Fahad Medical City and King Abdulaziz City for Science and Technology
- 170: VARIATION IN CODING PRACTICES FOR VESTIBULAR SCHWANNOMA SURGERY** - Wenya Linda Bi, MD, PhD<sup>1</sup>, Michael Mooney, MD<sup>2</sup>, Seungwon Yoon, BS<sup>2</sup>, Saksham Gupta, BA<sup>1</sup>, C. Eduardo Corrales, MD<sup>3</sup>, Ian F Dunn, MD<sup>1</sup>; <sup>1</sup>Department of Neurosurgery, Brigham and Women's Hospital, <sup>2</sup>Department of Neurosurgery, Barrow Neurological Institute, St. Joseph's Hospital and Medical Center, <sup>3</sup>Division of Otolaryngology, Brigham and Women's Hospital
- 172: EVOLUTION OF STEREOTACTIC RADIOSURGERY FOR VESTIBULAR SCHWANNOMAS: A SINGLE CENTER EXPERIENCE OVER THIRTY YEARS** - Angela M Richardson, David J McCarthy, Jacques J Morcos, Nagy ElSayed; University of Miami / Jackson Memorial Hospital

## PROFFERED PAPERS 16: Chordomas and Chondrosarcomas

Britannia

MODERATORS: Sanjay Ghosh, MD & Perry Mansfield, MD

- 180: VOLUMETRIC ANALYSIS OF EXTENT OF RESECTION, SURVIVAL, AND SURGICAL OUTCOMES, FOR SKULL BASE CHORDOMAS** - Chikezie Eseonu, MD, Gagan Raghuraman, Douglas Reh, MD, Masaru Ishii, MD, Gary Gallia, MD, PhD; Johns Hopkins University
- 173: PEDIATRIC CLIVAL CHORDOMA: A CASE SERIES AND RATIONALE FOR NEXT GENERATION SEQUENCING** - Kevin J Kovatch, MD<sup>1</sup>, Molly E Heft Neal, MD<sup>1</sup>, Nicole M Michmerhuizen, BS<sup>1</sup>, John Henry Owen, MS<sup>1</sup>, S. Ahmed Ali, MD<sup>1</sup>, J. Chad Brenner, PhD<sup>1</sup>, Mark EP Prince, MD<sup>1</sup>, Stephen E Sullivan, MD<sup>2</sup>, Erin L McKean, MD, MBA<sup>1</sup>; <sup>1</sup>University of Michigan Department of Otolaryngology-Head and Neck Surgery, <sup>2</sup>University of Michigan Department of Neurosurgery
- 174: A PROSPECTIVE OUTCOMES STUDY OF PROTON THERAPY FOR SKULL-BASE CHONDROSARCOMAS** - Adam L Holtzman, MD, Ronny L Rotondo, MD, CM, FRCPC, Michael S Rutenberg, MD, PhD, Daniel J Indelicato, MD, Christopher G Morris, MS, William M Mendenhall, MD; University of Florida College of Medicine
- 175: PROPOSED TREATMENT PARADIGM FOR INTRACRANIAL CHONDROSARCOMAS BASED ON MULTIDISCIPLINARY COORDINATION** - Da Li, Zhen Wu, Li-Wei Zhang, Jun-Ting Zhang; Beijing Tiantan Hospital, Capital Medical University
- 176: DESCRIPTIVE EPIDEMIOLOGY OF CRANIAL CHORDOMAS IN THE UNITED STATES** - Paramita Das, MD<sup>1</sup>, Jaes Jones<sup>1</sup>, Gaith Habboub, MD<sup>1</sup>, Quinn T Ostrom<sup>2</sup>, Carol Kruchko<sup>2</sup>, Jill S Barnholtz-Sloan, PhD<sup>2</sup>, Pablo Recinos, MD<sup>1</sup>, Varun Kshetty, MD<sup>1</sup>; <sup>1</sup>Cleveland Clinic, <sup>2</sup>Case Western Reserve University
- 177: ENDOSCOPIC ENDONASAL TRANSCLIVAL APPROACH WITH THE POSTERIOR CLINOIDECTOMY** - Hiroki Ohata; Departments of Neurological Surgery, Osaka City University Graduate School of Medicine, Osaka, Japan
- 178: CRANIAL CHONDROSARCOMAS: DESCRIPTIVE EPIDEMIOLOGY FROM THE YEARS 2001 TO 2014 IN THE UNITED STATES** - Jaes C Jones<sup>1</sup>, Gaith Habboub, MD<sup>2</sup>, Paramita Das, MD<sup>2</sup>, Min Lang, MS<sup>3</sup>, Samantha Colby<sup>3</sup>, Josephine Volovetz<sup>1</sup>, Alex Witek, MD<sup>2</sup>, Shahed Tish, MD<sup>2</sup>, Quinn T Ostrom, MA, MPH<sup>4</sup>, Carol Kruchko<sup>5</sup>, Jill S Barnholtz-Sloan, PhD<sup>4</sup>, Varun Kshetty, MD<sup>2</sup>, Pablo Recinos, MD<sup>2</sup>; <sup>1</sup>Cleveland Clinic Lerner College of Medicine, <sup>2</sup>Cleveland Clinic Foundation, <sup>3</sup>Case Western Reserve University School of Medicine, <sup>4</sup>Case Western Reserve University Case Comprehensive Cancer Center, <sup>5</sup>Central Brain Tumor Registry of the United States
- 179: VISUAL CHANGES FOLLOWING CYBERKNIFE RADIOSURGERY FOR SKULL BASE CHORDOMAS AND CHONDROSARCOMAS** - Swapnil S Mehta, BS, Yagmur Muftuoglu, BS, BA, PhD, Geoffrey Appelboom, MD, PhD, Kevin Kumar, MD, PhD, Justin Moore, MD, PhD, JD, FRACS, Scott Soltys, MD, Steven D Chang, MD; Stanford University
- 181: THE ROLE OF ENDOSCOPIC ENDONASAL SURGERY IN THE MANAGEMENT OF SKULL BASE CHONDROSARCOMAS: TECHNICAL NUANCES AND SHORT-TERM OUTCOME** - Camila Dassi, MD, Ana Belén Melgarejo, MD, Alaa S Montaser, MD, Daniel M Prevedello, MD, Bradley A Otto, MD, Ricardo L Carrau, MD; The Ohio State University Wexner Medical Center

## PROFFERED PAPERS 17: Sinonasal Neoplasms

Cambria

MODERATORS: Rony Aouad, MD & Yoko Takahashi, MD

- 182: RADIATION INDUCED HYPOPITUITARISM IN CRANIAL BASE MALIGNANCIES: CLINICAL OUTCOMES, SCREENING AND DOSIMETRIC ANALYSIS** - Kyle K VanKoeveering<sup>1</sup>, Katayoon Sabetsavestani<sup>2</sup>, Jae Lee<sup>3</sup>, Ariel Barkan<sup>4</sup>, Michelle Mierzwa<sup>4</sup>, Erin L McKean<sup>4</sup>; <sup>1</sup>Ohio State University, <sup>2</sup>Michigan State University, <sup>3</sup>Princeton University, <sup>4</sup>University of Michigan

**183: INDUCTION CHEMOTHERAPY FOR SINONASAL SQUAMOUS CELL CARCINOMA** – [Ahmed S Abdelmeguid, MD, PhD<sup>1</sup>](#), Watchareporn Teeramatwanich, MD<sup>1</sup>, Dianna Roberts, PhD<sup>1</sup>, Merrill Kies, MD<sup>2</sup>, Michael E Kupferman, MD<sup>1</sup>, Shirley Y Su<sup>1</sup>, Shaan M Raza, MD<sup>3</sup>, Franco DeMonte, MD<sup>3</sup>, Ehab Y Hanna, MD<sup>1</sup>; <sup>1</sup>Department of Head and Neck Surgery, The University of Texas MD Anderson Cancer Center, <sup>2</sup>Department of Thoracic Head and Neck Medical Oncology, The University of Texas MD Anderson Cancer Center, <sup>3</sup>Department of Neurosurgery, The University of Texas MD Anderson Cancer Center

**184: LONG TERM OUTCOMES OF MANAGEMENT OF OLFACTORY NEUROBLASTOMA: MD ANDERSON EXPERIENCE** – [Ahmed S Abdelmeguid, MD, PhD<sup>1</sup>](#), Watchareporn Teeramatwanich, MD<sup>1</sup>, Dianna Roberts, PhD<sup>1</sup>, Michael E Kupferman, MD<sup>1</sup>, Shirley Y Su, MD<sup>1</sup>, Shaan M Raza, MD<sup>2</sup>, Franco DeMonte<sup>2</sup>, Ehab Y Hanna, MD<sup>1</sup>; <sup>1</sup>Department of Head and Neck Surgery, The University of Texas MD Anderson Cancer Center, <sup>2</sup>Department of Neurosurgery, The University of Texas MD Anderson Cancer center

**185: PROACTIVE APPROACH TO SURVEILLANCE OF SINONASAL INVERTED PAPILLOMA** – Mark Chaskes, MD<sup>1</sup>, [Jan Koszewski, MD<sup>1</sup>](#), Sanjeet Rangarajan, MD<sup>2</sup>, Hermes Garcia, MD<sup>1</sup>, Gurston Nyquist, MD<sup>1</sup>, Mindy Rabinowitz, MD<sup>1</sup>, James Evans, MD<sup>1</sup>, Marc Rosen, MD<sup>1</sup>; <sup>1</sup>Thomas Jefferson University, <sup>2</sup>University of Tennessee Health Science Center

**186: SINONASAL AND VENTRAL SKULL BASE NEOPLASMS IN THE PEDIATRIC POPULATION: A SYSTEMATIC REVIEW AND META ANALYSIS** – [Kerolos Shenouda, MD<sup>1</sup>](#), Peter F Svider, MD<sup>1</sup>, Nathan Gonik, MD<sup>2</sup>, Jean Anderson Eloy, MD, FACS<sup>3</sup>, Adam J Folbe, MD<sup>4</sup>; <sup>1</sup>Department of Otolaryngology – Head and Neck Surgery, Wayne State University School of Medicine, Detroit, MI, <sup>2</sup>Department of Otolaryngology – Head and Neck Surgery, Wayne State University School of Medicine, Detroit, MI; Children's Hospital of Michigan, Detroit Medical Center, Detroit, MI, <sup>3</sup>Department of Otolaryngology – Head and Neck Surgery; Department of Neurological Surgery; Center for Skull Base and Pituitary Surgery; Department of Ophthalmology and Visual Sciences, Rutgers New Jersey Medical School, Newark, NJ, <sup>4</sup>Barbara Ann Karmanos Cancer Institute, Detroit, MI; Division of Otolaryngology, William Beaumont Hospital, Royal Oak, MI

**187: SURGICAL RESECTION OF SKULL BASE MALIGNANCY: PERIOPERATIVE AND LONG-TERM OUTCOMES** – [Elizabeth D Stephenson, BA<sup>1</sup>](#), Douglas R Farquhar, MD, MPH<sup>2</sup>, Maheer M Masood, BA<sup>1</sup>, Saangyoung E Lee, BS<sup>1</sup>, Katherine Adams, BS<sup>1</sup>, Zainab Farzal, MD<sup>2</sup>, Brian Thorp, MD<sup>2</sup>, Charles S Ebert, Jr, MD, MPH<sup>2</sup>, Deanna Sasaki-Adams, MD<sup>3</sup>, Adam M Zanation, MD<sup>2</sup>; <sup>1</sup>University of North Carolina School of Medicine, <sup>2</sup>Department of Otolaryngology – Head and Neck Surgery, University of North Carolina at Chapel Hill, <sup>3</sup>Department of Neurosurgery, University of North Carolina at Chapel Hill

**188: PROGNOSTIC IMPACT OF ADVERSE PATHOLOGIC FEATURES IN SINONASAL SQUAMOUS CELL CARCINOMA** – [Anuraag S Parikh, MD<sup>1</sup>](#), Jennifer C Fuller, MD<sup>1</sup>, Ashton E Lehmann, MD<sup>1</sup>, Neerav Goyal, MD<sup>2</sup>, Stacey T Gray, MD<sup>1</sup>, Derrick T Lin, MD<sup>1</sup>; <sup>1</sup>Massachusetts Eye and Ear Infirmary, <sup>2</sup>Penn State University

**189: AN ANALYSIS OF ENDOSCOPIC AND OPEN APPROACHES TO SINONASAL MALIGNANCIES IN THE NATIONAL CANCER DATABASE FROM 2010-2014** – [Rohan R Joshi](#), Aykuk Unsal, DO, Jennifer R Cracchiolo, MD, Jocelyn C Migliacci, MA, Benjamin R Roman, MD, MSHP, Marc A Cohen, MD, MPH; Memorial Sloan Kettering Cancer Center

**190: RETROSPECTIVE REVIEW OF A TERTIARY REFERRAL CENTER OF EPITHELIAL SINO NASAL AND ANTERIOR SKULL BASE TUMORS : A 6 YEAR REVIEW** – [Amani Ben Moussa](#), Badr Ibrahim, MD, François Lavigne, MD, FRCSC; Université de Montréal

**191: SINONASAL UNDIFFERENTIATED CARCINOMA: AN UPDATE ON SURVIVAL AND PROGNOSTIC MARKERS** – [Molly E Heft Neal, MD](#), Andrew C Birkeland, MD, Kyle K VanKoeveering, MD, J. Chad Brenner, PhD, Marentette Lawrence, MD, FACS, Stephen E Sullivan, MD, Erin L McKean, MD; University of Michigan

## PROFFERED PAPERS 18: Training & Education

*Constellation AB*

MODERATORS: Anand Devaiah, MD & James Evans, MD

**192: LEARNING CURVE OF A VIRTUAL REALITY SIMULATOR (NEUROTOUCH) FOR ENDOSCOPIC SINUS SURGERY** – [Mirko Manojlovic Kolarski, MD](#), Christopher Yao, MD, Stephen Chen, PhD, MD, Eric Monteiro, MD, FRCSC, John Lee, MD, FRCSC, MSc, Allan Vescan, MD, FRCSC, MSc; University of Toronto

**193: VALIDATION OF TRAINING LEVELS IN ENDOSCOPIC ENDONASAL SURGERY OF THE SKULL BASE** – [Philippe Lavigne, MD<sup>1</sup>](#), Daniel L Faden, MD<sup>1</sup>, Eric W Wang, MD<sup>1</sup>, Paul A Gardner, MD<sup>2</sup>, Juan C Fernandez-Miranda, MD<sup>2</sup>, Carl H Snyderman, MD, MBA<sup>1</sup>; <sup>1</sup>Department of Otolaryngology, University of Pittsburgh School of Medicine, <sup>2</sup>Department of Neurological Surgery, University of Pittsburgh School of Medicine

**194: USE ENDOSCOPE AND INSTRUMENT AND PATHWAY RELATIVE MOTION AS METRIC FOR AUTOMATED OBJECTIVE SURGICAL SKILL ASSESSMENT IN SKULL BASE AND SINUS SURGERY** – Yangming Li, Randall Bly, Mark Whipple, [Ian Humphreys](#), Blake Hannaford, Kris Moe; University of Washington

**195: SIMULATION BASED CONSULTATIONS FOR PATIENTS WITH CRANIAL TUMORS AND CEREBROVASCULAR PATHOLOGY** – [Leslie Schlachter, PAC](#), Holly E Oemke, Anthony B Costa, PhD, Joshua B Bederson, MD; Mount Sinai

**196: INITIAL REPORT ON THE NEXUS ONLINE CASE-BASED NEUROSURGICAL EDUCATION PLATFORM** – [Simone E Dekker, MD, PhD<sup>1</sup>](#), Thomas A Ostergard, MD<sup>1</sup>, Chad Glenn, MD<sup>1</sup>, Kevin Yoo, BA<sup>2</sup>, Anisha Garg, BA, MS<sup>3</sup>, Peter Nakaji, MD<sup>4</sup>, Nicholas C Bambakidis, MD<sup>1</sup>; <sup>1</sup>University Hospitals Cleveland Medical Center, <sup>2</sup>Lewis Katz School of Medicine, Temple University, <sup>3</sup>Case Western Reserve University School of Medicine, <sup>4</sup>Barrow Neurological Institute

**197: OBJECTIVE VALIDATION OF PERFUSION-BASED HUMAN LIVE CADAVERIC SIMULATION TRAINING MODEL FOR MANAGEMENT OF INTERNAL CAROTID ARTERY INJURY IN ENDOSCOPIC ENDONASAL SINUS AND SKULL BASE SURGERY** – [Gabriel Zada, MD, MS](#), Jasper Shen, Kevin Hur, Paul Zhang, Michael Minneti, Martin Pham, Bozena Wrobel; Keck USC

**198: CPA TUMORS: THE LEARNING CURVE IN A SURGEON'S INITIAL 50 CASES** – Michael E Ivan, MD, MBS, [Angela Richardson, MD, PhD](#); University of Miami

**199: FINDING MENTORSHIP FOR THE SKULL BASE TRAINEE** – [Angela M Richardson, MD, PhD](#), Valerie L Armstrong, Jacques J Morcos; University of Miami / Jackson Memorial Hospital

## PROFFERED PAPERS 19: CSF Leaks

*Commodore E*

MODERATORS: Bharat Guthikonda, MD & Cristine Klatt-Cromwell, MD

**201: SINGLE-CENTER EXPERIENCE WITH LUMBAR DRAIN USE FOR CEREBROSPINAL FLUID LEAK FOLLOWING TRANSPHENOIDAL SURGERY** – [Racheal Wolfson, MD](#), Devi Patra, Bharat Guthikonda, MD; Louisiana State University Health Sciences Center - Shreveport

**202: LUMBAR DRAINAGE MAY REPRESENT A COST SAVING METHOD FOR SKULL BASE SURGERIES** – Vishaal Patel, BA<sup>1</sup>, Gurpreet Gadhoke, MD<sup>2</sup>, [Paul A Gardner, MD<sup>3</sup>](#), Carl H Snyderman, MD, MBA<sup>3</sup>; <sup>1</sup>University of Pittsburgh School of Medicine, <sup>2</sup>Department of Neurological Surgery, University of Pittsburgh School of Medicine, <sup>3</sup>UPMC Center for Cranial Base Surgery

**203: EVOLUTION OF THE GRADED REPAIR OF CEREBROSPINAL FLUID LEAKS & SKULL BASE DEFECTS IN ENDONASAL ENDOSCOPIC TUMOR SURGERY: TRENDS IN REPAIR FAILURE AND MENINGITIS RATES IN 509 PATIENTS** – [Andrew R Conger, MD, MS<sup>1</sup>](#), Fan Zhao, MD, PhD<sup>2</sup>, Xiaowen Wang, MD<sup>2</sup>, Amalia Eisenberg, NP<sup>3</sup>, Chester Griffiths, MD<sup>3</sup>, Felice Esposito, MD, PhD<sup>4</sup>, Ricardo L Carrau, MD<sup>5</sup>, Garni Barkhoudarian, MD<sup>3</sup>, Daniel F Kelly, MD<sup>3</sup>; <sup>1</sup>Geisinger Health System, <sup>2</sup>Fudan University, <sup>3</sup>Pacific Neuroscience Institute, <sup>4</sup>University of Messina, Italy, <sup>5</sup>Ohio State University

**204: RISK FACTORS ASSOCIATED WITH INTRAOPERATIVE CEREBROSPINAL FLUID LEAK IN ENDOSCOPIC PITUITARY SURGERY** – [Karam W Badran, MD<sup>1</sup>](#), Satvir Saggi, BSc<sup>1</sup>, Edward C Kuan, MD, MBA<sup>2</sup>, David Hsu, MD<sup>1</sup>, Marvin Bergsneider<sup>3</sup>, Marilene B Wang, MD<sup>1</sup>; <sup>1</sup>Department of Otolaryngology-Head and Neck Surgery, University of California, Los Angeles, California, <sup>2</sup>Department of Otorhinolaryngology-Head and Neck Surgery, University of Pennsylvania, Philadelphia, Pennsylvania, <sup>3</sup>Department of Neurosurgery, University of California, Los Angeles, California

**205: MINIMALLY INVASIVE ENDOSCOPIC TRANS-EUSTACHIAN TUBE REPAIR OF REFRACTORY LATERAL SKULL BASE CSF RHINORRHEA: SURGICAL PARAMETERS** – [Erik C Brown, MD, MS, PhD<sup>1</sup>](#), Brandon Lucke-Wold, PhD<sup>2</sup>, Justin Cetas, MD, PhD<sup>1</sup>, Sachin Gupta, MD<sup>3</sup>, Timothy Hullar, MD<sup>3</sup>, Timothy Smith, MD, MPH<sup>3</sup>, Jeremy N Ciporen, MD<sup>1</sup>; <sup>1</sup>Department of Neurosurgery, Oregon Health and Science University, <sup>2</sup>MD/PhD Program, West Virginia University, <sup>3</sup>Department of Otolaryngology, Oregon Health and Science University

**206: PERSISTENT CEREBROSPINAL FLUID LEAK AFTER ENDOSCOPIC ENDONASAL APPROACH TO THE POSTERIOR CRANIAL FOSSA** – [Ana Carolina Igami Nakassa, MD<sup>1</sup>](#), Edinson Najera, MD<sup>1</sup>, Hamid Borghei-Razavi, MD, PhD<sup>1</sup>, Huy Q Truong, MD<sup>1</sup>, Xicai Sun, MD<sup>1</sup>, Salomon Cohen, MD<sup>1</sup>, Eric W Wang, MD<sup>2</sup>, Carl H Snyderman, MD, MBA<sup>2</sup>, Juan C Fernandez-Miranda, MD<sup>3</sup>, Paul A Gardner, MD<sup>3</sup>; <sup>1</sup>Surgical Neuroratomy Lab, UPMC Center for Cranial Base Surgery, <sup>2</sup>Department of Otolaryngology, University of Pittsburgh School of Medicine, <sup>3</sup>Department of Neurological Surgery, University of Pittsburgh School of Medicine

**207: PRIMARY DURA AND ARACHNOID CLOSURE USING TITANIUM CLIPS: ENDOSCOPIC ENDONASAL SURGERY RECONSTRUCTION TECHNIQUE** – [Marvin Bergsneider, MD](#), Quang Luu, Jeffrey Suh, Marilene Wang; UCLA

**208: OUTCOMES ASSOCIATED WITH SKULL-BASE FRACTURES – A RETROSPECTIVE NATIONWIDE ANALYSIS** – [Anthony O Asemota, MD, MPH](#), Gary L Gallia, MD, PHD; Johns Hopkins Department of Neurosurgery

**209: MANAGEMENT OF SKULL BASE FRACTURES IN A UK MAJOR TRAUMA CENTRE** – [John Hanrahan<sup>1</sup>](#), Samir A Matloob, MD<sup>2</sup>, Dimitrios Paraskevopoulos<sup>2</sup>; <sup>1</sup>Kings University, <sup>2</sup>Royal London Hospital

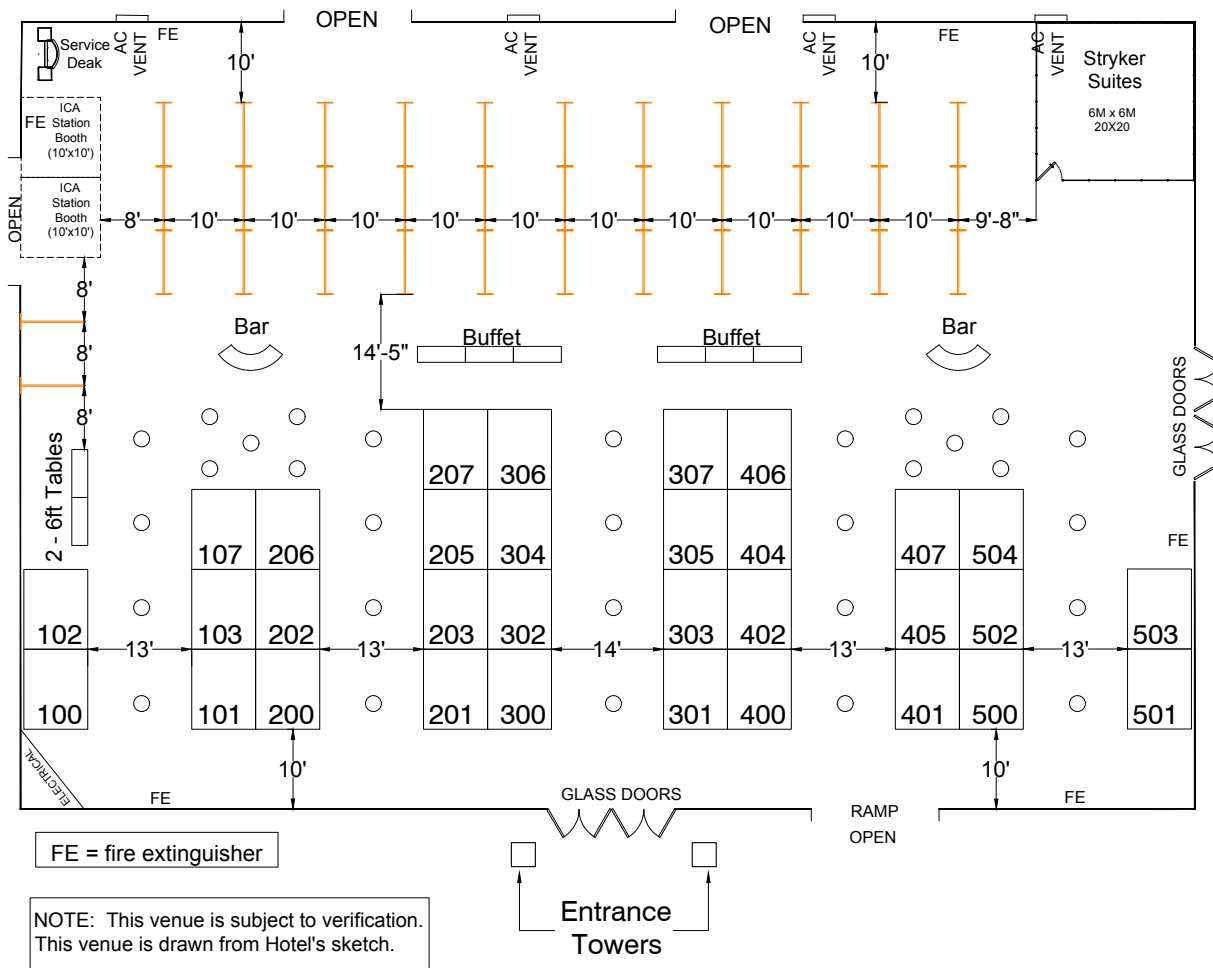
**210: ENDOSCOPIC ENDONASAL RECONSTRUCTION OF HIGH FLOW CEREBROSPINAL FLUID LEAK WITH FASCIA LATA BUTTON GRAFT AND NASOSEPTAL FLAP, SURGICAL TECHNIQUE AND CASE SERIES** – [Roshni Khatiwala<sup>1</sup>](#), Maria Peris-Celda, MD, PhD<sup>2</sup>, Tyler Kenning<sup>2</sup>, Carlos Pinheiro-Neto<sup>3</sup>; <sup>1</sup>Albany Medical College, <sup>2</sup>Department of Neurosurgery, Albany Medical Center, <sup>3</sup>Division of Otolaryngology / Head and Neck Surgery, Department of Surgery, Albany Medical Center

**200: QUANTITATIVE DETERMINATION OF THE OPTIMAL TEMPOROPARIETAL FASCIA FLAP NECESSARY TO REPAIR SKULL BASE DEFECTS** – [Alan Siu, MD](#), Sanjeet Rangarajan, MD, Christopher Farrell, MD, Gurston Nyquist, MD, Mindy Rabinowitz, MD, Marc Rosen, MD, James Evans, MD; Thomas Jefferson University

12:00 pm – 12:30 pm **2018 Meeting Closing Ceremony**

SPEAKERS: Ian Witterick, MD, MSc, FRCSC; Zoukaa Sargi, MD; Amir Dehdashti, MD; James Evans, MD

# Exhibit Hall Floor Plan



## BOOTH ASSIGNMENTS

<b>100</b>	OsteoMed	<b>306</b>	Codman Special Surgical
<b>101</b>	Mizuho America, Inc.	<b>307</b>	Apex Medical, Inc.
<b>102</b>	Surgical Theater	<b>400</b>	Olympus America, Inc.
<b>103</b>	Carl Zeiss Meditec, Inc.	<b>401</b>	DePuy Synthes
<b>107</b>	SPIWay, LLC	<b>402</b>	Brainlab
<b>200</b>	KARL STORZ Endoscopy, Inc.	<b>404</b>	TAKAYAMA Instrument, Inc.
<b>201 &amp; 203</b>	Medtronic	<b>405</b>	Sutter Medical USA
<b>202</b>	Synaptive Medical	<b>406</b>	Leica Microsystems
<b>205</b>	pro med instruments	<b>407</b>	Zimmer Biomet
<b>206</b>	Haag-Streit USA	<b>500</b>	Natus Neuro
<b>207</b>	KLS Martin	<b>501</b>	NSK America Corp.
<b>300</b>	Elekta	<b>502</b>	Kirwan Surgical Products
<b>301, 303 &amp; 305</b>	Stryker	<b>503</b>	Hyperbranch Medical Technology
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<b>304</b>	NICO Corporation		

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## **DePuy Synthes**

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## **Haag-Streit USA**

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800-12 Capitola Drive  
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2151 E Grand Ave  
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TEL: 800-421-0837  
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# Exhibitor Profiles

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TEL: 781-834-9500  
WEB: [www.ksp.com](http://www.ksp.com)

Kirwan Surgical Products is an industry leader in the development of electrosurgical and nonstick bipolar specialty products for microsurgical indications including neurosurgery, spine surgery, ophthalmology, otolaryngology, plastic and reconstructive surgery, and orthopaedic surgery.

## **KLS Martin**

**BOOTH #207**

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TEL: 904-641-7746  
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WEB: [www.mizuho.com](http://www.mizuho.com)

Mizuho America, Inc. is a cerebrovascular focused instrumentation company whose main products include Sugita TII Aneurysm Clips, Neurosurgical Operating Tables, Cranial Stabilization Systems, Instrumentation: Kelly Endonasal Set, Lawton Neurovascular Bypass Set, Evans Rotatable Set, Day-Bailes Suction Tubes, Intracranial & Vascular Dopplers, and NSII Vesalius Monopolar and Bipolar System.

## **Natus Neuro**

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NICO Corporation is a leader in interventional technologies used in neurosurgery. Using a parafascicular trans-sulcal surgical approach, standardized technologies achieve non-disruptive access to the brain with BrainPath, automated tumor removal and clot evacuation with Myriad, and intraoperative collection and preservation of tumor tissue that may enable more precise tissue evaluation.

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# Exhibitor Profiles

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## **pro med instruments, Inc.**

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3600 Corte Castillo  
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**P001: ENDOSCOPIC APPROACHES TO THE PARAMEDIAN SKULL BASE: QUANTITATIVE ANALYSIS AND COMPARISON OF EXPOSURE AND SURGICAL FREEDOM BETWEEN THE ENDONASAL AND CONTRALATERAL SUBLABIAL-TRANSMAXILLARY APPROACHES** – [Juan C Yanez-Siller, MD, MPH](#), Raywat Noiphithak, MD, Juan M Revuelta Barbero, MD, Alaa Montaser, MD, Guillermo Maza, MD, Bradley A Otto, MD, Daniel M Prevedello, MD, Ricardo L Carrau, MD; The Ohio State University

**P002: QUANTITATIVE ANALYSIS OF SURGICAL WORKING SPACE DURING ENDOSCOPIC SKULL BASE SURGERY** – [Joel C Davies, MD, MSc](#), Harley Chan, PhD, Christopher Yao, MD, Michael Cusimano, MD, PhD, FRCS, John Irish, MD, MSc, FRCSC, John Lee, MD, MSc, FRCSC; University of Toronto

**P003: DISORDERS INVOLVING A PERSISTENT CRANIOPHARYNGEAL CANAL: A CASE SERIES** – [A Kaufman](#)<sup>1</sup>, S K Poonia<sup>1</sup>, D Cazzador<sup>2</sup>, M A Kohanski<sup>1</sup>, E C Kuan<sup>1</sup>, C C Tong<sup>1</sup>, D Borsetto<sup>2</sup>, E Emanuelli<sup>2</sup>, J N Palmer<sup>1</sup>, N D Adappa<sup>1</sup>; <sup>1</sup>Department of Otorhinolaryngology- Head and Neck Surgery, University of Pennsylvania, Perelman School of Medicine, Philadelphia, PA, <sup>2</sup>Department of Neurosciences, Otorhinolaryngology Unit, University of Padua, Padua, Italy

**P005: T2-HYPERINTENSITY SIGNAL ALONG THE OPTIC TRACT IN PITUITARY METASTASIS: CASE REPORT** – [Mehrnoosh Gorjian](#), Christopher Brooks, MD, Katharine Cronk, MD, PhD; Boston Medical Center

**P006: TEMPORALIS MUSCLE FLAP FOR ENDOSCOPIC ANTERIOR SKULL BASE RECONSTRUCTION: AN ANATOMIC STUDY** – [Xicai Sun, MD](#)<sup>1</sup>, Hongmeng Yu, MD<sup>1</sup>, Quan Liu, MD<sup>1</sup>, Dehui Wang, MD<sup>1</sup>, Juan C. Fernandez-Miranda, MD<sup>2</sup>, Paul A. Gardner, MD<sup>2</sup>, Eric Wang, MD<sup>2</sup>, Carl H. Snyderman, MD<sup>2</sup>; <sup>1</sup>Department of Otolaryngology, Eye, Ear, Nose and Throat Hospital, Shanghai Medical College of Fudan University, <sup>2</sup>Department of Neurological Surgery, UPMC Presbyterian

**P007: AN INVESTIGATION INTO THE ROLE OF MELATONIN IN PAPEZ CIRCUIT AND HYPOTHALMO-PITUITARY AXIS** – [Tulika Gupta, Dr](#), Daisy Sahni, Sunil K Gupta, Dr; PGIMER

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**P009: BASAL PERFORATING ARTERIES OF THE ANTERIOR COMMUNICATING ARTERY: ANATOMICAL STUDY AND IMPLICATIONS FOR SUPRACHIASMATIC REGION SURGERY** – [Edinson Najera, MD](#)<sup>1</sup>, Huy Quang Truong, MD<sup>1</sup>, Joao Tiago A Belo, MD<sup>1</sup>, Salomon Cohen, MD<sup>1</sup>, Ana Carolina Igami Nakassa, MD<sup>1</sup>, Paul A Gardner, MD<sup>2</sup>, Juan C Fernandez-Miranda, MD<sup>2</sup>; <sup>1</sup>Surgical Neuroanatomy Lab, UPMC Center for Cranial Base Surgery, <sup>2</sup>Department of Neurological Surgery, University of Pittsburgh School of Medicine

**P010: RADIOGRAPHIC ANALYSIS OF THE VIDIAN CANAL AND ITS UTILITY IN PETROUS INTERNAL CAROTID ARTERY LOCALIZATION** – Eric Mason, MD<sup>1</sup>, Patricia Hudgins, MD<sup>2</sup>, Gustavo Pradilla, MD<sup>2</sup>, Nelson M Oyesiku, MD<sup>2</sup>, [C. Arturo Solares, MD](#)<sup>2</sup>; <sup>1</sup>The Ohio State University, <sup>2</sup>Emory University Hospital Midtown

**P011: MICROSURGICAL ANATOMY OF THE FASCIAE ATTACHING TO THE SKULL BASE** – [Noritaka Komune, MD, PhD](#)<sup>1</sup>, Satoshi Matsuo, MD, PhD<sup>2</sup>, Takashi Nakagawa, MD, PhD<sup>1</sup>; <sup>1</sup>Department of Otorhinolaryngology, Graduate School of Medical Sciences, Kyushu University, Fukuoka, Japan, <sup>2</sup>Department of Neurosurgery, National Hospital Organization, Kyushu Medical Center, Fukuoka, Japan

**P012: CONTRALATERAL TRANSMAXILLARY APPROACH VS PURELY TRANSNASAL APPROACH TO THE PETROCLIVAL REGION AN ANATOMICAL AND RADIOLOGICAL STUDY** – [Joao Mangussi-Gomes, MD](#)<sup>1</sup>, Gustavo F Nogueira, MD<sup>2</sup>, Eric W Wang, MD<sup>3</sup>, Juan C Fernandez-Miranda, MD<sup>4</sup>, Carl H Snyderman, MD, MBA<sup>3</sup>, Paul A Gardner, MD<sup>4</sup>; <sup>1</sup>Surgical Neuroanatomy Lab, UPMC Center for Cranial Base Surgery, <sup>2</sup>Neurological Institute of Curitiba, <sup>3</sup>Department of Otolaryngology, University of Pittsburgh School of Medicine, <sup>4</sup>Department of Neurological Surgery, University of Pittsburgh School of Medicine

**P013: MICROSURGICAL ANATOMY OF THE POSTERIOR WALL OF THE CAVERNOUS SINUS** – Andrea Boschi<sup>1</sup>, [Gunjan Goel](#)<sup>2</sup>, Philip E Stieg<sup>1</sup>, Alexander I Evins<sup>1</sup>, Antonio Bernardo<sup>1</sup>; <sup>1</sup>Weill Cornell Medicine, Neurosurgery, <sup>2</sup>Department of Neurosurgery, University of California, San Diego

**P014: IMMUNE MICROENVIRONMENT OF PITUITARY ADENOMAS** – Wenya Linda Bi, MD, PhD<sup>1</sup>, Yu Mei, MD, PhD<sup>1</sup>, Malak Abedalthagafi, MD<sup>2</sup>, [Ian F Dunn, MD](#)<sup>1</sup>; <sup>1</sup>Department of Neurosurgery, Brigham and Women's Hospital, <sup>2</sup>Saudi Human Genome Laboratory, King Fahad Medical City and King Abdulaziz City for Science and Technology

**P015: SKULL BASE EBSTEIN-BARR VIRUS (EBV)-ASSOCIATED SMOOTH MUSCLE TUMOR IN AN 8 YEAR-OLD GIRL WITH CD4+ AND CD8+ LYMPHOPENIA** – [Desmond A Brown, MD, PhD](#), Nicholas Deep, MD, Colin L Driscoll, MD, Mark E Jentoft, MD, Michael J Link, MD, Caterina Giannini, MD, PhD, David J Daniels, MD, PhD; Mayo Clinic

**P016: TRAUMATIC CSF RHINORRHEA FOLLOWING SEPTORHINOPLASTY** – Ahmed S Youssef, MDMRCS<sup>1</sup>, [Shahzada Ahmed, FRCSPHD<sup>1</sup>](#), Ahmed Ibrahim, MD<sup>2</sup>; <sup>1</sup>University Hospital Birmingham, <sup>2</sup>Alexandria University Hospital

**P017: FALLOPIAN CANAL MENINGOCELE: A RARE CAUSE OF CEREBROSPINAL FLUID OTORRHEA** – [Jacob K. Dey, MD](#), Christopher S Graffeo, MD, Jamie J van Gompel, MD, Matthew L Carlson, MD; Mayo Clinic - Rochester

**P018: TECHNIQUE FOR FRONTAL SINUS PRESERVATION DURING REPAIR OF CSF LEAK AFTER TRAUMA OR SURGERY** – [Christopher P Miller, MD](#), Roukoz Chamoun, MD; University of Kansas School of Medicine

**P019: MINIMALLY INVASIVE ENDOSCOPIC REPAIR OF REFRACTORY LATERAL SKULL BASE CEREBRAL SPINAL FLUID LEAKS: A SUMMARY AND TECHNICAL SYNTHESIS** – Brandon Lucke-Wold, PhD<sup>1</sup>, Erik C Brown, MD, MS, PhD<sup>2</sup>, Justin Cetas, MD, PhD<sup>2</sup>, Sachin Gupta, MD<sup>3</sup>, Timothy Hullar, MD<sup>3</sup>, Timothy Smith, MD, MPH<sup>3</sup>, [Jeremy N Ciporen, MD<sup>2</sup>](#); <sup>1</sup>MD/PhD Program, West Virginia University, <sup>2</sup>Department of Neurosurgery, Oregon Health and Science University, <sup>3</sup>Department of Otolaryngology, Oregon Health and Science University

**P020: COST EFFECTIVENESS OF DURAL SEALANTS IN ENDOSCOPIC CSF LEAK REPAIR** – [Houmehr Hojjat<sup>1</sup>](#), Peter Svider<sup>1</sup>, Ho-Sheng Lin<sup>2</sup>, Jean Anderson Eloy<sup>3</sup>, Adam J. f Folbe<sup>4</sup>; <sup>1</sup>Department of Otolaryngology - Head and Neck Surgery, Wayne State University School of Medicine, <sup>2</sup>Wayne State University, <sup>3</sup>Department of Otolaryngology-Head and Neck Surgery, Rutgers New Jersey Medical School, <sup>4</sup>William Beaumont Hospital, Division of Otolaryngology

**P021: INTRACRANIAL MUOCOCELE FOLLOWING IATROGENIC CSF LEAK REPAIR** – [Jennifer C Fuller, MD](#), George A Scangas, MD, Ashton E Lehmann, MD, Anuraag Parikh, MD, William T Curry, MD, Eric H Holbrook, MD; Massachusetts Eye and Ear Infirmary

**P022: CSF-LEAK FOLLOWING BALLOON SINUPLASTY OF SPHENOID SINUS: A CASE REPORT AND REVIEW OF THE LITERATURE** – [Amar Miglani, MD](#), Joseph M Hoxworth, MD, Devyani Lal, MD; Mayo Clinic Arizona

**P023: LESS IS MORE IN SELECT PEDIATRIC PATIENTS: CONSERVATIVE MANAGEMENT OF SKULL BASE REPAIR IN THE CASE OF A COMPLEX CLIVAL CHORDOMA** – [Douglas R Johnston, Assistant Professor](#), Jeffrey C Rastatter, Associate Professor, Tord Alden, Assistant Professor; Lurie Children's Hospital

**P024: RESOLUTION OF CHRONIC ASPIRATION PNEUMONITIS FOLLOWING ENDOSCOPIC ENDONASAL REPAIR OF SPONTANEOUS CEREBROSPINAL FLUID FISTULA OF THE SKULL BASE: A CASE SERIES** – [Maya Or<sup>1</sup>](#), Samridhi Amba, MD<sup>2</sup>, Justin Seltzer<sup>1</sup>, Roozera A Khan, MD<sup>2</sup>, Bozena B Wrobel, MD<sup>3</sup>, Gabriel Zada, MD<sup>1</sup>; <sup>1</sup>Department of Neurosurgery, Keck School of Medicine of USC, Los Angeles, California, United States, <sup>2</sup>Department of Pulmonary and Critical Care, Keck School of Medicine of USC, Los Angeles, California, United States, <sup>3</sup>Department of Otolaryngology, Keck School of Medicine of USC, Los Angeles, California, United States

**P025: REPAIR OF FRONTAL SKULL BASE DEFECTS IN CHILDREN: SHOULD A TRANSNASAL APPROACH ALWAYS BE ATTEMPTED FIRST?** – [Ameer T Shah, MD](#), Devin M Ruiz, MD, Jesse Winer, MD, Andrew R Scott, MD; Tufts Medical center

**P026: HIGHER RECURRENCE RATE OF SPONTANEOUS CSF LEAK AT ANTERIOR SKULL BASE** – [Carlos T Chone, PhD, Professor<sup>1</sup>](#), Marcelo H Sampaio, PhD<sup>1</sup>, Eulalia Sakano, PhD, Professor<sup>1</sup>, Jorge R Paschoal, PhD, Professor<sup>1</sup>, Enrico Ghizoni, PhD, Professor<sup>2</sup>, Helder Tedeschi, PhD, Professor<sup>2</sup>; <sup>1</sup>Department Otolaryngology Head and Neck, University of Campinas, Brazil, <sup>2</sup>Department of Neurological Surgery, University of Campinas, Brazil

**P027: NOVEL APPROACH TO AVOID MANIPULATION OF THE MEDIAL PTERYGOPALATINE FOSSA CONTENTS DURING SURGICAL MANAGEMENT OF SPHENOID SINUS LATERAL RECESS CSF LEAKS: THE POSTERIOR MAXILLARY SINUS WINDOW TECHNIQUE** – [Javier Ospina, MD](#), Arif Janjua, MD, FRCSC; University of British Columbia

**P028: CEREBROSPINAL FLUID LEAK AFTER ACOUSTIC NEUROMA SURGERY VIA MIDDLE CRANIAL FOSSA APPROACH** – Gavriel D Kohlberg, MD, Noga Lipschitz, MD, Kareem O Tawfik, MD, Joseph T Breen, MD, Myles L Pensak, MD, Mario Zuccarello, MD, [Ravi N Samy](#); University of Cincinnati Medical Center

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**P031: TRANSNASAL OBLITERATION OF THE EUSTACHIAN TUBE (ET) FOR REPAIR OF CSF LEAK: A REPORT OF TWO CASES** – [Rebecca A Compton](#), Elie E Rebeiz, Jonathan Sillman; Tufts Medical Center

**P032: RECURRENT PAPILLARY CRANIOPHARYNGIOMA WITH BRAF V600E MUTATION TREATED WITH DABRAFENIB: A CASE REPORT** – [Benjamin T Himes, MD](#), Michael Ruff, MD, Jamie J van Gompel, Sean S Park, MD, PhD, Evanthis Galanis, MD, Timothy J Kaufmann, MD, Joon Uhm, MD; Mayo Clinic

## **P033: CAROTID ARTERY INJURY DURING MICROSCOPIC OR ENDOSCOPIC TRANSPHENOIDAL**

**SURGERY** – [Avital Perry](#), Christopher S Graffeo, Lucas P Carlstrom, Jenna Meyer, Christopher R Marcellino, Anthony Burrows, Colin L Driscoll, Fredric B Meyer; Mayo Clinic

## **P034: POST TREATMENT RHINOSINUSITIS FOLLOWING ENDOSCOPIC RESECTION OF PEDIATRIC**

**CRANIOPHARYNGIOMA** – [Charles C Tong, MD](#), Edward C Kuan, MD, MBA, Seerat K Poonia, Michael A Kohanski, MD, PhD, Justina L Lambert, BA, Phillip B Storm, MD, James N Palmer, Nithin D Adappa, MD; University of Pennsylvania

## **P035: CEREBRAL VASOSPASM AFTER TRANSPHENOIDAL SURGERY FOR PITUITARY ADENOMA: A VERY RARE BUT FATAL COMPLICATION**

– [Carlos T Chone, MD, PhD, Professor<sup>1</sup>](#), Eulalia Sakano, MD, PhD, Professor<sup>1</sup>, Yvens B Fernandes, MD, PhD<sup>2</sup>, Helder Tedeschi, MD, PhD, Professor<sup>2</sup>; <sup>1</sup>Department Otolaryngology Head and Neck, University of Campinas, Brazil, <sup>2</sup>Department of Neurological Surgery, University of Campinas, Brazil

## **P036: THE ZYGOMATIC OSTEOTOMY IN MIDDLE CRANIAL FOSSA SURGERY: A RETROSPECTIVE COHORT**

**REVIEW** – [Elliot Pressman<sup>1</sup>](#), Elliot Neal<sup>1</sup>, Alexia Athienitis, PhD<sup>2</sup>, Adam Turner<sup>1</sup>, Christopher Primiani<sup>1</sup>, Gautam Rao<sup>1</sup>, Pankaj K Agarwalla, MD<sup>3</sup>, Shunchang Ma, MD<sup>4</sup>, Harry van Loveren, MD<sup>3</sup>, Siviero Agazzi, MD<sup>3</sup>; <sup>1</sup>University of South Florida, Morsani College of Medicine, Tampa, FL, <sup>2</sup>University of South Florida, Muma College of Business, Tampa, FL, <sup>3</sup>Department of Neurosurgery, University of South Florida, Tampa, FL, <sup>4</sup>Department of Neurosurgery, Beijing Tiantan Hospital, Capital Medical University, Beijing, China

## **P037: DELAYED IPSILATERAL FACIAL PARESIS AFTER OPERATIVE REPAIR OF SUPERIOR SEMICIRCULAR**

**CANAL DEHISCENCE** – [Ryan Stephenson, MD<sup>1</sup>](#), John J Arsenault<sup>2</sup>, Isaac Yang, MD<sup>3</sup>, Quinton Gopen, MD<sup>1</sup>; <sup>1</sup>UCLA Head and Neck Surgery, <sup>2</sup>The Warren Alpert Medical School of Brown University, <sup>3</sup>UCLA Neurological Surgery

## **P038: ENDOSCOPIC COIL AS A FOREIGN BODY IN THE MAXILLARY SINUS: A COMPLICATION OF**

**ENDOSCOPIC EMBOLIZATION FOR EPISTAXIS** – [Rebecca A Compton](#), Elie E Rebeiz, Chairman; Tufts Medical Center

## **P039: ADJUSTMENT OF SURGICAL TECHNIQUE LOWERS READMISSION FOR EPISTAXIS IN ENDOSCOPIC**

**PITUITARY SURGERY** – Eric B Antonucci, Colin R Edwards, MD, [Lee A Zimmer, MD, PhD](#); University of Cincinnati

## **P040: THE TRIGEMINOCARDIAC REFLEX DURING THE ANTERIOR TRANSPETROSAL APPROACH**

– [Shunsuke Shibao, MD<sup>1</sup>](#), Karam Kenawy, MD<sup>2</sup>, Hamid Borghei-Razavi, MD<sup>3</sup>, Kazunari Yoshida, Prof<sup>4</sup>; <sup>1</sup>Department of Neurosurgery, Ashikaga Red Cross Hospital, <sup>2</sup>Department of Neurosurgery, Sohag University, <sup>3</sup>Department of Neurosurgery, University of Pittsburgh Medical Center, <sup>4</sup>Department of Neurosurgery, Keio University School of Medicine

## **P041: IATROGENIC INNER EAR DEHISCENCE AFTER SKULL BASE SURGERY: TREATMENT QUANDARY**

– Ryan A Bartholomew<sup>1</sup>, [C. Eduardo Corrales, MD<sup>2</sup>](#); <sup>1</sup>Harvard Medical School, <sup>2</sup>Division of Otolaryngology-Head and Neck Surgery, Brigham & Women's Hospital

## **P042: ENDOSCOPIC DEBRIDEMENT WITH FASICA LATA FREE FLAP COVERAGE: A NEW PARADIGM IN**

**TREATMENT OF REFRACTORY CERVICAL SPINE OSTEOMYELITIS** – [Dennis Tang, MD](#), Christopher Roxbury, MD, Pablo Recinos, MD, Michael Fritz, MD, Raj Sindwani, MD; Cleveland Clinic Foundation

## **P043: IMPORTANCE OF FRONTAL HORN RATIO (FHR) AND OPTIMAL CSF DRAINAGE IN THE TREATMENT**

**OF VERY LOW PRESSURE HYDROCEPHALUS (VLPH)** – [Danielle Houlden<sup>1</sup>](#), Dmitriy Khodorskiy<sup>2</sup>, Sandra Miller-Portman<sup>3</sup>, Maria S Li<sup>4</sup>; <sup>1</sup>McGill, <sup>2</sup>Maimonides Medical Center, <sup>3</sup>Neurogens, <sup>4</sup>University of Montreal

## **P044: ORBITAL AEROCELE. CASE REPORT**

– [Carlos Murillo-Ponce, MD](#), Arturo Ayala Arcipreste, MD, Rafael Mendizábal Guerra, MD, FAANS; Hospital Juárez de México

## **P045: MANAGEMENT OF GUNSHOT WOUND INJURIES TO THE LATERAL SKULL BASE**

– Shiyin Yang, MD, Vikram Prabhu, MD, [Sam Marzo, MD](#); Loyola University Medical Center

## **P047: SUPRASellar AND RECURRENT PEDIATRIC CRANIOPHARYNGIOMAS: EXPANDING INDICATIONS FOR THE EXTENDED ENDOSCOPIC TRANSPHENOIDAL APPROACH**

– [Andrew F Alalade, MBBS, FRCS](#), Elizabeth Ogando-Rivas, MD, Jerome Boatey, MD, FWACS, Mark Souweidane, MD, FACS, Vijay K Anand, MD, FACS, Jeffrey Greenfield, MD, FACS, Theodore Schwartz, MD, FACS; Weill Cornell Medical College

## **P048: ADULT CRANIOPHARYNGIOMA: CASE SERIES, SYSTEMATIC REVIEW AND META-ANALYSIS**

– [Charlotte Dandurand](#), Amir Sepehry, Mohammad Asadi Lari, Ryojo Akagami, Peter Gooderham; University of British Columbia

## **P049: GIANT, RECURRENT ATYPICAL PITUITARY ADENOMA PRESENTING WITH ATLANTO-OCCIPITAL**

**INSTABILITY** – [Ali O Jamshidi, MD](#), Alice Wang, MS, Ronald Sahyouni, MS, Nathan Oh, MD, George Hanna, MD, Frank Hsu, MD, PhD; UC Irvine Medical Center

- P050: EXTREME LATERAL TRANS-ODONTOID (ELTO) APPROACH TO THE VENTRAL CRANIOCERVICAL JUNCTION (CCJ)** – [Gmaan Alzhrani, MD](#), Walavan Sivakumar, MD, Yair M Gizal, MD, PhD, William T Couldwell, MD, PhD; Department of Neurosurgery, Clinical Neurosciences Center, University of Utah
- P051: DURAL ARTERIOVENOUS FISTULAS OF THE CRANIOCERVICAL JUNCTION: ANATOMICAL CONSIDERATIONS, CLINICAL PRESENTATION AND MICROSURGICAL MANAGEMENT** – [Georgios Klironomos](#), Shamik Chakraborty, David Chalif, Avi Setton, Amir Dehdashti; Department of Neurosurgery, Hofstra North Shore-Long Island Jewish School of Medicine, and North Shore-Long Island Jewish Health System, Manhasset, New York.
- P052: ENDOSCOPIC ENDONASAL ODONTOIDECTOMY IN PEDIATRIC PATIENTS WITH COMPLEX CERVICOMEDULLARY JUNCTION ANOMALIES** – [Andrew F Alalade, MBBS, FRCS<sup>1</sup>](#), Jonathan Forbes, MD<sup>2</sup>, Malte Ottenhausen, MD<sup>2</sup>, Elizabeth Ogando-Rivas, MD<sup>2</sup>, Prakash Nair, MBBS<sup>2</sup>, Ashutosh Kacker, MBBS, FACS<sup>2</sup>, Vijay K Anand, MD, FACS<sup>2</sup>, Jeffrey Greenfield, MD, FACS<sup>2</sup>, Theodore H Schwartz, MD, FACS<sup>2</sup>; <sup>1</sup>The National Hospital for Neurology and Neurosurgery, <sup>2</sup>Weill Cornell Medical College - New York Presbyterian Hospital
- P053: CLINICAL STUDY OF ENTIRE RESECTION BY TRANSPHENOIDAL - ENDOSCOPIC NASAL IN PITUITARY ADENOMAS INVOLVING THE CAVERNOUS SINUS INVASIVE** – [Jianbao Ju, MD](#); Affiliated Hospital of Qingdao University of Otolaryngology Head and Neck Surgery
- P054: ENDOSCOPIC ENDONASAL SKULL BASE SURGERY. CASE SERIES** – [Bakhtiyar Pashaev, MD<sup>1</sup>](#), Dmitry Bochkarev, MD<sup>1</sup>, Valery Danilov, MD<sup>2</sup>, Vladimir Krasnozhan, MD<sup>3</sup>, Gulnar Vagapova, MD<sup>3</sup>; <sup>1</sup>Interregional Clinical Diagnostic Center, <sup>2</sup>Kazan Medical State University, <sup>3</sup>Kazan Medical State Academy
- P055: OUTCOMES FOLLOWING EXPANDED ENDONASAL RESECTION OF EPIDERMOID TUMORS INVOLVING THE CRANIAL BASE: CASE SERIES OF 7 PATIENTS** – [Kurt R Lehner<sup>1</sup>](#), Matei Banu, MD<sup>2</sup>, Jonathon A Forbes, MD<sup>3</sup>, James Pan<sup>4</sup>, Vijay K Anand, MD<sup>3</sup>, Theodore H Schwartz, MD<sup>3</sup>; <sup>1</sup>Hofstra-Northwell Health School of Medicine, <sup>2</sup>Columbia Medical College, New York Presbyterian Hospital, <sup>3</sup>Weill Cornell Medical College, New York Presbyterian Hospital, <sup>4</sup>Stanford University School of Medicine
- P056: CLINICAL OUTCOMES FOLLOWING ENDOSCOPIC ENDONASAL SURGERY FOR ANTERIOR CRANIAL BASE MENINGIOMAS** – [Zain H Rizvi, MD<sup>1</sup>](#), Marvin Bergsneider, MD<sup>2</sup>, Jeffrey D Suh, MD<sup>1</sup>, Jose E Alonso, MD<sup>1</sup>, Marilene B Wang, MD<sup>1</sup>; <sup>1</sup>UCLA Department of Head and Neck Surgery, <sup>2</sup>UCLA Department of Neurosurgery
- P057: EARLY EXPERIENCE WITH ENDOSCOPIC ENDONASAL TECHNIQUES FOR SKULL BASE PATHOLOGIES AT A REFERRAL CENTRE IN COLOMBIA: MULTIDISCIPLINARY TEAM APPROACH IMPLEMENTATION** – Nicolas Gil Guevara, MD<sup>1</sup>, Javier Andres Ospina Diaz, MD<sup>2</sup>, [Esteban Ramirez Ferrer, MD<sup>1</sup>](#), María Camila Pedraza Ciro, MD<sup>1</sup>, Camilo Zubieta Vega, MD<sup>1</sup>, Pedro Jose Penagos Gonzalez, MD<sup>1</sup>; <sup>1</sup>National Cancer Institute, <sup>2</sup>Vancouver General Hospital & St. Paul's Hospital University of British Columbia
- P058: ENDOSCOPIC TRANSNASAL RESECTION OF HYPOTHALAMIC PILOCYTIC ASTROCYTOMA** – [Ziyad Al-Ajlan<sup>1</sup>](#), Sarah Bin Abdulqader<sup>1</sup>, Mohammed Al-Bar<sup>2</sup>, Wissam Issawi<sup>2</sup>, Saad Alsaleh<sup>1</sup>, Pablo Recinos<sup>3</sup>, Abdulrazag Ajlan<sup>1</sup>; <sup>1</sup>King Saud University, <sup>2</sup>Imam Abdulrahman Bin Faisal University, <sup>3</sup>Cleveland Clinic
- P059: ENDOSCOPIC ENDONASAL SURGERY FOR ERDHEIM-CHESTER OF THE CLIVUS: A CASE REPORT** – [Alaa S Montaser, MD](#), Daniel M Prevedello, MD, Bradley A Otto, Ricardo L Carrau, MD; The Ohio State University Wexner Medical Center
- P060: EXTENDED ENDOSCOPIC ENDONASAL CLIPPING OF BASILAR APEX ANEURYSMS: ANATOMICAL COMPARATIVE STUDY AND SURGICAL SIMULATION** – [Alaa S Montaser, MD](#), Juan M Revuelta Barbero, Mostafa Shahein, MD, Juan C Yanez-Siller, MD, MPH, Daniel M Prevedello, MD, Bradley A Otto, MD, Ricardo L Carrau, MD; The Ohio State University Wexner Medical Center
- P061: ENDOSCOPIC ENDONASAL RESECTION OF CONCOMITANT PITUITARY ADENOMA AND RATHKE'S CLEFT CYST: A CASE REPORT AND REVIEW OF LITERATURE** – [Alaa S Montaser, MD](#), Daniel M Prevedello, MD, Bradley A Otto, MD, Ricardo L Carrau, MD; The Ohio State University Wexner Medical Center
- P062: ENDOSCOPIC ENDONASAL MULTIMODULAR APPROACH FOR RESECTION OF CONCOMITANT TRIGEMINAL SCHWANNOMA AND PITUITARY ADENOMA: A SINGLE CORRIDOR FOR DIFFERENT PATHOLOGIES** – [Alaa S Montaser, MD](#), Daniel M Prevedello, MD, Bradley A Otto, MD, Ricardo L Carrau, MD; The Ohio State University Wexner Medical Center
- P063: SINGLE CENTER EXPERIENCE IN RESECTION OF PITUITARY ADENOMAS WITH HIGH GRADE CAVERNOUS SINUS INVASION** – [Aaron Plitt, MD](#), Arjun Aggarwal, Samuel Barnett, MD; UT Southwestern
- P064: COMBINED ENDOSCOPIC ENDONASAL & SUBLABIAL APPROACH TO GIANT SOLITARY FIBROUS TUMOR INVOLVING THE MAXILLA, CENTRAL SKULL BASE, AND PARAPHARYNGEAL SPACES: A CASE STUDY** – [Christine Settoon](#), Daniel W Nuss, MD, Michael DiLeo, MD; LSU School of Medicine- New Orleans

- P065: ENDOSCOPIC SKULL BASE SURGERY IN THE ELDERLY POPULATION: THE EFFECT OF PATHOLOGY ON OUTCOMES** – [Elizabeth D Stephenson, BA<sup>1</sup>](#), Maheer M Masood, BA<sup>1</sup>, Douglas R Farquhar, MD, MPH<sup>2</sup>, Katherine Adams, BS<sup>1</sup>, Saangyoung E Lee, BS<sup>1</sup>, Parth V Shah, MD<sup>2</sup>, Charles S Ebert, Jr, MD, MPH<sup>2</sup>, Brian Thorp, MD<sup>2</sup>, Matthew Ewend, MD<sup>3</sup>, Adam M Zanation, MD<sup>2</sup>; <sup>1</sup>University of North Carolina School of Medicine, <sup>2</sup>Department of Otolaryngology – Head and Neck Surgery, University of North Carolina at Chapel Hill, <sup>3</sup>Department of Neurosurgery, University of North Carolina at Chapel Hill
- P066: ABDOMINAL FAT GRAFT FOR RECONSTRUCTION OF THE ANTERIOR SKULL BASE FOR ENDONASAL TRANSSPHEOIDAL SURGERY: TECHNIQUE AND OUTCOMES** – Elena Roca, MD<sup>1</sup>, William T Burke, BS<sup>2</sup>, [David L Penn, MD, MS<sup>2</sup>](#), Mina G Safain, MD<sup>2</sup>, Joseph P Castlen, BS<sup>2</sup>, Edward R Laws, MD<sup>2</sup>; <sup>1</sup>University of Brescia, Brescia, Italy, <sup>2</sup>Brigham and Women's Hospital, Harvard Medical School, Boston, MA
- P067: CHONDROSARCOMA IN THE PETROUS APEX: CASE REPORT AND REVIEW** – [Fatmahalzahra Rushdi Banaz, MD<sup>1</sup>](#), Ioana D Moldovan, MD, MSc<sup>2</sup>, Shaun J Kilty, MD, FRCSC<sup>3</sup>, Gerard Jansen, MD, FRCPC<sup>3</sup>, Fahad Alkherayf, MD, MSc, CIP, FRCSC<sup>3</sup>; <sup>1</sup>The Ottawa Hospital, <sup>2</sup>The Ottawa Hospital/The Ottawa Hospital Research Institute, <sup>3</sup>The Ottawa Hospital/University of Ottawa/The Ottawa Hospital Research Institute
- P068: TRANSFRONTAL ENDONASAL RECONSTRUCTION OF ANTERIOR SKULL BASE WITH PERICRANIAL FLAP WITHOUT CRANIOTOMY: TECHNICAL NOTE** – [Carlos T Chone, MD, PhD](#), Wesley N Sousa, MD, Mayara Tabai, MD, Gabriela M Ichiba, MD, Helder Tedeschi, MD, PhD, Yvens B Fernandes, MD, PhD, Guilherme V Coelho, MD, Eulalia Sakano, MD, PhD, Agricio N Crespo, MD, PhD, Marcelo H Sampaio, MD, PhD, Jorge R Paschoal, MD, PhD; University of Campinas
- P069: ENDOSCOPIC MANAGEMENT OF ANTERIOR SKULL BASE LESIONS: EXPERIENCE OF TERTIARY CARE CENTRE IN INDIA** – [Preetam Chappity, MS, DNB, MNAMS](#), Dilip Samal, MS, Anjan Sahoo, MS, Saurav Sarkar, MS, Pradeep Pradhan, MS, Pradipta Parida, MS; AIIMS (All India Institute of Medical Sciences) Bhubaneswar
- P070: NOVEL APPLICATION OF STEROID ELUTING STENT IN PETROUS APEX CHOLESTEROL GRANULOMA APPROACHED ENDONASALLY: A CASE SERIES** – Ralph Abi Hachem, MD, David Jang, MD, [Kevin Choi, MD](#), Ali Zomorodi, MD, Patrick Codd, MD, Allan Friedman, MD, Tawfiq Khoury, MD; Duke university
- P071: ENDOSCOPIC ENDONASAL RESECTION OF A LACRIMAL DUCT ONCOCYTOMA** – [Sarah K Rapoport, MD<sup>1</sup>](#), Jennifer R Cracchiolo, MD<sup>2</sup>, Sasan Karimi, MD<sup>2</sup>, Brian P Marr, MD<sup>2</sup>, Marc A Cohen, MD, MPH<sup>2</sup>; <sup>1</sup>Medstar Georgetown University Hospital, <sup>2</sup>Memorial Sloan Kettering Cancer Center
- P072: ENDOSCOPIC NASOPHARYNGECTOMY COMBINED WITH A NERVE-SPARING TRANSPTERYGOID APPROACH: AN ANATOMIC STUDY** – [Mathew Geltzeiler, MD<sup>1</sup>](#), Meghan Turner, MD<sup>2</sup>, George Zenonos, MD<sup>2</sup>, Andrea Hebert, MD<sup>2</sup>, Carl Snyderman, MD<sup>2</sup>, Paul Gardner, MD<sup>2</sup>, Juan Fernandez-Miranda<sup>2</sup>, Eric W Wang<sup>2</sup>; <sup>1</sup>Oregon Health & Science University, <sup>2</sup>University of Pittsburgh Medical Center
- P073: EXAMINING SKULL BASE SURGEON PRACTICE PATTERNS FOR PATIENTS WITH OSA UNDERGOING SKULL BASE SURGERY** – [David Choi, MD](#), Kesava Reddy, MD, FRCSC, Doron Sommer, MD, FRCSC; McMaster University
- P074: EXTENDED ENDOSCOPIC ENDONASAL TRANSLIVAL APPROACH FOR TUMORS OF PETROCLIVAL REGION: PRELIMINARY EXPERIENCE** – Mauro Dobran<sup>1</sup>, Lucia Giovanna Maria Di Somma<sup>1</sup>, Maurizio Gladi<sup>1</sup>, Valentina Liverotti<sup>1</sup>, Martina Della Costanza<sup>1</sup>, Alessandra Marini<sup>1</sup>, [Maurizio Iacoangeli<sup>1</sup>](#), Stefano Dallari<sup>2</sup>, Massimo Scerrati<sup>1</sup>; <sup>1</sup>Department of Neurosurgery, Section of Minimally Invasive and Skull Base Surgery, Università Politecnica delle Marche, Umberto I General Hospital, Ancona, Italy, <sup>2</sup>Department of ENT, Murri Hospital, Fermo, Italy
- P075: TWELVE YEAR DELAYED MALIGNANT TRANSFORMATION OF A VESTIBULAR SCHWANNOMA AFTER RADIOSURGERY** – [Ghaith Habboub, MD](#), Louis Ross, MD, Shahed Tish, MD, Pablo F Recinos, MD; Cleveland Clinic
- P076: RADIATION INDUCED CNS PLEOMORPHIC SARCOMA AFTER ADJUVANT THERAPY FOR GLIOMA** – [William Clifton, MD<sup>1</sup>](#), Amal Shukri, MD<sup>2</sup>, Mike Rutenberg, MD, PhD<sup>2</sup>, Raafat Makary, MD, PhD<sup>2</sup>, Daryoush Tavanaiepour, MD<sup>2</sup>; <sup>1</sup>Mayo Clinic Florida, <sup>2</sup>UF Health Jacksonville
- P077: NUMEROUS SEVERE LONG-TERM SEQUELAE OF SKULL BASE PROTON BEAM RADIATION FOR INFANTILE CLIVAL CHORDOMA: AN ILLUSTRATIVE CASE REPORT** – [John E Hanks, MD](#), Kevin J Kovatch, MD, Syed A Ali, MD, Emily Z Stucken, MD, Matthew E Spector, MD, Erin L McKean, MD; University of Michigan Otolaryngology Head and Neck Surgery
- P078: REVISITING THE SELECTIVE VESTIBULAR NEUROTOMY FOR INTRACTABLE MÉNIÈRE'S DISEASE IN THE ERA OF ENDOSCOPY AND INTRAOPERATIVE ADVANCED NEUROMONITORING** – Fabrizio Salvinelli<sup>1</sup>, [Maurizio Iacoangeli<sup>2</sup>](#), Davide Nasi<sup>2</sup>, Manuele Casale<sup>1</sup>, Fabio Greco<sup>1</sup>, Francesco Capuano<sup>1</sup>, Massimo Scerrati<sup>2</sup>, Minotti Giorgio<sup>3</sup>; <sup>1</sup>Department of ENT and Skull Base Surgery, University Campus Biomedico, Rome, Italy, <sup>2</sup>Department of Neurosurgery, Section of Minimally Invasive and Skull Base Surgery, Università Politecnica delle Marche, Umberto I General Hospital, Ancona, Italy, <sup>3</sup>Department of Medicine and Center for Drug Science, University Campus Biomedico, Rome, Italy

**P079: BRAIN STEM CAVERNOUS MALFORMATIONS: OPERATIVE NUANCES OF A LESS INVASIVE RESECTION TECHNIQUE** – [Harminder Singh](#)<sup>1</sup>, Turki Elarjani<sup>2</sup>, Harley Brito da Silva<sup>2</sup>, Rakshith Shetty<sup>2</sup>, Louis Kim<sup>2</sup>, Laligam N Sekhar<sup>2</sup>; <sup>1</sup>Stanford University, <sup>2</sup>University of Washington

**P080: PERINEURAL SPREAD OF SQUAMOUS CELL CARCINOMA TO THE SKULL BASE FOLLOWING TREATMENT OF OROPHARYNGEAL P16-POSITIVE SQUAMOUS CELL CARCINOMA: A CASE SERIES** – [Andrea M Hebert, MD, MPH](#)<sup>1</sup>, Leila J Mady, MD, PhD, MPH<sup>1</sup>, Mathew N Geltzeiler, MD<sup>1</sup>, Meghan T Turner, MD<sup>1</sup>, Carl H Snyderman, MD, MBA<sup>1</sup>, Paul A Gardner, MD<sup>2</sup>, Juan C Fernandez-Miranda, MD<sup>2</sup>, Eric W Wang, MD<sup>1</sup>; <sup>1</sup>Department of Otolaryngology, University of Pittsburgh School of Medicine, <sup>2</sup>Department of Neurological Surgery, University of Pittsburgh School of Medicine

**P081: NOVEL APPROACH USING TRANSORAL ROBOTIC SURGERY FOR RESECTION OF CERVICAL SPINE CHORDOMA** – [Ahmad F Mahmoud, MD](#)<sup>1</sup>, Adam McCann, MS<sup>2</sup>, Neil R Malhotra, MD<sup>1</sup>, Bert W O'Malley, Jr, MD<sup>1</sup>; <sup>1</sup>University of Pennsylvania, <sup>2</sup>University of Kansas School of Medicine

**P082: RETROPHARYNGEAL ARTERIOVENOUS MALFORMATION** – [Christopher M Low, MD](#), Kathryn M Van Abel, Daniel L Price, MD, Kerry D Olsen, MD; Mayo Clinic

**P083: OPTICAL COHERENCE TOMOGRAPHY FOR THE MANAGEMENT OF FIBROUS DYSPLASIA OF THE SKULL BASE WITH OPTIC NERVE INVOLVEMENT** – Joshua Loewenstern, Christopher Hernandez, Carolyn Chadwick, Amish Doshi, MD, Rudrani Banik, MD, Christopher Sarkiss, MD, Joshua Bederson, MD, [Raj K Shrivastava, MD](#); Icahn School of Medicine at Mount Sinai

**P084: DIVERTICULA OF THE SUPERIOR PETROSAL SINUS LEADING TO SUPERIOR SEMICIRCULAR CANAL DEHISCENCE** – [Alex D Sweeney, MD](#)<sup>1</sup>, Brendan O'Connell, MD<sup>2</sup>, Neil Patel, MD<sup>3</sup>, Nicole M Tombers, MD<sup>3</sup>, George B Wanna, MD<sup>4</sup>, John I Lane, MD<sup>3</sup>, Matthew L Carlson, MD<sup>3</sup>; <sup>1</sup>Baylor College of Medicine, <sup>2</sup>Vanderbilt University School of Medicine, <sup>3</sup>Mayo Clinic, <sup>4</sup>New York Eye and Ear Infirmary of Mount Sinai

**P085: TEMPORAL BONE PARAGANGLIOMA PRESENTING AS A BEZOLD'S ABSCESS AND NECROTIZING FASCIITIS** – Tanner Fullmer, MD, Vlad C Sandulache, MD, Kate O'Connor, MD, Maheshwar Ramineni, MD, [Alex D Sweeney, MD](#); Baylor College of Medicine

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**P087: SARCOIDOSIS PRESENTING AS UNILATERAL DACRYOCYSTITIS AND NASOLACRIMAL DUCT OBSTRUCTION** – [Devin Ruiz, MD](#)<sup>1</sup>, Elie Rebeiz, MD<sup>1</sup>, Alison Callahan, MD<sup>2</sup>; <sup>1</sup>Tufts Medical Center, <sup>2</sup>New England Eye Center

**P088: ANTERIOR CLINOID MUCOCELE CAUSING PERIPHERAL VISUAL FIELD DEFECT: CASE REPORT, PATHOGENESIS AND SURGICAL TREATMENT** – [Alexandre B Todeschini, MD](#), Alaa Montaser, MD, Daniel M Prevedello, MD; The Ohio State University

**P089: VISUAL SYSTEM MANIFESTATIONS OF CEREBRAL VENOUS SINUS THROMBOSIS** – [Justin N Karlin, MD, MSc](#), Elizabeth Thompson, MD, MPH, Steven A Newman, MD; University of Virginia

**P090: MANAGEMENT CHALLENGES IN AN UNUSUAL CASE OF MALIGNANT OTITIS EXTERNA AND CLL ASSOCIATED WITH MULTIPLE HEAD AND NECK CUTANEOUS SCCS** – Hammaad Khan, [Matthew Jaffa](#), Melanie Dowling, Vikas Malik; Department of Otolaryngology, Blackpool Teaching Hospitals NHS Foundation Trust, Blackpool, United Kingdom

**P091: RADIOLOGICAL STUDY OF THE ETHMOID PRESERVATION DURING THE ENDOSCOPIC SUPERIOR ETHMOIDAL APPROACH COMPARED TO THE TRADITIONAL ENDOSCOPIC ANTERIOR CRANIAL BASE APPROACH TO INTRACRANIAL PATHOLOGIES** – Salman Syed<sup>1</sup>, Maria Peris-Celda, MD, PhD<sup>2</sup>, Tyler Kenning, MD, PhD<sup>2</sup>, [Carlos D Pinheiro-Neto, MD, PhD](#)<sup>3</sup>; <sup>1</sup>Albany Medical College, <sup>2</sup>Department of Neurosurgery, Albany Medical Center, <sup>3</sup>Division of Otolaryngology / Head and Neck Surgery, Department of Surgery, Albany Medical Center

**P092: USE OF ULTRASOUND FOR NAVIGATING THE INTERNAL CAROTID ARTERY IN REVISION ENDOSCOPIC ENDONASAL SKULL BASE SURGERY** – [Jonathan P Giurintano, MD](#), Jose Gurrola II, MD, Philip Theodosopoulos, MD, Ivan El-Sayed, MD, FACS; UCSF Medical Center

**P093: DIRECT PUNCTURE EMBOLIZATION FOR INTRACRANIAL GLOMUS JUGULARE TUMOR: TECHNICAL NOTE AND LITERATURE REVIEW** – [Ribhu T Jha, MD](#)<sup>1</sup>, Tianzan Zhou, MD<sup>1</sup>, Nicholas Dietz, MD<sup>2</sup>, Michael McCollough, MD<sup>1</sup>, Andrew B Stemer, MD<sup>1</sup>, Amjad N Anaizi, MD<sup>1</sup>; <sup>1</sup>MedStar Georgetown University Hospital, <sup>2</sup>Georgetown University School of Medicine

**P094: CONTRIBUTIONS OF A HIGH-DEFINITION, 3-D EXOSCOPE SYSTEM FOR SKULL BASE MICRONEUROSURGICAL RESIDENT AND FELLOW EDUCATION** – [Jeffrey Steinberg, MD](#), Jayson Sack, Reid Hoshide, MD, Robert Rennert, MD, Dustin Hatefi, MD, Alexander Khalessi, MD, Michael L Levy, MD, PhD; UCSD

**P095: CONTRALATERAL SUPRACEREBELLAR-INFRA TENTORIAL APPROACH FOR RESECTION OF THALAMIC CAVERNOUS MALFORMATIONS** – [Justin Mascitelli](#)<sup>1</sup>, Jan-Karl Burkhardt<sup>2</sup>, Sirin Gandhi<sup>1</sup>, Michael Lawton<sup>1</sup>; <sup>1</sup>BNI, <sup>2</sup>NYU

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– [Mostafa Fatehi Hassanabad, MD, MSc](#), Ryojo Akagami, MD, MSc; Vancouver General Hospital, Division of Neurosurgery

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– [Mostafa Fatehi Hassanabad, MD, MSc](#), Ryojo Akagami, MD, MSc; Vancouver General Hospital, Division of Neurosurgery

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– [Cassandra Puccinelli, MD](#), Matthew L Carlson, MD; Department of Otolaryngology-Head and Neck Surgery, Mayo Clinic, Rochester, MN 55905 USA

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– John I Lane, MD<sup>1</sup>, Matthew L Carlson, MD<sup>2</sup>, Laurence J Eckel, MD<sup>1</sup>, Carrie M Carr, MD<sup>1</sup>, Johnathan C Valesano, MD<sup>1</sup>, [Yening Feng, MD, Research Trainee](#)<sup>2</sup>; <sup>1</sup>Department of Radiology, Mayo Clinic, Rochester, MN, <sup>2</sup>Department of Otolaryngology-Head and Neck Surgery, Mayo Clinic, Rochester, MN

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– [John P Marinelli, BS](#)<sup>1</sup>, Jamie J van Gompel, MD<sup>2</sup>, Michael J Link, MD<sup>2</sup>, Matthew L Carlson, MD<sup>2</sup>; <sup>1</sup>Mayo Clinic School of Medicine, <sup>2</sup>Department of Otolaryngology-Head and Neck Surgery, Mayo Clinic, Rochester MN and Department of Neurologic Surgery, Mayo Clinic, Rochester MN

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– [Aysha Alsahlawi](#)<sup>1</sup>, G Alsiedier<sup>2</sup>, J Karamchandani<sup>2</sup>, D Tampieri<sup>2</sup>, D Sirhan<sup>2</sup>; <sup>1</sup>King Fahad Medical City, Saudi Arabia, <sup>2</sup>Montreal neurological institute, Montreal, Canada

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