

2023 FINAL PROGRAM



North American Skull Base Society

32nd Annual Meeting

NASBS: Friends and Family

February 17-19, 2023

JW Marriott Tampa, FL

Pre-Meeting Dissection Course: **February 15-16, 2023**

2023 PRESIDENT: Lee A. Zimmer, MD, PhD

SCIENTIFIC PROGRAM CO-CHAIRS: C. Arturo Solares, MD & Donato Pacione, MD

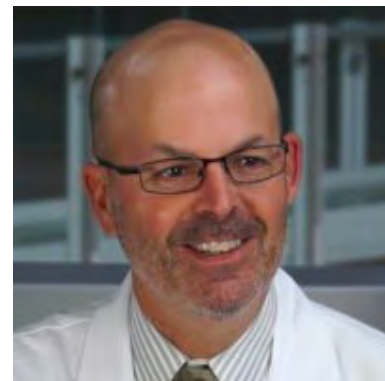
PRE-MEETING COURSE CO-CHAIRS: Brian Thorp, MD and Gabriel Zada, MD

SCIENTIFIC PROGRAM COMMITTEE: Siviero Agazzi, MD, MBA; Norberto Andaluz, MD; Emily Barrow, MD; Carolina Benjamin, MD; Wenya Linda Bi, MD, PhD; Hamid Borghei-Razavi, MD; David Friedmann, MD, MSc; Bharat Guthikonda, MD, MBA; Walter Jean, MD; Claudia Kirsch, MD; Varun Kshetry, MD; Corinna Levine, MD, MPH; Nyal R. London, MD, PhD; Erin McKean, MD, MBA; Kibwei McKinney, MD; Mia Miller, MD; Jennifer Moliterno Gunel, MD; Jacques J. Morcos, MD; Sarah Mowry, MD; Maria Peris Celda, MD, PhD; Christopher Rassekh, MD; Pablo Recinos, MD; Raj Sindwani, MD; Nathan Zwagerman, MD

Dear Friends and Skull Base Family,

Welcome to the 32nd Annual Meeting of the North American Skull Base Society!

This meeting of honored skull base surgeons will be held at the JW Marriott Tampa Water Street in Tampa, Florida from February 17-19, 2023, with the pre-meeting hands-on dissection course February 15-16, 2023. The JW Marriott is wonderfully located close to many of Tampa's best locations, including the Tampa Riverwalk, Florida Aquarium, Tampa Bay History Museum and Sparkman Wharf. Amenities include a rooftop heated pool, 24-hour fitness center and a full-service spa.



Lee A. Zimmer, MD, PhD

The meeting theme is "Friends and Family". The last few years have been challenging for the Society, medicine and personally with the COVID pandemic. As we rise from the pandemic, we have seen tremendous enthusiasm in registration for this year's meeting. I, and I hope all of you, look forward to seeing old friends, making new friends, and continuing to build the NASBS family.

I want to personally thank the Scientific Program Committee for creating a fantastic program. Drs. Arturo Solares and Donato Pacione have worked tirelessly with their committee to form a dynamic and diverse faculty. Our program includes the hands-on dissection course, keynote and honored guest lectures, expert debates, the new Kawase Education Day, live dueling dissections in the Rhoton Room, tumor boards, Women in Skull Base session, 3D anatomic reviews, hot topic round tables and panels, video sessions, video abstracts, proffered paper sessions and the always entertaining Skull Base Jeopardy. The Pre-Meeting Dissection Course presented by Drs. Brian Thorpe and Gabriel Zada will provide expert lectures on skull base anatomy and hands-on dissection. This year we are also offering access to lectures with dissection observation for a discounted price.

The Welcome Reception and Poster Viewing will be Friday night at 6:05pm in the Exhibit Hall. Please greet and thank our corporate sponsors and exhibitors for supporting the society. On Saturday we will have our New Member Reception at 6:30pm at the Marriott (invitation only) and our Main Social Event at 7:30pm at the Tampa Bay History Center. We look forward to your attendance.

My guests of honor include Drs. Sebastian Froehlich, Professor and Chairman, Department of Neurosurgery, Lariboisiere University Hospital; Jonas T. Johnson, Professor, Department of Otolaryngology, University of Pittsburgh Medical Center; Ravi Samy, Director of Otolaryngology, Lehigh University; Philip Theodosopoulos, Professor, Neurological Surgery, UCSF; and, Emeritus Research Professor Jeffrey Keller, PhD, University of Cincinnati and Mayfield Clinic. I have been educated by, worked with, and continue long-lasting friendships with these outstanding educators and I believe they will give fascinating perspectives on skull base surgery, anatomy, and the current state of medicine.

It has been my humble privilege to serve as your president and look forward to seeing everyone in Tampa.

Lee A. Zimmer, MD, PhD
NASBS President 2022-2023

Keynote and Honored Guest Speakers

Keynote Speaker



Ravi N. Samy

Dr. Ravi N. Samy is a Neurotologist and the new Director of the Otolaryngology-Head and Neck Surgery program at the Lehigh Valley Health Network (LVHN) in Allentown, PA.

Dr. Samy was born in what is now known as Chennai, India, and immigrated to the United States at the age of four. He spent most of his formative years living in Texas, but he moved to Duke University in North Carolina for his undergraduate education. After graduating magna cum laude with

a bachelor's degree in zoology, Dr. Samy attended the Duke University School of Medicine until his graduation in 1995. He then completed his residency training at Stanford University School of Medicine, where he developed a love for otology, neurotology, and skull base surgery. Dr. Samy spent two years at the University of Iowa as a Neurotology fellow before moving back to Texas to be an Assistant Professor at the UT-Southwestern Medical Center in Dallas. He then spent 17 years at the University of Cincinnati/Cincinnati Children's, where he created an ACGME accredited, two-year Neurotology fellowship as well as an International Fellowship in Advanced Otology. His research interests include cochlear and auditory brainstem implantation as well as acoustic neuromas, neurofibromatosis type 2, facial nerve tumors, cholesteatomas, and other diseases and disorders of the lateral skull base. He and his colleague, Dr. Brian Earl, were awarded an NASBS research grant for their oncolytic virus work for the treatment of cholesteatomas and epidermoid cysts of the skull base.

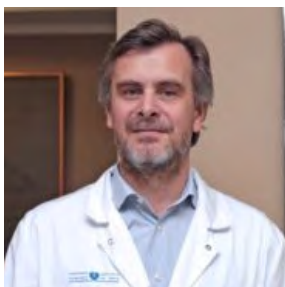
Education

Medical School Duke University School of Medicine – Durham, NC Residency Stanford University Medical Center – Palo Alto, CA Fellowship University of Iowa Hospitals and Clinics – Iowa City, IA

Board Certifications

American Board of Otolaryngology (ABO Sub-specialty Certification in Neurotology)

Honored Guest Speakers



Prof. Sebastien Froelich

Sebastien Froelich is currently professor and chairman of the department of Neurosurgery at the University of Paris- Lariboisière Hospital, Assistance Publique-Hôpitaux de Paris.

After completing a neurosurgery residency at the University of Strasbourg, he obtained research and clinical fellowship training in skull base surgery at the University of Cincinnati, under the direction of H. van Loveren, PV Theodosopoulos and J.T. Keller. In 2008, he was appointed Professor of Neurosurgery at Strasbourg University. In 2011, he joined Prof. Bernard George

in the department of Neurosurgery of Lariboisière University Hospital in Paris and became chairman of the department in 2014.

His primary interests are the treatment of skull base lesions, with an expertise in open and endoscopic techniques, and vascular neurosurgery. His research interest is focused on translational chordoma research, the link between progestins and meningiomas, and the development of

Keynote and Honored Guest Speakers

innovative and novel skull base and endoscopic techniques. He is director since 2009 of international hands-on skull base training program in IRCAD Strasbourg and Taiwan.



Jonas T. Johnson, MD, FACS

Dr. Johnson has committed his life's work to the treatment of patients with diseases of the head and neck in an environment of education and inquiry. His current appointment is as Distinguished Service Professor and Emeritus Chairman of the Department of Otolaryngology at the University of Pittsburgh School of Medicine. Dr. Johnson has limited his clinical practice to the treatment of patients with tumors of the head and neck. Most recently his work has focused on survivorship care for head and neck cancer survivors and the avoidance of low value interventions.

In addition to his clinical practice, he has an established scholarly record of peer-reviewed publications, extensive mentorship experience, and a history of interdisciplinary collaboration.

He served as Editor of *The Laryngoscope* 2003-2011. Dr. Johnson is a Past President of the American Academy of Otolaryngology—Head and Neck Surgery (2003), the American Head and Neck Society (2004) and the Triologic Society (2014).



Jeffrey T. Keller, PhD

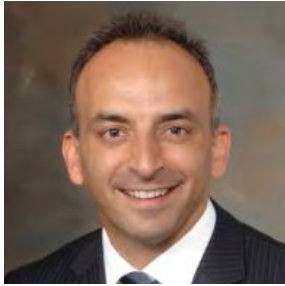
Jeffrey T. Keller, PhD, has dedicated his career to the training of surgeons, fellows, residents and students in applied neuroanatomy. His extensive investigations and laboratory dissections are infused with a deep appreciation for the historical traditions of surgical anatomy. As an educator, his collaborations with colleagues are innovative and worldwide.

Dr. Keller received his education at the University of Cincinnati (UC) in Anatomy, Cell Biology and Neuroscience. Following completion of his graduate studies in 1975, he joined the Mayfield Clinic and faculty at the UC Department of Neurosurgery. He studied under the tutelage of Malcom B. Carpenter, MD, in 1979-1980 as a NIH Postdoctoral Fellow at the Uniformed Services University of the Health Sciences in Bethesda, MD. Dr. Keller returned to UC and rose through the academic ranks, becoming a Research Professor of Neurosurgery and a Professor of Anatomy in 1991.

The incubator for his mentoring and scholarly productivity occurred in the Goodyear Microsurgery Laboratory, established in 1987. The shared cadaveric training lab with Otolaryngology fostered multidisciplinary exploration of new skull base approaches, development of instruments and teaching of practical courses. Dr. Keller has published more than 110 peer-reviewed articles, 20 book chapters and 61 published abstracts. He co-authored the *Atlas of Operative Microneurosurgery* with John M. Tew, Jr., MD, and Harry R. van Loveren, MD, in 2001. He is perhaps best known for his work on the cavernous sinus and classification system of the internal carotid artery.

Dr. Keller continues to direct his energy to advancing neurosurgery through the Mayfield Education & Research Foundation. The Keller Lectureship in Surgical Neuroanatomy & Research was established in 2012 in Dr. Keller's honor to foster and promote surgical neuroanatomy training of residents.

Keynote and Honored Guest Speakers



Philip Theodosopoulos, MD

Philip Theodosopoulos was born in Thessaloniki, Greece on September 10, 1970. He received a B.S. degree in Biology and in Political Science from the Massachusetts Institute of Technology in 1991 and 1992, and his M.D. degree from Stanford University in 1996. Under the tutelage of Charles Wilson and Mitchel Berger he completed his neurosurgical residency at the University of California San Francisco and then completed a fellowship in Cerebrovascular and Skull Base Surgery at the Brigham and Women's Hospital, Harvard University under the direction of Arthur Day. He is board certified in

Neurological Surgery.

Following his post-graduate training he joined the faculty of the Department of Neurological Surgery at the University of Cincinnati where he served as Director of Skull Base Surgery and Residency Program Director from 2008-13.

Dr. Theodosopoulos is currently the Khatib Professor, Director of Skull Base Surgery and Vice Chairman of the Department of Neurosurgery at the University of California, San Francisco where he serves as the Residency Program Director.

Dr. Theodosopoulos is interested in brain tumor surgery with a specific focus on skull base lesions and endoscopy. His research interests center on anatomy and its role in the development of minimally invasive surgical approaches, as well as on outcomes research in neurosurgery. He is the author of over 120 peer reviewed publications and has been faculty in over 150 national and international courses. He has three daughters, Petra, Sky and Tea none of them currently interested in Skull Base Surgery.



Table of Contents

Keynote Speakers.....	3
Honored Guest Speakers.....	3
General/CME Information	6
Meeting Leadership.....	7
General Information	7
Meeting Hours	9
Past Presidents.....	9
Hotel Exhibit Hall Floor Plan.....	10
Full Program – Friday.....	11
Full Program – Saturday	30
Full Program – Sunday	55
Poster Listing.....	86
Pre-Meeting Course	109
Supporters	111
Exhibitors	112
Planning Committee Disclosures	117
Disclosures.....	119
2024 Save the Date	151

Contact

North American Skull Base Society
11300 W. Olympic Blvd., Suite 600
Los Angeles, California 90064
Phone: 310-424-3326
FAX: 310-437-0585
www.nasbs.org

Hotel Contact

JW Marriott Tampa Water Street
510 Water Street
Tampa, Florida 33602 USA
PHONE: +1 813-221-4950

NASBS is managed by BSC Management, Inc.

11300 West Olympic Blvd., Suite 600
Los Angeles, CA 90064
Phone: 310-437-0555, Ext. 101
FAX: 310-437-0585
E-Mail: info@bscmanage.com
www.bscmanage.com

General/CME Information

CME ACCREDITATION:

This activity has been planned and implemented in accordance with the Essential Areas and policies of the Accreditation Council for Continuing Medical Education through the joint providership of American College of Surgeons (ACS) and North American Skull Base Society. ASC is accredited by the ACCME to provide continuing medical education for physicians.

CONTINUING MEDICAL EDUCATION CREDIT INFORMATION

Accreditation

This activity has been planned and implemented in accordance with the accreditation requirements and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of 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™

The American College of Surgeons designates this live activity for a maximum of **21.75** AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.



AMERICAN COLLEGE OF SURGEONS
DIVISION OF EDUCATION

Award of CME credits by ACS is based on compliance of the program with the ACCME accreditation requirements and does not imply endorsement by ACS of the content, the faculty, or the sponsor of the program.

General 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
- To gain knowledge on optimal technical surgical management of complex skull base pathology through video analysis and expert critique of intra-operative 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

Meeting Leadership

NASBS Board of Directors Officers

PRESIDENT: Lee Zimmer, MD, PhD
PRESIDENT-ELECT: Siviero Agazzi, MD, MBA
IMMEDIATE PAST PRESIDENT: John G. Golfinos, MD
VICE PRESIDENT: Erin L. McKean, MD, MBA
SECRETARY: L. Madison Michael II, MD
TREASURER: Zoukaa Sargi, MD, MPH

Directors at Large

Moises Arriaga, MD
Sam Barnett, MD
Jurij R. Bilyk, MD
Lola Chambless, MD
John de Almeida, MD
Amir Dehdashti, MD
Juan C. Fernandez-Miranda, MD
Rick A. Friedman, MD, PhD
Derrick Lin, MD
Daniel M. Prevedello, MD
C. Arturo Solares, MD
Jeffrey M. Sorenson, MD
Allan D. Vescan, MD, MSc
Eugene Yu, MD

Board of Advisors

Ricardo L. Carrau, MD, MBA
James Evans, MD
Jacques J. Morcos, MD
Carl H. Snyderman, MD, MBA
Ian J. Witterick, MD, MSc

Scientific Program Co-Chairs

C. Arturo Solares, MD
Donato Pacione, MD

Pre-Meeting Course Co-Chairs

Brian Thorp, MD
Gabriel Zada, MD

NASBS Scientific Program Committee

Siviero Agazzi, MD, MBA
Norberto Andaluz, MD
Emily Barrow, MD
Carolina Benjamin, MD
Wenya Linda Bi, MD, PhD
Hamid Borghei-Razavi, MD
David Friedmann, MD, MSc
Bharat Guthikonda, MD, MBA
Walter Jean, MD
Claudia Kirsch, MD
Varun Kshetry, MD
Corinna Levine, MD, MPH
Niyall R. London, MD, PhD
Erin McKean, MD, MBA
Kibwei McKinney, MD
Mia Miller, MD
Jennifer Moliterno Gunel, MD
Jacques J. Morcos, MD
Sarah Mowry, MD
Maria Peris Celda, MD, PhD
Christopher Rassekh, MD
Pablo Recinos, MD
Raj Sindwani, MD
Nathan Zwagerman, MD

General Information

DISCLOSURE INFORMATION

Ineligible Company: The ACCME defines an “ineligible company” as any entity producing, marketing, re-selling, or distributing health care goods or services used on or consumed by patients. Providers of clinical services directly to patients are NOT included in this definition.

Financial Relationships: Relationships in which the individual benefits by receiving a salary, royalty, intellectual property rights, consulting fee, honoraria, ownership interest (e.g., stocks, stock options or other ownership interest, excluding diversified mutual funds), or other financial benefit. Financial benefits are usually associated with roles such as employment, management position, independent contractor (including contracted research), consulting, speaking and teaching, membership on advisory committees or review panels, board membership, and other activities from which remuneration is received, or expected. ACCME considers relationships of the person involved in the CME activity to include financial relationships of a spouse or partner.

Conflict of Interest: Circumstances create a conflict of interest when an individual has an opportunity to affect CME content about products or services of an ineligible company with which he/she has a financial relationship.

The ACCME also requires that ACS manage any reported conflict and eliminate the potential for bias during the educational activity. Any conflicts noted below have been managed to our satisfaction. The disclosure information is intended to identify any commercial relationships and allow learners to form their own judgments. However, if you perceive a bias during the educational activity, please report it on the evaluation.

In accordance with the ACCME Accreditation Criteria, the American College of Surgeons must ensure that anyone in a position to control the content of the educational activity (planners and speakers/authors/discussants/moderators) has disclosed all financial relationships with any commercial interest (termed by the ACCME as “ineligible companies”, defined on the previous page) held in the last 24 months. Please note that first authors were required to collect and submit disclosure information on behalf of all other authors/contributors, if applicable. Full listing found on [page 117](#).

MEMBERSHIP BENEFITS

- Active members will receive the official journal of the society, The Journal of Neurological Surgery Part B, a 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. Affiliate, International and Candidate members may subscribe to the journal for \$100 annually.
- Discounted rates to attend the Annual Meeting
- Opportunities to network with colleagues and experts from across North America and globally
- Committees which provide opportunities for camaraderie, involvement and leadership development
- Online access to all members' contact information.

Please visit www.nasbs.org/membership for more information or email membership@nasbs.org.

For information on membership, visit the Membership table near the Registration Desk at the NASBS 2023 Annual Meeting.

Meeting Hours

REGISTRATION HOURS

Thursday, February 16, 2023	1:00 pm – 6:30 pm
Friday, February 17, 2023	6:30 am – 6:30 pm
Saturday, February 18, 2023	6:30 am – 6:30 pm
Sunday, February 19, 2023	6:30 am – 12:00 pm

EXHIBIT HALL/POSTER HOURS

Thursday, February 16, 2023	12:00 pm to 6:00 pm	Exhibit Hall Set Up
Friday, February 17, 2023	9:00 am to 4:00 pm	Exhibit Hall Open
	9:35 am to 10:05 am	Refreshment Break
	12:20 pm to 1:20 pm	Lunch for Non-Members
	3:30 pm to 4:00 pm	Refreshment Break
	4:00 pm to 6:05 pm	Exhibit Hall Closed
	6:05 pm to 7:35 pm	Welcome Reception & Poster Viewing
Saturday, February 18, 2023	9:00 am to 4:00 pm	Exhibit Hall Open
	9:35 am to 10:05 am	Refreshment Break
	12:20 pm to 1:20 pm	Lunch/Poster Viewing
	3:30 pm to 4:00 pm	Refreshment Break
	4:00 pm to 9:30 pm	Dismantle & Removal of Exhibits

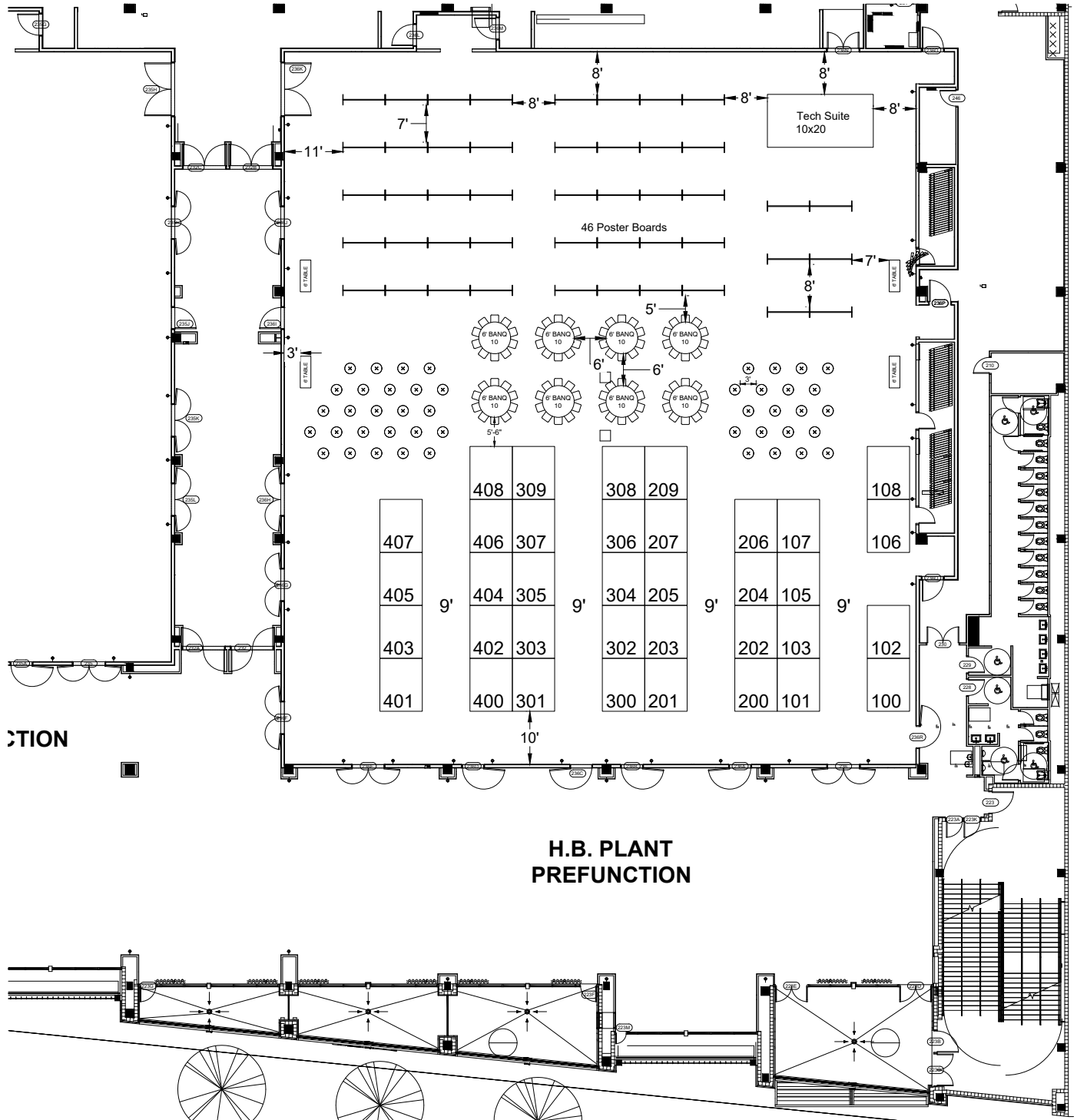
**Dismantle & Removal Hours are subject to change*

Past Presidents

1990	Paul J. Donald, MD	2006	Anil Nanda, MD
1991	Laligam N. Sekhar, MD	2007	Guy J. Petrozzelli, MD
1992	Ivo P. Janecka, MD	2008	Franco DeMonte, MD
1993	Peter G. Smith, MD, PhD	2009	Daniel Nuss, MD
1994	Albert L. Rhoton, Jr., MD	2011	Peter Neligan, MD
1995	Hugh Curtin, MD	2012	Dennis Kraus, MD
1996	Derald E. Brackmann, MD	2013	Carl Heilman, MD
1997	Ossam Al Mefty, MD	2014	Ehab Hanna, MD, FACS
1998	Steven A. Newman, MD	2015	Michael Link, MD
1999	John P. Leonetti, MD	2016	Carl Snyderman, MD, MBA
2000	Robert F. Spetzler, MD	2017	Jacques Morcos, MD, FRCS, FAANS
2001	Ian T. Jackson, MD	2018	Ian Witterick, MD
2002	Vinod K. Anand, MD	2019	James Evans, MD, FACS, FAANS
2003	Jon H. Robertson, MD	2020	Ricardo Carrau, MD, MBA
2004	Jatin Shah, MD	2021-22	John G. Golfinos, MD
2005	Patrick J. Gullane, MD		

Hotel Exhibit Hall Floor Plan

HB Plant Ballroom (2nd Floor)



Friday, February 17, 2023

Time	Session	Location
7:30 am - 8:30 am	<p><u>Main Topic 1: State of the Art for Recurrent Clival Chordoma</u></p> <p><i>Dr. Daniel Prevedello</i></p> <p>This session will provide a comprehensive review of state-of-the-art strategies for the management of recurrent clival chordoma. It will be of interest to all those involved in the interdisciplinary treatment of recurrent clival chordoma..</p> <p>At the conclusion of this session, attendees will be able to:</p> <ul style="list-style-type: none"> » Integrate different approaches for the management of recurrent clival chordoma. » Identify novel therapeutic targets in the treatment of recurrent clival chordoma. » Recognize the role of interdisciplinary management of recurrent clival chordoma. 	Tampa Bay 1
7:30 am - 8:30 am	<p><u>Main Topic 2: Orbital and Transorbital Surgical Approaches for Skull Base Tumors</u></p> <p><i>Dr. Dana Crosby</i></p> <p>This session will explore innovative techniques in accessing orbital and skull base tumors through a variety of minimally invasive techniques in and around the orbit. Otolaryngologists/rhinologists, neurosurgeons and ophthalmologists/oculoplastic surgeons are encouraged to attend.</p> <p>At the conclusion of this session, attendees will be able to:</p> <ul style="list-style-type: none"> » Identify appropriate techniques useful in accessing skull base pathology through the orbit. » Recognize potential complications of transorbital surgery. » Appreciate approaches and key surgical landmarks used in resecting orbital tumors. 	Tampa Bay 2
7:30 am - 8:30 am	<p><u>Main Topic 3: Management of Giant Acoustic Neuromas – Are There New Strategies?</u></p> <p><i>Dr. Norberto Andaluz , Dr. Bharat Guthikonda, Dr. Marcos Tatagiba, Dr. Marc Schwartz, Dr. Ravi Samy, Dr. Christine Dinh</i></p> <p>This session will provide a comprehensive review of strategies for the management of giant acoustic neuromas, with a special emphasis on surgical techniques to overcome the challenges presented by these demanding tumors.</p> <p>At the conclusion of this session, attendees will be able to:</p> <ul style="list-style-type: none"> » Formulate patient-centered decisions for the treatment of giant acoustic neuromas. » Identify the role of staged surgical resection for giant acoustic neuromas. » Apply strategies and techniques aiming to preserve hearing and facial nerve function. 	Tampa Bay 6

7:30 am - 8:30 am **Main Topic 4: Surgical Management of Sinonasal Malignancies with Skull Base Involvement – When to Open?** *Tampa Bay 7*

Dr. Eric Wang, Dr. Ashleigh Halderman, Dr. Eugene Yu, Dr. Alfred Marc Illoreta, Dr. Garret Choby, Dr. Mathew Geltzeiler, Dr. Pablo Recinos

Evaluation and management of sinonasal malignancies involving the skull base is challenging. While some lesions are amenable to endoscopic techniques, others are not. The dilemma of when to open is a key question confronting the entire team of surgeons and oncologists who care for these patients.

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

- » Interpret imaging studies used to evaluate malignancies with skull base involvement.
- » Integrate decision making on when to open into clinical practice.
- » Understand what is possible via the endonasal endoscopic approach.

7:30 am - 8:30 am **Main Topic 5: Mentorship in Skull Base Surgery – Fellowship Training and Beyond** *Tampa Bay 8*

Dr. James Evans, Dr. Vijay Agarwal, Dr. Harry Van Loveren, Dr. Erin McKean, Dr. Marilene Wang, Dr. Jacques Morcos

This session will discuss evolving paradigms in mentorship in skull base surgery, providing insights on contemporary challenges for both mentors and mentees, and presenting strategies for enduring mentorship relationships.

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

- » Recognize the constraints to effective mentorship in skull base presented by prevailing practice environments.
- » Compare mentorship models at different career stages.
- » Articulate strategies for objective evaluation and improvement of mentorship in skull base.

7:30 am - 8:30 am **Special Session 1: Implications of Methylation and Genomics in Skull Base Pathology**

Tampa Bay 9

Dr. Diana Bell, Dr. Stephen Magill, Dr. Lisa Rooper, Dr. Wenya Linda Bi, Dr. Georgios Zenonos, Dr. Tomas Garzon-Muvdi

Treatment options for skull base pathologies have primarily focused on surgery and radiation. However, with advancing knowledge of methylation and genomics in skull base pathologies, further treatment options and risks stratification of these tumors may aid in how these tumors are managed. This session will focus on providing an update on emerging data regarding methylation and genomics in skull base pathology and how these will be used to further patient care. Any provider who cares for these tumors is encouraged to attend.

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

- » Recognize the role methylation and genomics play in skull base pathologies.
- » Distinguish which patients are appropriate for pathology testing and how the results of testing will impact patient care.
- » Identify where to find active clinical trials that utilize methylation and genomics in skull base pathology.

8:35 am - 9:35 am **Special Session 2: State of the Art in Skull Base Imaging**

Tampa Bay 9

Melanie B. Fukui, Dr. Christina Henson, Dr. Tanya Rath, Dr. Dukagjin Blakaj, Dr. Patricia Rhyner, Dr. Martin Citardi, Dr. Arjun Parasher

This session will focus on imaging advances and how these are helping to better understand the relationship with skull base pathologies and surrounding structures as well as helping to better predict pathologic entities as well as their behavior before and after treatment. Any provider who cares for skull base pathologies is encouraged to attend to learn these new technologies.

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

- » Assess the ability and limitations of imaging modalities to predict behavior of skull base tumors.
- » Recognize how imaging can help predict skull base pathology and the relationships to neurovascular structures.
- » Evaluate new technologies and the future direction of imaging as it relates to skull base pathology.

- 8:35 am - 9:35 am** **Expert Debate 1: Management Strategies in Petroclival Meningioma** *Tampa Bay 1*
- Dr. Ossama Al-Meffy, Dr. Harry Van Loveren, Dr. Isaac Yang, Dr. Lola Chambless, Dr. Joseph Roche, Dr. Olabisi Sanusi, Dr. Marlan Hansen*
- This session aims to discuss the difficulties in management of petroclival meningiomas. Panelists will discuss illustrative cases and their philosophy around decision making for these challenging tumors.
- At the conclusion of this session, attendees will be able to:
- » Prioritize goals of care for patients with petroclival meningioma.
 - » Select an appropriate surgical approach to address the patient's primary symptom or sign.
 - » Compare different management philosophies in regard to petroclival meningioma.
- 8:35 am - 9:35 am** **Expert Debate 2: Tumor Management and Hearing Preservation/Rehabilitation in NF2** *Tampa Bay 2*
- Dr. John Golfinos, Dr. Michael Link, Dr. J. Thomas Roland Jr. , Dr. Christine Dinh, Dr. Emily Kay-Rivest, Dr. Kaleb Yohay*
- This session aims to discuss the difficulties in management and rehabilitation for patients with NF2. Panelists will discuss illustrative cases and their philosophy around decision making for these challenging patients.
- At the conclusion of this session, attendees will be able to:
- » Prioritize goals of care for patients with NF2.
 - » Select an appropriate surgical approach to address the patient's primary symptom or sign.
 - » Identify options for hearing rehabilitation for patients with NF2
- 8:35 am - 9:35 am** **Expert Debate 3: Treatment Options and Approach for Adult Craniopharyngioma** *Tampa Bay 6*
- Dr. Gustavo Pradilla, Dr. Carolyn Quinsey, Dr. Maurizio Iacoangeli, Dr. Pamela Jones, Dr. Benjamin Cooper, Dr. Michelle Mierzwa, Dr. Michaela Lee*
- Attendees will hear about different approaches and modalities for treatment of adult craniopharyngioma. Panelists will discuss and debate illustrative cases in management of these difficult tumors. Session is geared toward neurosurgery, rhinology and radiation oncology.
- At the conclusion of this session, attendees will be able to:
- » Develop a plan for treatment of adult patients with craniopharyngioma.
 - » Prioritize the treatment modality based on tumor characteristics and patient signs/symptoms.

8:35 am - 9:35 am	<p><u>Expert Debate 4: Prolactinoma Treatment Strategy – When to Operate (Newly DX Macroprolactinomas vs Recurrent/Resistant)</u></p> <p>Our expert panelists will debate management strategies for newly diagnosed and recurrent prolactinoma tumors. Panelists will review illustrative cases and debate appropriate management. Appropriate for neurosurgery, endocrinologists, rhinology and radiation oncology.</p> <p>At the conclusion of this session, attendees will be able to:</p> <ul style="list-style-type: none"> » Distinguish between operative and non operative indications for prolactinomas. » Recognize when a recurrent tumor may need surgical intervention. » Plan treatment regimens around patients tumor characteristics and patient signs/symptoms 	<i>Tampa Bay 7</i>
8:35 am - 9:35 am	<p><u>Expert Debate 5: Skull Base Coding</u></p> <p>Panelists will discuss illustrative cases and appropriate coding and billing strategies for multidisciplinary care of the skull base patient. Examples from both academic and private practice will provide attendees with multiple different scenarios to learn from. Session is appropriate for all attendees who are involved in the billing and coding for patient care.</p> <p>At the conclusion of this session, attendees will be able to:</p> <ul style="list-style-type: none"> » Identify appropriate use of modifiers when working as a team. » Recognize when to use the skull base approach codes. 	<i>Tampa Bay 8</i>
9:35 am - 10:05 am	<i>Break</i>	
10:05 am - 12:20 pm	<u>General Session</u>	<i>Tampa Bay 5</i>
12:20 pm - 1:20 pm	<i>Lunch in Exhibit Hall</i>	<i>Exhibit Hall</i>
12:20 pm - 1:20 pm	<u>Business Meeting (NASBS Members Only)</u>	<i>Tampa Bay 5</i>
1:20 pm - 2:20 pm	<p><u>Hot Topic 1: Hearing Rehabilitation in Vestibular Schwannoma</u></p> <p><i>Dr. Christine Dinh, Dr. John Yu, Dr. Esther Vivas, Dr. Brad Welling, Dr. Joe Kutz</i></p> <p>This session involves a discussion of postoperative hearing loss after vestibular schwannoma treatment. Specific considerations for NF2 and a discussion of surgical approach for hearing preservation will be included. Attendees should be neurotologists and neurosurgeons who perform lateral skull base surgery.</p> <p>At the conclusion of this session, attendees will be able to:</p> <ul style="list-style-type: none"> » Discuss the timing of hearing rehabilitation with cochlear implants in patients with treated VS. » Discuss options for hearing management when there is only one serviceable ear. » Compare middle cranial fossa and retrosigmoid approaches for hearing preservation in patients with VS. 	<i>Tampa Bay 1</i>

1:20 pm - 2:20 pm **Hot Topic 2: Management of recurrent Functioning Pituitary Adenoma** Tampa Bay 6

Angela Richardson, Nikita Chapurin, Angela Richardson, Nelson Oyesiku, Jake Wang, Erica Giraldi

This session will highlight the options for management for the complex cases of patients with recurrent functioning pituitary adenoma, including salvage surgical options, radiation options and medical management. This session would be of benefit to any level of participant who manages patients with functional pituitary adenomas.

1:20 pm - 2:20 pm **Hot Topic 3: Incorporating Quality Metrics in Everyday Clinical Practice** Tampa Bay 7

Dr. Cedric Shorter, Dr. Sarah Mowry, Dr. Cedric Shorter, Dr. Martin Citardi, Dr. Philip Theodosop, Dr. Brian Boyce

Quality is a measure by which all surgeons and all physicians are increasingly being evaluated. This session will provide attendees important quality metrics in skull base surgery. This will allow all of us to better understand the importance of safety, cost containment and optimal patient outcomes in our patient population with complex skull base disease.

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

- » Integrate cost information into everyday practice and assess if this knowledge leads to more judicious resource utilization.
- » Employ safety first surgical technique to optimize patient outcomes.
- » Develop a practice pattern that maximizes patient satisfaction.

1:20 pm - 2:20 pm **Hot Topic 4: Neoadjuvant Chemotherapy in Sinonasal Malignancies** Tampa Bay 8

Dr. Jai Thakur, Dr. Mihir Patel, Dr. Nabil Saba, Dr. Ralph Abi Hachem, Dr. Roukoz Chamoun

This session will discuss the use of neoadjuvant chemotherapy in sinonasal malignancies. Choice of chemotherapy and management after therapy with surgery and/or radiation will be discussed. A specific discussion of subtypes of sinonasal cancer will be included.

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

- » Discuss choice of chemotherapy for sinonasal malignancies.
- » Discuss management after neoadjuvant chemotherapy including surgery and radiation.
- » Discuss subtypes of sinonasal cancer, including SNUC and SCC.

1:20 pm - 6:05 pm

Skull Base Primer Course

Tampa Bay 2

Dr. Vijay Agarwal, Dr. Camilo Reyes, Dr. Sebastian Froelich, Dr. Patricia Rhyner, Dr. Christopher Farrell, Dr. Mindy Rabinowitz, Dr. Judd Fastenberg, Dr. Emily Barrow, Dr. Ezequiel Goldschmidt, Dr. Giovanni Danesi, Dr. Tomas Garzon Muvdi, Dr. Nathan Zwagerman, Dr. Nathalia Velasquez, Dr. Stephen Magill

The Primer Course will provide a broad overview of skull base pathology as well as surgical and nonsurgical management of tumors affecting this region, emphasizing the multidisciplinary and collaborative nature of these cases. We invite all skull base trainees, newly practicing skull base surgeons, and those interested in learning different approaches or techniques while avoiding and managing complications to attend this session.

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

- » Identify operative and non-operative management strategies for skull base lesions through a team-based approach.
- » Compare the nuances of different open and endoscopic approaches to various regions of the skull base.
- » Recognize and manage common complications associated with skull base surgery.

1:20 pm - 6:05 pm

Kawase Education Day

Tampa Bay 9

Dr. Hamid Borghei-Razavi, Dr. Carolina Benjamin, Dr. Takeshi Kawase, Dr. Ossama Al-Mefy, Dr. James Liu, Dr. Jacques Marcos, Dr. Badih Adada, Dr. J Thomas Roland, Jr, Dr. Diego Mendez Rosito, Dr. Alexander Yu

Comprehensive understanding of petrous bone anatomy and 360 degree surgical approaches to various complex pathologies involving the petrous bone.

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

- » Understand petrous bone anatomy.
- » Understand 360 degree approaches to the petrous bone to address various types of pathologies including intradural, extradural and vascular pathologies.
- » Prevent and manage potential complications in petrosal approaches.
- » Gain confidence with decision-making: surgical indications and approach selection to petrous bone pathologies.
- » Understand petrous bone and surrounding structures pathologies.

2:25 pm - 3:25 pm

Video Session 1: Trans-Cavernous Approaches to Intracranial Lesions

Tampa Bay 1

Dr. Siviero Agazzi, Dr. Walter Jean, Dr. Jorge Maura, Dr. Maria Peris Celda, Dr. Mohammed Labib, Dr. Shaan Raza

This session will highlight contemporary utilization of transcavernous approaches to juxtacavernous, basal cistern and posterior fossa pathologies. Limitations in anatomic exposure and the types of pathologies that can be potentially treated with these approaches will be explored. Neurosurgeons, fellows, residents and advanced care team providers will benefit from this session.

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

- » Identify the anatomic boundaries exposed by transcavernous approach.
- » Distinguish the types of pathologies that require the use of the transcavernous approach.
- » Understand the potential complications of the transcavernous approach.

2:25 pm - 3:25 pm

Video Session 2: Expanded Endonasal Approaches to the Clivus and CCJ

Tampa Bay 6

Dr. Janalee Stokken, Dr. Georgios Zenonos, Dr. Joao Almeida, Dr. Nathan Zwagerman, Dr. Gustavo Pradilla, Dr. Eric Wang

In this video session, we will review anatomical considerations, technical pearls, standard reconstruction techniques, and reconstructive bailout strategies when approaching the clivus and craniocervical junction via an endoscopic endonasal approach. This session is geared primarily for neurosurgeons, rhinologists, head and neck surgeons, and reconstructive surgeons as well as all trainees.

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

- » Distinguish key anatomical landmarks when approaching the clivus and craniocervical junction via an endoscopic endonasal approach.
- » Articulate technical pearls when endoscopically approaching the clivus, jugular foramen, and craniocervical junction.
- » Recognize standard and bailout strategies for reconstruction at the clivus and craniocervical junction.

2:25 pm - 3:25 pm

Video Session 3: Transorbital Approaches

Tampa Bay 7

Dr. Andree Beer-Furlan, Dr. Sean Parsel, Dr. Kris Moe, Dr. Randolph Wojak, Dr. Calvin Mak, Dr. Hun Ho Park, Dr. Davide Locatelli

This session will explore surgical approaches to orbital pathologies, as well as approaches to intracranial pathologies through the orbit. Novel techniques, the anatomic boundaries of exposure and technical limitations will be discussed. Skull Base Surgeons with backgrounds in Neurosurgery, Otolaryngology, Ophthalmology, Neuroradiology and fellows/residents/advanced care team providers will benefit from this session.

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

- » Identify novel/nuanced multi-disciplinary techniques for transorbital approaches.
- » Identify the limitations in anatomic exposure for transorbital approaches.
- » Develop multidisciplinary consideration of approach for complex skull base pathologies using the transorbital approach.

2:25 pm - 3:25 pm

Video Session 4: Management of Endonasal Vascular Injury

Tampa Bay 8

Dr. Danilo Silva, Dr. Christopher Roxbury, Dr. Amir Dehdashti, Dr. Jeremy Ciporen, Dr. Alfred Marc Illoreta, Dr. Satyan Sreenath, Daniel Felbaum

Vascular injuries are one of the most devastating complications of endoscopic endonasal skull base surgery and are particularly difficult to manage due to the limited working space. This session will cover a comprehensive approach to prevent and also prepare for these complications. It is intended for rhinologists, head and neck surgeons, neurosurgeons, endovascular specialists, and all trainees.

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

- » Implement methods to prepare and train for vascular injury in endoscopic skull base surgery.
- » Identify the role of endovascular techniques for vascular injury in endoscopic endonasal surgery.
- » Identify available techniques and tools used to address non carotid vascular bleeding.

3:30 pm - 4:00 pm

Break in Exhibit Hall

4:00 pm - 5:00 pm **Proffered Papers Session 1: Lateral Skull Base Surgery/ Meningiomas**

Tampa Bay 1

S001: INTRA-OPERATIVELY DIAGNOSED FACIAL SCHWANNOMA: A MULTI-CENTRE STUDY OF INCIDENCE, MANAGEMENT AND PROPOSED PRE-OPERATIVE IMAGING PROTOCOL - Cathal John Hannan, MRCS¹; Daniel Lewis, PhD¹; Aaron Plitt, MD²; George Richardson, MBBS³; Andrew T. King, FRCS¹; Brian A. Neff, MD²; Charlotte Hammerbeck-Ward, PhD¹; Colin L. Driscoll²; Jamie J. Van Gompel, MD²; Matthew L. Carlson²; Omar Nathan Pathmanaban, PhD¹; Simon K. Lloyd, MPhil¹; Simon Richard Mackenzie Freeman, FRCS, ORLHNS¹; Gillian Potter, MD¹; Michael J. Link, MD¹; Scott A. Rutherford¹; ¹Manchester Centre for Clinical Neurosciences; ²Mayo Clinic, Rochester, MN; ³University of Liverpool

S002: ANATOMICAL STUDY OF THE SUPRATENTORIAL EXTENSION FOR THE RETROLABYRINTHINE PRESIGMOID APPROACHES. - Samer S Hoz, MD¹; Paolo Palmisciano, MD¹; Mustafa Ismail, MD²; Jonathan Forbes, MD¹; Charles Prestigiacomio, MD¹; Ravi Samy, MD¹; Myles L Pensak, MD¹; Mario Zuccarello, MD¹; Norberto Andaluz, MD¹; ¹University of Cincinnati; ²University of Baghdad

S003: PROGNOSTIC INDICATORS OF PERSISTENT POSTOPERATIVE IMBALANCE AFTER SURGICAL TREATMENT OF VESTIBULAR SCHWANNOMA. - Mohamed Elkahwagi, PhD¹; Alejandro Garcia, dr²; Carleton Eduardo Corrales, Ass Prof²; Matthew Crowson, PhD³; James Naples, PhD³; Tim Smith²; ¹Mansoura University Egypt; ²Brigham Women's Hospital Harvard Medical School; ³MEEI Harvard Medical School

S004: MANAGEMENT OF PETROUS BONE CHOLESTEATOMAS: AN UPDATE ON SURGICAL TREATMENT, CLINICAL OUTCOMES AND FOLLOW UP - Gianluca Piras, MD; Antonio Caruso, MD; Lorenzo Lauda, MD; Mario Sanna, MD, PhD; Gruppo Otologico, Piacenza-Rome, Italy

S005: COMPARATIVE ANALYSIS OF THE COMBINED SUBTEMPORAL PERILABYRINTHINE AND SUBTEMPORAL APPROACHES FOR REVASCULARIZATION OF THE POSTERIOR CEREBRAL ARTERY - Motonobu Nonaka, MD; Alexander I Evins, MD; Collin Liu, MD; Hitoshi Fukuda, MD; Philip E Stieg; Antonio Bernardo, MD; Weill Cornell Medicine, Neurological Surgery

S006: THE MID-CLIVAL-PRESIGMOID ANGLE: A NEW VARIABLE FOR VESTIBULAR SCHWANNOMA SURGERY. - J. Manuel Revuelta Barbero, MD, PhD¹; Edoardo Porto, MD²; Esther X. Vivas, MD²; Douglas E. Mattox, MD²; Tomas Garzon Muvdi, MD, MSc²; C. Arturo Solares, MD²; Gustavo Pradilla, MD²; ¹Medical College of Georgia - Augusta University; ²Emory University

S007: FUNCTIONAL CLASSIFICATION OF APOPTOTIC SENSITIVITY IN MENINGIOMA - Maya Harary, MD; Elizabeth Fernandez; Joshua Casaos, MD; Jeremie Vitte, PhD; David Nathanson, PhD; Robert Prins, PhD; Marco Giovannini, MD, PhD; Richard Everson, MD; UCLA

S008: INTRA-SUBJECT HETEROGENEITY OF LESION SUV ON [68GA]DOTATATE PET/MRI IN PATIENTS WITH MULTIPLE MENINGIOMAS - IMPLICATIONS FOR TUMOR BIOLOGY AND CLINICAL MANAGEMENT - [SJ Chang](#)¹; A Haghdel¹; S Kim¹; M Roytman^{1,2}; R Ramakrishna^{1,2}; S Pannullo^{1,2}; T Schwartz^{1,2}; J Osborne^{1,2}; R Magge^{1,2}; E Lin^{1,2}; J Knisely^{1,2}; J Ivanidze^{1,2}; ¹Weill Cornell Medicine; ²New York-Presbyterian Hospital

4:00 pm - 5:00 pm

Proffered Papers Session 2: Video Award Finalists

Tampa Bay 6

V001: FASCIOCUTANEOUS RADIAL FOREARM FLAP WITH TRANSPTERYGOIG/PARAPHARYNGEAL TUNNELING FOR RECONSTRUCTION OF ANTERIOR SKULL BASE DEFECTS: HOW I DO IT - [Edoardo Porto, MD](#)¹; Jackson Vuncannon, MD¹; J. Manuel Revuelta Barbero, MD, PhD²; Tomas Garzon Muvdi, MD, MSc¹; Emily Barrow, MD¹; Gustavo Pradilla, MD¹; C. Arturo Solares, MD¹; ¹Emory University; ²Medical College of Georgia - Augusta University

V002: ENDOSCOPIC ENDONASAL TRANSSPHENOIDAL TRANSCAVERNOUS TRANSOCULOMOTOR TRIANGLE APPROACH FOR RESECTION OF AN INVASIVE PITUITARY ADENOMA EXTENDING INTO THE PARAPEDUNCULAR SPACE THROUGH THE LEFT CAVERNOUS SINUS - [Prakash Nair, DR](#); Sanjay Murali, DR; Easwer Hv, DR; Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum

V003: ANTERIOR CLINOID MENINGIOMA WITH INTERNAL CAROTID ARTERY ENCASEMENT - [Vera Vigo, MD](#); Karam P Asmaro, MD; Micheal Lim, MD; Juan C Fernandez-Miranda, MD; Stanford University

V004: LEFT KAWASE APPROACH FOR "MACROVASCULAR" DECOMPRESSION OF DOLICHOECTATIC BASILAR ARTERY CAUSING HEMIFACIAL SPASM USING GORE-TEX SLING: 2-DIMENSIONAL OPERATIVE VIDEO - [Eva M Wu, MD](#); Matthew Sun, MD; Jacques J Morcos, MD; Department of Neurological Surgery, University of Miami

4:00 pm - 5:00 pm

Proffered Papers Session 3: Endoscopic Transnasal Skull Base Surgery

Tampa Bay 7

S009: ANATOMICAL STEP-BY-STEP DISSECTION OF COMPLEX SKULL BASE APPROACHES FOR TRAINEES: SURGICAL ANATOMY OF THE ENDOSCOPIC ENDONASAL CLIVECTOMY, ODONTOIDECTOMY, AND FAR MEDIAL APPROACH - [Edoardo Agosti, MD](#)¹; Alex Y Yohan, BA²; Luciano Leonel, PhD³; Carlos D Pinheiro-Neto, MD, PhD³; Maria Peris-Celda, MD, PhD³; ¹University of Brescia; ²University of Minnesota; ³Mayo Clinic

S010: MICROSURGICAL ANATOMY OF THE ENDOSCOPIC ENDONASAL LATERAL TRANSCAVERNOUS APPROACH -

Yuanzhi Xu, MD¹; Karam Asmaro, MD²; Vera Vigo, MD²; Ahmed Mohyeldin, MD, PhD²; Maximiliano A Nunez, MD²; Ying Mao, MD¹; Aaron A Cohen-Gadol, MD, MSc, MBA³; Juan C Fernandez-Miranda, MD²; ¹Department of Neurosurgery, Huashan Hospital, Shanghai Medical College, Fudan University, Shanghai, China; ²Department of Neurosurgery, Stanford Hospital, Stanford, California; ³Department of Neurological Surgery, Indiana University, Indianapolis, Indiana

S011: SINONASAL OUTCOMES OF THE COMBINED TRANSSEPTAL/TRANSNASAL APPROACH WITH UNILATERAL NASOSEPTAL RESCUE FLAP IN ENDOSCOPIC ENDONASAL TRANSSPHEOIDAL SURGERY: A PROPENSITY SCORE MATCHING ANALYSIS -

Jae Yoon Lee; Jae-Sung Park; Do Hyun Kim; Seoul St. Mary's Hospital

S012: HOW LOW CAN YOU GO? COMPARING THE INFERIOR LIMIT IN ENDOSCOPIC ENDONASAL APPROACHES TO THE CRANIOVERTEBRAL JUNCTION BETWEEN AGE GROUPS -

Michael J Ye, MD¹; Fahad Hasnain, BS²; Oluwaseyi O Awonusi, BS²; Satyan B Sreenath, MD¹; Elisa A Illing, MD¹; Jonathan Y Ting, MD, MS, MBA¹; ¹Indiana University School of Medicine - Department of Otolaryngology/Head & Neck Surgery; ²Indiana University School of Medicine

S013: POSTOPERATIVE MANAGEMENT OF OSA FOLLOWING ENDOSCOPIC PITUITARY SURGERY: A SYSTEMATIC REVIEW -

Adwight Risbud, MD, MPH¹; Edward C Kuan, MD, MBA²; Arthur W Wu, MD¹; Dennis M Tang, MD¹; ¹Division of Otolaryngology - Head & Neck Surgery, Cedars-Sinai Medical Center; ²Department of Otolaryngology - Head & Neck Surgery, University of California, Irvine

S014: MICROSURGICAL ANATOMY OF THE PTERYGOSPHEOIDAL TRIANGLE: IMPLICATION IN ENDOSCOPIC ENDONASAL SKULL BASE SURGERY -

Yuanzhi Xu, MD¹; Karam Asmaro, MD²; Ahmed Mohyeldin, MD, PhD²; Michael Zhang, MD²; Maximiliano A Nunez, MD²; Ying Mao, MD¹; Aaron A Cohen-Gadol, MD, MSc, MBA³; Juan C Fernandez-Miranda, MD²; ¹Department of Neurosurgery, Huashan Hospital, Shanghai Medical College, Fudan University, Shanghai, China; ²Department of Neurosurgery, Stanford Hospital, Stanford, California; ³Department of Neurological Surgery, Indiana University, Indianapolis, Indiana

S015: SURGICAL ANATOMY OF THE FORAMEN LACERUM AND ITS LIGAMENTS: ANATOMICAL DESCRIPTION AND CLINICAL RELEVANCE FOR EXPANDED ENDONASAL APPROACHES

- Luciano Leonel, PhD¹; Edoardo Agosti, MD¹; Simona Seriola, MD¹; Michael J Link, MD²; Carlos D Pinheiro-Neto, MD, PhD³; Maria Peris-Celda²; ¹Mayo Clinic Rhoton Neurosurgery and Otolaryngology Surgical Anatomy Program; ²Department of Neurosurgery, Mayo Clinic, Rochester, Minnesota; ³Department of Otorhinolaryngology Head and Neck Surgery Mayo Clinic, Rochester, Minnesota

S016: ANGIOGRAPHIC CROSS FILLING BETWEEN INFERIOR PETROSAL SINUSES AS A FACTOR IMPACTING ACTH SAMPLING IN THE SETTING OF CUSHING'S DISEASE - R. Chase Ransom, MD, PhD; Michael L Martini, MD, PhD; Lorenzo Rinaldo, MD, PhD; Lucas Carlstrom, MD, PhD; Derek O'Keefe, MB, BCh, MD, PhD; William Young, MD; Jamie Van Gompel, MD; Mayo Clinic

4:00 pm - 5:00 pm

Proffered Papers Session 4: Cavernous Sinus Tumors / Chordoma

Tampa Bay 8

S017: TREATMENT STRATEGY, SURGICAL TECHNIQUE AND CLINICAL OUTCOME FOR CAVERNOUS SINUS MENINGIOMA -

Takashi Sugawara, PhD; Hiroto Yamaoka, Dr; Taketoshi Maehara, PhD; Department of Neurosurgery, Tokyo Medical and Dental University

S018: ENDOSCOPIC TRANSCAVERNOUS SURGERY FOR PITUITARY TUMORS WITHIN THE LATERAL CAVERNOUS SINUS: ADVANCING TOWARDS THE LATERAL FRONTIER -

Karam Asmaro¹; Yuanzhi Xu²; Vera Vigo³; Christine K Lee³; Ju Hyung Moon³; Juan C Fernandez-Miranda³; ¹Henry Ford Health; ²Huashan Hospital, Fudan University; ³Stanford University

S020: FUNCTIONAL AND RADIOGRAPHIC OUTCOMES OF CAVERNOUS MENINGIOMAS BASED ON TREATMENT MODALITY: A SINGLE INSTITUTIONAL STUDY -

Christina Feller, BA, BS¹; Brandon Laing¹; Andrew Montoure, MD²; Benjamin Best, MD¹; Nathan Zwagerman, MD¹; ¹Medical College of Wisconsin; ²University of Washington

S021: CORRELATION OF CLINICAL FEATURES TO DNA METHYLATION-BASED PROGNOSTIC SUBTYPES IN CHORDOMA PATIENTS -

Jeffery Zuccato, MD, PhD; Andrew Ajisebutu, MD; Gelareh Zadeh, MD, PhD, FRCSC; University of Toronto

S022: A COMPREHENSIVE ANALYSIS OF PROGNOSTIC FACTORS FOR SKULL BASE CHORDOMA: A NATIONAL CANCER DATABASE STUDY -

Ruben Ulloa, BA¹; Justin M Soffer, MD²; Sonja Chen³; Sean Polster, MD⁴; Vijay A Patel, MD⁵; ¹Keck School of Medicine of USC; ²Vanderbilt University School of Medicine, Department of Surgery; ³University of Chicago; ⁴The University of Chicago Medicine & Biological Sciences; ⁵Division of Otolaryngology – Head & Neck Surgery, Department of Surgery, University of California San Diego

S023: CHORDOMA OF THE SKULL BASE: A NATIONAL CANCER DATABASE ANALYSIS OF CURRENT PRACTICE PATTERNS AND OUTCOMES - [Ravi Nunna](#)¹; Saavan Patel²; Sasi Karuparti¹; Michael Ortiz-Torres¹; James Ryoo³; Darius Ansari⁴; Steven Carr¹; Ankit Mehta²; ¹University of Missouri; ²University of Illinois-Chicago; ³New York University; ⁴University of Wisconsin-Madison

S024: EXTENT OF SURGICAL RESECTION AS A PREDICTOR OF DISEASE CONTROL IN SKULL BASE CHORDOMAS: A MULTI-CENTER TUMOR VOLUMETRIC ANALYSIS - [Carlos Perez-Vega, MD](#); Oluwaseun O Akinduro, MD; Henry J Ruiz-Garcia, MD; Bernard R Bendok, MD; Kaisorn L Chaichana, MD; Alfredo Quinones-Hinojosa, MD; Jamie J Van Gompel, MD; Mayo Clinic

5:05 pm - 6:05 pm

Proffered Papers Session 5: Meningiomas

Tampa Bay 1

S025: PRECISION MEDICINE FOR MENINGIOMAS: MACHINE LEARNING RADIOMIC SIGNATURE SCORES USING KI-67 STRATA IDENTIFY AGGRESSIVE TUMORS AT INCREASED RISK OF RECURRENCE - [Omaditya Khanna](#); Thomas Jefferson University Hospital

S026: THE GENOMIC PROFILES AND CLINICAL MANIFESTATIONS OF SPORADIC MENINGIOMAS VARY AMONGST RACIAL AND ETHNIC GROUPS - [Joanna Tabor](#)¹; Joseph O'Brien¹; Haoyi Lei¹; Shaurey Vetsa¹; Sagar Vasandani¹; Muhammad Jalal¹; Kanat Yalcin, PhD¹; Saul Morales-Valero, MD¹; Neelan Marianayagam, MD¹; Aladine Elsamadicy, MD¹; Miguel Millares Chavez, MD¹; Hanya Qureshi¹; Mani Ratnesh S Sandhu¹; Stephanie M Aguilera²; Ketu Mishra-Gorur, PhD¹; Declan McGuone, MD²; Robert Fulbright, MD³; Lan Jin, PhD¹; E. Zeynep Erson-Omay, PhD¹; Murat Gunel, MD¹; Jennifer Moliterno, MD¹; ¹Department of Neurosurgery, Yale School of Medicine; ²Department of Pathology, Yale School of Medicine; ³Department of Radiology and Biomedical Imaging, Yale School of Medicine

S027: POSTOPERATIVE COMPLICATIONS AND NEUROLOGICAL DEFICITS AFTER PETROCLIVAL AND SPHENOPETROCLIVAL MENINGIOMA RESECTION - Minh Nguyen, BS¹; [Ramin Morshed, MD](#)¹; Steven Cheung, MD¹; Philip Theodosopoulos, MD¹; Michael McDermott, MD²; ¹University of California San Francisco; ²Miami Neuroscience Institute

S028: IS BRAIN INVASION AN INDEPENDENT PROGNOSTIC FACTOR IN OTHERWISE BENIGN MENINGIOMA? - Abdulrazag Ajlan, MD, FRCSC¹; Majed AlJohani¹; [Sarah Basindwah](#)¹; Saif Al-Meshari¹; Fahad Aldhowaihy¹; Yazed Aldeheem¹; Ashwag Alqurashi²; ¹Division of Neurosurgery, College of Medicine, King Saud University, Riyadh, Saudi Arabia.; ²Division of Neurosurgery, Department of Surgery, King Saud University Medical City, Riyadh, Saudi Arabia.

S029: IMPACT OF SALVAGE SURGERY AND RE-IRRADIATION FOR RADIATION FAILED RECURRENT SKULL BASE MENINGIOMAS - [Franco Rubino, MD](#); Solon Schur, MD; Susan L McGovern, MD; Carlos Kamiya-Matsuoka, MD; Franco DeMonte, MD; Shaan M Raza, MD; MD Anderson Cancer Center

S030: REAPPRAISAL OF TRANSPETROSAL APPROACHES FOR PETROCLIVAL MENINGIOMAS: A CONSECUTIVE SINGLE INSTITUTION SERIES - Paolo di Russo¹; Lorenzo Giammattei¹; Thibault Passeri¹; Fumihiko Matano¹; Marc Antoine Labeyrie²; Vitorio Civelli²; Ariana Fava¹; Rosaria Abbritti²; Anne Laure Bernat¹; Kentaro Watanabe¹; Sébastien Froelich¹; ¹Department of Neurosurgery, Lariboisière Hospital, Paris, France; ²Department of Neuroradiology, Lariboisière Hospital, Paris, France

S031: INTRODUCTION AND VALIDATION OF A NEW MENINGIOMA EMBOLIZATION-EFFICACY GRADING SCALE: A RETROSPECTIVE STUDY OF 80 PATIENTS - Stavros Matsoukas, MD¹; Denzel E Faulkner²; Rui Feng, MD¹; Ian Odland, BS³; Brandon Philbrick, MD¹; Eveline Gutzweiller, MD¹; Halima Tabani, MD¹; Alexis Bruhat, Msc³; Fred Kwon, PhD³; Turner S Baker, PhD³; Leslie Schlachter, PA¹; Holly Oemke¹; Christopher Kellner, MD¹; J Mocco, MD¹; Johanna Fifi, MD¹; Tomoyoshi Shigematsu, MD¹; Hazem Shoirah, MD¹; Shahram Majidi, MD¹; Reade De Leacy, MD¹; Alejandro Berenstein, MD¹; Stanley Dunn, PhD²; Raj Shrivastava, MD¹; Johsua Bederson, MD¹; Benjamin I Rapoport, MD, PhD¹; ¹Department of Neurosurgery, Icahn School of Medicine at Mount, Mount Sinai Hospital, 1 Gustave Levy Place, New York; ²Department of Biomedical Engineering, Rennselaer Polytechnic Institute, 110 Eighth Street, Troy, NY; ³Mount Sinai BioDesign, Icahn School of Medicine at Mount Sinai, Mount Sinai Hospital, 1 Gustave Levy Place, New York

S032: A QUANTITATIVE VOLUMETRIC MRI ANALYSIS OF THE IMMEDIATE EFFECTS OF MENINGIOMA EMBOLIZATION ON TUMOR SIZE AND SURROUNDING EDEMA - Rui Feng, MD, MSc; Stavros Matsoukas, MD; Denzel Faulkner; Halima Tabani, MD; Christopher Kellner, MD; Joshua Bederson, MD; Raj Shrivastava, MD; Ben Rapoport, MD; Department of Neurosurgery, Icahn School of Medicine at Mount Sinai

5:05 pm - 6:05 pm

Proffered Papers Session 6: Pituitary Tumors

Tampa Bay 6

S033: RESECTION OF PITUITARY ADENOMAS IN PATIENTS WITH SICKLE CELL DISEASE: A RETROSPECTIVE ANALYSIS OF 19,653 PATIENTS - Taylor Reardon¹; Nolan J Brown²; James Rodgers³; Saarang Patel²; Angie Zhang²; Shane Shahrestani⁴; Julian Gendreau⁵; Ahmed Mohyeldin²; ¹University of Pikeville - Kentucky College of Osteopathic Medicine; ²UC Irvine Department of Neurological Surgery; ³Vanderbilt University School of Medicine; ⁴Keck School of Medicine of USC; ⁵Johns Hopkins Whiting School of Engineering

S034: ENDOSCOPIC ENDONASAL SKULL BASE SURGERY FOR GIANT PITUITARY ADENOMAS: 60 PATIENT CASE SERIES. - Agustín Dorantes-Argandar, MD¹; Flavio Rodas-Berrezueta, MD²; Luis Perez-Garcia, MD¹; Javier Mancilla-Mejia, MD²; Brenda Lopez-Quintana, MD, MSc²; Berenice Garcia-Guzman, MD, MSc²; ¹Hospital Angeles Pedregal - Facultad Mexicana de Medicina - Universidad La Salle; ²Hospital Angeles Pedregal

S035: THE SUPERIORITY OF SURGERY OVER RADIOTHERAPY IN THE TREATMENT OF RECURRENT CUSHING'S DISEASE: A SYSTEMATIC REVIEW AND META-ANALYSIS ON REMISSION AND COMPLICATIONS - Mohammadmahdi Sabahi¹; Paniz Ghasemi¹; Seyed Farzad Maroufi²; Taha Shahbazi¹; Omid Yousefi³; Seyed Alireza Shahtaheri⁴; Karla Arce⁵; Rocco Dabecco⁶; Badih Adada⁵; Hamid Borghei-Razavi⁵; ¹Neurosurgery Research Group (NRG), Student Research Committee, Hamadan University of Medical Science; ²Sina Trauma and Surgery Research Center, Tehran University of Medical Sciences; ³Trauma Research Center, Shiraz University of Medical Sciences, Shiraz, Iran.; ⁴Neurosurgery Research Group (NRG), Student Research Committee, Hamadan University of Medical Sciences; ⁵Department of Endocrinology, Diabetes and Metabolism, Cleveland Clinic Florida, Weston, Florida, USA.; ⁶Department of Neurological Surgery, Pauline Braathen Neurological Centre, Cleveland Clinic Florida, Weston, Florida, USA.

S036: UTILITY OF INFERIOR PETROSAL SINUS SAMPLING AND CORTISOL LEVELS IN ENDOSCOPIC ENDONASAL TRANSPHENOIDAL SURGERY FOR PITUITARY ADENOMA RESECTION IN ADULTS WITH CUSHING DISEASE - Christina Feller, BS, BA; Sherrea Jones, PhD; Heloise Cheruvalath, BA; Akram Eraky, MD; Eduardo Martinez Del Campo, MD; Nathan Zwagerman, MD, FAANS; Medical College of Wisconsin

S037: TRANSCRIPTION-FACTOR DEPENDENT CYTODIFFERENTIATION DRIVES CAVERNOINVASIVE BEHAVIOR OF PITUITARY TUMORS - Karam Asmaro¹; Michael Zhang²; Adrian J Rodrigues²; Ahmed Mohyeldin²; Vera Vigo²; Hannes Vogel²; Donald E Born²; Laurence J Katznelson²; Juan C Fernandez-Miranda²; ¹Henry Ford Health; ²Stanford University

S038: CLINICAL CHARACTERISTICS AND OUTCOMES OF THYROID STIMULATING HORMONE-SECRETING ADENOMAS - Zain Peeran, BS¹; Jacob S Young, MD²; Harmon Khela, BS²; Aarav Badani²; Robert C Osorio, BS¹; Manish K Aghi, MD, PhD²; ¹School of Medicine, University of California San Francisco, San Francisco, CA, USA; ²Department of Neurological Surgery, University of California San Francisco, San Francisco, CA, USA

S039: PRACTICE PATTERNS OF SURGICAL APPROACHES FOR PITUITARY TUMORS ACROSS OTOLARYNGOLOGISTS AND NEUROSURGEONS BETWEEN 2010 AND 2018 - Lauren Miller; Roy Xiao, MD; Isaac Wasserman; Derrick Lin; Stacey Gray; Massachusetts Eye and Ear

S040: A COMPREHENSIVE ANALYSIS OF TOBACCO SMOKING HISTORY AS A RISK FOR OUTCOMES AFTER TRANSPHENOIDAL RESECTION OF PITUITARY ADENOMA -

Susie Min, BA¹; Grace Zhang, BA¹; Alex Hu, BA¹; Gabrielle T Petito, BA¹; Siddhant H Tripathi, BS¹; Geet Shukla, BA¹; Adithya Kumar, BS¹; Sanjit Shah, MD²; Katie M Philips, MD¹; Jonathan A Forbes²; Mario Zuccarello²; Norberto O Andaluz²; Ahmad R Sedaghat, MD¹; ¹Department of Otolaryngology-Head and Neck Surgery, University of Cincinnati College of Medicine, Cincinnati, United States of America; ²Department of Neurosurgery, University of Cincinnati College of Medicine, Cincinnati, United States of America

5:05 pm - 6:05 pm

Proffered Papers Session 7: Stereotactic Radiosurgery/ Surgical Simulation

Tampa Bay 7

S042: OUTCOMES AFTER GAMMA KNIFE RADIOSURGERY FOR INTRAVENTRICULAR MENINGIOMAS -

Alberto Daza-Ovalle, MD^{1,2}; L. Dade Lunsford, MD¹; Ajay Niranjana, MD¹; John Flickinger, MD¹; Othman Bin-Alamer, MBBS¹; ¹University of Pittsburgh; ²Rosario University

S043: COCHLEAR IMPLANTATION WITHIN ONE MONTH OF STEREOTACTIC RADIOSURGERY FOR VESTIBULAR SCHWANNOMAS: A RETROSPECTIVE REVIEW -

Aaron R Plitt, MD¹; James R Dornhoffer, MD²; Colin L Driscoll, MD²; Brian A Neff, MD²; Matthew L Carlson, MD²; Michael J Link, MD¹; ¹Mayo Clinic Department of Neurologic Surgery; ²Mayo Clinic Department of Otolaryngology/Head and Neck Surgery

S044: INITIAL HEARING IMPROVEMENT AND LONGEVITY OF HEARING RESTORATION IN COCHLEAR IMPLANTS AFTER STEREOTACTIC RADIOSURGERY FOR VESTIBULAR SCHWANNOMAS -

Kurtis C Young¹; Maeher R Grewal²; Rodney C Diaz²; Arthur W Wu³; Mia E Miller³; ¹Department of Otolaryngology - Head and Neck Surgery, UC Davis Medical Center; ²Department of Otolaryngology - Head and Neck Surgery, Vagelos College of Physicians and Surgeons, Columbia University Irving Medical Center; ³Department of Otolaryngology - Head and Neck Surgery, Cedars-Sinai Medical Center

S045: TUMOR TARGETED GAMMA KNIFE RADIOSURGERY IN PATIENTS WITH TRIGEMINAL NEURALGIA SECONDARY TO MASS LESION -

Roger Murayi, MD¹; Jordan C Petitt, MS²; Robert D Winkelman, MD¹; Pablo F Recinos, MD¹; Varun R Kshetry, MD¹; ¹Department of Neurological Surgery, Rosa Ella Burkhardt Brain Tumor & Neuro-Oncology Center, Cleveland, OH; ²Case Western Reserve University School of Medicine, Cleveland, OH

S046: OUTCOMES OF GAMMA KNIFE RADIOSURGERY FOR GLOMUS JUGULARE TUMORS: A 35-YEAR SINGLE-CENTER EXPERIENCE -

Alberto Daza-Ovalle, MD^{1,2}; L. Dade Lunsford, MD¹; Ajay Niranjana, MD¹; Othman Bim Alamer, MBBS¹; Zhishuo Wei, BS¹; ¹University of Pittsburgh; ²Rosario University

S047: A 3-D PRINTED, MULTICOLOR, DRILLABLE SIMULATION SYSTEM FOR SKULL BASE DRILLING WITH DIRECT, OBJECTIVE REAL-TIME FEEDBACK - [Bachtri T Nguyen, BS¹](#); Jonathan M Morris, MD¹; Visish M Srinivasan, MD²; Michael J Holroyd, PhD³; Lucas P Carlstrom, MD, PhD¹; Avital Perry, MD⁴; Maria Peris-Celda, MD, PhD¹; Michael J Link, MD¹; Christopher S Graffeo, MD, MS³; ¹Mayo Clinic; ²University of Pennsylvania; ³University of Oklahoma; ⁴Sheba Medical Center

S048: DEVELOPMENT AND VALIDATION OF A NOVEL HUMAN FIXED CADAVERIC MODEL REPRODUCING CEREBROSPINAL FLUID CIRCULATION FOR TRAINING IN ENDOSCOPIC SKULL BASE SURGERY - [Laura-Elisabeth Gosselin, MD¹](#); Nicolas Morin, MD, PhD²; Mathieu Chamberland, MD¹; Charles Gariépy, MD²; Olivier Beaulieu³; Sylvie Nadeau, MD¹; Pierre-Olivier Champagne, MD, PhD²; ¹Department of Ophthalmology and Otolaryngology - Head and Neck Surgery, Faculty of Medicine, Université Laval, Quebec City, Quebec, Canada; ²Department of Neurosurgery, CHU de Québec-Université Laval, Pavillon Enfant-Jésus, Quebec City, Quebec Canada; ³Faculty of Medicine, Université Laval, Quebec City, Quebec, Canada

5:05 pm - 6:05 pm

Proffered Papers Session 8: Head and Neck Tumors/ Innovative Techniques

Tampa Bay 8

S049: THE ROLE OF IMAGING IN PREDICTING RESPONSE TO CHEMOTHERAPY AND RADIOTHERAPY IN SINONASAL MALIGNANCIES - A CLINIC-PATHOLOGICAL CORRELATIVE STUDY - [Dan Yaniv, MD](#); Phan Jack, MD, PhD; Clifton D Fuller, MD, PhD; Michael T Spiotto, MD, PhD; Diana Roberts, PhD; Jason M Johnson, MD; Melissa Chen, MD; Shaan M Raza, MD; Franco DeMonte, MD; Ehab Y Hanna, MD; Shirley Y Su, MBSS; MD Anderson Cancer Center

S050: INDUCTION CHEMOTHERAPY FOR SINONASAL TUMORS IN PATIENTS PRESENTING WITH BRAIN INVASION AND/OR NEUROLOGICAL DEFICITS - [Bledi C Brahimaj](#); Franco Rubino, MD; Romulo Andrade de Almeida, MD; Ehab Hanna, MD; Renata Ferrarotto, MD; Shirley Y Su, MD; Jack Phan, MD, PhD; Franco DeMonte; Shaan M Raza, MD; MD Anderson Cancer Center

S051: IMMUNOHISTOCHEMICAL PROFILING AND STAGING IN ESTHESIONEUROBLASTOMA: A SINGLE-CENTER COHORT STUDY AND SYSTEMATIC REVIEW - J Curran Henson¹; [Chris Cutler, BS²](#); Kyril Cole³; Brandon Lucke-Wold⁴; Majid Khan⁵; Michael Karsy⁶; ¹University of Arkansas for Medical Sciences; ²Chicago Medical School at Rosalind Franklin University of Medicine and Science; ³College of Medicine, University of Utah; ⁴University of Florida; ⁵School of Medicine, University of Nevada Reno; ⁶University of Utah

S053: THE VECTORIAL TECHNIQUE: A NEW TOOL TO MEASURE ANGLES OF EXPOSURE IN SKULL BASE ANATOMICAL DISSECTION. - [Edoardo Porto](#)¹; J. Manuel Revuelta-Barbero, MD, PhD²; Jackson Vuncannon, MD¹; Tomas Garzon Muvdi, MD¹; C. Arturo Solares, MD¹; Gustavo Pradilla, MD¹; ¹Emory University; ²Medical College of Georgia - Augusta University

S054: PRESERVATION OF THE OLFACTORY APPARATUS IN ENDOSCOPIC ENDONASAL APPROACHES TO THE ANTERIOR CRANIAL FOSSA THROUGH INFERIOR MOBILIZATION OF THE CRIBRIFORM PLATE, PLANUM SPHENOIDALE, AND OLFACTORY APPARATUS: A TECHNICAL NOTE - [Edoardo Agosti](#), MD¹; Alex Y Alexander, BA²; Luciano Leonel, PhD³; Garret W Choby, MD³; Maria Peris-Celda, MD, PhD³; Carlos D Pinheiro-Neto, MD, PhD³; ¹University of Brescia; ²University of Minnesota; ³Mayo Clinic

S055: DESIGN OF A NOVEL ONLINE EDUCATION RESOURCE AND EVALUATION TOOL FOR A CRANIAL BASE ANATOMICAL DISSECTION PROGRAM FOR NEUROSURGERY RESIDENTS: A PILOT STUDY - [Luciano Leonel](#), PhD¹; André de Sá Braga Oliveira, PhD¹; André Ribeiro, MD²; Amanuel Woldesenbet, MD¹; Christopher S Graffeo, MD³; Michael J Link, MD⁴; Carlos D Pinheiro-Neto, MD, PhD⁵; Maria Peris-Celda, MD, PhD⁴; ¹Mayo Clinic Rhoton Neurosurgery and Otolaryngology Surgical Anatomy Program; ²Department of Morphology, Federal University of Paraíba, João Pessoa, Paraíba, Brazil; ³Department of Neurosurgery, University of Oklahoma, Oklahoma; ⁴Department of Neurosurgery, Mayo Clinic, Rochester, Minnesota; ⁵Department of Otorhinolaryngology Head and Neck Surgery Mayo Clinic, Rochester, Minnesota

S056: THE ENDOSCOPIC SUPRACEREBELLAR INFRATENTORIAL APPROACH IN THE SITTING POSITION: A SAFE AND EFFECTIVE UPDATE TO A TRADITIONAL APPROACH - [J Franklin Berry](#), MD; Regin Jay Mallari, BS; Daniel F Kelly, MD; Garni Barkhoudarian, MD; Pacific Neuroscience Institute

6:05 pm - 7:35 pm

[Welcome Reception & Poster Viewing](#)

Exhibit Hall

Saturday, February 18, 2023

Time	Session	Location
7:30 am - 8:30 am	<p><u>Main Topic 6: Multiple Paraganglioma Syndrome - Comprehensive Management</u></p> <p><i>Dr. Jamie Van Gompel, Dr. Mihir Patel, Dr. Yash Patil, Dr. Mario Sanna, Dr. John Leonetti, Dr. Neil Patel</i></p> <p>This session will present modern principles for the management of multiple paraganglioma syndrome, highlighting the importance of interdisciplinary approach and combined techniques employed in the treatment of these challenging tumors.</p> <p>At the conclusion of this session, attendees will be able to:</p> <ul style="list-style-type: none"> » Integrate principles for a comprehensive approach to the management of multiple paraganglioma syndrome. » Recognize the value of techniques adjunctive to surgical treatment. » Formulate management plans for the treatment of multiple paraganglioma syndrome. 	Tampa Bay 1
7:30 am - 8:30 am	<p><u>Main Topic 7: Perineural Invasion in Skull Base Malignancies - State of the Art</u></p> <p><i>Dr. Ivan El-Sayed, Dr. James Bowman, Dr. Benedict Panizza, Dr. Gustavo Pradilla, Dr. William Mendenhall, Dr. Claudia Kirsch, Dr. Fiona Simpson</i></p> <p>Our multidisciplinary panel will discuss the nuances and critical elements of decision making when managing perineural invasion in skull base malignancies. the optimal treatment paradigm in a variety of complex clinical scenarios will be explored.</p> <p>At the conclusion of this session, attendees will be able to:</p> <ul style="list-style-type: none"> » Appreciate the optimal management strategy of perineural invasion in skull base malignancies. » Interpret imaging studies demonstrating perineural invasion. » Understand the role of adjuvant treatment for perineural invasion. 	Tampa Bay 2

7:30 am - 8:30 am **Main Topic 8: Skull Base Reconstruction Following Endonasal Surgery - Local, Regional and Free Flaps** Tampa Bay 6

Dr. Raj Sindwani, Dr. Dennis Tang, Dr. Marc Rosen, Dr. Brian Thorp, Dr. Edward Kwan, Dr. Gillian Harrison

Endonasal approaches to skull base tumors are limited in part to our ability to reconstruct complex defects. Experts from across disciplines will discuss options for skull base reconstruction, ranging from simple to complex clinical scenarios. CLinical decision making and intraoperative surgical techniques will be highlighted..

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

- » Employ comprehensive strategy on how to approach the repair of complex skull base defects.
- » Understand the utility and recent advances in the use of the nasoseptal flap.
- » Appreciate options to consider in complex reconstructions when the nasoseptal flap is not available

7:30 am - 8:30 am **Main Topic 9: Orbital Preservation in Sinonasal Malignancies - When is it Appropriate?** Tampa Bay 7

Dr. Satyan Sreenath, Dr. Eric Lamarre, Dr. Brian Lobo, Dr. Camilo Reyes, Dr. Jeffrey Janus, Dr. Mark McDonald, Dr. Daniel Nuss

Advanced sinonasal malignancies frequently involve the orbit requiring exenteration. Multidisciplinary experts from the fields of radiation oncology, head and neck surgery, neuroradiology rhinology and neurosurgery will discuss key aspects of decision making on when to consider orbital preservation using an evidence-based approach.

7:30 am - 8:30 am **Tumor Board Session 1: WHO Grade II Meningioma** Tampa Bay 9

Dr. Gelareh Zadeh, Dr. Ann Jay, Dr. Gelareh Zadeh, Dr. Pablo Recinos, Dr. Carolina Benjamin, Dr. Dukagjin Blakaj, Dr. Stewart Neill

This session will be focused on reviewing current data to achieve a consensus on best practices for the management of WHO Grade II meningiomas, which is currently controversial. It will target students, residents, junior, and senior faculty members who manage patients with meningiomas.

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

- » Diagnose and illustrate key radiographic and pathologic features of Grade II meningiomas.
- » Discuss the role of molecular subtyping and methylation profiling in the characterization of Grade II meningiomas.
- » Formulate a surgical approach and treatment plan for Grade II meningiomas.
- » Evaluate the pros and cons of radiation treatment as an alternative to or adjunct to surgery for Grade II meningiomas.

7:30 am - 9:35 am

RHOTON ROOM Dueling Dissection Session 1: Suprasellar and Paraclinoidal Regions, Cavernous Sinus, Meckel's Cave and Petrous Apex

Tampa Bay 3 & 4

Dr. Jacques Morcos, Dr. Paul Gardner, Dr. Maria Peris Celda, Dr. David Friedmann, Dr. Edoardo Agosti, Dr. Ossama Al-Mefty, Dr. Carlos Pinheiro-Neto

Endonasal and transcranial routes are competing but also complementary approaches to the skull base. In this session we will review the surgical anatomy of the paraclinoidal and suprasellar space, cavernous sinus, Meckel's cave and petrous apex and we will discuss the pros and cons of endonasal and transcranial approaches to these regions. Attendance is recommended for all trainees and skull base specialties with an interest in treating pathology located in the suprasellar and paraclinoidal regions.

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

- » Develop a better understanding of the surgical anatomy of the paraclinoidal and suprasellar regions, cavernous sinus, Meckel's cave and petrous apex.
- » Recognize key surgical landmarks and technical nuances for the endonasal and transcranial approaches to the paraclinoidal and suprasellar regions, cavernous sinus, Meckel's cave and petrous apex.
- » Compare the benefits and disadvantages of endonasal and transcranial approaches to the paraclinoidal and suprasellar regions, cavernous sinus, Meckel's cave and petrous apex.

8:35 am - 9:35 am

Expert Debate 6: Protons vs Photons - When and Where

Tampa Bay 1

Dr. Mark McDonald, Dr. Yair Gozal, Dr. Christina Henson, Dr. Brandi Page, Dr. Bree Eaton, Dr. Michael Rutenberg, Dr. Yair Gozal

Panelists will debate the use of proton vs photon radiation therapy for various lesions of the skull base. Illustrative cases will be discussed to help attendees which modality is more appropriate when radiation therapy is needed. Session will be appropriate for all members of the skull base multidisciplinary team.

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

- » Identify the differences between proton and photon therapy.
- » Recognize when proton therapy may be an appropriate modality for treatment.
- » Categorize the risks and benefits of both modalities of radiation treatment.

8:35 am - 9:35 am

Expert Debate 7: Endonasal vs Transorbital vs Transcranial Approaches for Anterior Skull Base Meningioma

Tampa Bay 2

Dr. Gelareh Zadeh, Dr. Shirley Su, Dr. Jose Gurrola II, Dr. S. Tonya Stefko, Dr. Annie Moreau, Dr. Jennifer Moliterno Gunel, Dr. Sang Hong, Dr. Davide Locatelli, Dr. Annie Moreau

Panelists will be discussing the various surgical approaches to the anterior skull base. Illustrative cases will be presented and the pros and cons of each approach will be debated. Session is appropriate for attendees who care for patients with anterior skull base lesions including neurosurgery, rhinology, oculoplastics and head and neck oncologic surgeons.

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

- » Plan a surgical approach based on tumor characteristics and patient anatomy.
- » Distinguish the benefits and difficulties of each different approach.
- » Recognize the benefits of a multidisciplinary team in care of the anterior skull base patient.

8:35 am - 9:35 am

Expert Debate 8: Skull Base Adenoidcystic Carcinoma

Tampa Bay 6

Dr. Franco DeMonte, Dr. Carl Snyderman, Dr. James Byrd, Dr. Kibwei McKinney, Dr. Kyle VanKoeving, Dr. Benedict Panizza, Dr. James Byrd

Panelists will discuss the appropriate management of these insidious and rare tumors of the skull base. Demonstrative cases will be analyzed by the panelists and care plans will be formulated. Session is appropriate for head and neck oncology, rhinology, Neurotology, neurosurgery and radiation oncology.

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

- » Plan a surgical approach based on tumor characteristics and patient anatomy.
- » Integrate lessons from a multidisciplinary approach to adenoidcystic carcinoma.
- » Recognize the signs and symptoms of adenoidcystic carcinoma of the skull base.

8:35 am - 9:35 am **Expert Debate 9: Nasopharyngectomy vs. Re-Irradiation in Recurrent NPC** Tampa Bay 7

Dr. Yash Patil, Dr. Ricardo Carrau, Dr. Meghan Turner, Dr. David Jang, Dr. William Mendenhall, Dr. David Jang

Panelists will debate the difficult decision making around recurrent nasopharyngeal carcinoma. The benefits and risks of surgical vs non-surgical treatment for illustrative cases will be discussed. Session is appropriate for head and neck surgeons, radiation oncologists, and rhinologists.

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

- » Categorize the risks and benefits of reirradiation for recurrent NPC.
- » Integrate lessons from a multidisciplinary approach to recurrent nasopharyngeal carcinoma.
- » Recognize when nasopharyngectomy may be appropriate for a given patient.

8:35 am - 9:35 am **Expert Debate 10: Surgery vs SRS for Small to Midsize Acoustic Neuromas** Tampa Bay 8

Dr. Rick Friedman, Dr. Michael Link, Dr. John Lee, Dr. Sarah Mowry, Dr. Mia Miller, Dr. John Yu, Dr. Mallory Raymund

This session aims to discuss decision making for patients with small to mid-sized vestibular schwannomas. Panelists will discuss illustrative cases and their philosophy around decision making for these patients.

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

- » Prioritize goals of care for patients with prioritize goals of care for patients small to mid-sized VS.
- » Select an appropriate surgical approach to address the patient's primary symptom or sign.
- » Compare the pros and cons of open surgical vs radiosurgical management of small to mid-sized VS.

8:35 am - 9:35 am **Tumor Board Session 2: Paraganglioma** Tampa Bay 9

Dr. Jason Brandt, Dr. Claudia Kirsch, Dr. Jana Ivanidze, Dr. Giovanni Danesi, Dr. Jimmy Caudeli, Dr. Kelly Magliocca, Dr. Robert Lorenz

This session given by experts in the field, reviews imaging, pathology, data, treatment options and best practices for treating paragangliomas. The session is targeted for students, residents, junior and senior faculty member who manage patients with paragangliomas.

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

- » Diagnose and recognize imaging features of paragangliomas.
- » Recognize and distinguish current molecular subtypes of paragangliomas.
- » Formulate and implement a surgical or radiation treatment plan for paragangliomas.

9:35 am - 10:35 am	<i>Break in Exhibit Hall</i>	
10:05 am - 12:20 pm	<u>General Session</u> Keynote Speaker, Honored Guest Speakers, Committee Reports	<i>Tampa Bay 5</i>
12:20 pm - 1:20 pm	<i>Lunch in Exhibit Hall</i>	
1:20 pm - 2:20 pm	<u>Research Committee Session</u> The session is designed to place a spotlight on the effective researchers in our NASBS cohort, as well as motivate us all to get more involved in funded research. At the conclusion of this session, attendees will be able to: <ul style="list-style-type: none"> » Gain an understanding for key steps in successfully incorporating research as a skull base surgeon. » Gain a basic understanding of establishment of genomics and translational research including funding approaches. » Motivate NASBS membership to work toward more basic research and multi-institutional collaborations in basic and translational science. 	<i>Tampa Bay 2</i>
1:20 pm - 2:20 pm	<u>Hot Topic 5: Management of Carotid Involvement in Skull Base Malignancies (Sacrifice, Stent, Bypass)</u> <i>Dr. James Liu, Dr. Regan Bergmark, Dr. Dennis Tang, Dr. Brian Howard, Dr. Sepideh Amin-Hanjani, Dr. Amir Dehdashti</i> Management of skull base malignancies is always challenging. This difficult pathology becomes even more fraught with risk when the carotid artery is involved by the tumor. This session will address management strategies for these difficult cases and will seek to demonstrate safe techniques that will still allow good oncologic outcomes. At the conclusion of this session, attendees will be able to: <ul style="list-style-type: none"> » Plan for best options to manage carotid involvement in skull base malignancies pre-operatively. » Integrate endovascular management options for carotid involvement in skull base malignancies. » Assess the indication and technique for bypass in skull base malignancy cases with carotid involvement. 	<i>Tampa Bay 1</i>
1:20 pm - 2:20 pm	<u>Hot Topic 6: Immunotherapy for Sinonasal Cancers</u> <i>Dr. James Byrd, Dr. Nabil Saba, Dr. Fiona Simpson, Dr. Ivan El-Sayed, Dr. Michael Yim</i> To discuss immunotherapy for squamous cell carcinoma, malignant melanoma, nasopharyngeal cancer, adenoid cystic and adenocarcinoma. Anterior skull base surgeons with a background in rhinology and neurosurgery are encouraged to attend. At the conclusion of this session, attendees will be able to: <ul style="list-style-type: none"> » Discuss immunotherapy for SCC and malignant melanoma. » Discuss immunotherapy for nasopharyngeal cancer. » Discuss immunotherapy for adenoid cystic and adenocarcinoma. 	<i>Tampa Bay 6</i>

1:20 pm - 2:20 pm

Special Session 3: New Technology in Skull Base Surgery

Tampa Bay 7

Dr. Erin McKean, Dr. Lola Chambless, Dr. Douglas Hardesty, Dr. Peter Tomazic, Dr. Walter Jean, Dr. John Lee

This session will focus on the technological advances that will help propel surgical treatment of skull base pathologies in the future. Specifically, this session will focus on the pre surgical planning and intraoperative utility that result in safer and improved surgical outcomes. This session is primarily designed for skull base surgeons.

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

- » Understand how new technologies are implemented and utilized in the preoperative environment and planning.
- » Appreciate how novel intraoperative technologies are being used to improve visualization of skull base pathologies.
- » Assess the role of technology and advances in surgical technique and equipment to provide for superior patient outcomes.

1:20 pm - 2:20 pm

Special Session 4: Building a Skull Base Practice

Tampa Bay 8

Dr. Carolina Benjamin, Dr. Pierre Olivier Champagne, Dr. Debraj Mukherjee, Dr. Chirag Patel, Dr. Gelareh Zaden, Dr. Hamid Borghei-Razavi

This session will focus on the beginning of a skull base career and the particular dynamics and tendencies that help young practices thrive. Particular emphasis will be teamwork, program building, and striving for better outcomes while gaining confidence and experience. Medical students, Residents, fellows and early career skull base surgeons will benefit from this session.

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

- » Differentiate between different program growth models and how to implement these into your own practice.
- » Understand how to balance gaining experience, pushing the boundaries, educating team members and optimizing patient outcomes.
- » Evaluate which steps and which hurdles are necessary to develop a world class skull base program.

1:20 pm - 2:20 pm

Tumor Board Session 3: Sinonasal Tumors

Tampa Bay 9

Dr. Hugh Curtin, Dr. Christina Jackson, Dr. Elcin Zan, Dr. Zoukka Sargi, Dr. Seth Lieberman, Dr. Kelly Magliocca

This session reviews current data and consensus best practices for management and treatment of Sinonasal Tumors and targets students, residents, junior, and senior faculty members.

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

- » Diagnose and discriminate radiographic features of sinonasal tumors.
- » Discuss and evaluate molecular subtyping of sinonasal tumors.
- » Formulate and implement a surgical or radiotherapeutic treatment plan for sinonasal tumors

1:20 pm - 2:20 pm

Special Session 4: Building a Skull Base Practice

Dr. Carolina Benjamin, Dr. Pierre Oliver Champgne, Dr. Debraj Mukherjee, Dr. Chirag Patel, Dr. Delareh Zadeh, Dr. Hamid Borghei-Razavi

This session will focus on the beginning of a skull base career and the particular dynamics and tendencies that help young practices thrive. Particular emphasis will be teamwork, program building, and striving for better outcomes while gaining confidence and experience. Medical students, Residents, fellows and early career skull base surgeons will benefit from this session.

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

- » Differentiate between different program growth models and how to implement these into your own practice.
- » Understand how to balance gaining experience, pushing the boundaries, educating team members and optimizing patient outcomes.
- » Evaluate which steps and which hurdles are necessary to develop a world class skull base program.

2:25 pm - 3:25 pm

Special Session 5: The Role of the Endovascular Surgeon in Skull Base Pathology

Tampa Bay 7

Dr. Wael Hassaneeh Mostafa, Dr. Brian Howard, Dr. John Nerva, Dr. Avinash Mantravadi, Dr. Mustafa Baskaya, Dr. Aaron Dumont

Many skull base pathologies are in close proximity to major intracranial blood vessels, both arteries and veins. Furthermore many skull base pathologies receive their blood supply from these structures requiring and intimate knowledge of both the pathology and vessels themselves. In this session, standard work up for skull base pathologies involving major arteries and veins will be discussed. Techniques including preoperative evaluation, pre-operative interventions including embolization and vessels sacrifice, and techniques will be discussed. This session is primary for skull base surgeons of all types, interventional neurointerventionalist/surgeons, fellows, residents, and medical students.

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

- » Assess the different ways that skull base pathologies and the skull base vascularity interaction and impact further treatment.
- » Recognize different preoperative evaluations and treatment options for skull base pathology and their potential impact on surgical excision/treatment.
- » Integrate how endovascular surgeons and skull base surgeons may work as a team to provide for improved skull base pathology treatment and improve patient outcomes.

2:25 pm - 3:25 pm

Special Session 6: Rehabilitation Following Skull Base Surgery (PT, OT, Speech and Swallowing)

Tampa Bay 8

Dr. James Byrd, Dr. Ashley Nassiri, Dr. Anjum Sayyad, Dr. Esther Vivas, Dr. Joseph Zenga, Dr. Andrew Tkaczuk

Rehabilitation following Skull Base surgery is as critical to patient outcomes as the treatment itself. In this session, standard techniques will be reviewed as well as cutting-edge advantages that are focused on optimizing neural repair, patient physical recovery, as well as options for further intervention for improved outcomes. This session is primarily for skull base surgeons, fellows, residents, medical students and anyone involved with post operative care.

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

- » Articulate different treatment modalities that may be used to enhance rehabilitation for patients undergoing skull base surgery.
- » Evaluate different therapy options to facilitate recovery for patients who undergo skull base surgery.
- » Develop a team based approach to enhance recovery after skull base surgery using novel techniques to facilitate further recovery.

2:25 pm - 3:25 pm **Video Session 5: Exoscopic Surgery**

Tampa Bay 1

Dr. John Lee, Dr. Kunal Soni, Dr. David Langer, Dr. Alexander Yu, Dr. Christina Rios-Vicil, Dr. John Lee, Dr. C. Arturo Solares

This session will explore the current utilization of the exoscope in skull base surgery. The limitations of the current technology in illumination and optical visualization will be discussed along with the advantages of the exoscope over conventional visualization modalities. The session will be interesting for trainees and surgeons in the fields of neurosurgery, otolaryngology, ophthalmology, radiology and plastic surgery.

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

- » Recognize the advantages of the exoscope over current visualization modalities.
- » Assess the limitations in illumination and visualization of the current exoscope technology.
- » Predict the future direction of exoscope utilization in skull base surgery.

2:25 pm - 3:25 pm **Video Session 6: Petrous and Petroclival Surgery**

Tampa Bay 6

Dr. Peter Nakaji, Dr. Paramita Das, Dr. Ravi Samy, Dr. Walter Jean, Dr. Florian Roser, Dr. Gavriel Kohlberg, Dr. Russell Lonser

This session is ideally geared to neurosurgeons, neuro-otologists, and trainees interested in viewing techniques for petrous and petroclival surgery. By focusing on surgical nuances through focused operative videos and discussion, the audience members will be able to have an overview of approaching this complicated region from various perspectives.

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

- » Distinguish scenarios when the petrous apex is approached from the supratentorial, lateral, and infratentorial perspectives.
- » Recognize emerging technology and employ technical pearls to avoid complications when approaching the petrous and petroclival region.

2:25 pm - 3:25 pm **Tumor Board Session 4: Clival Chordoma**

Tampa Bay 9

Dr. Chandranath Sen, Dr. Bree Eaton, Dr. Mai-Lan Ho, Dr. Nathan Zwagerman, Dr. Rupesh Kotecha, Dr. Stewart Neill

This session will be focused on reviewing current data to achieve a consensus on best practices for the management of Clival Chordomas. It will target students, residents, junior, and senior faculty members who manage patients with Clival Chordomas.

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

- » Diagnose and illustrate key radiographic and pathologic features of Clival Chordomas.
- » Discuss the role of molecular subtyping in the characterization of Clival Chordomas.
- » Formulate a surgical approach and treatment plan for Clival Chordomas, discussing both open and endoscopic routes.
- » Evaluate the pros and cons of radiation treatment as an alternative to or adjunct to surgery for Clival Chordomas.

2:25 pm - 3:25 pm **Research Committee Session: Clinical, Outcomes, and Anatomical in Skull Base Research**

Tampa Bay 9

The session is designed to detail research program set-up and how to be successful in clinical, outcomes, or anatomical research.

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

- » Gain an appreciation for the breadth of skull base research performed in our membership.
- » Gain a basic understanding of how to establish a clinical, outcomes, or anatomical research program.
- » Describe funding approaches and techniques to support clinical, outcomes, or anatomical research.

3:30 pm - 4:00 pm ***Break in the Exhibit Hall***

4:00 pm - 5:00 pm **Skull Base Jeopardy**

Tampa Bay 5

4:00 pm - 6:05 pm **Rhoton Room: Dueling Dissections Session 2 : Petroclival Region**

Tampa Bay 3 & 4

Dr. Chandranath Sen, Dr. Bree Eaton, Dr. Mai-Lan Ho, Dr. Nathan Zwagerman, Dr. Rupesh Kotecha, Dr. Stewart Neill

Endoscopic endonasal and transcranial approaches are competing but also complementary approaches to the skull base. In this session we will review the 3D surgical anatomy of the petroclival region, and we will discuss the pros and cons of endonasal and transcranial approaches to this complex area. Attendance is recommended for all trainees and faculty with an interest in managing pathology in this location.

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

- » Develop a better understanding of the surgical anatomy of the petroclival region.
- » Recognize key surgical landmarks and technical nuances for the endonasal and transcranial approach to the petroclival region.
- » Compare the benefits and disadvantages of endonasal and transcranial approaches to the petroclival region.

4:00 pm - 5:00 pm **Proffered Papers Session 9: Clivus/CPA/Cavernous Sinus**

Tampa Bay 1

V005: HAKUBA-DOLENC APPROACH FOR RESECTION OF A LARGE CAVERNOUS SINUS DERMOID CYST - Matthew Sun, MD; Eva Wu, MD; Jacques Morcos, MD; University of Miami

V006: SPONTANEOUS RHINORRHEA: A POSSIBLE CONCEALING INITIAL SYMPTOM OF ECCHORDOSIS PHYSALIPHORA - Maria Jose Castillo Ruiz¹; Mohammad Bilal Alsavaf²; Michael Fadel³; Eman H. Salem⁴; Kittichai Mongkolkul⁵; Pakjira Naksen⁶; Saniya S. Godil⁷; Bradley A. Otto²; Ricardo L. Carrau²; Daniel M. Prevedello⁷; ¹Department of Neurosurgery, Hospital Universitario Torrecardenas, Almería, Spain; ²Department of Otolaryngology-Head and Neck Surgery, Wexner Medical Center at The Ohio State University, Columbus, Ohio, USA; ³Department of Otolaryngology, Faculty of medicine, Ain Shams University, Cairo, Egypt; ⁴Department of Otolaryngology, Faculty of Medicine, Mansoura University, Mansoura, Egypt; ⁵Department of Otolaryngology-Head and Neck Surgery, Rajavithi Hospital, The College of Medicine of Rangsit University, Bangkok, Thailand; ⁶Department of Otolaryngology, Phramongkutklao Hospital, Bangkok, Thailand; ⁷Department of Neurological Surgery, Wexner Medical Center at The Ohio State University, Columbus, Ohio, USA

V007: EXTENSIVE POSTEROLATERAL APPROACH FOR CLIVAL CHORDOMA - Je Beom Hong¹; Chiman Jeon¹; Seonah Choi²; Seung-hoon Lim³; ¹Kangbuk Samsung Hospital; ²Severance Hospital; ³Kyung Hee University Medical Center

V008: ENDOSCOPIC ENDONASAL TRANSCLIVAL RESECTION OF A RECURRENT NEUROENTERIC CYST - [Hussam Abou-Al-Shaar, MD](#); Tritan J Plute, BS; Michael M McDowell, MD; Carl H Snyderman, MD, MBA; Paul A Gardner, MD; University of Pittsburgh Medical Center

V009: ENDOSCOPIC ENDONASAL APPROACH TO RECURRENT CHORDOMA - Jee-Hong Peter Kim, MD¹; Olabisi R Sanusi, MD²; [Nataly Raviv, MD²](#); Mathew Geltzeiler, MD²; ¹Univ of Nevada, Las Vegas; ²Oregon Health & Science University

V010: STRANGULATION OF THE ABDUCENS NERVE BY A FIBROUS BAND WITHIN AN EPIDERMOID CYST - [Jacob Kosarchuk, MD](#); Walter Dent; Carl Heilman, MD; Tufts Medical Center

V011: FAR LATERAL APPROACH TO A CEREBELLOPONTINE ANGLE HEMANGIOBLASTOMA: MICROSURGICAL ANATOMY AND SURGICAL PRINCIPLES - [Danielle D Dang, MD¹](#); Edoardo Agosti, MD¹; Luciano C Leonel, PhD¹; Christopher Graffeo, MD¹; Jonathan M Morris, MD²; Maria Peris-Celda, MD, PhD¹; ¹Mayo Clinic Rhoton Neurosurgery and Otolaryngology Surgical Anatomy Program; ²Unit of Anatomic Modeling, Division of NeuroRadiology, Department of Radiology, Mayo Clinic

V012: ENDOSCOPIC ENDONASAL RESECTION OF INFUNDIBULAR HEMANGIOBLASTOMA - [Hanna N Algattas, MD](#); Kent Tadokoro; Eric W Wang; Paul A Gardner; University of Pittsburgh Medical Center

4:00 pm - 5:00 pm

Proffered Papers Session 10: Meningiomas

Tampa Bay 2

S057: ENDOSCOPIC ENDONASAL APPROACH FOR TUBERCULUM SELLAE MENINGIOMAS: SURGICAL RESULTS - [Erion Junior de Andrade](#); Jakub Jarmula, BA; Troy Woodard; Varun Kshetry, MD; Raj Sindwani; Pablo F Recinos, MD; Cleveland Clinic

S059: APPLICATION OF RADIOMICS IN MENINGIOMA IMAGING: GLOBAL TRENDS AND NEEDS - [Ruchit V Patel, BS](#); Shun Yao, MD, PhD; Raymond Y Huang, MD, PhD; Wenya Linda Bi, MD, PhD; Brigham and Women's Hospital, Harvard Medical School

S060: PREDICTING MENINGIOMA GRADE PRE-OPERATIVELY USING AN IMAGING SCORE - [Alexander J Ledet](#); Abigail Funari; Seth S Jeong; Anne Lally; Sayak Ghosh; Ali Karandish; Vijay Agarwal, MD; Albert Einstein College of Medicine

S061: SUPRASELLAR MENINGIOMA: A NOVEL CLASSIFICATION - Abdulrazag Ajlan, MD, MSc, UCNSD, FRCSC; [Basim M Noor Elahi, MD](#); Saad Alsalih, MBBS, FRCSC; Ahmad Alroqi, MD; Abdulaziz Alreshaid, MBBS, MSc, FRCSC; Saud Alromaih, MD; Ashwag Alqurashi, MD; King Saud University Medical City

S062: EXTENT OF RESECTION AND PRE-OPERATIVE HEMORRHAGE PREDICT RECURRENCE FOR INTRAVENTRICULAR MENINGIOMAS - [Julia B Duvall](#); [Saksham Gupta, MD](#); [Melissa M Chua, MD](#); [Siva Emani](#); [Omar Arnaout, MD](#); Department of Neurosurgery, Brigham and Women's Hospital, Harvard Medical School, Boston, MA

S063: PREOPERATIVE EMBOLIZATION OF SKULL BASE MENINGIOMAS: SAFETY AND EFFICACY - [Ehsan Dowlati, MD](#)¹; [Charles Withington](#)¹; [Jorge Roa, MD](#)²; [Samir Sur, MD](#)²; [Daniel R Felbaum, MD](#)¹; [Jeffrey C Mai, MD, PhD](#)¹; ¹Medstar Georgetown University Hospital; ²MedStar Franklin Square Hospital

4:00 pm - 5:00 pm

Proffered Papers Session 11: Head and Neck/Reconstruction

Tampa Bay 6

V013: RESECTION OF GIANT JUVENILE NASOPHARYNGEAL ANGIOFIBROMA - [Lacy Brame, DO](#)¹; [Anirrhuda Parikh, MD](#)²; [Kibwei A McKinney, MD](#)²; ¹Oklahoma State University; ²University of Oklahoma Health Sciences Center

V014: INFRATEMPORAL FOSSA MUCOCELE MASQUERADING AS RECURRENT CHOLESTEATOMA - [Benjamin D Lovin, MD](#)¹; [Paul W Gidley, MD](#)²; ¹Bobby R. Alford Department of Otolaryngology-Head and Neck Surgery, Baylor College of Medicine, Houston, Texas; ²Department of Head and Neck Surgery, The University of Texas MD Anderson Cancer Center, Houston, Texas

V015: TRANSORAL ENDOSCOPIC RETROPHARYNGEAL LYMPH NODE DISSECTION - [Andrey Filimonov, MD, PharmD](#); [Paul Gardner, MD](#); [Carl Snyderman, MD](#); University of Pittsburgh

V016: JUVENILE NASOPHARYNGEAL ANGIOFIBROMA PRESENTING AS A FACIAL MASS: A UNIQUE, COMBINED, OPEN AND ENDOSCOPIC APPROACH. - [Kareem Haroun, MD](#); [Diana Bigler, MD](#); [Camilo Reyes Gelves, MD](#); [Kenneth Byrd, MD](#); Medical College of Georgia

V017: EXPANDED ENDONASAL APPROACH (EEA) AND RESECTION OF LARGE LEFT NASAL CAVITY AMELOBLASTOMA - [Lazaro R Peraza, MD](#); [Nicholas R Randall, MD](#); [Kyle S Ettinger, MD, DDS](#); [Lucas P Carlstrom, MD, PhD](#); [Jamie J Van Gompel, MD](#); [Garret W Choby, MD](#); Mayo Clinic - Rochester

V018: ENDONASAL RESECTION OF FRACTURED ODONTOID FOR DECOMPRESSION OF THE CERVICOMEDULLARY JUNCTION - [Michael T Chang, MD](#); [Karam P Asmaro, MD](#); [Jayakar V Nayak, MD, PhD](#); [Juan C Fernandez-Miranda, MD](#); Stanford University School of Medicine

V019: RECURRENT MIDDLE EAR ADENOMA RESECTION VIA TRANSLABYRINTHINE AND TRANSCOCHLEAR APPROACHES - [Samuel R Barber, MD](#); [Frank Culicchia, MD](#); [Moises A Arriaga, MD](#); LSU HSC

V020: SKULL BASE RECONSTRUCTION USING A VASTUS

LATERALIS FREE FLAP - [Basit A Jawad, MD](#); Kyle Wu, MD; Hilary Mccrary, MD; Janice Farlow, MD, PhD; Douglas Hardesty, MD; Cate Haring, MD; Kyle Vankeovering, MD; Ohio State University

4:00 pm - 5:00 pm **Proffered Papers Session 12: Endoscopic Transnasal Skull Base Surgery** *Tampa Bay 7*

S065: SINGLE CELL METABOLIC LANDSCAPE OF PITUITARY NEUROENDOCRINE TUMOR SUBGROUPS AND LINEAGES

- [Brandon Lucke-Wold](#); University of Florida

S066: A NOVEL STEERABLE INSTRUMENT FOR RESECTING TUMORS IN ENDOSCOPIC ENDONASAL PROCEDURES

- [Peter J Morone, MD, MSCI](#); VUMC

S067: EVOLUTION OF ENDOSCOPIC ENDONASAL POSTERIOR CLINOIDECTOMY TECHNIQUE: FROM EXTRADURAL, TRANSCAVERNOUS TO EXTENDED TRANSCAVERNOUS POSTERIOR CLINOIDECTOMY

- [Yuanzhi Xu, MD](#); Karam Asmaro, MD²; Maximiliano A Nunez, MD²; Aaron A Cohen-Gadol, MD³; Ying Mao, MD²; Juan C Fernandez-Miranda, MD²; ¹Department of Neurosurgery, Huashan Hospital, Shanghai Medical College, Fudan University, Shanghai, China; ²Department of Neurosurgery, Stanford Hospital, Stanford, California; ³Department of Neurological Surgery, Indiana University, Indianapolis, Indiana

S068: DISCREPANCIES BETWEEN PATIENT REPORTED AND OBJECTIVE OLFATORY FUNCTION BEFORE ENDOSCOPIC SKULL BASE SURGERY

- [Lindsey F Jackson, BM](#); Jennifer K Mulligan, PhD; Jeb M Justice, MD; Steven N Roper, MD; Jason E Blatt, MD, FAANS; Brian C Lobo, MD; University of Florida

S069: INDICATIONS AND LIMITATIONS OF THE ENDOSCOPIC ENDONASAL APPROACH FOR ANTERIOR SKULL BASE MENINGIOMAS: A COMPARISON WITH CONVENTIONAL MICROSCOPIC TRANSCRANIAL RESECTION

- [Yuki Shinya, MD](#); Hirotaka Hasegawa, MD, PhD¹; Kei Arisawa, MD¹; Masahiro Shin, MD, PhD²; Motoyuki Umekawa, MD¹; Nobuhito Saito, MD, PhD¹; ¹The University of Tokyo Hospital; ²University of Teikyo Hospital

S070: SIMULTANEOUS ENDOSCOPIC ENDONASAL AND TRANSCRANIAL EXCISION OF GIANT PITUITARY ADENOMAS

- [Raju Krishnaprabhu](#); Ari G Chacko; Wilson P Desouza; Edmond Jonathan; Rajan Sundaresan; Regi Thomas; Asha HS; Christian Medical College

S071: ENDOSCOPIC ENDONASAL APPROACH FOR SKULL BASE TUMORS IN PATIENTS PRESENTING WITH MONOCULAR BLINDNESS

- [David Gomez, BS](#); Jacob J Ruzevick, MD²; Ryan Chung, BS¹; Stephanie Cheek, MD²; Dhiraj J Pangal, BS¹; Gabriel Zada, MD, MS²; ¹Keck School of Medicine, University of Southern California, Los Angeles, CA, USA; ²Department of Neurological Surgery, Keck School of Medicine, University of Southern California, Los Angeles, CA, USA

S072: SKULL BASE RECONSTRUCTION AFTER TRANSTUBERCULUM-TRANSPPLANUM ENDOSCOPIC ENDONASAL APPROACHES: SURGICAL RESULTS - [Erion J de Andrade, MD](#); Jakub Jarmula, BA; Connor Sommerfeld, MD; Troy Woodard, MD; Varun Kshetry, MD; Raj Sindwani, MD; Pablo F Recinos; Cleveland Clinic

4:00 pm - 5:00 pm

Proffered Papers Session 13: Pituitary Tumors

Tampa Bay 8

S073: CROOKE CELL ADENOMAS VS CORTICOTROPH ADENOMAS: RADIOGRAPHIC FEATURES AND REMISSION RATES FOLLOWING SURGERY FOR CUSHING'S DISEASE - [Scott T Brigeman, MD](#); Benjamin K Hendricks, MD; Christina E Sarris, MD; Charuta G Furey, MD; Jennifer M Eschbacher, MD; Kevin C Yuen, MD; Andrew S Little, MD; Barrow Neurological Institute

S074: TRENDS IN ENDOSCOPIC AND MICROSCOPIC APPROACHES TO TRANSSPHENOIDAL HYPOPHYSECTOMY IN THE UNITED STATES, USING A GLOBAL DATABASE NETWORK - [Bita R Naimi, BA](#); Alexander Duffy, MD; Emily Garvey, BA; Zachary Urdang, MD, PhD; Marc Rosen, MD; Elina Toskala, MD, MBA, PhD; Christopher J Farrell, MD; Mindy R Rabinowitz, MD; James J Evans, MD; Gurston G Nyquist, MD; Thomas Jefferson University Hospital

S075: ENHANCED RECOVERY FOLLOWING ENDOSCOPIC ENDONASAL PITUITARY SURGERY: A SYSTEMATIC REVIEW AND META-ANALYSIS - [Cai Long, MD](#); Erin D Wright, MD, MEd; Daniel C O'Brien, MD, MAS; University of Alberta

S076: PITUITARY HYPERPLASIA: A CASE SERIES OF 23 OBSERVED AND 4 SURGICAL PATIENTS - [Zain Peeran, BS](#)¹; William Carson²; Jacob S Young, MD²; Robert C Osorio, BS¹; Manish K Aghi, MD, PhD²; ¹School of Medicine, University of California San Francisco, San Francisco, CA, USA; ²Department of Neurological Surgery, University of California San Francisco, San Francisco, CA, USA

S077: EFFECTS OF PREOPERATIVE SERUM PROLACTIN AND TUMOR VOLUME ON POSTOPERATIVE REMISSION IN A COHORT OF 219 PROLACTINOMA RESECTIONS - [Robert C Osorio, BS](#)¹; Matheus P Pereira, MD²; Taemin Oh, MD³; Rushikesh S Joshi, MD⁴; Alexander F Haddad, MD¹; Eric Chalif, BS¹; Kaitlyn M Pereira, MD²; Kevin C Donohue, BS¹; Zain Peeran, BS¹; William Carson¹; Aarav Badani¹; Elaina Wang, MD⁵; Sweta Sudhir, BS¹; Ankush Chandra, MD⁶; Saket Jain, PhD¹; Angad Beniwal, BS¹; José Gurrola II, MD¹; Ivan H El-Sayed, MD¹; Lewis S Blevins Jr., MD¹; Philip V Theodosopoulos, MD¹; Sandeep Kunwar, MD¹; Manish K Aghi, MD, PhD¹; ¹University of California, San Francisco; ²Medical University of South Carolina College of Medicine; ³University of Utah; ⁴University of Michigan; ⁵Brown University; ⁶University of Texas Health Sciences Center at Houston

S078: FUNCTIONAL GONADOTROPH ADENOMAS: A SINGLE INSTITUTION CASE SERIES - [Zain Peeran, BS¹](#); Jacob S Young, MD²; Aarav Badani²; Robert C Osorio, BS¹; Manish K Aghi, MD, PhD²; ¹School of Medicine, University of California San Francisco, San Francisco, CA, USA; ²Department of Neurological Surgery, University of California San Francisco, San Francisco, CA, USA

S079: PREDICTION OF READMISSIONS IN PITUITARY ADENOMAS USING MACHINE LEARNING ALGORITHM - [Sandeep Kandregula, MBBS, MCh](#); Deepak Khumbare, PhD; Racheal Peterson, MD; Amey Savardekar, MD; Jamie Toms, MD; Jennifer Kosty, MD; Michael Yim, MD; Bharat Guthikonda, MD; LSU Health Sciences Shreveport

S080: GENERATING NOVEL PITUITARY DATASETS FROM OPEN-SOURCE IMAGING DATA AND DEEP VOLUMETRIC SEGMENTATION - [Rachel Gologorsky, BS¹](#); Samir Harake²; William Couldwell³; Eric Oermann⁴; Erin McKean²; Todd Hollon²; ¹Mount Sinai; ²University of Michigan; ³University of Utah; ⁴New York University

4:00 pm - 5:00 pm

Proffered Papers Session 14: Sinonasal Neoplasms

Tampa Bay 9

S081: OLFACTORY NEUROBLASTOMA: A MULTI-CENTER SURVIVAL ANALYSIS AND APPLICATION OF A STAGING MODIFICATION INCORPORATING HYAMS GRADE - [Garret Choby, MD¹](#); Mathew Geltzeiler²; Joao Paulo Almeida³; Pierre-Olivier Champagne⁴; Justin Cetas²; Erik Chan⁵; Jeremy Ciporen²; Mark Chaskes⁶; Juan Fernandez-Miranda⁵; Paul Gardner⁷; Fred Gentili⁸; Peter Hwang⁵; Keven Seung Yong Ji²; Aristotelis Kalyvas⁸; Keonho Kong⁶; Ryan McMillan¹; Jamie O'Byrne¹; Chirag Patel⁹; Zara Patel⁵; Maria Peris-Celda¹; Carlos Pinheiro-Neto¹; Olabisi Sanusi²; Carl Snyderman⁷; Brian D Thorp⁶; Jamie J Van Gompel¹; George Zenonos⁷; Nate Zwaggerman¹⁰; Eric W Wang⁷; ¹Mayo Clinic; ²Oregon Health Sciences; ³Mayo Clinic Florida; ⁴Univeriste Laval; ⁵Stanford University; ⁶University of North Carolina; ⁷UPMC; ⁸University of Toronto; ⁹Loyola University; ¹⁰University of Wisconsin

S082: THE IMPACT OF RURALITY ON TREATMENT AND OUTCOMES AMONG ADULT PATIENTS WITH SINONASAL MALIGNANCIES IN UTAH - [Emma R Dioso, BS¹](#); Ashley S Carter²; Majid Khan³; Michael Karsy, MD, PhD⁴; ¹University of Utah School of Medicine; ²Eastern Virginia Medical School; ³University of Nevada Reno; ⁴University of Utah, Department of Neurosurgery

S083: EXAMINING THE NATURAL HISTORY AND PATTERNS OF DISEASE RECURRENCE IN PATIENTS WITH POSITIVE MARGIN ESTHESIONEUROBLASTOMA - Megan M Bauman, MS; [Jeffrey P Graves, MS](#); Travis J Haller, MD; Ryan A McMillan, MD; Eric J Moore, MD; Michael J Link, MD; Garret W Choby, MD; Jamie J Van Gompel, MD; Mayo Clinic

S084: T4 SINONASAL ADENOID CYSTIC CARCINOMA: OVERALL SURVIVAL DIFFERENCES BY TREATMENT MODALITY

- Yuki Kawahara, BA¹; Neeraja Konunthula, MD²; Anthony Del Signore, MD³; Satish Govindaraj³; Eric Genden, MD³; Alfred Illoreta, MD³; Arjun Parasher, MD¹; ¹University of South Florida Morsani College of Medicine; ²University of Washington School of Medicine; ³Icahn School of Medicine at Mount Sinai

S085: MULTISPECTRAL IMMUNOFLUORESCENCE ANALYSIS OF THE ESTHESIONEUROBLASTOMA TUMOR IMMUNE MICROENVIRONMENT REVEALS T CELL STROMA LOCALIZATION AND TUMOR PARENCHYMA EXCLUSION

- Riley Larkin¹; Diana Lopez²; Yvette Robbins¹; Gary Gallia, MD, PhD³; Clint Allen, MD¹; Nyall London, MD, PhD¹; ¹NIH; ²Cleveland Clinic; ³Johns Hopkins

S086: PROTON VERSUS PHOTON BEAM THERAPY IN SINONASAL SQUAMOUS CELL CARCINOMA

- Arash Abiri, BS; Theodore V Nguyen, BS; Khodayar Goshtasbi, MD; Sina J Torabi, MD; Edward C Kuan, MD, MBA; University of California, Irvine

S087: ANALYSIS OF UNPLANNED 30-DAY HOSPITAL ADMISSIONS IN PATIENTS WITH SINONASAL MALIGNANCIES

- Chase I Kahn, MD¹; Douglas R Farquhar, MD¹; Mindy R Rabinowitz, MD¹; Gurston G Nyquist, MD¹; James J Evans, MD²; Marc R Rosen, MD¹; ¹Department of Otolaryngology-Head and Neck Surgery, Thomas Jefferson University Hospital, Philadelphia, Pennsylvania, United States; ²Department of Neurosurgery, Thomas Jefferson University Hospital, Philadelphia, Pennsylvania, United States

S088: PREDICTORS OF 90-DAY READMISSION FOLLOWING SURGERY FOR SINONASAL MALIGNANCIES USING A MACHINE LEARNING MODEL

- Sandeep Kandregula, MD; Racheal Peterson, MD; Rema Anisha Kandula, MD; Deepak Kumbhare, PhD; Bharat Guthikonda, MD; Michael Yim, MD; LSU Health Shreveport

5:05 pm - 6:05 pm

Proffered Papers Session 15: Craniopharyngiomas/ Tuberculum Sella

Tampa Bay 1

V021: ENDOSCOPIC ENDOSCOPIC APPROACH FOR RESECTION OF A LARGE CRANIOPHARYNGIOMA WITH THIRD VENTRICULAR EXTENSION

- Ramin Morshed, MD; Jose Gurola, MD; Ezequiel Goldschmidt, MD, PhD; UCSF

V022: ENDOSCOPIC ENDONASAL APPROACH FOR CRANIOPHARYNGIOMA RESECTION IN A PEDIATRIC PATIENT

- David T Fernandes, MD; Prateek Agarwal, MD, MBA; Sharath Anand, MD; Carl H Snyderman, MD; Michael McDowell, MD; Paul Gardner, MD; University of Pittsburgh Medical Center

V023: GIANT CRANIOPHARYNGIOMA WITH INTRAVENTRICULAR EXTENSION

- Ahmed Mohyeldin, MD, PhD; Vera Vigo, MD; Christine K Lee, MD, PhD; Jayakar V Nayak, MD; Juan C Fernandez-Miranda, MD; Stanford University

V024: COMPLEX PEDIATRIC CRANIOPHARYNGIOMA WITH SUPRACHIASMATIC EXTENSION AND VASCULAR INVOLVEMENT - [Karam P Asmaro, MD](#); Vera Vigo, MD; Christine K Lee, MD, PhD; Michael T Chang, MD; Peter H Hwang, MD; Laura M Prolo, MD, PhD; Juan C Fernandez-Miranda, MD; Stanford University

V025: EXPANDED ENDOSCOPIC ENDONASAL APPROACH FOR RESECTION OF A RECURRENT CRANIOPHARYNGIOMA - [Joao Paulo Almeida, MD, PhD](#); Lina Marenco-Hillebrand, MD; Diogo Moniz-Garcia, MD; Anshit Goyal, MD, MS; Osarenoma U Olomu, MD; Alfredo Quinones-Hinojosa, MD; Mayo Clinic Florida

V026: COMBINED TRANSCRANIAL TRANSYLVIAN AND ENDOSCOPIC ENDONASAL APPROACH FOR A GIANT CRANIOPHARYNGIOMA - [Vera Vigo, MD](#); Karam P Asmaro, MD; Michael T Chang, MD; Jayakar V Nayak, MD; Juan C Fernandez-Miranda, MD; Stanford University

V027: EXPANDED ENDOSCOPIC ENDONASAL TRANSTUBERCULUM TRANSDIASMATIC SULCUS APPROACH FOR RESECTION OF GERM CELL TUMOUR POST CHEMORADIOTHERAPY: TECHNICAL NUANCES AND PERFORATOR PRESERVATION - [Patricio Gimenez, MD](#)¹; Cristina Cernei¹; Richard Edwards, MD, FRCS, SN²; Greg Fellows, FRCS, SN²; Warren Bennett, FRCS¹; Kumar Abhinav, MD, FRCS, SN¹; ¹Bristol Institute of Clinical Neuroscience; ²Bristol Royal Hospital for Children

V028: REVIEW OF ENDOSCOPIC AND OPEN APPROACHES FOR RESECTION OF COMPLEX CRANIOPHARYNGIOMAS - [Michael Karsy](#)¹; Gretchen Oakley²; Kristine Smith²; Sarah Menacho¹; Amarbir Gill²; Jeremiah Alt²; William Couldwell¹; ¹University of Utah, Department of Neurosurgery; ²University of Utah, Department of Otolaryngology

5:05 pm - 6:05 pm

Proffered Papers Session 16: Anatomy of the Skull Base

Tampa Bay 2

S089: THE THIRD NOSTRIL: COMBINING THE CONTRALATERAL, SUBTARSAL TRANSMAXILLARY RETRO-EUSTACHIAN AND ENDOSCOPIC ENDONASAL APPROACHES TO THE JUGULAR FORAMEN - [Mohamed Labib, Dr](#)¹; Irakliy Abramov²; Lena Mary Houlihan²; Daniel Prevedello³; Ricardo Carrau³; Mark Preul²; Michael Lawton²; ¹University of Maryland Medical Center; ²Barrow Neurological Institute; ³Ohio State University

S090: ENDOSCOPIC ENDONASAL POSTERIOR CLINOIDECTOMY - SURGICAL ANATOMY AND OPERATIVE TECHNIQUE - [Muhammad Salman Ali, MD](#); Georgios Zenonos, MD; Carl Snydermann, MD; Eric Wang, MD; Paul Gardner, MD; University of Pittsburgh Medical Center

S091: MINIMALLY INVASIVE KEYHOLE APPROACHES TO THE PRE-CAVERNOUS TROCHLEAR NERVE - AN ANATOMIC, CADAVERIC STUDY - Davendran Kanesen¹; Byron Hontiveros²; Milagros A Lazos³; Frank Berry⁴; Regin J Mallari⁴; Daniel F Kelly⁴; Garni Barkhoudarian⁴; ¹Sarawak General Hospital; ²Makati Medical Center; ³University of the East Ramon Magsaysay Memorial Medical Center; ⁴Pacific Neuroscience Institute

S092: THE CRISTA OVALE A 'KEY' MIDDLE CRANIAL FOSSA LANDMARK: A MORPHOMETRIC COMPUTER TOMOGRAPHIC IMAGING EVALUATION - Juan C Yanez-Siller, MD, MPH¹; Edmund Howe, BS²; Raywat Noiphithak, MD³; Jeffrey Liaw, MD¹; Michael Ortiz Torres, MD⁴; Arnaldo L Rivera, MD¹; ¹Dept of Otolaryngology-Head and Neck Surgery, University of Missouri; ²University of Missouri-Columbia, School of Medicine; ³Dept of Surgery, Division of Neurosurgery, Pathumthani University; ⁴Dept of Neurosurgery, University of Missouri

S093: COMPARISON OF ENDOSCOPIC AND ENDOSCOPIC ASSISTED MINIMALLY INVASIVE APPROACHES TO THE INFRATEMPORAL FOSSA - Kittichai Mongkolkul¹; Mohammad Bilal Alsavaf²; Eman H. Salem³; Daniel M. Prevedello⁴; Kyle VanKoeveering²; Douglas Hardesty⁴; Kathleen Kelly²; Ricardo L. Carrau²; ¹Department of Otolaryngology-Head and Neck Surgery, Rajavithi Hospital, The College of Medicine of Rangsit University, Bangkok, Thailand; ²Department of Otolaryngology-Head and Neck Surgery, Wexner Medical Center at The Ohio State University, Columbus, Ohio, USA; ³Department of Otolaryngology, Faculty of Medicine, Mansoura University, Mansoura, Egypt; ⁴Department of Neurological Surgery, Wexner Medical Center at The Ohio State University, Columbus, Ohio, USA

S094: SOFT TISSUE DISSECTION IN TRANSCONDYLAR APPROACH TO MAXIMIZE LATERAL ACCESS: A MODIFIED LAYERED APPROACH - Xiaochun Zhao, MD; Sherwin Tavakol, MD; Kiana Prather; Panayiotis Pelargos, MD; Ian Dunn, MD; University of Oklahoma

S095: CADAVERIC MORPHOMETRIC STUDY OF SURGICAL ANATOMY OF THE CEREBELLAR TONSILS - Tulika Gupta; Devender Shekawat; D Sahni; Sunil K Gupta; PGIMER

S096: PRECISE IDENTIFICATION OF KEY ANATOMICAL STRUCTURES FOR THE EXTENDED ENDOSCOPIC ENDONASAL SKULL BASE SURGICAL APPROACH TO THE MIDLINE MIDDLE CRANIAL FOSSA: ANATOMICAL STUDY. - Agustin Dorantes-Argandar, MD; Flavio Rodas-Berrezueta, MD; Luis Perez-Garcia, MD; Alejandro Gonzalez-Sanchez, FT; Berenice Garcia-Guzman, MD; Surgical Neuroanatomy Laboratory - Facultad Mexicana de Medicina - Universidad La Salle

5:05 pm - 6:05 pm **Proffered Papers Session 17: Schwannoma/Middle Fossa Approach**

Tampa Bay 6

V029: SURGICAL TREATMENT OF HEMIFACIAL SPASM VIA MICROVASCULAR DECOMPRESSION OF A LARGE, ECTATIC VERTEBRAL ARTERY - [Megan M Bauman, MS](#); Lucas P Carlstrom, MD, PhD; Michael J Link, MD; Mayo Clinic

V030: SUBFASCIAL DISSECTION AND EXTENDED TEMPORAL MUSCLE DETACHMENT FOR MIDDLE FOSSA APPROACH - Guilherme Finger, MD, MSc; [Vivian Kaul, MD](#); Sanyia S Godil, MD, MSCI; Kyle C Wu, MD; Mohammad B Alsavaf, MD; Joshua Vignolles-Jeong; Oliver F Adunka, MD, FACS; Daniel M Prevedello, MD, FACS; The Ohio State University

V031: ENDOSCOPIC MULTIPORTAL SUBTEMPORAL APPROACH FOR MIDDLE CRANIAL FOSSA SPONTANEOUS DEFECTS: A CLINICAL CASE - [Edoardo Porto, MD](#)¹; J. Manuel Revuelta Barbero, MD, PhD²; Roberto Soriano, MD¹; Esther X. Vivas, MD¹; Douglas E. Mattow, MD¹; Tomas Garzon Muvdi, MD, MSc¹; C. Arturo Solares, MD¹; Gustavo Pradilla, MD¹; ¹Emory University; ²Medical College of Georgia - Augusta University

V032: RETROSIGMOID CRANIOTOMY FOR ENDOSCOPE-ASSISTED RESECTION OF A JUGULAR FORAMEN SCHWANNOMA: SURGICAL VIDEO - [Haydn Hoffman](#); Harish Babu; State University of New York Upstate Medical University

V033: TRIGEMINAL NERVE (V3) SCHWANNOMA(MODIFIED JEFFERSON'S TYPE D) WITH EXTENSION TO MIDDLE CRANIAL FOSSA; EXCISION VIA ENDOSCOPIC TRANS-PTERYGOID APPROACH - [Kanika Arora](#)¹; Ravisankar Manogaran¹; Ramandeep Virk²; ¹SGPGI, Lucknow; ²PGIMER, Chandigarh

V034: MICROSURGICAL GROSS-TOTAL RESECTION OF AN INTRACANALICULAR-CISTERNA (KOOS-II) VESTIBULAR SCHWANNOMA VIA A RETROSIGMOID APPROACH - [J. Manuel Revuelta Barbero, MD, PhD](#)¹; Edoardo Porto, MD²; Tomas Garzon Muvdi, MD, MSc²; Esther X. Vivas, MD²; Douglas E. Mattox, MD²; C. Arturo Solares, MD²; Gustavo Pradilla, MD²; ¹Medical College of Georgia - Augusta University; ²Emory University

V035: ENDOSCOPIC TRANSORBITAL SURGERY FOR TRIGEMINAL SCHWANNOMA: NEW INNOVATIVE TECHNIQUE - [Doo-Sik Kong, MD, PhD](#); Samsung Medical Center, Sungkyunkwan University

V036: RESECTION OF A JUGULAR FORAMEN SCHWANNOMA: A TWO-DIMENSIONAL OPERATIVE VIDEO AND MANAGEMENT CONSIDERATIONS - [Ramin Morshed, MD](#); Steven Cheung, MD; Philip Theodosopoulos, MD; UCSF

5:05 pm - 6:05 pm **Proffered Papers Session 18: CSF Leaks/Endoscopic Transnasal Skull Base Surgery**

Tampa Bay 7

S097: ENDOSCOPIC ENDONASAL APPROACH TO THE VENTRAL PETROCLIVAL FISSURE: ANATOMIC FINDINGS AND SURGICAL TECHNIQUES - [Yuanzhi Xu, MD](#)¹; Christine K Lee, MD²; Maximiliano A Nunez, MD²; Ahmed Mohyeldin, MD, PhD²; Liang Chen, MD¹; Aaron A Cohen-Gadol, MD, MSc, MBA³; Ying Mao, MD¹; Juan C Fernandez-Miranda, MD²; ¹Department of Neurosurgery, Huashan Hospital, Shanghai Medical College, Fudan University, Shanghai, China; ²Department of Neurosurgery, Stanford Hospital, Stanford, California; ³Department of Neurological Surgery, Indiana University, Indianapolis, Indiana

S098: COMBINED SURGICAL REPAIR AND VENOUS SINUS STENTING FOR PATIENTS WITH SKULL BASE ENCEPHALOCELES AND IDIOPATHIC INTRACRANIAL HYPERTENSION - [Umberto Tosi](#); Alexander Ramos; Margherita Rampichini; George Alexiades; Srikanth Boddu; Babacar Cisse; Ashutosh Kacker; Athos Patsalides; Abtin Tabaee; Justin Schwarz; Theodore Schwartz; Rohan Ramakrishna; Weill Cornell Medicine

S099: LONG-TERM AUDIOLOGICAL OUTCOMES FOLLOWING COMBINED TRANSMASTOID AND MIDDLE CRANIAL FOSSA APPROACH TO SPONTANEOUS CEREBROSPINAL FLUID OTORRHEA. - [Glen D Souza, MD](#); Anna Bixler, AuD; Rahul Alapati, BS; Christopher Farrell, MD; James Evans, MD; Thomas Wilcox; Rebecca Chiffer, MD; Thomas Jefferson University

S100: LATERAL BASED NASOPHARYNGEAL FLAP: A NOVEL AND VERSATILE FLAP FOR CSF LEAK REPAIR - [Viraj M Patel](#); David Jang; Ralph Abi Hachem; Duke University Health

S101: VARIATIONS IN PAYER-NEGOTIATED PRICES FOR ENDOSCOPIC ENDONASAL SKULL BASE SURGERY - [Roy Xiao, MD](#); Lauren E Miller, MD, MBA; Isaac Wasserman, MD; Stacey T Gray, MD; Derrick T Lin, MD; Massachusetts Eye and Ear

S102: LONG-TERM OUTCOMES OF ENDOSCOPIC TRANSNASAL SURGERY IN CONJUNCTION WITH STEREOTACTIC RADIOSURGERY FOR SKULL BASE CHORDOMA - [Hirotsuka Hasegawa, MD, PhD](#)¹; Masahiro Shin, MD, PhD²; Yuki Shinya, MD¹; Shoko Yoshimoto, MD¹; Hirokazu Takami, MD, PhD¹; Motoyuki Umekawa, MD¹; Shu Kikuta, MD, PhD³; Kenji Kondo, MD, PhD³; Nobuhito Saito, MD, PhD¹; ¹Department of Neurosurgery, The University of Tokyo; ²Department of Neurosurgery, Teikyo University; ³Department of Otorhinolaryngology, The University of Tokyo

S103: EVALUATION OF THE UTILITY OF EXTENDED TIME POINTS IN INFERIOR PETROSAL SINUS SAMPLING PROCEDURES FOR CUSHING'S DISEASE - [Michael L Martini, MD, PhD](#); R. Chase Ransom, MD, PhD; Lorenzo Rinaldo, MD, PhD; Lucas Carlstrom, MD, PhD; Derek O'Keefe, MB, BCh, MD, PhD; William Young, MD; Jamie Van Gompel, MD; Mayo Clinic

S104: THE USE OF AN ENDONASAL PROTECTION DEVICE MITIGATES NASAL MUCOSA TRAUMATIC INJURY DURING ENDONASAL ENDOSCOPIC SKULL BASE SURGERY - [Nicholas Rowan, MD¹](#); Sachiv Chakravarti¹; Foad Kazemi, MD¹; Jose L Porras, MD¹; Hayden Dux²; Carlos D Pinhiero-Neto, MD, PhD³; Maria Peris-Celda, MD, PhD³; Garret W Choby, MD³; Jamie J Van Gompel, MD³; Debraj Mukherjee, MD, MPH¹; ¹Johns Hopkins Hospital; ²Virginia Commonwealth University School of Medicine; ³Mayo Clinic

5:05 pm - 6:05 pm **Proffered Papers Session 19: Miscellaneous Skull Base Surgery** *Tampa Bay 8*

S105: A PROSPECTIVE STUDY OF PATIENT-REPORTED QUALITY OF LIFE OUTCOMES IN STANDARD AND EXPANDED ENDOSCOPIC ENDONASAL SKULL BASE SURGERY AT A TERTIARY CENTER - [Douglas A Hardesty, MD](#); Kyle Wu, MD; Kathleen M Kelly, MD; Daniel Kreatsoulas, MD; Brad Otto, MD; Kyle VanKoeveering, MD; Ricardo Carrau, MD, MBA; Daniel M Prevedello, MD, MBA; The Ohio State University Wexner Medical Center

S106: QUALITY OF LIFE OUTCOMES AFTER SURGERY FOR SUPERIOR CANAL DEHISCENCE SYNDROME AT A CANADIAN ACADEMIC INSTITUTION - [Michael Bartellas](#)¹; Alexandra Quimby²; Lisa Caulley¹; Camille Lacasse¹; Fahad Alkherayf¹; David Schramm¹; ¹University of Ottawa; ²University of Pennsylvania

S107: LONG-TERM PATIENT-REPORTED SINONASAL AND GLOBAL QUALITY OF LIFE IMPROVES FROM BASELINE AFTER ENDOSCOPIC ENDONASAL SKULL BASE SURGERY: A PROSPECTIVE STUDY - [Kathleen M Kelly, MD](#); Daniel Kreatsoulas, MD; Joshua Vignolles-Jeong; Kyle Wu, MD; Brad Otto, MD; Kyle VanKoeveering, MD; Ricardo Carrau, MD, MBA; Daniel M Prevedello, MD, MBA; Douglas A Hardesty, MD; The Ohio State University Wexner Medical Center

S108: CONTINUOUS POSITIVE AIRWAY PRESSURE (CPAP) USE AFTER ENDOSCOPIC ENDONASAL APPROACH FOR PITUITARY ADENOMAS: PILOT STUDY - [Lauren M North, MD](#)¹; Rebecca Rohde, MD²; Sarah Cornell, MS²; Christopher Long, MD²; Nathan Zwagerman, MD²; ¹University of Pittsburgh Medical Center; ²Medical College of Wisconsin

S109: SOCIODEMOGRAPHIC FACTORS AND QUALITY OF LIFE IN SKULL BASE SURGERY - [Michael Xie, MD](#)¹; Han Zhang, MD, FRCSC¹; Ian Witterick, MD, MSc, FRCSC²; Eric Monteiro, MD, MSc, FRCSC²; Gelareh Zadeh, MD, FRCSC²; Carl Snyderman, MD³; Paul Gardner, MD³; Eric Wang, MD³; Benita Valappil, MD³; Dan M Fliss, MD⁴; Barak Ringel, MD⁴; Ziv Gil, MD, PhD⁵; Shorook Na'ara, MD, PhD⁵; Eng Ooi, MD, FRACS, PhD⁶; David P Goldstein, MD, FRCSC²; Fred Gentili, MD, FRCSC²; Aristotelis Kalyvas, MD, MSc, PhD, FRCSC²; John R de Almeida, MD, MSc, FRCSC²; ¹McMaster University; ²University of Toronto; ³University of Pittsburgh; ⁴Tel-Aviv University; ⁵Rambam Medial Center; ⁶Flinders University

S110: THE PRETEMPORAL TRANSCAVERNOUS ANTERIOR PETROSAL APPROACH: A PATHWAY TO THE PETROCLIVAL AREA - [Jose L Sanmillan, MD, PhD](#); Alberto Torres-Diaz, MD; Andreu Gabarros-Canals, MD, PhD; Hospital Universitari de Bellvitge. Neurosurgery Department

S111: COMPARATIVE EFFICACY OF THE FIRST AND THE SECOND MIDDLE CRANIAL FOSSA REPAIR OF BILATERAL SUPERIOR SEMICIRCULAR CANAL DEHISCENCE - [Hong-Ho Yang, BS](#); Isaac Yang, MD; Quinton S Gopen, MD; David Geffen School of Medicine at University of California, Los Angeles

S112: DORSAL PERSPECTIVE OF PETROCLIVAL FISSURE AND ITS IMPLICATION IN TRANSCRANIAL APPROACHES - [Yuanzhi Xu, MD](#); Christine K Lee, MD²; Maximiliano A Nunez, MD²; Ahmed Mohyeldin, MD, PhD²; Liang Chen, MD¹; Aaron A Cohen-Gadol, MD³; Ying Mao, MD¹; Juan C Fernandez-Miranda²; ¹Department of Neurosurgery, Huashan Hospital, Shanghai Medical College, Fudan University, Shanghai, China; ²Department of Neurosurgery, Stanford Hospital, Stanford, California; ³Department of Neurological Surgery, Indiana University, Indianapolis, Indiana

S112: DORSAL PERSPECTIVE OF PETROCLIVAL FISSURE AND ITS IMPLICATION IN TRANSCRANIAL APPROACHES - [Yuanzhi Xu, MD](#); Christine K Lee, MD²; Maximiliano A Nunez, MD²; Ahmed Mohyeldin, MD, PhD²; Liang Chen, MD¹; Aaron A Cohen-Gadol, MD³; Ying Mao, MD¹; Juan C Fernandez-Miranda²; ¹Department of Neurosurgery, Huashan Hospital, Shanghai Medical College, Fudan University, Shanghai, China; ²Department of Neurosurgery, Stanford Hospital, Stanford, California; ³Department of Neurological Surgery, Indiana University, Indianapolis, Indiana

5:05 pm - 6:05 pm

Proffered Papers Session 20: Vestibular Schwannomas

Tampa Bay 9

S113: TEN-YEAR RETREATMENT RATES FOR 416 VESTIBULAR SCHWANNOMA PATIENTS PRIMARILY UNDERGOING SURGERY, OBSERVATION OR RADIOSURGERY. - [Morten Lund-Johansen, MD, PhD](#); Monica Finnkirk, RN; Erling Myrseth, MD, PhD; Frederik Goplen, MD, PhD; Haukeland University Hospital

S114: FACTORS ASSOCIATED WITH HEARING OUTCOMES AFTER A MIDDLE FOSSA APPROACH IN 131 CONSECUTIVE PATIENTS WITH VESTIBULAR SCHWANNOMAS - [Karol P Budohoski, MD, PhD](#); Robert C Rennert, MD; Alexander Winkler-Schwartz, MD; Michael Karsy, MD, PhD; Steven A Gordon, MD; Cameron Brandon; Jefferey C Henson; Mohammed A Azab; Neil Patel, MD; Richard Gurgel, MD; William T Couldwell, MD, PhD; University of Utah

S115: EPITHELIAL MEMBRANE PROTEIN 2 (EMP2) IS UPREGULATED IN VESTIBULAR SCHWANNOMAS AS A NOVEL SURFACE PROTEIN BIOMARKER AND IS ASSOCIATED WITH INCREASED WESTERN BLOT PROTEIN EXPRESSION - [Khashayar Mozaffari, BS](#); Amith Umesh, BA; Anubhav Chandra; Mahlet Mekonnen, BS; Brian Aguirre; Yelena Malkhasyan, BS; Karam Han; Shivani Baisiwala, MD; Adrian Murillo; Madhuri Wadehra, PhD; Isaac Yang, MD; UCLA

S116: MICROSURGICAL OUTCOMES IN MEDIUM-SIZED VESTIBULAR SCHWANNOMAS: A MULTI-INSTITUTIONAL STUDY COMPARING RETROSIGMOID AND TRANSLABYRINTHINE APPROACHES. - [Aaron R Plitt, MD¹](#); Daniel Killeen, MD²; Brandon Isaacson, MD³; Walter Kutz, MD³; Jacob Hunter, MD³; Brian A Neff, MD⁴; Collin Driscoll, MD⁴; Matthew Carlson, MD⁴; Samuel L Barnett, MD⁵; Michael J Link, MD¹; ¹Mayo Clinic Department of Neurologic Surgery; ²University of Alabama Birmingham Department of Otolaryngology; ³UT Southwestern Department of Otolaryngology-Head and Neck Surgery; ⁴Mayo Clinic Department of Otolaryngology/Head and Neck Surgery; ⁵UT Southwestern Department of Neurological Surgery

S117: IMPROVED FACIAL NERVE OUTCOMES WITH ADVANCED NEUROPHYSIOLOGICAL MONITORING IN VESTIBULAR SCHWANNOMA SURGERY - [Terje Sundstrøm, MD, PhD](#); Monica Finnkirk, RN; Morten Lund-Johansen, MD, PhD; Haukeland University Hospital

S118: PROGNOSTIC FACTORS FOR FACIAL NERVE PRESERVATION IN VESTIBULAR SCHWANNOMA SURGERY - [Andrés Cervio, PhD](#); Daniel Orfila; Ricardo Marengo; Rubén Mormandi; Liliana Tiberti; Santiago Condomí Alcorta; FLENI

S119: FUNCTIONAL GAIT ASSESSMENT IN GERIATRIC PATIENTS FOLLOWING VESTIBULAR SCHWANNOMA RESECTION - [Olivia A La Monte, BS¹](#); Joshua Lee²; Omid Moshtaghi, MD¹; Peter R Dixon, MD¹; Marc Schwartz, MD, PhD¹; Rick Friedman, MD, PhD¹; ¹UCSD; ²New York Medical College

S120: DIFFERENTIAL IMPACT OF TREATMENT SEQUENCING ON LONG-TERM FACIAL NERVE OUTCOMES IN RECURRENT OR PROGRESSIVE VESTIBULAR SCHWANNOMA: SYSTEMATIC REVIEW - Stefan W Koester, MSc¹; Rohin Singh²; Hana Hallak²; [Megan Bauman²](#); Shelley Sharma²; Tasha Nasrollahi²; Taylor Reardon²; Christopher S Graffeo, MD, MS³; ¹Vanderbilt University School of Medicine; ²Mayo Clinic Alix School of Medicine; ³University of Oklahoma Department of Neurosurgery

7:30 pm - 10:00 pm Main Social Event: The Tampa Bay History Center

Sunday, February 19, 2023

Time	Session	Location
7:00 am - 9:35 am	<p><u>Women in Skull Base Surgery</u></p> <p><i>Dr. Jennifer Moliterno Gunel, Dr. Judy Huang, Dr. Sarah Mowry, Dr. Deanna Sasaki-Adams, Dr. Frederick Barker II, Dr. Judy Huang</i></p> <p>A career in skull base surgery can undoubtedly be both demanding and rewarding. Being a person of a diverse and minority background, whether of female sex or otherwise, can create even more challenges and potential barriers for success. Participants should include both men and women who are interested in learning strategies for defining and pursuing success for a robust and balanced career in skull base surgery.</p> <p>At the conclusion of this session, attendees will be able to:</p> <ul style="list-style-type: none"> » Define what a successful career in skull base surgery could encompass. » Identify potential challenges for a skull base specialist of a diverse or minority background. » Develop realistic strategies for ways to overcome diversity barriers to success. » Understand that there is a supportive network committed to enhancing diversity in skull base surgery. 	Tampa Bay 1
7:30 am - 8:30 am	<p><u>Rhoton Room ; Dueling Dissection Section 3: Lower Clivus and Foramen Magnum</u></p> <p><i>Dr. Chandranath Sen , Dr. Pablo Recinos, Dr. Maria Peris Celda, Dr. David Friedmann, Dr. Jeffrey Sorenson, Dr. Laligam Sekhar, Dr. Juan Fernandez-Miranda, Dr. Zara Patel</i></p> <p>Endoscopic endonasal and transcranial approaches are competing but also complementary approaches to the skull base. In this session we will review the 3D surgical anatomy of the Lower Clivus and Foramen Magnum regions, and we will discuss the pros and cons of endonasal and transcranial approaches to these regions. Attendance is recommended for all trainees and faculty with an interest in managing pathology in these locations.</p>	Tampa Bay 3 & 4
7:30 am - 8:30 am	<p><u>Proffered Papers Session 21: Aneurysms/Anatomy of the Skull Base</u></p> <p>S121: CONTROLLING THE INTERNAL CAROTID ARTERY AT THE LEVEL OF THE OROPHARYNX: A CADAVERIC STUDY - Lauren M North, MD; Kelly E Daniels, MD; Eric W Wang, MD; University of Pittsburgh Medical Center</p>	Tampa Bay 2

S122: VENOUS DRAINAGE PATTERNS OF THE CAVERNOUS SINUS: A RETROSPECTIVE ANGIOGRAPHIC ANALYSIS - [Paolo Palmisciano, MD¹](#); [Abhijith V Matur, MD²](#); [Ahmed E Hussein, MD³](#); [Samer S Hoz, MD¹](#); [Mark Johnson, MD¹](#); [Jonathan A Forbes¹](#); [Norberto Andaluz¹](#); [Mario Zuccarello¹](#); [Charles J Prestigiacomo¹](#); ¹Department of Neurosurgery, University of Cincinnati College of Medicine, Cincinnati, OH, USA; ²Department of Radiology, University of Kentucky, Lexington, KY, USA; ³Department of Neurological Surgery, Washington University School of Medicine in St. Louis, St. Louis, MO, USA

S124: ACCESSING PREMEATAL ANTERIOR INFERIOR CEREBELLAR ARTERY (AICA) ANEURYSMS THROUGH INFRATENTORIAL PRESIGMOID RETROLABYRINTHINE: A CADAVERIC STUDY. - [Samer Hoz, MD](#); [Paolo Palmisciano, MD](#); [Edward J. Doyle III, MD](#); [Mark Johnson, MD](#); [Jonathan A. Forbes, MD](#); [Charles Prestigiacomo, MD](#); [Ravi Samy, MD](#); [Mario Zuccarello, MD](#); [Norberto Andaluz, MD](#); University of Cincinnati

S125: PATIENT OUTCOMES FROM 92 CONSECUTIVE SACULAR MIDDLE CEREBRAL ARTERY ANEURYSM CLIPPING - [Kaiyun Yang¹](#); [Daniel Lynch²](#); [Sabrina Begley²](#); [Justin Turpin²](#); [Minoo Aminnejad³](#); [Forough Farrokhyar³](#); [Amir Dehdashti²](#); ¹Community Neurosciences Institute; ²Northwell Neurosurgery; ³McMaster University

S126: ROLE OF IL6 INDUCED INFLAMMATION IN CEREBRAL ANEURYSM PATHOGENESIS - [Muhammad Salman Ali, MD¹](#); [Leonardo Ramos Ferreira, PhD²](#); [Paul Gardner, MD¹](#); [Qizhi Tang, PhD³](#); ¹University of Pittsburgh Medical Center; ²Medical University of South Carolina; ³University of California, San Francisco

S128: BLINK REFLEX FOR FACIAL NERVE MONITORING: A FEASIBILITY STUDY - [Jihad Abdelgadir, MD, MSc](#); [Hannah Scruggs](#); [Aatif Husain, MD](#); [Howard Francis, MD, MBA](#); [Ali Zomorodi, MD](#); Duke University

7:30 am - 8:30 am

Proffered Papers Session 22: Pituitary and Petrous Apex

Tampa Bay 6

V037: CONTROLATERAL TRANSMAXILLARY APPROACH TO PETROUS APEX GRANULOMA WITH LATERAL MAXILLOTOMY: A 2-DIMENSIONAL OPERATIVE VIDEO - [Edoardo Porto, MD¹](#); [Jackson Vuncannon, MD¹](#); [J. Manuel Revuelta Barbero, MD, PhD²](#); [Daniel B. Spielman, MD¹](#); [Emily Barrow, MD¹](#); [Tomas Garzon Muvdi, MD¹](#); [Douglas E. Mattox, MD¹](#); [Gustavo Pradilla, MD¹](#); [C. Arturo Solares, MD¹](#); ¹Emory University; ²Medical College of Georgia - Augusta University

V038: ENDOSCOPE-ASSISTED PETROSAL APPROACH FOR CENTRAL SKULL BASE LESION - [Je Beom Hong, MD¹](#); [Chiman Jeon, MD¹](#); [Seonah Choi²](#); [Seung-hoon Lim³](#); [Han kyu Kim⁴](#); ¹Kangbuk Samsung Hospital; ²Severance Hospital; ³Kyung Hee University Medical Center; ⁴CHA Bundang Hospital

V039: ENDONASAL MARSUPIALIZATION OF A PETROUS APEX GRANULOMA USING A SILASTIC STENT AND NASOSEPTAL FLAP. - [Basit A Jawad, MD](#); Guilherme Finger, MD; Kyle Wu, MD; Daniel Prevadello, MD; Ricardo Carrau, MD; Ohio State University

V040: RESECTION OF THE MEDIAL WALL OF THE CAVERNOUS SINUS IN A CASE OF AN INVASIVE PITUITARY ADENOMA IN THE SETTING OF ACROMEGALY - [Ahmed Mohyeldin, MD, PhD](#)¹; Maximiliano Alberto Nunez²; Yuanzhi Xu²; Juan C Fernandez-Mirand, MD²; ¹University of California-Irvine; ²Stanford University

V041: EEA FOR INVASIVE CUSHING'S ADENOMA: RESECTION OF THE MEDIAL CAVERNOUS SINUS WALL - [Kyle C Wu, MD](#); Guilherme Finger, MD, MSCI; Basit Jawad, MD; Joshua Vignolles-Jeong, BA; Ricardo L Carrau, MD, MBS, FACS; Daniel M Prevedello, MD, MBA, FACS; The Ohio State University College of Medicine

V042: TWO CASES OF RESIDUAL ACTH ADENOMA INVADING THE MEDIAL WALL OF THE CAVERNOUS SINUS - [Vera Vigo, MD](#); Ahmed Mohyeldin, MD, PhD; Christine K Lee, MD, PhD; Ashoke Khanwalkar, MD; Matt Lechner, MD; Zara Patel, MD; Jayakar V Nayak, MD; Juan C Fernandez-Miranda, MD; Stanford University

V043: INTERHEMISPHERIC TRANSCALLOSAL APPROACH FOR RESECTION OF A GIANT PITUITARY ADENOMA - [Eric T Quach](#); Amir R Dehdashti; North Shore University Hospital

V044: ENDOSCOPIC ENDONASAL APPROACH: RECURRENT FIBROUS PITUITARY ADENOMA WITH CAVERNOUS SINUS EXTENSION - [Joao P Almeida, MD, PhD](#); Carlos Perez-Vega, MD; Susan L Samson, MD, PhD; Osarenoma U Olomu, MD; Alfredo Quinones-Hinojosa, MD; Mayo Clinic

7:30 am - 8:30 am

Proffered Papers Session 23: Endoscopic Transnasal Skull Base Surgery

Tampa Bay 7

S129: EPIDURAL INLAY FOR PITUITARY ADENOMA SURGERY: A 4-YEAR INSTITUTIONAL EXPERIENCE - [Rita Snyder, MD](#)¹; Sungho Lee, MD, PhD²; Prazwal Athukuri, BS¹; Meha Fox, MD³; Samer Fakhri, MD⁴; Masayoshi Takashima, MD⁵; Kelly Gallagher, MD³; Daniel Yoshor, MD⁶; Ali Jalali, MD, PhD¹; ¹Department of Neurosurgery, Baylor College of Medicine; ²Department of Neurosurgery, LSU Health Shreveport; ³Department of Otolaryngology, Baylor College of Medicine; ⁴Kelsey-Seybold Otolaryngology; ⁵Department of Otolaryngology, Houston Methodist; ⁶Department of Neurosurgery, University of Pennsylvania

S130: UNINOSTRIL VERSUS BINOSTRIL ENDOSCOPIC TRANSNASAL APPROACH FOR PTERYGOPALATINE FOSSA: A TECHNICAL NOTE - [Abdulrazag Ajlan, MD, MSc, UCNSD, FRCSC](#)¹; Sara Basindwa, MD¹; [Basim Noor Elahi, MD](#)¹; Hussain Albaharna, MD²; Mohammad Alshareef, MD³; Abdulaziz Alrasheed, MBBS, MSc, FRCSC¹; Ahmad Alroqi, MD¹; Saad Alsaleh, MBBS, FRCSC¹; Ashwag Alqurashi, MD⁴; ¹King Saud University; ²Qatif Central Hospital; ³Khamis Mushait General Hospital; ⁴King Saud University Medical City

S131: HYPOTHALAMIC HAMARTOMAS TREATED VIA ENDOSCOPIC RESECTION AND DISCONNECTION: CHARACTERIZING CLINICAL PRESENTATION AND SEIZURE OUTCOMES - Rohin Singh¹; Nolan J Brown²; Meghdeep Sen²; Basel Musmar²; Angie Zhang²; Jhon Bocanegra-Becerra²; Megan Bauman¹; Chenyi Yang²; Panagiotis Kerezoudis¹; Ahmed Mohyeldin²; ¹Mayo Clinic Alix School of Medicine; ²UC Irvine Department of Neurological Surgery

S132: TRENDS OF PITUITARY SURGERY MEDICARE REIMBURSEMENTS - Theodore V Nguyen, BS¹; Sina J Torabi, MD¹; Arash Abiri, BS¹; Jonathan C Pang, BS¹; Benjamin F Bitner, MD¹; Frank P Hsu, MD, PhD²; Edward C Kuan, MD, MBA¹; ¹Department of Otolaryngology - Head and Neck Surgery, University of California - Irvine, Orange, CA; ²Department of Neurological Surgery, University of California - Irvine, Orange, CA

S133: SURGICAL MANAGEMENT OF ESTHESIONEUROBLASTOMA AT A SINGLE TERTIARY CARE CENTER - Evan J Patel, MD¹; Michael McDemott, MD²; Philip Theodosopolous, MD²; Manish Aghi, MD, PhD²; Ivan El-Sayed, MD¹; ¹Department of Otolaryngology-Head & Neck Surgery, University of California San Francisco; ²Department of Neurological Surgery, University of California San Francisco

S134: ANATOMICAL STEP-BY-STEP DISSECTION OF COMPLEX SKULL BASE APPROACHES FOR TRAINEES: SURGICAL ANATOMY OF THE ENDOSCOPIC ENDONASAL APPROACH TO THE ANTERIOR CRANIAL FOSSA - Edoardo Agosti, MD¹; Alex Y Alexander, BA²; Luciano Leonel, PhD³; Carlos D Pinheiro-Neto, MD, PhD³; Maria Peris-Celda, MD, PhD³; ¹University of Brescia; ²University of Minnesota; ³Mayo Clinic

S135: OLFACTORY FUNCTIONAL STATUS FOLLOWING EXTENDED ENDOSCOPIC ENDONASAL APPROACH FOR SUPRASELLAR MENINGIOMAS - Abdulrazag Ajlan, MD, MSc, UCNSD, FRCSC¹; Waseem Yaghmoor, MD²; Alanoud Almansour, MD³; Basim Noor Elahi, MD¹; Abdulaziz Alrasheed⁴; Ahmad Alroqi, MD⁴; Saad Alsaleh, MBBS, FRCSC⁴; Ashwag Alqurashi, MD⁵; ¹Division of Neurosurgery, Department of Surgery, College of Medicine, King Saud University, Riyadh, Saudi Arabia; ²Department of Neurosurgery, Prince Sultan Military Medical City, Riyadh, Saudi Arabia; ³King Saud University, Riyadh, Saudi Arabia; ⁴Department of Otolaryngology – Head & Neck Surgery, College of Medicine, King Saud University, Riyadh, Saudi Arabia; ⁵Division of Neurosurgery, Department of Surgery, King Saud University Medical City, Riyadh, Saudi Arabia

7:30 am - 8:30 am **Proffered Papers Session 24: Pituitary Tumors/Pediatric Skull Base Surgery** *Tampa Bay 8*

S136: MEDICATION USE IN PEDIATRIC PITUITARY SURGERY

- [Pallavi Kulkarni, BS](#); Dana Goldenberg, BA; Guodong Liu, PhD; Emily Dennis, MS; Meghan N Wilson, MD; Penn State Milton S Hershey Medical Center

S137: CAD/CAM-ASSISTED SURGERY & ADJUVANT THERAPY FOR PEDIATRIC HEAD AND NECK SKULL BASE SARCOMAS: A PILOT STUDY

- [Joseph Lopez, MD](#)¹; Tejas Subramanian²; Robbie Woods, MD²; Daniel Scholfield, MD²; Marc Cohen, MD²; Shah Jatin, MD²; Ian Ganly, MD²; ¹AdventHealth For Children; ²Memorial Sloan Kettering

S138: COMPARISON BETWEEN THE SUPRACEREBELLAR INFRATENTORIAL AND PRECUNEAL INTERHEMISPHERIC, TRANSTENTORIAL APPROACH TO THE CEREBELLOMESENCEPHALIC FISSURE: AN ANATOMO-RADIOLOGICAL STUDY AND ILLUSTRATIVE CASES

- [A. Yohan Alexander, BA](#)¹; Edoardo Agosti, MD²; Luciano Leonel, PhD¹; Giuseppe Lanzino, MD¹; Maria Peris-Celda, MD, PhD³; ¹Mayo Clinic, Department of Neurosurgery; ²University of Brescia, Department of Neurosurgery; ³Mayo Clinic, Department of Neurosurgery and Otorhinolaryngology

S139: THE UTILITY OF PET FOR DETECTING CORTICOTROPINOMAS IN CUSHING DISEASE: A SYSTEMATIC REVIEW

- [Megan M Bauman, MS](#); Jeffrey P Graves, MS; Daniel J Harrison, BS; Derek R Johnson, MD; Jamie J Van Gompel, MD; Mayo Clinic

S140: CORRELATION OF PITUITARY DESCENT AND DIABETES INSIPIDUS FOLLOWING TRANSSPHENOIDAL PITUITARY ADENOMA RESECTION

- Josh Ma¹; [Serge Makarenko, MD](#)²; Ryojo Akagami²; Peter A Gooderham²; ¹University of British Columbia; ²Vancouver General Hospital

S141: A NOVEL SCORE TO PRE-OPERATIVELY PREDICT SURGICAL BIOCHEMICAL REMISSION IN PATIENTS WITH GROWTH-HORMONE SECRETING PITUITARY ADENOMAS

- [Salomon Cohen Cohen, MD](#); Rima Rindler, MD; Edgar Botello Hernandez, MD; Diane Donegan, MD; Dana Erickson, MD; Jamie J Van Gompel, MD; Mayo Clinic, Rochester

S142: CHARACTERIZING RACIAL AND SOCIOECONOMIC DISPARITIES IN ACCESS TO SURGERY FOR PITUITARY ADENOMAS AT HIGH-VOLUME HOSPITALS IN THE UNITED STATES: A RETROSPECTIVE COHORT ANALYSIS FROM THE NATIONAL CANCER DATABASE

- [Miguel A Jimenez, BS](#)¹; Julian L Gendreau, MD²; Andrew Palmer, BS, BA¹; Jackson Nagamoto, BS³; Bakhtiar Yamini, MD¹; Nicholas Rowan, MD²; Debraj Mukherjee, MD²; ¹The University of Chicago Pritzker School of Medicine; ²Johns Hopkins University School of Medicine; ³University of Central Florida College of Medicine

7:30 am - 8:30 am **Proffered Papers Session 25: Training and Education**

Tampa Bay 9

S144: GLOBAL FEMALE SKULL BASE RESEARCHERS AT THE NORTH AMERICAN SKULL BASE SOCIETY ANNUAL MEETING: TRENDS OF OVER 3,000 PUBLISHED ABSTRACTS FROM THE LAST DECADE

- [Rosemary T Behmer Hansen, MA, MPH¹](#); Samantha D Palma, BS²; Ryan A Behmer Hansen, MS¹; William A Blocher III, BS²; Justin L Gold, BS³; Stephen J Susman, BS²; Sai Batchu, BS⁴; Nicole A Silva, MD⁵; Angela M Richardson, MD, PhD²; ¹Rutgers University Department of Neurosurgery; ²Indiana University School of Medicine Department of Neurological Surgery; ³Cooper Medical School of Rowan University; ⁴Unaffiliated; ⁵University of North Carolina Department of Neurosurgery

S145: THE CHECKLIST MANIFESTO - IMPROVING SAFETY, SATISFACTION, AND COMMUNICATION WITH PREOPERATIVE CHECKLISTS IN RHINOLOGY & ENDOSCOPIC SKULL BASE SURGERY

- [Alexander N Duffy, MD¹](#); Maria Armache, MD¹; Ayan T Kumar, MD¹; James J Evans, MD²; Elina Toskala, MD, PhD, MPH¹; Marc R Rosen, MD¹; Gurston G Nyquist, MD¹; Mindy R Rabinowitz, MD¹; ¹Department of Otolaryngology, Thomas Jefferson University Hospital; ²Department of Neursurgery, Thomas Jefferson University Hospital

S146: OPEN-SOURCE VIRTUAL REALITY AND 3D-PRINTABLE MODELS FOR SKULL BASE TRIANGLE NEUROANATOMY EDUCATION

- [Bachtri T Nguyen, BS¹](#); Lucas P Carlstrom, MD, PhD¹; Avital Perry, MD²; Michael J Link, MD¹; Maria Peris-Celda, MD, PhD¹; Jonathan M Morris, MD¹; Christopher S Graffeo, MD, MS³; ¹Mayo Clinic; ²Sheba Medical Center; ³University of Oklahoma

S147: UN-WELLNESS: SKULL BASE SURGERY'S GREATEST CHALLENGE AND OPPORTUNITY

- [Janissardhar Skulsampaopol, MD¹](#); Yu Ming, MD, PhD¹; Sylvia Shitsama, MD²; Melissa Carpino, HBSc, MSc¹; Jennifer Anderson, MD, FRCSC, MSc¹; John Lee, MD, FRCSC, MSc¹; Michael D Cusimano, MD, MHPE, FRCSC, DABNS, PhD, FACS, FAANS¹; ¹St Michael's Hospital, University of Toronto; ²Jomo Kenyatta University of Agriculture and Technology

S148: A NOVEL LIVE SHEEP MODEL FOR TRAINING ENDOSCOPIC TRANSNASAL SKULLBASE SURGERY FROM EXPOSURE TO CLOSURE

- [Annika R Mascarenhas, MBBS¹](#); Alistair K Jukes, MBBS, PhD, FRACS¹; Stephen Santoreneos, MBBS, FRACS²; Nikitas Vrodos, MBBS, FRACS³; Rowan Valentine, MBBS, PhD, FRACS¹; Santosh I Poonnoose, MCh, FRACS³; Alkis J Psaltis, MBBS, PhD, FRACS¹; Peter-John Wormald, MBChB, MD, FRACS¹; ¹The Queen Elizabeth Hospital, Basil Hetzel Institute; ²Department of Neurosurgery, Royal Adelaide Hospital; ³Department of Neurosurgery, Flinders Medical Centre

S149: 3-D MODELING FOR APPROACH SELECTION PEDAGOGY IN COMPLEX CRANIAL SURGERY: SKULL BASICS OVERVIEW & PROOF-OF-CONCEPT RESULTS - [Bachtri T Nguyen, BS¹](#);

Jonathan M Morris, MD¹; Visish M Srinivasan, MD²; Michael J Holroyd, PhD³; Lucas P Carlstrom, MD, PhD¹; Avital Perry, MD⁴; Maria Peris-Celda, MD, PhD¹; Michael J Link, MD¹; Christopher S Graffeo, MD, MS³; ¹Mayo Clinic; ²University of Pennsylvania; ³University of Oklahoma; ⁴Sheba Medical Center

S150: A COST-EFFECTIVE AND REPRODUCIBLE CADAVERIC TRAINING MODEL FOR INTERNAL CAROTID ARTERY INJURY MANAGEMENT DURING ENDOSCOPIC ENDONASAL SURGERY: THE SUBMERSIBLE PERISTALTIC PUMP - [Edoardo Porto, MD¹](#);

J. Manuel Revuelta Barbero, MD, PhD²; Hanyao Sun, BS¹; John M. DelGaudio, MD¹; Oswaldo A. Henriquez, MD¹; Gabriel Zada, MD³; Emily Barrow, MD¹; C. Arturo Solares, MD¹; Tomas Garzon Muvdi, MD, MSc¹; Gustavo Pradilla, MD¹; ¹Emory University; ²Medical College of Georgia - Augusta University; ³University of Southern California

8:35 am - 9:35 am

Proffered Papers Session 26: Complications of Skull Base Surgery

Tampa Bay 2

S151: POST-OPERATIVE SERUM COPEPTIN LEVELS FOR PREDICTING HYPONATREMIA IN PATIENTS UNDERGOING ENDONASAL PITUITARY SURGERY: A PROSPECTIVE STUDY

- [Prakash Nair, DR](#); Anand Binu, DR; Antony Stanley, DR; Madhusoodanan Uk, DR; Easwer Hv, DR; Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum

S152: POSTOPERATIVE CEREBRAL VENOUS SINUS THROMBOSIS FOLLOWING RETROSIGMOID CRANIOTOMY FOR A CEREBELLOPONTINE ANGLE TUMOR - A CLINICAL AND RADIOLOGICAL ANALYSIS - [Lukasz Przepiorka, MD¹](#); Katarzyna Wojtowicz, MD¹; Slawomir Kujawski, PhD²; Jan Jankowski¹;

Katarzyna Camlet¹; Laretta Derlatka-Grabowska, MD, PhD³; Andrzej Marchel, MD, PhD¹; Przemyslaw Kunert¹; ¹Department of Neurosurgery, Medical University of Warsaw; ²Department of Exercise Physiology and Functional Anatomy, Ludwik Rydygier Collegium Medicum in Bydgoszcz Nicolaus Copernicus University in Toruń, Bydgoszcz, Poland; ³Second Department of Radiology, Medical University of Warsaw, Warsaw, Poland

S153: EPIDEMIOLOGY AND MICROBIOLOGIC CHARACTERISTICS OF POSTOPERATIVE CENTRAL NERVOUS SYSTEM INFECTIONS FOLLOWING ENDOSCOPIC ENDONASAL SURGERY - Sunish Shah, PharmD; Joseph Durkin, PharmD; Karin E Byers, MD, MS; Carl H Snyderman, MD, MBA; [Paul A Gardner, MD](#);

Ryan K Shields, PharmD, MS; University of Pittsburgh Medical Center

S154: AVOIDANCE OF MAJOR VASCULAR INJURY IN TRANSCRANIAL BRAIN TUMOR SURGERY USING REAL-TIME DOPPLER NAVIGATION: TECHNICAL NOTE AND CASE SERIES

- [Richard J Carling](#)¹; Regin J Mallari¹; Davendran Kanasesen²; Byron Hontiveros³; Walavan Sivakumar¹; Garni Barkhoudarian¹; Daniel F Kelly¹; ¹Pacific Neuroscience Institute; ²Sarawak General Hospital; ³Makati Medical Center

S155: ANTERIOR SKULL BASE OUTCOMES AND COMPLICATIONS: A PROPENSITY SCORE MATCHED EVALUATION OF AGE AND FRAILTY AS MEASURED BY MFI-5 FROM THE ACS-NSQIP DATABASE - [Sawyer Bauer, BS](#)¹;

Matthew Findlay, BS²; Majid Khan, BS¹; Hepzibha Alexander, MD³; Brandon Lucke-Wold, MD, PhD⁴; Forrest Hamrick, MD⁵; Joshua Hunsaker, BS²; William T Couldwell, MD, PhD⁵; Michael Karsy, MD, PhD, MSc⁵; ¹Reno School of Medicine, University of Nevada, Reno, Nevada; ²University of Utah School of Medicine, Salt Lake City, Utah; ³Division of Neurosurgery, Ascension Providence Hospital, Michigan State University, College of Human Medicine, Southfield, USA; ⁴Department of Neurosurgery, University of Florida, Gainesville, USA; ⁵Department of Neurosurgery, Clinical Neurosciences Center, University of Utah, Salt Lake City, Utah

S156: RISK FACTORS FOR DEVELOPMENT OF DIABETES INSIPIDUS AND SYNDROME OF INAPPROPRIATE ANTIDIURETIC HORMONE SECRETION (SIADH) AFTER TRANSPHENOIDAL RESECTION OF PITUITARY ADENOMA

- [Gabrielle T Petito, BA](#)¹; Alex Hu, BA¹; Grace Zhang, BA¹; Susie Min¹; Siddhant Tripathi, BS¹; Adithya Kumar, BS¹; Geet Shukla, BA¹; Sanjit Shah, MD²; Katie Phillips, MD¹; Suman Jana, MD³; Jonathan A Forbes, MD²; Mario Zuccarello, MD²; Norberto O Andaluz, MD²; Ahmad R Sedaghat, MD, PhD¹; ¹Department of Otolaryngology-Head and Neck Surgery, University of Cincinnati College of Medicine; ²Department of Neurosurgery, University of Cincinnati College of Medicine, Cincinnati, United States of America; ³Division of Endocrinology, Diabetes and Metabolism, University of Cincinnati College of Medicine

S157: RISK FACTORS FOR SIGNIFICANT POSTOPERATIVE HEMORRHAGE FOLLOWING PITUITARY ADENOMA RESECTION, A CASE-CONTROL STUDY OF 1,066 SURGERIES -

[Robert C Osorio, BS](#); Alexander Aabedi, MD; William Carson; Aarav Badani; Eric Chalif, BS; Philip V Theodosopoulos, MD; Sandeep Kunwar, MD; Manish K Aghi, MD, PhD; Ezequiel Goldschmidt, MD, PhD; University of California, San Francisco

S158: ASSESSING PATIENT-REPORTED SYMPTOMS TO PREDICT POST-OPERATIVE COMPLICATIONS FROM PITUITARY SURGERY USING A NOVEL CONSENSUS-DEVELOPED INVENTORY

- [Amelia K Ramsey, MD¹](#); [Dhruv S Kothari, BS¹](#); [Kara A Parikh, MD²](#); [Ralph Abi Hachem, MD³](#); [Yvonne Chan, MD⁴](#); [Garret Choby, MD⁵](#); [Judd H Fastenberg, MD⁶](#); [Mindy R Rabinowitz, MD⁷](#); [Sanjeet V Rangarajan, MD, MEng¹](#); ¹Department of Otolaryngology - Head and Neck Surgery, University of Tennessee Health Science Center, Memphis, TN USA; ²Department of Neurosurgery - Head and Neck Surgery, University of Tennessee Health Science Center, Memphis, TN USA; ³Department of Head and Neck Surgery & Communication Sciences, Duke University, Durham, North Carolina, USA; ⁴Department of Otolaryngology - Head & Neck Surgery, University of Toronto, Toronto, Canada.; ⁵Department of Otolaryngology-Head and Neck Surgery, Mayo Clinic, Rochester, Minnesota, USA; ⁶Department of Otolaryngology-Head and Neck Surgery, Donald and Barbara Zucker School of Medicine at Hofstra/Northwell, Northwell Health System, Hempstead, New York, USA; ⁷Department of Otolaryngology, Head and Neck Surgery, Thomas Jefferson University Hospital, Philadelphia, United States.

8:35 am - 9:35 am

Proffered Papers Session 27: Meningiomas

Tampa Bay 6

V045: TUBERCULUM SELLA MENINGIOMA WITH VASCULAR ENCASEMENT - [Vera Vigo, MD](#); [Karam P Asmaro](#); [Christopher M Low, MD](#); [Peter H Hwang, MD](#); [Juan C Fernandez-Miranda, MD](#); Stanford University

V046: TUBERCULUM SELLA MENINGIOMA WITH CLINOIDAL AND PLANUM EXTENSION - [Vera Vigo, md](#); [Karam P Asmaro, MD](#); [Ashoke R Khanwalkar, MD](#); [Zara Patel, MD](#); [Juan C Fernandez-Miranda, MD](#); Stanford University

V047: COMBINED ENDOSCOPIC ENDONASAL AND TRANSCRANIAL APPROACH FOR A TUBERCULUM SELLA MENINGIOMA - [Jose L Sanmillan, MD, PhD](#); [Alberto Torres Diaz, MD](#); [Andreu Gabarros Canals, MD, PhD](#); Neurosurgery Department. Hospital Universitari de Bellvitge

V048: FAR LATERAL TRANSCONDYLAR APPROACH FOR RESECTION OF A FORAMEN MAGNUM MENINGIOMA - [Eric T. Quach](#); [Amir R Dehdashti](#); North Shore University Hospital

V049: COMBINED PETROSAL APPROACH FOR MANAGEMENT OF RECURRENT HEMANGIOPERICYTOMA - [Abhinav ETTYREDDY, MD](#); [Andrew McCall, MD](#); [Paul Gardner, MD](#); University of Pittsburgh Medical Center

V050: RESECTION OF A CLINOIDAL MENINGIOMA ENCASING THE INTERNAL CAROTID ARTERY - [Eric T Quach](#); [Amir R Dehdashti](#); North Shore University Hospital

V051: MODIFIED CRANIO-ORBITAL APPROACH FOR RESECTION OF A RADIATION INDUCED GIANT PLANUM SPHENOIDALE MENINGIOMA - [Erion Junior de Andrade](#); Pablo F Recinos; Cleveland Clinic

V052: MIDDLE FOSSA TRANSCAVERNOUS APPROACH FOR POSTERIOR CLINOID MENINGIOMA - [Karam P Asmaro, MD](#); Christine K Lee, MD, PhD; Vera Vigo, MD; Juan C Fernandez-Miranda; Stanford University

8:35 am - 9:35 am

Proffered Papers Session 28: Cranial Nerve Functional Outcomes / Miscellaneous

Tampa Bay 7

S159: INCIDENCE OF DIPLOPIA SECONDARY TO CRANIAL NEUROPATHIES AFTER ENDOSCOPIC ENDONASAL PITUITARY AND TRANSCAVERNOUS SURGERY - [Karam Asmaro](#)¹; Christine K Lee²; Yuanzhi Xu³; Vera Vigo²; Thomas J Hirschauer²; Adrian J Rodrigues²; Juan C Fernandez-Miranda²; ¹Henry Ford Health; ²Stanford University; ³Huashan Hospital, Fudan University

S160: A MACHINE LEARNING ALGORITHM FOR PREDICTION OF FACIAL NERVE INJURY FOLLOWING MICROSURGICAL RESECTION OF VESTIBULAR SCHWANNOMA - [Sabrina M Heman-Ackah, MD, DPhil](#)¹; Rachel Blue, MD¹; Alexandra E Quimby, MD, MPH²; Tiffany Hwa, MD³; Jason Brant, MD²; Michael J Ruckenstein, MD, MSc, FACS²; Douglas C Bigelow, MD²; Selena E Briggs, MD, PhD, MBA, FACS⁴; Yale Cohen, PhD⁵; John Y Lee, MD¹; ¹University of Pennsylvania, Department of Neurosurgery; ²University of Pennsylvania, Department of Otorhinolaryngology; ³Temple University, Department of Otolaryngology - Head and Neck Surgery; ⁴MedStar Washington Hospital Center, Department of Otolaryngology; ⁵University of Pennsylvania, Department of Bioengineering

S161: OLFATORY FUNCTIONAL OUTCOMES FOLLOWING EXPANDED ENDOSCOPIC ENDONASAL SURGERY FOR NON-PITUITARY ANTERIOR SKULL BASE TUMORS - Aneek Patel, BS; Akshay Save, MD; [Seth Lieberman, MD](#); Donato Pacione, MD; NYU Langone Health

S162: A REVIEW OF THE LATERAL ORBITOTOMY APPROACH TO RESECT TUMORS WITHIN THE CAVERNOUS SINUS AND TEMPORAL LOBE - [Molly Monsour](#); Davide Croci, MD; John Kim; Matthew Udine; Siviero Agazzi, MD; University of South Florida Morsani College of Medicine

S163: CLINOIDAL MENINGIOMAS: CLINICAL AND FUNCTIONAL BENEFITS OF MINIMALLY INVASIVE APPROACHES - [Rafael Martinez-Perez, MD, PhD](#)¹; Jorge M Mura, MD, FACS²; ¹Department of Neurosurgery and Neuroscience Institute, Geisinger Health System and Geisinger Commonwealth School of Medicine, Wilkes-Barre, Pennsylvania; ²Instituto Nacional de Neurocirugía Dr Asenjo, Santiago, Chile

S164: NEURO-OPHTHALMOLOGIC OUTCOMES OF ORBITAL APEX SYNDROME CAUSED BY INVASIVE FUNGAL SINUSITIS

- Sang Duk Hong, MD, PhD¹; Joongbo Shin, MD¹; Gwanghui Ryu, MD¹; Hyo Yeol Kim¹; Yong Gi Jung¹; Doo-Sik Kong²; ¹Department of Otorhinolaryngology- Head and Neck Surgery, Samsung Medical Center,; ²Department of Neurosurgery, Samsung Medical Center

S165: EVIDENCE BASED RECOMMENDATIONS ON THE WORKUP AND TREATMENT OPTIONS FOR INFLAMMATORY PATHOLOGIES OF THE SELLA AND ORBIT: A SYSTEMATIC REVIEW

- Christopher B Cutler, BS¹; Mohammed A Azab, MD²; Brandon Lucke-Wold, MD, PhD, MCTS³; Majid Khan, BS⁴; Curran Henson, MS⁵; Amabir Gill, MD⁶; Jeremiah Alt, MD, PhD⁶; Michael Karsy, MD, PhD, MSc⁶; ¹Rosalind Franklin University; ²Boise State University; ³University of Florida; ⁴University of Nevada, Reno School of Medicine; ⁵University of Arkansas for Medical Sciences; ⁶University of Utah

S166: VASCULITIS PRESENTING AS AN INFRATEMPORAL FOSSA MASS

- Sulgi Kim, BA¹; Meredith Lamb, BS²; Taylor Stack, BS¹; Abdullah Zeatoun, MD²; Omura Kazuhiro, MD²; Erin Lopez, MD²; Daniel Alicea, MD²; Charles S Ebert Jr., MD, MPH²; Brent Senior, MD²; Brian Thorp, MD²; Adam J Kimple, MD, PhD²; ¹University of North Carolina School of Medicine; ²Department of Otolaryngology-Head & Neck Surgery at the University of North Carolina - Chapel Hill

8:35 am - 9:35 am

Proffered Papers Session 29: Miscellaneous

Tampa Bay 8

S167: PROMOTING SURGEON-SCIENTISTS IN OTOLARYNGOLOGY-HEAD AND NECK SURGERY - [Nikitha Kosaraju, BA](#); Lindsay S Moore, MD; Donald P Keating III, BS; Grace S Kim, MD; Konstantina M Stankovic, MD, PhD; Department of Otolaryngology-Head and Neck Surgery, Stanford University, Stanford, CA

S168: MULTIDISCIPLINARY NEUROFIBROMATOSIS TYPE 2 CLINIC: THE MAYO CLINIC EXPERIENCE - [Aaron R Plitt, MD](#); James R Dornhoffer, MD²; Maria Peris-Celda, MD¹; Jamie J Van Gompel, MD¹; Brian A Neff, MD²; Collin L Driscoll, MD²; Michael J Link, MD¹; Matthew L Carlson, MD²; ¹Mayo Clinic Department of Neurologic Surgery; ²Mayo Clinic Department of Otolaryngology/Head and Neck Surgery

S170: MANAGEMENT STRATEGIES IN CLIVAL AND CRANIOVERTEBRAL JUNCTION CHORDOMAS: A 29-YEAR EXPERIENCE - [Thibault Passeri, MD, MSc](#); Pierre Olivier Champagne, MD, PhD¹; Lorenzo Giammattei, MD¹; Rosaria Abbritti, MD¹; Jérôme Cartailier, PhD²; Valentin Calugaru, MD, PhD³; Loic Feuvret, MD³; Jean-Pierre Guichard, MD⁴; Marc Polivka, MD⁵; Homa Adle-Biassette, MD, PhD⁵; Hamid Mammar³; Damien Bresson, MD, PhD¹; Philippe Herman, MD, PhD⁶; Emmanuel Mandonnet, MD, PhD¹; Bernard George, MD¹; Sébastien Froelich¹; ¹Department of Neurosurgery, Lariboisière Hospital, Assistance Publique des Hôpitaux de Paris; ²Department of Anesthesiology, Lariboisière Hospital, Assistance Publique des Hôpitaux de Paris; ³Institut Curie, Proton Beam Therapy Center; ⁴Department of Neuroradiology, Lariboisière Hospital, Assistance Publique des Hôpitaux de Paris; ⁵Department of Pathology, Lariboisière Hospital, Assistance Publique des Hôpitaux de Paris; ⁶Department of Otorhinolaryngology, Lariboisière Hospital, Assistance Publique des Hôpitaux de Paris

S171: POSITIVE MARGINS AT THE TRIGEMINAL NERVE: IS IT WORTH RESECTING? - [Maria Armache, MD](#); Thomas Jefferson University Hospital

S172: RISK ANALYSIS INDEX AND 30-DAY MORTALITY AFTER INTRACRANIAL TUMOR RESECTION: A MULTI-CENTER FRAILTY ANALYSIS OF 31,776 PATIENTS FROM 2012-2020 - [Kavelin Rumalla, MD](#); Rachel Thommen, BS; Syed Faraz Kazim, MD, PhD; Aaron Segura, MS; Meic H Schmidt, MD, MBA; Rohini B McKee, MD, MPH; Christian A Bowers, MD; University of New Mexico Health Sciences Center

S173: RECURRENCE MORBIDITY OF OLFACTORY

NEUROBLASTOMA - [Katie Melder, MD¹](#); Garret Choby, MD²; Joao Almeida, MD³; Pierre-Olivier Champagne, MD⁴; Justin Cetas, MD, PhD⁵; Erik Chan, MD⁶; Jeremy Ciporen, MD⁷; Mark B Chaskes, MD, MBA⁸; Juan Fernandez-Miranda, MD⁹; Paul Gardner, MD¹⁰; Fred Gentili, MD¹¹; Peter Hwang, MD⁶; Keven SY Ji, MD, MHS¹; Aristotelis Kalyvas, MD¹¹; Keonho A Kong, MD⁸; Ryan McMillan, MD²; Jamie O'Byrne, MS¹²; Chirag Patel, MD¹³; Zara Patel, MD⁶; Maria Peris Celda, MD¹²; Carlos Pinheiro-Neto, MD²; Carl H Snyderman¹⁴; Brian D Thorp, MD⁸; Jamie J Van Gompel, MD¹⁵; Georgios Zenonos, MD¹⁰; Nathan T Zwagerman, MD¹⁶; Olabisi Sanusi, MD⁷; Eric W Wang, MD¹⁴; Mathew Geltzeiler, MD¹; ¹Department of Otolaryngology-Head and Neck Surgery, Oregon Health & Science University, Portland, OR; ²Department of Otolaryngology-Head and Neck Surgery, Mayo Clinic, Rochester, MN; ³Department of Neurological Surgery, Mayo Clinic, Jacksonville, FL; ⁴Department of Neurological Surgery, Universite Laval, Quebec, Canada; ⁵Department of Neurological Surgery, University of Arizona, Tucson, AZ; ⁶Department of Otolaryngology-Head and Neck Surgery, Stanford University, Palo Alto, CA; ⁷Department of Neurological Surgery, Oregon Health & Science University, Portland, OR; ⁸Department of Otolaryngology-Head and Neck Surgery, University of North Carolina, Chapel Hill, NC; ⁹Department of Neurological Surgery, Stanford University, Palo Alto, CA; ¹⁰Department of Neurological Surgery, University of Pittsburgh Medical Center, Pittsburgh, PA; ¹¹Department of Neurological Surgery, University of Toronto, Ontario, Canada; ¹²Department of Quantitative Health Sciences, Mayo Clinic, Rochester, MN; ¹³Department of Otolaryngology-Head and Neck Surgery, Loyola University, Maywood, IL; ¹⁴Department of Otolaryngology-Head and Neck Surgery, University of Pittsburgh Medical Center, Pittsburgh, PA; ¹⁵Department of Neurological Surgery, Mayo Clinic, Rochester, MN.; ¹⁶Department of Neurological Surgery, University of Wisconsin, Milwaukee, WI

S174: A SINGLE-CENTER RETROSPECTIVE ANALYSIS OF INTRACRANIAL AND SPINAL SOLITARY FIBROUS TUMOR/ HEMANGIOPERICYTOMA CLINICAL OUTCOMES: GENDER ASSOCIATION WITH AGGRESSIVENESS

- [Mohamed E El-Abtah¹](#); Roger Muray²; Tiffany Ejikeme²; Peter Ahorukomeye¹; Jordan C Petitt¹; Pablo F Recinos²; Varun R Kshetry²; ¹Case Western Reserve University School of Medicine; ²Cleveland Clinic

8:35 am - 9:35 am

Proffered Papers Session 30: Vestibular Schwannomas

Tampa Bay 9

S175: VOLUME OF RESIDUAL TUMOR IN VESTIBULAR SCHWANNOMA RESECTION IS ASSOCIATED WITH RECURRENCE RATE EVEN AFTER ADJUVANT RADIOSURGERY

- Emily J Winterhalter, BA; [Khizar R Nandoliya, BA](#); Rushmin Khazanchi, BA; Mark W Youngblood, MD, PhD; Adam M Sonabend, MD; James P Chandler, MD; Stephen T Magill, MD, PhD; Northwestern University Feinberg School of Medicine

S176: NEUROTOLOGIST VS. RADIATION ONCOLOGIST - WHO IS QUICKER TO INTERVENE ON VESTIBULAR SCHWANNOMAS?

- [Zachary A Wykoff, BS](#)¹; Micah H Harris, BS¹; Vivian F Kaul, MD²; Daniel M Prevedello, MD²; Douglas A Hardesty, MD²; Oliver F Adunka, MD, FACS²; Joshua D Palmer, MD²; Yin Ren, MD, PhD²; ¹The Ohio State University College of Medicine; ²The Ohio State University Wexner Medical Center

S177: THE EFFECT OF METFORMIN ON VESTIBULAR SCHWANNOMA GROWTH: SYSTEMATIC REVIEW AND META-ANALYSIS

- [Benjamin D Lovin, MD](#)¹; Alex Wilkinson, BS²; Yun Qing, PhD³; Mike Hernandez, MS³; Marc-Ellie Nader, MD⁴; Shaan Raza, MD⁵; Franco DeMonte, MD⁵; Paul W Gidley, MD⁴; ¹Bobby R. Alford Department of Otolaryngology-Head and Neck Surgery, Baylor College of Medicine, Houston, Texas; ²McGovern Medical School, University of Texas Health Science Center; ³Department of Biostatistics, The University of Texas MD Anderson Cancer Center, Houston, Texas; ⁴Department of Head and Neck Surgery, The University of Texas MD Anderson Cancer Center, Houston, Texas; ⁵Department of Neurosurgery, The University of Texas MD Anderson Cancer Center, Houston, Texas

S178: ASSESSING THE UTILITY OF VS-5 FRAILTY SCORING RELATIVE TO THE CHARLSON COMORBIDITY INDEX: AN ANALYSIS OF AN INSTITUTIONAL COHORT OF VESTIBULAR SCHWANNOMA RESECTIONS

- [Rushmin Khazanchi](#); Khizar R Nandoliya; Emily J Winterhalter; Mark W Youngblood; Adam M Sonabend; James P Chandler; Stephen T Magill; Northwestern University

S179: AUDIOMETRIC OUTCOMES OF AUDITORY BRAINSTEM IMPLANTATION DURING VESTIBULAR SCHWANNOMA RESECTION: A SINGLE INSTITUTION CASE SERIES

- [Victor A de Cos, BS](#); Madeline E Gibson, BA; Olivia A La Monte, BS; Omid Moshtaghi, MD; Peter Dixon, MD, MSc; Usman Khan, MD, PhD; Rick Friedman, MD, PhD; Marc Schwartz, MD, PhD; UC San Diego School of Medicine

S180: TREATMENT OF VESTIBULAR SCHWANNOMAS REFRACTORY TO PRIMARY THERAPY: CONSIDERATIONS FOR SUBSEQUENT MICROSURGERY AND RADIATION

- [Justin Cottrell](#); Emily Kay-Rivest; Lauren Rotman; David Friedmann; Daniel Jethanamest; Sean McMenomey; Donato Pacione; Chandra Sen; John Golfinos; Thomas Roland; NYU

S181: RADIOGRAPHIC FACTORS PREDICTING POST-OPERATIVE FACIAL NERVE DEFICIT IN VESTIBULAR SCHWANNOMAS

- [John Kim](#); Molly Monsour; Davide Croci, MD; Rachel Eakins; Siviero Agazzi, MD, MBA; University of South Florida Morsani College of Medicine

S182: ENDOSCOPE ASSISTANCE DURING RETROSIGMOID SURGERY REVEALS RESIDUAL VESTIBULAR SCHWANNOMA

- [Alexandra E Quimby, MD, MPH](#)¹; Stephen Miranda, MD²; Sabrina M Heman-Ackah, MD, DPhil²; Sonia Ajmera, MD²; Jason A Brant, MD¹; Michael J Ruckenstein, MD, MSc¹; Douglas C Bigelow, MD¹; John Y Lee, MD, MSCE²; ¹University of Pennsylvania, Department of Otorhinolaryngology-Head & Neck Surgery; ²University of Pennsylvania, Department of Neurosurgery

9:40 am - 10:40 am **Proffered Papers Session 31: Innovative Techniques, Technology, and Approaches to the Skull Base**

Tampa Bay 1

S183: THE PTERIONAL KEYHOLE CRANIOTOMY: A HISTORICAL PERSPECTIVE ON ITS DEVELOPMENT AND ROLE WITHIN SKULL BASE NEUROSURGERY

- Vera Ong¹; [Nolan J Brown](#)²; Shane Shahrestani³; Ronald Sahyouni⁴; Mickey Abraham⁴; Joshua Loya⁵; ¹John A. Burns School of Medicine, University of Hawaii at Manoa; ²UC Irvine Department of Neurological Surgery; ³Keck School of Medicine of USC; ⁴UCSD Department of Neurological Surgery; ⁵Department of Neurosurgery, Oregon Health Sciences University

S184: TRANSFACIAL PORT: AN ENDOSCOPIC CORRIDOR TO THE CONTRALATERAL PETROUS APEX AND PARACLIVAL REGION

- [Jackson R Vuncannon, MD](#)¹; Edoardo Porto, MD¹; J. Manuel Revuelta Barbero, MD, PhD²; Gustavo Pradilla, MD¹; C. Arturo Solares, MD¹; ¹Emory University School of Medicine; ²Medical College of Georgia

S185: ENDOSCOPIC PARAMAXILLARY APPROACH TO THE HYPOGLOSSAL CANAL AND JUGULAR FORAMEN

- [Ricardo W Pulido, MD](#)¹; Nathaniel Reeve, MD²; Andrew Montoure, MD¹; Abdullah Feroze, MD³; Maggie McGrath, MD¹; Randall Bly, MD¹; Waleed Abuzeid, MD¹; Ian Humphreys, MD¹; Kris Moe, MD¹; ¹University of Washington; ²University of New Mexico; ³Brigham and Women's Hospital

S186: UTILIZING A NOVEL PITUITARY RETRACTOR FOR EARLY DESCENT OF THE DIAPHRAGMA SELLAE DURING ENDOSCOPIC TRANSPHENOIDAL PITUITARY SURGERY

- Jae-Sung Park, MD¹; [Wan-Soo Yoon, MD, PhD](#)²; ¹Seoul St. Mary's Hospital, The Catholic University of Korea; ²Incheon St. Mary's Hospital, The Catholic University of Korea

S187: NOVEL APPLICATION OF THE COMANECI DEVICE FOR PULSATILE TINNITUS DUE TO SIGMOID SINUS DIVERTICULUM

- [Nicholas J Novak, DO](#); Brooke Army Medical Center

S188: LUTATHERA THERAPY FOR OLFACTORY

NEUROBLASTOMA - [Daniel E Palmieri](#)¹; Kent S Tadokoro, MD²; Ashok Muthukrishnan, MD³; Raja R Seethala, MD⁴; Benita Valappil, MPH⁵; Carl H Snyderman, MD, MBA²; ¹University of Pittsburgh School of Medicine; ²Department of Otolaryngology, University of Pittsburgh School of Medicine; ³Department of Radiology, University of Pittsburgh School of Medicine; ⁴Department of Pathology, University of Pittsburgh School of Medicine; ⁵Center for Cranial Base Surgery, University of Pittsburgh Medical Center

S189: CHRONIC ANTERIOR SKULL BASE MUCORMYCOSIS AFTER COVID-19 INFECTION: MULTIDISCIPLINARY SURGICAL MANAGEMENT AND RECONSTRUCTION

- [Eric Nisenbaum](#), MD, MSc¹; Larissa Sweeny, MD¹; Seerat Poonia, MD¹; Carolina Benjamin, MD²; Zoukaa Sargi, MD¹; ¹University of Miami School of Medicine Department of Otolaryngology; ²University of Miami School of Medicine Department of Neurosurgery

S190: ANCHORING THE ANTERIOR MARGIN OF THE DURAL INLAY GRAFT: A TECHNICAL NOTE ON ENDOSCOPIC ANTERIOR SKULL BASE RECONSTRUCTION

- [A. Yohan Alexander](#), BA¹; Edoardo Agosti, MD²; Luciano Leonel, PhD¹; Stephen Graepel, MA¹; Garret Choby, MD³; Maria Peris-Celda, MD, PhD⁴; Carlos D Pinheiro-Neto, MD, PhD³; ¹Mayo Clinic, Department of Neurosurgery; ²University of Brescia, Department of Neurosurgery; ³Mayo Clinic, Department of Otorhinolaryngology and Neurosurgery; ⁴Mayo Clinic, Department of Neurosurgery and Otorhinolaryngology

9:40 am - 10:40 am **Proffered Papers Session 32: Orbital Tumors/Cost Utility of Skull Base Treatments**

Tampa Bay 2

S191: DRIVERS OF HOSPITAL FINANCIAL PERFORMANCE AND PATIENT OUTCOMES IN CUSHING DISEASE

- [Charuta G Furey](#), MD¹; Izzi Bauer, BS¹; Frank Cossio, BS¹; Dara S Farhadi, BS¹; Elizabeth Smith, BS¹; Ildiko Torok¹; Trevor Low¹; Tomi Crocker¹; Anthony M Asher, MD¹; Christina E Sarris, MD²; Benjamin K Hendricks, MD¹; Scott T Brigeman, MD¹; Andrew S Little, MD¹; ¹Barrow Neurological Institute; ²Children's Hospital of Philadelphia

S192: FACTORS ASSOCIATED WITH INCREASED LENGTH OF STAY AFTER ENDOSCOPIC PITUITARY RESECTION

- [Alex Devarajan](#), BS; Jonathan T Dullea, MPH; Vikram Vasan, BA; Noah Nichols, MD; Danielle Chaluts, BS; Muhammad Ali, BS; Daniel Ranti, MSCR; Manasa Rao, BS; Sweta Sudhir, BS; Logan Cho, BS; Lily McCarthy, BS; John W Rutland, MD; Kalmon Post, MD; Joshua Bederson, MD; Raj K Shrivastava, MD; Icahn School of Medicine at Mount Sinai

S193: ROUTINE POST-OPERATIVE DAY 1 DISMISSAL FOLLOWING ENDONASAL SURGERY FOR PITUITARY

ADENOMA: A SINGLE-INSTITUTION COHORT STUDY - [Danielle Dang](#), MD¹; Rima Rindler, MD²; Rahul Kumar, MD, PhD²; Justine Herndon, PA²; Dana Erickson, MD²; Caroline Davidge-Pitts, MD²; Irina Bancos, MD²; Garrett Choby, MD²; John Atkinson, MD²; Jamie Van Gompel, MD²; ¹Inova; ²Mayo Clinic Rochester

S195: COMPARISON OF IN-HOSPITAL COSTS FOR EXPANDED ENDONASAL APPROACHES AND CRANIOTOMY FOR ANTERIOR SKULL BASE TUMORS - Arjun K Parasher, MD¹; David K Lerner, MD²; Stephen P Miranda, MD³; Jennifer E Douglas, MD³; Jordan T Glicksman⁴; Tyler Alexander, BS⁵; Theodore Lin, BS⁶; Michael Kohanski, MD, PhD³; John Lee, MD, MSCE³; Phillip B Storm, MD³; Daniel Yoshor, MD³; James N Palmer, MD³; M Sean Grady³; Nithin D Adappa, MD³; ¹University of South Florida; ²Icahn School of Medicine at Mount Sinai; ³University of Pennsylvania; ⁴Harvard Medical School; ⁵Thomas Jefferson University; ⁶Temple University

S196: 3D MODELING OF LACRIMAL SAC TUMOR GROWTH PATTERNS - Travis J Clarke, MD¹; Raphael Banoub, MD²; Sana H Siddiqui, MD²; Glen D'Souza, MD²; Victor Jegede, BS²; Meigi Luo, BS²; Joseph Curry, MD²; ¹University of Tennessee Health Science Center - Memphis; ²Thomas Jefferson University

S197: VISUAL OUTCOMES FOR ENDOSCOPIC ENDONASAL ORBITAL AND OPTIC NERVE DECOMPRESSION FOR OPTIC NERVE SHEATH MENINGIOMAS PRIOR TO RADIATION THERAPY - Lauren M North, MD; Kelly E Daniels, MD; Andrey Filiminov, MD; Muhammad S Ali; Georgios Zenonos, MD; Paul A Gardner, MD; Carl A Snyderman, MD; Eric W Wang; University of Pittsburgh Medical Center

S198: PEDICLED LATERAL ORBITOTOMY APPROACH FOR THE EXCISION OF INTRAORBITAL TUMORS- OUR EXPERIENCE - Anand Gupta, MDS, MFDS RCPS, FIBOMS; Rakesh Bansal, MD; Gurvanit Lehl; Government Medical College Hospital, Chandigarh

9:40 am - 10:40 am

Proffered Papers Session 33: Intraoperative Technology/ Orbital Approaches

Tampa Bay 6

V053: SUPRAORBITAL EYEBROW APPROACH FOR TRANS-LAMINA TERMINALIS RESECTION OF THIRD VENTRICLE METASTASIS - Joshua Vignolles-Jeong, BA¹; Stephen T Magill, MD, PhD²; Ben G McGahan, MD¹; Saniya S Godil, MD¹; Daniel M Prevedello, MD¹; ¹The Ohio State University College of Medicine; ²Northwestern University Department of Neurosurgery

V054: RESECTION OF AN ORBITAL SPINDLE CELL TUMOR VIA COMBINED ENDOSCOPIC ENDONASAL AND OPEN TRANSORBITAL APPROACHES - Neal R Godse, MD¹; Sara Alsulaimani, MD²; Pablo F Recinos, MD²; Raj Sindwani, MD¹; ¹Head and Neck Institute, Cleveland Clinic Foundation; ²Rose Ella Burkhardt Brain Tumor and Neuro-Oncology Center, Neurological Institute, Cleveland Clinic Foundation

V055: ORBITAL SOLITARY FIBROUS TUMOR TRANSNASAL RESECTION - Srihari Daggumati, MD; Zachary A Kons, BS; Dimitrios Sismanis, MD; Theodore A Schuman, MD; Virginia Commonwealth University

V056: TRANSORBITAL NEUROENDOSCOPIC (TONE) RESECTION OF A MIDDLE FOSSA MENINGIOMA - [Jose L Sanmillan, MD, PhD](#); Alberto Torres Diaz, MD; Andreu Gabarrós Canals, MD, PhD; Hospital Universitari de Bellvitge. Neurosurgery Department

V057: THE ESSENTIAL ROLE OF INTRAOPERATIVE ULTRASOUND FOR STAGED RESECTION OF ANTERIOR SKULL BASE MENINGIOMAS - [Guilherme Finger, MD, MSCI](#); Kyle C Wu, MD; Basit Jawad, MD; Ricardo L Carrau, MD, FACS; Daniel M Prevedello, MD, FACS; The Ohio State University

V058: ULTRASOUND-GUIDED ENDOSCOPIC ENDONASAL RESECTION OF RETRO-ODONTOID PANNUS MASS - Kyle C Wu, MD; [Guilherme Finger, MD, MSCI](#); Basit Jawad, MD; [Vikas Munjal, BS](#); Ricardo L Carrau, MD, MBS, FACS; Daniel M Prevedello, MD, MBA, FACS; The Ohio State University College of Medicine

V059: ULTRASOUND-GUIDED ENDOSCOPIC ENDONASAL RESECTION OF A SUPRASellar CRANIOPHARYNGIOMA - [Guilherme Finger, MD, MSCI](#); Kyle C Wu, MD; Saniya S Godil, MD, MSCI; [Vikas Munjal, BS](#); Ricardo L Carrau, MD, FACS; Daniel M Prevedello, MD, FACS; The Ohio State University College of Medicine

V060: ENDOSCOPIC ENDONASAL MARSUPIALIZATION OF RATHKE CLEFT CYST WITH INTRAOPERATIVE ULTRASOUND GUIDANCE - Kyle C Wu, MD; [Guilherme Finger, MD, MSCI](#); Basit Jawad, MD; Mohammad B Alsavaf, MD; [Joshua Vignolles-Jeong, BA](#); Ricardo L Carrau, MD, MBS, FACS; Daniel M Prevedello, MD, MBA, FACS; The Ohio State University College of Medicine

9:40 am - 10:40 am Proffered Papers Session 34: Sinonasal Neoplasms

Tampa Bay 7

S199: EVALUATION OF THE IMMUNE MICROENVIRONMENT IN SINONASAL UNDIFFERENTIATED CARCINOMA AND ITS ASSOCIATION WITH PATIENTS' SURVIVAL - [Yoko Takahashi, PhD¹](#); Javier Gomez, MS¹; Jared Burks, PhD¹; Moran Amit, MD, PhD¹; Tong-Xin Xie, MD, PhD¹; Diana Bell, MD²; Austin Hoke, MD³; Nyall London, MD, PhD³; Ehab Y Hanna, MD¹; ¹The University of Texas MD Anderson Cancer Center; ²City of Hope; ³National Institutes of Health Sinonasal and skull base tumor program

S200: NK CELL-BASED IMMUNOTHERAPY APPROACHES TO SINONASAL UNDIFFERENTIATED CARCINOMA

- [Austin T Hoke, MD¹](#); [Yoko Takahashi, PhD²](#); [Michelle R Padget, BS³](#); [Moran Amit, MD, PhD⁴](#); [Jared Burks, PhD⁵](#); [Javier Gomez, MS⁵](#); [Diana Bell, MD⁶](#); [Tongxin Xie, MD, PhD⁴](#); [Patrick Soon-Shiong, MBBCh⁷](#); [James W Hodge, PhD³](#); [Ehab Y Hanna, MD²](#); [Nyall R London Jr., MD, PhD⁸](#); ¹Sinonasal and Skull Base Tumor Program, National Institutes on Deafness and Other Communication Disorders, National Institutes of Health, Department of Otolaryngology-Head and Neck Surgery, Vanderbilt University Medical Center; ²Departments of Head and Neck Surgery, Experimental Radiation Oncology, Thoracic and Head and Neck Medical Oncology, and Cancer Biology, The University of Texas MD Anderson Cancer Center; ³Laboratory of Tumor Immunology and Biology, Center for Cancer Research, National Cancer Institute, National Institutes of Health; ⁴Department of Head and Neck Surgery, University of Texas MD Anderson Cancer Center; ⁵Flow Cytometry & Cellular Imaging Core Facility, University of Texas MD Anderson Cancer Center; ⁶Department of Pathology, City of Hope National Medical Center; ⁷ImmunityBio; ⁸Sinonasal and Skull Base Tumor Program, National Institutes on Deafness and Other Communication Disorders, National Institutes of Health, Department of Otolaryngology-Head and Neck Surgery, Johns Hopkins University School of Medicine

S201: PREDICTIVE FACTORS FOR DELAYED REGIONAL METASTASIS IN PATIENTS WITH ESTHESIONEUROBLASTOMA

- [Travis J Haller, MD](#); [Thomas J O'Byrne](#); [Jamie Van Gompel, MD](#); [Garret W Choby, MD](#); Mayo Clinic

S202: ESTHESIONEUROBLASTOMA: THE FATE OF PATIENTS WITH RECURRENCE

- [Garrett Ni, MD, MS¹](#); [Ehiremen Iyoha, MD²](#); [Carlos Pinheiro Neto, MD, PhD²](#); [Jamie Van Gompel, MD³](#); [Michael Link, MD³](#); [Maria Peris-Ceyda, MD, PhD³](#); [Eric Moore, MD²](#); [Janalee Stokken, MD²](#); [Mauricio Gamez, MD²](#); [Garret Choby, MD²](#); ¹Department of Otolaryngology-Head and Neck Surgery, Lewis Katz School of Medicine at Temple University Hospital; ²Department of Otolaryngology-Head and Neck Surgery, Mayo Clinic School of Medicine, Rochester, Minnesota, USA; ³Department of Neurologic Surgery, Mayo Clinic, Rochester, Minnesota, USA

S203: SINONASAL MUCOSAL MELANOMA SURVIVAL OUTCOMES, RECURRENCE PATTERNS, AND PROGNOSTIC FACTORS: A SYSTEMATIC LITERATURE REVIEW AND META-ANALYSIS OF PUBLICATIONS AFTER 2000

- [Anna J Orr, BA¹](#); [Rachel Fenberg, BSE²](#); [Ricardo L Carrau, MD²](#); [Kyle VanKoeveering, MD²](#); ¹The Ohio State University College of Medicine, Columbus, Ohio, USA; ²Department of Otolaryngology – Head and Neck Surgery, The Ohio State University Wexner Medical Center, Columbus, Ohio, USA

S204: ON THE SCENT - TRAINED CANINES CAN DETECT THE UNIQUE ODOR SIGNATURE OF SINONASAL INVERTED PAPILLOMA IN PLASMA AND NASAL SECRETIONS - [Alexander Duffy, MD¹](#); Mark B Chaskes, MD, MBA²; Amritha Mallikarjun³; Amanda Collins³; Alec Verta³; Amit Hanadari-Levy³; Marc R Rosen, MD¹; Gurston Nyquist, MD¹; Elina Toskala, MD, PhD, MBA¹; Cynthia Otto, PhD, DVM³; Mindy R Rabinowitz, MD, FARS¹; ¹Department of Otolaryngology, Thomas Jefferson University Hospital; ²Department of Otolaryngology, Zucker School of Medicine at Hofstra/Northwell; ³University of Pennsylvania School of Veterinary Medicine, Penn Vet Working Dog Center

S205: RADIOGRAPHIC PREDICTORS OF OCCULT INTRACRANIAL INVOLVEMENT IN OLFACTORY NEUROBLASTOMA PATIENTS - [Mathew Geltzeiler, MD¹](#); Garret Choby, MD²; Keven Seung Yong Ji, MD¹; Jess Mace, MPH, CCRP¹; Joao Paulo Almeida, MD²; Pierre-Olivier Champagne, MD³; Justin Cetas, MD, PhD⁴; Erik Chan, MD⁵; Jeremy Ciporen, MD¹; Mark B Chaskes⁶; Juan Fernandez-Miranda, MD⁵; Paul Gardner, MD⁷; Fred Gentili, MD⁸; Peter Hwang, MD⁵; Aristotelis Kalyvas⁸; Keonho A Kong⁶; Ryan McMillan, MD²; Chirag Patel, MD⁹; Veronica Drozdowski, MD⁹; Zara Patel, MD⁵; Maria Peris Celda, MD²; Carlos Pinheiro-Neto, MD²; Olabisi Sanusi, MD¹; Carl Snyderman⁷; Brian D Thorp, MD⁶; Jamie J Van Gompel, MD²; Gelareh Zadeh, MD, PhD⁸; Georgios Zenonos, MD⁷; Nathan T Zwagerman, MD¹⁰; Sarah Cornell, MD¹⁰; Eric W Wang, MD⁷; ¹Oregon Health & Science University; ²Mayo Clinic; ³Universite Laval; ⁴University of Arizona; ⁵Stanford University; ⁶University of North Carolina; ⁷University of Pittsburgh Medical Center; ⁸University of Toronto; ⁹Loyola University; ¹⁰Medical College of Wisconsin

S206: AIRWAY MANAGEMENT AFTER RADIATION THERAPY FOR NASOPHARYNGEAL CARCINOMA - [Alice E Huang, MD¹](#); Peter H Hwang, MD¹; Vladimir Nekhendzy²; ¹Stanford University, Department of Otolaryngology-Head & Neck Surgery; ²Stanford University, Department of Anesthesia and Perioperative Medicine

9:40 am - 10:40 am Proffered Papers Session 35: Pituitary Tumors

Tampa Bay 8

S210: INFERIOR PETROSAL SINUS SAMPLING WITH DDAVP STIMULATION IN ADULTS WITH CUSHING DISEASE - COPING WITH A GLOBAL CRH ANALOGUE SHORTAGE - [Daniel M Aaronson, MD](#); Christina Feller, BS, BA; Akram Eraky, MD; Nathan T Zwagerman, MD; Medical College of Wisconsin

S207: CHARACTERISTICS AND OUTCOMES OF RECURRENT PITUITARY ADENOMA PATIENTS UNDERGOING REVISION ENDOSCOPIC ENDONASAL SURGERY

- Kevin T Grafmiller, MD¹; Nikitha Kosaraju, BA²; Jessa E Miller, MD¹; Benjamin R Uy, MD, PhD³; Hye Rhyn Chung, BS²; Ryan M Shih, BS²; Myungjun Ko, PhD²; Shannon R Esswein, PhD²; Arash Abiri, BS⁴; Pooya Khosravi, BS⁴; Nolan Huck, BS⁴; Cecilia H Nguyen, BS⁴; Timothy Hsu, BS⁴; Michael G Kim, MD⁵; Frank P Hsu, MD, PhD⁵; Won Kim, MD³; Jivianne K Lee, MD¹; Jeffery D Suh, MD¹; Marvin Bergsneider, MD³; Edward C Kuan, MD, MBA⁶; Marilene Wang, MD¹; ¹Department of Otolaryngology Head and Neck Surgery University of California Los Angeles; ²University of California, Los Angeles, David Geffen School of Medicine; ³Department of Neurosurgery, University of California, Los Angeles; ⁴University of California, Irvine School of Medicine, Irvine; ⁵Department of Neurosurgery, University of California, Irvine; ⁶Department of Otolaryngology-Head and Neck Surgery, University of California, Irvine

S208: CHARACTERISTICS ASSOCIATED WITH PITUITARY MACROADENOMAS EXTENSION INTO THE SPHENOID SINUS

- Benjamin R Uy¹; Jessa E Miller¹; Ryan M Shih, BS¹; Myungjun Ko, PhD¹; Hye Rhyn Chung, BA¹; Nikitha Kosaraji, BA¹; Shannon Esswein, PhD¹; Matiar Jafari, MD, PhD¹; Arash Abiri, BS²; Pooya Khosravi, BS²; Nolan Huck, BS²; Cecilia H Nguyen, BS²; Timothy Hsu, BS²; Michael G Kim, MD²; Frank P Hsu, MD, PhD²; Jivianne K Lee, MD²; Won Kim, MD¹; Edward C Kuan, MD²; Marvin Bergsneider, MD¹; Marilene B Wang, MD¹; ¹University of California Los Angeles; ²University of California Irvine

S209: RACIAL DISPARITIES IN PITUITARY TUMORS: A SINGLE-INSTITUTION RETROSPECTIVE ANALYSIS

- Brennen Middleton, BS¹; Ruby Hall, BS¹; Austin Robbins, MS¹; Keonho Kong, MD²; Marcus Zachariah, MD, PhD³; ¹University of Mississippi Medical Center School of Medicine; ²University of Mississippi Medical Center Department of Otolaryngology; ³University of Mississippi Medical Center Department of Neurosurgery

S211: FIRST EXPERIENCE OF THE SELECTIVE MEDIAL WALL RESECTION OF THE CAVERNOUS SINUS IN PITUITARY ADENOMA PATIENTS.

- Bakhtiyar Y Pashaev, MD¹; Gulnar R Vagapova, MD²; Alfiya G Gubaeva, MD¹; Nasima F Gizzatullina, MD¹; Valryi I Danilov, MD³; Andrey G Alekseev, MD¹; Marina N Biykova, MD¹; ¹Interregional Clinical Diagnostic Center; ²Kazan State Medical Academy; ³Kazan State Medical University

S212: RADIOGRAPHIC PREDICTORS OF VISUAL, HORMONAL, AND SURGICAL OUTCOMES FOR RATHKE'S CLEFT CYSTS FOLLOWING ENDOSCOPIC ENDONASAL SURGERY -

Mohammad Bilal Alsavaf¹; Kyle C. Wu²; Guilherme Finger²; Brandon Koch³; Luciano M. Prevedello⁴; Ricardo L. Carrau¹; Daniel M. Prevedello²; ¹Department of Otolaryngology-Head and Neck Surgery, Wexner Medical Center at The Ohio State University, Columbus, Ohio, USA; ²Department of Neurological Surgery, Wexner Medical Center at The Ohio State University, Columbus, Ohio, USA; ³Department of Public Health, The Ohio State University, Columbus, Ohio, USA; ⁴Department of Radiology, Wexner Medical Center at The Ohio State University, Columbus, Ohio, USA

S213: COMPARISON OF PATIENT-REPORTED OUTCOMES AND CLINICAL CHARACTERISTICS AMONG PATIENTS WITH PITUITARY MACROADENOMAS AND GIANT ADENOMAS -

Jessa E Miller, MD¹; Benjamin R Uy, MD, PhD¹; Hye Rhyn Chung, BS¹; Nikitha Kosaraju, BA¹; Ryan M Shih, BS¹; Myungjun Ko, PhD¹; Shannon R Esswein, PhD¹; Arash Abiri, BS²; Pooya Khosravi, BS²; Nolan Huck, BS²; Cecilia H Nguyen, BS²; Timothy Hsu, BS²; Michael G Kim, MD²; Frank P Hsu, MD, PhD²; Won Kim, MD¹; Jivianne K Lee, MD¹; Marvin Bergsneider, MD¹; Edward C Kuan, MD, MBA²; Marilene B Wang, MD¹; ¹University of California, Los Angeles; ²University of California, Irvine

S214: ENDOSCOPIC ENDONASAL TRANSCAVERNOUS SURGERY FOR THE TREATMENT OF RECURRENT AND RESIDUAL PITUITARY TUMORS -

Christine K Lee, MD, PhD¹; Karam Asmaro, MD¹; Adrian J Rodrigues, BS¹; Ahmed Mohyeldin, MD, PhD¹; Vera Vigo, MD¹; Laurence J Katznelson, MD²; Juan C Fernandez-Miranda, MD¹; ¹Department of Neurosurgery, Stanford Hospital, Stanford, California; ²Department of Medicine, Stanford Hospital, Stanford, California

9:40 am - 10:40 am Proffered Papers Session 36: Skull Base Surgery

Tampa Bay 9

S215: SURGICAL OUTCOMES FOR UNILATERAL SUPERIOR SEMICIRCULAR CANAL DEHISCENCE WITH LOW-LYING TEGMEN UNDERGOING THE MIDDLE CRANIAL FOSSA REPAIR -

Hong-Ho Yang, BS; Vishal S Patel, MD; Isaac Yang, MD; Quinton S Gopen, MD; David Geffen School of Medicine at University of California, Los Angeles

S216: THE UTILITY OF INFLAMMATORY BIOMARKERS IN PREDICTING OVERALL SURVIVAL AND RECURRENCE AMONG PRIMARY SKULL BASE CHORDOMA PATIENTS -

Nallammai Muthiah; Zachary Gersey; Meagan Hoppe; Hussein Abdallah; Eric Wang; Carl Synderman; Georgios Zenonos; Paul Gardner; University of Pittsburgh Medical Center

S217: ANATOMIC AND RADIOLOGIC STUDY OF FORAMEN OVALE PUNCTURE: IMPLICATIONS IN PERCUTANEOUS TRIGEMINAL RHIZOTOMY. - Yuanzhi Xu, MD¹; Tarek Y Ahmadieh, MD²; Maximiliano A Nunez, MD³; Qi Zhang, MD⁴; Yaohua Liu, MD⁵; Juan C Fernandez-Miranda, MD³; Aaron A Cohen-Gadol, MD, MSc, MBA⁶; Ying Mao, MD¹; ¹Department of Neurosurgery, Huashan Hospital, Shanghai Medical College, Fudan University, Shanghai, China; ²Neurosurgical-Oncology, Memorial Sloan Kettering Cancer Center, New York, New York; ³Department of Neurosurgery, Stanford Hospital, Stanford, California; ⁴Department of Cerebrovascular Diseases, Brain Hospital Affiliated to Tongji University, Shanghai, China; ⁵Department of Neurosurgery, Shanghai General Hospital, Shanghai Jiaotong University, Shanghai, China; ⁶Department of Neurological Surgery, Indiana University, Indianapolis, Indiana

S218: ENDOSCOPIC-ASSISTED EN-BLOC PTERYGOMAXILLECTOMY: IDENTIFYING AN EFFICIENT AND SAFE LOCATION FOR THE PTERYGOID OSTEOTOMY. - Ainhoa García-Lliverós, MD, PhD¹; Daniel I Martin-Jimenez, MD²; Ronsard J Mondesir³; Edoardo Agosti, MD⁴; A. Yohan Alexander, BA⁵; Garret Choby, MD⁶; Maria Peris-Celda, MD, PhD⁷; Carlos D Pinheiro-Neto, MD, PhD⁸; ¹Department of Otolaryngology, Valencia University General Hospital, Valencia, Spain. Rhoton Neurosurgery and Otolaryngology Anatomy Program, Mayo Clinic, Rochester, MN, USA; ²Department of Otolaryngology, University Hospital Virgen Macarena, Seville, Spain. Rhoton Neurosurgery and Otolaryngology Anatomy Program, Mayo Clinic, Rochester, MN, USA; ³Department of Otolaryngology, Mayo Clinic, Rochester, MN, USA. Rhoton Neurosurgery and Otolaryngology Anatomy Program, Mayo Clinic, Rochester, MN, USA; ⁴Division of Neurosurgery, Department of Medical and Surgical Specialties, Radiological Sciences and Public Health, University of Brescia, Brescia, Italy. Department of Neurosurgery, Mayo Clinic, Rochester, MN, USA. Rhoton Neurosurgery and Otolaryngology Anatomy Program, Mayo Clinic, Rochester, MN, USA; ⁵Rhoton Neurosurgery and Otolaryngology Anatomy Program, Mayo Clinic, Rochester, MN, USA. Department of Neurosurgery, Mayo Clinic, Rochester, MN, USA. Medical School, University of Minnesota, Minneapolis, Minnesota, USA; ⁶Department of Otolaryngology, Mayo Clinic, Rochester, MN, USA. Department of Neurosurgery, Mayo Clinic, Rochester, MN, USA; ⁷Department of Neurosurgery, Mayo Clinic, Rochester, MN, USA. Department of Otolaryngology, Mayo Clinic, Rochester, MN, USA. Rhoton Neurosurgery and Otolaryngology Anatomy Program, Mayo Clinic, Rochester, MN, USA; ⁸Department of Otolaryngology, Mayo Clinic, Rochester, MN, USA. Department of Neurosurgery, Mayo Clinic, Rochester, MN, USA. Rhoton Neurosurgery and Otolaryngology Anatomy Program, Mayo Clinic, Rochester, MN, USA

S219: DIFFERENCES IN COMPLICATIONS AND PATENCY RATES IN YOUNG AND ELDERLY PATIENTS UNDERGOING EXTRA-INTRACRANIAL BYPASS SURGERY. - [Davide M Croci, MD](#); Jeffrey Farooq; Molly Monsour; Tsz Lau; Harry van Loveren, Prof, MD; Siviero Agazzi, Prof, MD, MBA; University of South Florida

S220: QUANTITATIVE COMPARATIVE ANALYSIS OF THE ENDOSCOPE-ASSISTED EXPANDED RETROSIGMOID APPROACH AND THE FAR-LATERAL APPROACH TO THE INFRAMEATAL AREA: AN ANATOMICAL STUDY WITH SURGICAL IMPLICATIONS. - [J. Manuel Revuelta Barbero, MD, PhD](#)¹; Edoardo Porto, MD²; Daniel M. Prevedello, MD³; Raywat Noiphithak, MD⁴; Juan C. Yanez-Siller, MD⁵; Rafael Martinez Perez, MD³; Gustavo Pradilla, MD²; ¹Medical College of Georgia - Augusta University; ²Emory University; ³Department of Neurosurgery, Wexner Medical Center, The Ohio State University, Columbus, Ohio, USA; ⁴Division of Neurosurgery, Department of Surgery, Faculty of Medicine, Thammasat University, Pathumthani, Thailand.; ⁵Department of Otolaryngology - Head and Neck Surgery, University of Missouri-Columbia, Columbia Missouri, USA

S221: COMPARISON OF NEUROCOGNITIVE AND QUALITY OF LIFE OUTCOMES IN PEDIATRIC CRANIOPHARYNGIOMA PATIENTS TREATED WITH RADIOTHERAPY VERSUS SURGERY ONLY - Uma Ramaswamy; Fatih M Okcu; William Whitehead; [Guillermo Aldave, MD](#); Texas Children's Hospital

S222: A STANDALONE MINIMALLY INVASIVE PRESIGMOID RETROLABYRINTHINE SUPRAMEATAL APPROACH (PRSA): CADAVERIC STUDY. - [Samer S Hoz, MD](#); Paolo Palmisciano, MD; Edward J Doyle III, MD; Mark Johnson, MD; Jonathan A Forbes, MD; Charles Prestigiacomo, MD; Ravi Samy, MD; Mario Zuccarello, MD; Norberto Andaluz, MD; University of Cincinnati

10:45 am - 11:45 am **Proffered Papers Session 37: Imaging of the Skull Base/ Microvascular Decompression**

Tampa Bay 1

S223: PORTABLE MRI TO ASSESS OPTIC NERVE DECOMPRESSION AFTER ENDOSCOPIC ENDONASAL RESECTION OF SELLAR LESIONS - [Christopher Hong](#); Layton Lamsam; Anna Crawford; Kevin N Sheth; Ryan Rimmer; Sacit Bulent Omay; Yale University

S224: INTRAOPERATIVE MRI USE IN TRANSSPHENOIDAL SURGERY FOR PITUITARY TUMORS: TRENDS AND HEALTHCARE UTILIZATION. - Mayur Sharma; Dengzhi Wang; Beatrice Ugiliweneza; Norberto Andaluz; Akshitkumar M Mistry; [Brian J Williams](#); University of Louisville

S225: USING SENTINEL LYMPH NODE BIOPSY TO GUIDE TREATMENT ALGORITHMS IN CLINICALLY NO SINONASAL MALIGNANCY. - [Basit A Jawad, MD](#)¹; Mohammad B Alsavaf¹; Rachel Fenberg²; Ricardo Carrau, MD¹; Kyle Vankoeving, MD¹; ¹Ohio State University; ²Albert Einstein College of Medicine

S226: SHORT AND LONG TERM PAIN OUTCOMES FOLLOWING ENDOSCOPIC MICROVASCULAR DECOMPRESSION FOR TRIGEMINAL NEURALGIA BASED ON VASCULAR COMPRESSION TYPE - [Rachel Blue, MD](#)¹; [Andrew I Yang, MD](#)²; [Sonia Ajmera, MD](#)¹; [Michael Spadola, MD](#)¹; [John YK Lee, MD, MSCE](#)¹; ¹University of Pennsylvania; ²Emory

S227: ENDOSCOPIC VERSUS MICROSCOPIC TECHNIQUES FOR THE TREATMENT OF TRIGEMINAL NEURALGIA. - [Andrés Cervio, PhD](#); [Facundo Villamil](#); [Mauro Ruella](#); [Guido Caffaratti](#); [Lucila Domecq](#); FLENI

S228: PREOPERATIVE FRAILTY PREDICTS WORSE OUTCOMES AFTER MICROVASCULAR DECOMPRESSION FOR TRIGEMINAL NEURALGIA, HEMIFACIAL SPASM, AND GLOSSOPHARYNGEAL NEURALGIA: A MULTI-CENTER ANALYSIS OF 1473 PATIENTS FROM A PROSPECTIVE SURGICAL REGISTRY - [Emily M Estes, BA](#)¹; [Kavelin Rumalla, MD](#)²; [Alis J Dicipinigaitis, BA](#)³; [Syed Faraz Kazim, MD, PhD](#)²; [Aaron Segura, MS](#)²; [Alexander J Kassicieh, BS](#)²; [Meic H Schmidt, MD, MBA](#)²; [Rohini B McKee, MD](#)⁴; [Christian A Bowers, MD](#)²; ¹Texas Tech University Health Sciences Center School of Medicine, El Paso, Texas; ²Department of Neurosurgery, University of New Mexico Hospital, Albuquerque, New Mexico; ³School of Medicine, New York Medical College, Valhalla, NY 10595; ⁴Department of Surgery, University of New Mexico Hospital, Albuquerque, New Mexico

S229: A NOVEL AND ACCURATE MRI CHARACTERISTIC IMAGE IN PATIENTS WITH HEMIFACIAL SPASM - [Guilherme Finger, MD, MSCI](#); [Saniya S Godil](#); [Kyle C Wu, MD](#); [Luciano M Prevedello, MD, MPH](#); [Mohammad Shujaat, MD](#); [Daniel M Prevedello, MD, FACS](#); The Ohio State University

S230: RED PILL OR BLUE PILL?: ASSESSING HEALTH UTILITIES USING THE STANDARD GAMBLE AMONG PATIENTS WITH TRIGEMINAL NEURALGIA - [Sonia Ajmera, MD](#); [Stephen P Miranda, MD](#); [Rachel Blue, MD](#); [Dominic Romeo](#); [Ashwin Ramayya, MD, PhD](#); [John Lee, MD](#); University of Pennsylvania

10:45 am - 11:45 am **Proffered Papers Session 38: Skull Base Surgery**

Tampa Bay 2

S231: LOWER CRANIAL NERVE SCHWANNOMAS: INSTITUTIONAL CASE SERIES AND LITERATURE REVIEW - [Lucas P Carlstrom, MD, PhD](#); [Megan Bauman, BS](#); [Soliman Oushy, MD](#); [Christopher S Graffeo, MD, MS](#); [Maria Peris Celda, MD](#); [Jamie J Van Gompel, MD](#); [Michael J Link, MD](#); Mayo Clinic

S232: EFFECT OF EXTENT OF RESECTION AND ADJUVANT RADIATION ON RECURRENCE RATE OF BRAF VERSUS BETA-CATENIN-MUTATED CRANIOPHARYNGIOMA - [Maikerly Reyes, BS](#)¹; [Anish Sathe, BS](#)¹; [Allison Kayne, BS](#)¹; [KiChang Kang, BS](#)¹; [Justin Williams, BS](#)¹; [Siyuan Yu, MD](#)²; [Patrick Kelly, MD](#)³; [Giyarpuram Prashant, MD](#)³; [Mark Curtis, MD](#)³; [James J Evans, MD](#)³; ¹Sidney Kimmel Medical College; ²UT Houston; ³Thomas Jefferson University Hospital Department of Neurosurgery

S233: FUNCTIONAL OUTCOMES OF PEDIATRIC CRANIOPHARYNGIOMAS IN RELATION TO RESECTION APPROACH - [Elizabeth Duquette, BS¹](#); Myra A Zaheer, BS²; Nishanth B Gowda, BS²; Arhum Naeem, BS²; Ameet Singh, MD³; John Myseros, MD⁴; Daniel A Donoho, MD⁴; ¹Georgetown University School of Medicine; ²George Washington University School of Medicine and Health Sciences; ³George Washington University Hospital, Department of Otolaryngology; ⁴Children's National Hospital, Department of Neurosurgery

S234: EFFECT OF STALK PRESERVATION DURING CRANIOPHARYNGIOMA REMOVAL ON PITUITARY FUNCTION, EXTENT OF RESECTION AND RECURRENCE: SYSTEMATIC REVIEW & META-ANALYSIS - [Ahmad Kamaludin, MB, BCh, BAO, MRCS¹](#); Michael Amoo, MB, BCh, BAO, MCh, MRCS¹; Jack Henry, BSc, MB, BCh, BAO¹; Gerda Reischer, MD²; Mohsen Javadpour, FRCS, SN¹; ¹National Neurosurgical Centre, Beaumont Hospital, Dublin, Ireland; ²National Hospital for Neurology and Neurosurgery, London, United Kingdom

S235: RISK FACTORS FOR TUMOR RESIDUAL AND RECURRENCE IN FIRST TIME RESECTION OF CRANIOPHARYNGIOMA THROUGH ENDOSCOPIC ENDONASAL APPROACH - [David T Fernandes, MD](#); Ali Alattar, MD, MAS; Georgios A Zenonos, MD; Eric Wang, MD; Carl H Snyderman, MD; Paul Gardner, MD; University of Pittsburgh Medical Center

S236: LUMBAR DRAIN USE IN NON-NEOPLASTIC INDICATIONS FOR MIDDLE FOSSA CRANIOTOMY - [Robert J Dambrino, MD¹](#); Gunther W Wong, BS²; Alan R Tang, BA²; Jacob Jo, BS²; Aaron M Yengo-Kahn, MD¹; Nathan R Lindquist, MD³; Michael Freeman, MD³; David S Haynes, MD, MMHC³; Kareem O Tawfik, MD³; Lola B Chambless, MD¹; Reid C Thompson, MD¹; Peter J Morone, MD, MSCI¹; ¹Vanderbilt University Medical Center, Department of Neurological Surgery; ²Vanderbilt University School of Medicine; ³Vanderbilt University Medical Center, Department of Otolaryngology

S237: OPHTHALMIC FEATURES IN PATIENTS WITH SPONTANEOUS CEREBROSPINAL FLUID LEAKAGE - [Timothy Do¹](#); Kiarash Shahlaie, MD, PhD²; Toby Steele³; Edward B Strong, MD³; Yin Allison Liu, MD, PhD⁴; ¹University of California Davis, School of Medicine; ²University of California Davis, Department of Neurological Surgery; ³University of California Davis, Department of Otolaryngology; ⁴University of California Davis, Department of Ophthalmology

S238: THE IMPACT OF PREOPERATIVE FRAILTY ON ENDOSCOPIC CEREBROSPINAL FLUID LEAK REPAIR OUTCOMES IN THE ANTERIOR SKULL BASE - [Jacob G Eide, MD¹](#); Rijul S Kshirsagar, MD²; Chris Wen, MD³; Anas Qatanani, BS³; Jacob Harris, BA³; Eric H Abello, MD⁴; Edward C Kuan, MD, MBA⁴; James N Palmer, MD³; Nithin D Adappa, MD³; ¹Henry Ford Health; ²Kaiser Permanente Redwood City Medical Center; ³University of Pennsylvania, Perelman School of Medicine; ⁴University of California Irvine

10:45 am - 11:45 am **Proffered Papers Session 39: Aneurysm/Vascular**

Tampa Bay 6

V061: FAR LATERAL CRANIOTOMY, OA-PICA BYPASS, AND TRAPPING OF A RUPTURED DISSECTING FUSIFORM RIGHT VERTEBRAL ARTERY ANEURYSM INVOLVING THE PICA ORIGIN

- Vincent Nguyen, MD¹; [Kara A Parikh, MD²](#); Mustafa Motiwala, MD²; Kenneth A Moore, MD²; Erin Miller, BA²; Michael Barats, MS²; Jeffrey M Sorenson, MD²; L M Michael II, MD²; Adam S Arthur, MD, MPH²; Nickalus R Khan, MD²; ¹University of Southern California; ²University of Tennessee Health Science Center

V062: "HALF TRAN-SYLVIAN AND HALF SUBTEMPORAL APPROACH" FOR MICROSURGICAL CLIPPING OF POSTERIOR CEREBRAL ARTERY ANEURYSM

- Vincent N Nguyen, MD¹; [Kara Parikh, MD²](#); Mustafa Motiwala, MD²; Adam S Arthur, MD, MPH²; Christopher M Nickele, MD²; Nickalus Khan, MD²; ¹University of Southern California; ²University of Tennessee Health Science Center

V063: PICA-PICA REIMPLANTATION FOR TREATMENT OF A PARTIALLY THROMBOSED PICA ANEURYSM

- [Eric T Quach](#); Amir R Dehdashti; North Shore University Hospital

V064: CEREBELLAR AVM WITH PRENIDAL AND REMOTE ANEURYSM

- [Nicholas Caffes, MD](#); Riccardo Serra, MD; Mohamed Labib, MD; University of Maryland Medical Center

V065: ORBITOZYGOMATIC APPROACH FOR A RUPTURED BASILAR APEX-P1 PERFORATOR ANEURYSM

- [Jose M Orenday-Barraza, MD¹](#); Roland Jabre, MD²; Andrew Venteicher, MD, PhD¹; ¹University of Minnesota; ²Service de Neurochirurgie, Département de Chirurgie, Centre Hospitalier de l'Université de Montréal, Montréal, Qc, Canada

V066: TRANSLAMINA ACCESS VIA A BIFRONTAL APPROACH TO A HYPOTHALAMUS CAVERNOUS MALFORMATION

- Larissa Vilany, MD; [Luciano P C Leonel, PhD](#); Michael J Link, MD; Carlos Pinheiro-Neto, MD, PhD; Maria Peris Celda, MD, PhD; Giuseppe Lanzino, MD; Mayo Clinic Rhoton Neurosurgery and Otolaryngology Surgical Anatomy Program

V067: TREATMENT OF CAROTID-CAVERNOUS FISTULA WITH PACKED CRUSHED TEMPORALIS MUSCLE

- [Jacob Kosarchuk, MD](#); Walter Dent; Carl Heilman, MD; Tufts Medical Center

10:45 am - 11:45 am **Proffered Papers Session 40: Skull Base Neoplasms**

Tampa Bay 7

S239: FEASIBILITY STUDY OF PROTON-BASED STEREOTACTIC BODY RADIATION THERAPY OF SMALL VOLUME SKULL-BASE TUMORS

- [Fahed Alsanea, PhD](#); He Catherine Wang, PhD; Tyler Williamson; Falk Poenisch, PhD; Thomas Whitaker, PhD; Racher Hunter; Xin Wang, PhD; Gary Gunn; Anna Lee; Steven Frank; Jack Phan; UT MD Anderson Cancer Center

S240: METABOLOMIC ANALYSIS OF PRIMARY AND XENOGRAFT SCHWANNOMAS REVEALS ALTERED AMINO ACID METABOLISM FOLLOWING RADIATION - [Mark C Dougherty, MD](#); Hashim Syed, BA; Jeremy Greenlee, MD; Eric B Taylor, PhD; Marlan R Hansen, MD; University of Iowa

S241: SKULL BASE MENINGIOMAS AS PART OF A NOVEL MENINGIOMA SYNDROME ASSOCIATED WITH CHRONIC DEPOT MEDROXYPROGESTERONE ACETATE USE - [Hussam Abou-Al-Shaar, MD](#); Rachel Wrigley, PAC; Aneek Patel, BS; Arka N Mallela, MD, MS; Georgios A Zenonos, MD; Paul A Gardner, MD; University of Pittsburgh Medical Center

S242: A COST-EFFECTIVENESS REVIEW OF GENETIC TESTING OF PARAGANGLIOMAS - [Aleena A Abbasi](#); Robert A Lustig, MD; Jay F Dorsey, MD, PhD; Sean M Grady, MD; John Y. K. Lee, MD; Goldie A Kurtz, MD; Jacob E Shabason, MD; Douglas C Bigelow, MD; Jason A Brant, MD; Michael J Ruckenstein, MD; Katherine L Nathanson, MD; Anna Raper, MS; Michelle Alonso-Basanta, MD, PhD; University of Pennsylvania

S243: THE MUTATIONAL LANDSCAPE OF SKULL-BASE AND SPINAL CHORDOMAS IDENTIFIES POTENTIAL PROGNOSTIC AND THERANOSTIC BIOMARKERS - [Thibault Passeri, MD](#)¹; Tom Gutman, MSc²; Abderaouf Hamza, PharmD³; Homa Adle-Biassette, MD, PhD⁴; Elodie Girard, MSc²; Romane Beaupere, MSc³; Zakia Tariq³; Odette Mariani⁵; Ahmed Dahmani⁶; Christine Bourneix³; Rosaria Abbritti, MD¹; Keltouma Driouch³; Mylène Bohec⁷; Nicolas Servant, PhD²; Sylvain Baulande, PhD⁷; Didier Decaudin, MD, PhD⁶; Marc Polivka, MD⁴; Jean-Pierre Guichard⁸; Valentin Calugaru, MD, PhD⁹; Loic Feuvret, MD⁹; Jean-Marc Guinebretière, MD⁵; Laurence Champion, MD¹⁰; Ivan Bièche, PharmD, PhD³; Sébastien Froelich, MD¹; Hamid Mammar, MD, PhD⁹; Julien Masliah-Planchon, PharmD, PhD³; ¹Department of Neurosurgery, Lariboisière Hospital, Assistance Publique des Hôpitaux de Paris; ²Inserm U900, Institut Curie, Paris; ³Department of Genetics, Institut Curie, Paris; ⁴Department of Pathology, Lariboisière Hospital, Assistance Publique des Hôpitaux de Paris; ⁵Department of Tumor Biology, Institut Curie, Paris; ⁶Laboratory of Preclinical Investigation, Translational Research Department, Paris-Saclay University, Institut Curie, Paris; ⁷ICGex NGS Platform, Institut Curie, Paris; ⁸Department of Neuroradiology, Lariboisière Hospital, Assistance Publique des Hôpitaux de Paris; ⁹Proton Beam Therapy, Institut Curie, Paris; ¹⁰Department of Nuclear Medicine, Institut Curie, Paris-Saclay University, Saint-Cloud

S244: PERCUTANEOUS EMBOLIZATION OF CAROTID BODY TUMORS TO AID RESECTION: TECHNICAL NOTE - [Ehsan Dowlati, MD](#); Charles Withington; Darian Nejad; Daniel R Felbaum, MD; Rocco A Armonda; Liu Ai-Hsi, MD; Medstar Georgetown University Hospital

S245: APPLICATION OF INDOCYANINE GREEN VIDEOANGIOGRAPHY IN CEREBELLAR HEMANGIOBLASTOMA SURGERY AS A VALUABLE ADJUNCTIVE SURGICAL TOOL -

Joonho Byun, Prof¹; Jin Hoo Seok, Dr¹; Chang Ki Hong²; ¹Korea University Guro Hospital; ²Asan Medical Center, Seoul, Korea

S246: SKULL BASE MALIGNANT PERIPHERAL NERVE SHEATH TUMOURS -

Adrian Zammit, MD, MSc, MSc, FRCS; Catherine Gilkes; The Walton Centre NHS Foundation Trust, Liverpool, United Kingdom

10:45 am - 11:45 am **Proffered Papers Session 41: Miscellaneous**

Tampa Bay 8

S247: TOWARDS MOTION PRESERVATION ACROSS THE CRANIOCERVICAL JUNCTION: MODELING AND DESIGN OF C1-2 PROSTHETIC FOLLOWING ENDONASAL ODONTOIDECTOMY. -

Yara Alfawares, BS¹; Abhijith Matur, MD²; Manish Aryal, MS³; Botao Zhang, MS³; Joel Kaye, MD¹; Norberto Andaluz, MD¹; Katie Phillips, MD¹; Ahmad Sedaghat, MD¹; Sam Anand, PhD³; Jonathan Forbes, MD¹; ¹University of Cincinnati College of Medicine; ²University of Kentucky College of Medicine; ³University of Cincinnati

S248: A NOVEL CLASSIFICATION OF COMPRESSIVE CRANIOCERVICAL JUNCTION DISORDERS -

Hanna N Algattas; Ali A Alattar; Eric W Wang; Carl H Snyderman; David O Okonkwo; David K Hamilton; Georgios A Zenonos; Paul A Gardner; University of Pittsburgh Medical Center

S249: ENDOSCOPIC ODONTOIDECTOMY FOR ANTERIOR CERVICOMEDULLARY JUNCTION CROWDING -

Umberto Tosi; Alexandra Giantini-Larsen; Ashutosh Kacker; Vijay Anand; Ali Baaj; Roger Hartl; Benjamin Rapoport; Theodore Schwartz; Weill Cornell Medicine

S250: EXTENDED ENDOSCOPIC ENDONASAL APPROACH FOR C1-C2 TRAUMATIC AND INFLAMMATORY LESIONS: LESSON LEARNED AND TECHNICAL NUANCES -

Maurizio Iacoangeli, MD, PhD¹; Fabio Greco, MD²; Alessandro Di Rienzo, MD¹; Maurizio Gladi, MD¹; Lucia Giovanna Maria di Somma, MD¹; Denis Aiudi, MD¹; Alessio Iacoangeli, MD¹; Fabrizio Salvinelli, MD, PhD²; ¹Department of Neurosurgery, Marche Polytechnic University and General University Hospital, Ancona, Italy; ²Department of ENT Surgery, Campus Bio-Medico University and Hospital, Rome, Italy

S251: MEDIAL TRANSORBITAL APPROACH IN CRANIOENDOSCOPIC SKULL BASE TUMOR RESECTIONS FOR LOCALLY ADVANCED TUMORS: TECHNICAL CONSIDERATIONS AND PATIENT OUTCOMES -

Daniel W Scholfield, Research Fellow; David Della Rocca, Attending Oculoplastic Orbital Surgeon; Ian Ganly, Attending Head and Neck Surgeon; Viviane Tabar, Attending Neurosurgeon; Marc Cohen, Attending Head and Neck Surgeon; Memorial Sloan Kettering Cancer Center

S252: THE ROLE OF TISSUE SEALANTS FOR SKULL BASE RECONSTRUCTION FOLLOWING ENDOSCOPIC ENDONASAL SURGERY: A SYSTEMATIC REVIEW AND META-ANALYSIS -

Jonathan C Pang, BA¹; Benjamin F Bitner, MD¹; Timothy I Hsu, BS¹; Madeline M Nottoli, BA¹; Anh-Tram Bui, BS¹; Cecilia H H Nguyen, BA¹; Arash Abiri, BS¹; Theodore V Nguyen, BS¹; Frank P K Hsu, MD, PhD²; Edward C Kuan, MD, MBA¹; ¹Department of Otolaryngology-Head and Neck Surgery, University of California, Irvine, Orange, CA, USA; ²Department of Neurological Surgery, University of California, Irvine, Orange, CA, USA

S253: MICROSURGICAL ANATOMY OF THE SUBCALLOSAL ARTERY: IMPLICATIONS FOR ANTERIOR COMMUNICATING ARTERY ANEURYSM SURGERY THROUGH THE PTERIONAL AND BASAL INTERHEMISPHERIC APPROACHES -

Edinson Najera, MD; Aubrey Rogers, MD; Alan Boulos, MD; Junichi Yamamoto, MD, PhD; Neurosurgery Department, Albany Medical Center

10:45 am - 11:45 am Proffered Papers Session 42: Skull Base Reconstruction

Tampa Bay 9

S254: LEUKOCYTE- AND PLATELET-RICH FIBRIN FOR SKULL BASE RECONSTRUCTION AFTER ENDOSCOPIC ENDONASAL SKULL BASE SURGERY. -

Felipe Constanzo, MD¹; Jaime Pinto, MD, MBA¹; Cristian Ledermann, MD¹; Thomas Schmidt, MD, PhD²; ¹Clinica Bio Bio; ²Universidad de Concepcion

S255: DOES TIME TO INITIATION OF ADJUVANT RADIOTHERAPY AFFECT RECONSTRUCTION OUTCOMES AFTER EEA RESECTION OF SKULL BASE MALIGNANCIES?

- Franco Rubino, MD; Bledi Brahimaj, MD; Ehab Y Hanna, MD; Shirley Y Su; Michael E Kupferman, MD; Franco DeMonte, MD; Shaan M Raza, MD; MD Anderson Cancer Center

S256: MULTI-LAYERED REPAIR OF HIGH FLOW CSF FISTULAE FOLLOWING ENDOSCOPIC SKULL BASE SURGERY WITHOUT NASAL PACKING OR LUMBAR DRAINS: TECHNICAL REFINEMENTS TO OPTIMISE OUTCOME -

Cathal Hannan¹; Bharti Kewlani²; Steven Browne²; Mohsen Javadpour²; ¹The Walton Centre for Neurology and Neurosurgery; ²National Neurosurgical Centre, Beaumont Hospital

S257: SKULL BASE FLAP COVERAGE AREA COMPARISON: NASOSEPTAL FLAP VERSUS INFERIOR TURBINATE MUCOSAL GRAFT -

Diana Bigler, MD; John Cowart, BS; Harry Vildibill, BS; Brittany Gill, MD; Kareem Haroun, MD; Camilo Reyes-Gelves, MD; Medical College of Georgia at Augusta University

S258: IPSILATERAL NASOSEPTAL FLAPS IN A TRANSPTERYGOID APPROACH: TECHNICAL PEARLS AND RECONSTRUCTION OUTCOMES -

Michael T Chang, MD; David Grimm, MS; Karam P Asmaro, MD; Jayakar V Nayak, MD, PhD; Peter H Hwang, MD; Juan C Fernandez-Miranda, MD; Zara M Patel, MD; Stanford University School of Medicine

S259: MICROSURGICAL ANATOMY OF TEMPOROPARIETAL FASCIA FLAP TRANSPOSITION TECHNIQUE: IMPLICATIONS IN VENTRAL SKULL BASE RECONSTRUCTION - [Yuanzhi Xu, MD](#)¹;

Karam Asmaro, MD²; Ahmed Mohyeldin, MD, PhD²; Maximiliano A Nunez, MD²; Aaron A Cohen-Gadol, MD, MSc, MBA³; Ying Mao, MD¹; Juan C Fernandez-Miranda, MD²; ¹Department of Neurosurgery, Huashan Hospital, Shanghai Medical College, Fudan University, Shanghai, China; ²Department of Neurosurgery, Stanford Hospital, Stanford, California; ³Department of Neurological Surgery, Indiana University, Indianapolis, Indiana

S260: ENDOSCOPIC REPAIR OF CLIVAL DEFECTS USING FREE FLAPS - Ross Rosen, BSc; [Jenna E Bergman, MD](#); Mathew J Mifsud, MD; Siviero Agazzi, MD, MBA; Harry Van Loveren, MD;

Mark H Tabor, MD; University of South Florida

S261: LONG-TERM COMPLICATIONS OF EXTRACRANIAL PERICRANIAL FLAPS IN SKULL BASE RECONSTRUCTION -

[Kelly E Daniels, MD](#); Joseph Mocharnuk, BS; Zainab Balogun, BS; Georgios A Zenonos, MD; Paul A Gardner, MD; Eric W Wang, MD; Carl H Snyderman, MD; University of Pittsburgh

Poster Listing

P001: AUTOLOGOUS FAT GRAFT IS NOT NECESSARY FOR SKULL BASE RECONSTRUCTION IN PITUITARY ADENOMA PATIENTS - [Yoon Hwan Byun](#); Yong Hwy Kim, MD, PhD; Seoul National University Hospital

P002: PRECISE IDENTIFICATION OF KEY ANATOMICAL STRUCTURES FOR THE EXTENDED ENDOSCOPIC ENDONASAL SKULL BASE SURGICAL APPROACH TO THE MIDLINE POSTERIOR CRANIAL FOSSA: ANATOMICAL STUDY. - [Agustin Dorantes-Argandar, MD](#); Flavio Rodas-Berrezueta, MD; Luis Perez-Garcia, MD; Alejandro Gonzalez-Sanchez, FT; Berenice Garcia-Guzman, MD, MSc; Surgical Neuroanatomy Laboratory - Facultad Mexicana de Medicina - Universidad La Salle

P003: PRECISE IDENTIFICATION OF KEY ANATOMICAL STRUCTURES FOR THE EXTENDED ENDOSCOPIC ENDONASAL SKULL BASE SURGICAL APPROACH TO THE MIDLINE ANTERIOR CRANIAL FOSSA: ANATOMICAL STUDY. - [Agustin Dorantes-Argandar, MD](#); Flavio Rodas-Berrezueta, MD; Luis Perez-Garcia, MD; Alejandro Gonzalez-Sanchez, FT; Berenice Garcia-Guzman, MD, MSc; Surgical Neuroanatomy Laboratory, Facultad Mexicana de Medicina, Universidad La Salle, Ciudad de México

P004: ANATOMICAL STEP-BY-STEP DISSECTION OF COMPLEX SKULL BASE APPROACHES FOR TRAINEES: SURGICAL ANATOMY OF THE TRANSLABYRINTHINE, TRANSOTIC, AND TRANSCOCHLEAR APPROACHES - [A. Yohan Alexander, BA](#)¹; Avital Perry, MD²; Edoardo Agosti, MD³; Luciano Leonel, PHD¹; Ashley M Nassiri, MD, MBA⁴; Michael J Link, MD⁵; Colin W Driscoll, MD⁶; Maria Peris-Celda, MD, PHD⁵; ¹Mayo Clinic, Department of Neurosurgery; ²Sheba Medical Center; ³University of Brescia; ⁴University of Colorado, Department of Otorhinolaryngology; ⁵Mayo Clinic, Department of Neurosurgery and Otorhinolaryngology; ⁶Mayo Clinic, Department of Otorhinolaryngology and Neurosurgery

P005: FRONTOTEMPORAL ORBITOZYGOMATIC TRANSCAVERNOUS APPROACH: WHAT IS THE ROLE IN THE MINIMALLY INVASIVE SURGERY ERA? - Romel C Santos, MD; [Raphael B Santiago, MD](#); Rocco Dabecco, DO; Brandon Kaye, BS; Michal Obrzut, MD; Hamid Borghei-Razavi, MD; Badih Adada, MD; Cleveland Clinic Florida

P006: A NEWLY DESCRIBED ARTERY SUPPLYING THE FALLOPIAN SEGMENT OF THE FACIAL NERVE AND ITS ROLE IN FUNCTIONAL PRESERVATION IN THE TRANSCOCHLEAR APPROACH - [Collin Liu, MD](#); Alexander I Evins, MD, PhD²; Daniel L Surdell, MD¹; Philip E Stieg, PhD, MD²; Antonio Bernardo, MD²; ¹Department of Neurosurgery, University of Nebraska Medical Center; ²Weill Cornell Medicine, Neurological Surgery

P007: SUBOCCIPITAL MIDLINE APPROACHES TO THE 4TH VENTRICLE: STEP-BY-STEP CADAVERIC DISSECTION FOR TRAINEES AND ANATOMIC REVIEW OF THE ADJACENT CEREBELLOPONTINE ANGLE - [Danielle D Dang, MD](#)¹; Julian S Rechberger, MD¹; Luciano C Leonel, PhD¹; Hana Hallak¹; Michael J Link, MD²; David J Daniels, MD, PhD²; Maria Peris-Celda, MD, PhD¹; ¹Mayo Clinic Rhoton Neurosurgery and Otolaryngology Surgical Anatomy Program; ²Mayo Clinic Department of Neurologic Surgery

P008: TRANSTEMPORAL TRANSCOROIDAL MICROSCOPIC AND ENDOSCOPIC-ASSISTED APPROACH TO THE PERIMESENCEPHALIC CISTERNS: AN ANATOMICAL REVIEW AND STEP-BY-STEP GUIDE FOR TRAINEES - [Danielle D Dang, MD](#)¹; Julian S Rechberger, MD¹; Luciano C Leonel, PhD¹; Michael J Link, MD²; David J Daniels, MD, PhD²; Maria Peris-Celda, MD, PhD¹; ¹Mayo Clinic Rhoton Neurosurgery and Otolaryngology Surgical Anatomy Program; ²Department of Neurologic Surgery, Mayo Clinic

P009: REVIEW OF DUPLICATED HYPOGLOSSAL FORAMINAL MORPHOLOGY: COMBINED CADAVERIC CASE AND DRY SKULL STUDY AND IMPLICATION ON REGIONAL SKULL BASE ANATOMY - [Danielle D Dang, MD](#)¹; Julian S Rechberger, MD¹; Luciano C Leonel, PhD¹; Hana Hallak¹; Michael J Link, MD²; Maria Peris-Celda, MD, PhD¹; ¹Mayo Clinic Rhoton Neurosurgery and Otolaryngology Surgical Anatomy Program; ²Department of Neurologic Surgery, Mayo Clinic

Poster Listing (cont.)

P010: ENDOSCOPIC MULTIPOINT APPROACH FOR EXENTERATION OF THE INFRATEMPORAL FOSSA - Kittichai Mongkolkul¹; [Mohammad Bilal Alsavaf](#)²; Eman H. Salem³; Daniel M. Prevedello⁴; Kyle VanKoeveering²; Douglas Hardesty⁴; Kathleen Kelly²; Ricardo L. Carrau²; ¹Department of Otolaryngology-Head and Neck Surgery, Rajavithi Hospital, The College of Medicine of Rangsit University, Bangkok, Thailand; ²Department of Otolaryngology-Head and Neck Surgery, Wexner Medical Center at The Ohio State University, Columbus, Ohio, USA; ³Department of Otolaryngology, Faculty of Medicine, Mansoura University, Mansoura, Egypt; ⁴Department of Neurological Surgery, Wexner Medical Center at The Ohio State University, Columbus, Ohio, USA

P011: ORIGIN AND COURSE OF THE BRANCHES OF THE CAVERNOUS INTERNAL CAROTID ARTERY: A CADAVERIC STUDY - [Edoardo Agosti](#), MD¹; Alex Y Alexander, BA²; Danielle Dang, MD³; Luciano Leonel, PhD⁴; Carlos D Pinheiro-Neto, MD, PhD⁴; Maria Peris-Celda, MD, PhD⁴; ¹University of Brescia; ²University of Minnesota; ³Department of Neurosurgery, Inova Neurosciences, Inova Fairfax Medical Campus, Falls Church, Virginia; ⁴Mayo Clinic

P012: THE FUNCTIONAL ANATOMY OF THE FORAMINA OF LUSCHKA REVISITED - [Samer S Hoz](#), MD¹; Alkawthar M Abdulsada, MD²; Mustafa Ismail, MD³; Yara Alfawares, BS¹; Jonathan A Forbes, MD¹; Charles Prestigiaco, MD¹; Norberto Andaluz, MD¹; ¹University of Cincinnati; ²Azerbaijan Medical University, Baku, Azerbaijan.; ³University of Baghdad

P013: THE CRUX OF HELIX CURVATURE: A POTENTIAL SURFACE LANDMARK FOR THE ANTERIOR BORDER OF THE SIGMOID SINUS IN MINIMALLY INVASIVE PRESIGMOID APPROACHES. - [Samer S Hoz](#), MD¹; Paolo Palmisciano, MD¹; Hagar A Algburi²; Mayur Sharma, MD¹; Mustafa Ismail, MD²; Norberto Andaluz, MD¹; ¹University of Cincinnati; ²University of Baghdad

P014: ANATOMICAL STEP-BY-STEP DISSECTION OF COMPLEX SKULL BASE APPROACHES FOR TRAINEES - SURGICAL ANATOMY OF THE TRANSBASAL APPROACH. - Larissa Vilany, MD; Danielle Dang, MD; Edoardo Agosti, MD; [Luciano P C Leonel](#), PhD; Michael J Link, MD; Carlos Pinheiro-Neto, MD, PhD; Maria Peris-Celda, MD, PhD; Mayo Clinic Rhoton Neurosurgery and Otolaryngology Surgical Anatomy Program.

P015: SURGICAL CLOSURE OF THE EUSTACHIAN TUBE THROUGH MIDDLE FOSSA AND TRANSMASTOID APPROACHES: A PILOT CADAVERIC ANATOMY STUDY - Brittany Staarmann, MD; [Paolo Palmisciano](#), MD; Samer S Hoz, MD; Edward J Doyle, MD; Jonathan A Forbes, MD; Ravi Samy, MD; Mario Zuccarello, MD; Norberto Andaluz, MD; University of Cincinnati, College of Medicine

P016: SEIZURE CAUSED BY INTRAPARENCHYMAL HEMORRHAGE FROM MIGRATION OF MANDIBULAR DENTAL WIRE THROUGH FORAMEN OVALE IN A CHILD - A CASE REPORT - [Ryan D Morgan](#), BS¹; Anila Chintagunta, MS²; Nicholas A Vojtkofsky, BS¹; Kirie M Psaromatis, MBA¹; Benedicto Baronia, MD¹; Muhittin Belirgen, MD¹; ¹Texas Tech University Health Sciences Center; ²Texas College of Osteopathic Medicine

P018: CNS PNS JUNCTION IN TRIGEMINAL, FACIAL AND VESTIBULOCOCHLEAR NERVE: A HISTOMORPHOMETRIC STUDY - [Tulika Gupta](#); Mandeep Kaur; Rafika Munawara; Sunil K Gupta; PGIMER

P020: ELONGATED STYLOID PROCESS WITH CAROTID PSEUDOANEURYSM - [Akshay Chandora](#), BS¹; Courtney B Shires, MD²; Olamide Alabi, MD³; Carrie Flanagan, MD³; Merry Sebelik, MD³; ¹Morehouse School of Medicine; ²West Cancer Center; ³Emory University and Atlanta VA

P021: INVESTIGATION AND MODULATION OF INTERLEUKIN 6 FOLLOWING SUBARACHNOID HEMORRHAGE: TARGETING INFLAMMATORY ACTIVATION FOR CEREBRAL VASOSPASM - [Brandon Lucke-Wold](#); University of Florida

P022: INTERNAL CAROTID BIFURCATION ANEURYSM IN THE PRESENCE OF INFRA-OPTIC ANTERIOR CEREBRAL ARTERY. CASE PRESENTATION AND LITERATURE REVIEW. - [Georgios Klironomos](#); Linda Liu; Jeffrey Katz; David Chalif; Northwell

Poster Listing (cont.)

P023: COMPLETE BILATERAL BLINDNESS ASSOCIATED WITH RUPTURED ANTERIOR COMMUNICATING ARTERY ANEURYSM: A LITERATURE REVIEW AND ILLUSTRATIVE CASE - [Samer S Hoz, MD¹](#); Teeba A Al-Ageely, MD²; Mustafa Ismail, MD²; Noor M Akar, MD³; Rokaya H Abdalridha, MD⁴; Mohammed A ALALI, MD²; Jaber H Obaid, MD³; Muthanna N Abdulqader, MD⁵; Norberto Andaluz, MD¹; ¹University of Cincinnati; ²University of Baghdad; ³Al-Nahrain University; ⁴University of Babylon; ⁵Neurosurgery Teaching Hospital, Baghdad

P025: PRE-OPERATIVE EMBOLIZATION TECHNIQUES IN THE TREATMENT OF JUVENILE NASOPHARYNGEAL ANGIOFIBROMA: A SYSTEMATIC REVIEW - [Dhruv S Kothari¹](#); Lauren A Linker¹; Tristan Tham²; Andrew J Maroda¹; Jenessa M McElfresh³; Judd H Fastenberg²; Ralph Abi-Hachem⁴; Lucas R Elijevich⁵; L Madison Michael⁵; Sanjeet V Rangarajan¹; ¹Department of Otolaryngology - Head and Neck Surgery, University of Tennessee Health Science Center, Memphis, TN USA; ²Department of Otolaryngology - Head and Neck Surgery, Zucker School of Medicine at Hofstra/Northwell, New Hyde Park, NY, USA; ³Department of Research and Learning Services, University of Tennessee Health Science Center, Memphis, TN USA; ⁴Department of Head and Neck Surgery & Communication Sciences, Duke University, Durham, North Carolina, USA; ⁵Department of Neurosurgery - Head and Neck Surgery, University of Tennessee Health Science Center, Memphis, TN USA

P026: APPROACH TO CAVERNOUS SINUS LESIONS VIA A MINI-PTERIONAL CRANIOTOMY: TECHNIQUE AND CASE ILLUSTRATION - [Jorge A Roa, MD](#); Ehsan Dowlati, MD; Samir Sur, MD; Georgetown University

P027: ENDOSCOPIC ENDONASAL TRANSSPHENOIDAL TRANSCAVERNOUS RESECTION OF PROSTATE ADENOCARCINOMA METASTATIC TO THE CAVERNOUS SINUS PRESENTING WITH ISOLATED OCULOMOTOR NERVE PALSY: AN ILLUSTRATIVE CASE - Andrew Rock, MD; Shivali Gupta, MHS; Jordon G Grube, DO; [Robert S Heller, MD](#); Albany Medical Center

P028: CSF-VEIN FISTULA OF THE CLIVAL SKULL BASE: A UNIQUE CASE STUDY AND LITERATURE REVIEW - Wasiq Nadeem, BS¹; [Jordan Kai Simmons, MD²](#); Arthur Wu, MD²; Adam N Mamelak, MD³; Wouter Schievink, MD³; Dennis Tang, MD²; ¹UT Health San Antonio - Department of Otolaryngology, Head and Neck Surgery; ²Cedars Sinai Medical Center - Department of Otolaryngology, Head and Neck Surgery; ³Cedars Sinai Medical Center - Department of Neurological Surgery

P029: THE ROLE OF TACHOSIL IN CEREBROSPINAL FLUID LEAK REPAIR IN SUPERIOR SEMICIRCULAR CANAL DEHISCENCE - [Kirsten Wong](#); Quinton Gopen, MD; David Geffen School of Medicine at UCLA

P030: RAPIDLY INJECTING 10 MG OF INTRATHECAL FLUORESCHEIN CAUSED NO NEUROLOGIC COMPLICATIONS - [H Mackie, BS¹](#); A Yassin-Kassab, MD¹; A Ray, DO²; JG Eide, MD²; AM Robin, MD³; K Asmaro, MD³; JP Rock, MD³; JR Craig, MD²; ¹Michigan State University College of Human Medicine; ²Department of Otolaryngology, Henry Ford Health System; ³Department of Neurosurgery, Henry Ford Health System

P032: GIANT OLFACTORY NEUROBLASTOMA TREATED WITH AN ENDOSCOPIC CRANIOFACIAL RESECTION AFTER IMMUNOTHERAPY - Dahee Park, MD; [Sue Jean Mun, MD, PhD](#); Departments of Otorhinolaryngology-Head and Neck Surgery, Pusan National University Yangsan Hospital, Yangsan

P033: OUTCOMES OF PATIENTS WITH ADVANCED CUTANEOUS SQUAMOUS CELL CARCINOMA INVOLVING THE SKULL BASE TREATED WITH CEMIPIMAB IMMUNOTHERAPY: A REVIEW AT OUR INSTITUTION - [Kody G Bolk, MD](#); Stephen Hernandez, MD; Rahul Mehta, MD, FRCS; Daniel W Nuss, MD, FACS; Louisiana State University Health Sciences Center New Orleans

P034: THE ROLE OF IMMUNOTHERAPY IN SINONASAL MELANOMA: A SYSTEMATIC REVIEW OF TREATMENT OUTCOMES - [Rachel B Fenberg¹](#); Anna J Orr¹; Rachel Schwartz, MLS²; Ricardo L Carrau, MD¹; Kyle K VanKoeveering, MD¹; ¹Department of Otolaryngology - Head and Neck Surgery, The Ohio State University Wexner Medical Center, Columbus, Ohio, USA; ²D Samuel Gottesman Library, Albert Einstein College of Medicine, Bronx, NY, USA

Poster Listing (cont.)

P035: MORPHOMETRIC AND VOLUMETRIC CHARACTERISTICS ASSOCIATED WITH SURGICAL INTERVENTION IN CHIARI I MALFORMATION - [Alejandro Carrasquilla, MD](#)¹; Ya-Chen Chuang, PhD²; Gizem Bilgili, MD²; Aymeric Pionteck, PhD²; Xinyan Liu¹; Javid Abderezaei²; Addison Quinones¹; William H Shuman, MD¹; Shan Zhao, MD, PhD¹; Mehmet Kurt, PhD²; Raj K Shrivastava, MD¹; ¹Icahn School of Medicine at The Mount Sinai Hospital; ²University of Washington Department of Mechanical Engineering

P036: MORPHOMETRIC AND VOLUMETRIC CHANGES ASSOCIATED WITH SYRINX FORMATION IN CHIARI I MALFORMATION - [Alejandro Carrasquilla, MD](#)¹; Ya-Chen Chuang, PhD²; Gizem Bilgili, MD²; Aymeric Pionteck²; Xinyan Liu¹; Javid Abderezaei²; Addison Quinones¹; William H Shuman, MD¹; Shan Zhao, MD, PhD¹; Mehmet Kurt, PhD²; Raj K Shrivastava, MD¹; ¹Icahn School of Medicine at The Mount Sinai Hospital; ²University of Washington Department of Mechanical Engineering

P037: COMBINED CONDYLAR APPROACH FOR SKULL BASE CHONDROSARCOMA CENTERED AT THE JUGULAR FORAMEN WITH EXTENSION INTO THE NECK: TWO ILLUSTRATIVE CASES. - [Adam M Olszewski, MD](#)¹; Michael Avillion, MD²; Gregory P Lekovic, MD, PhD¹; Kevin A Peng, MD²; ¹House Neurosurgery Clinic; ²House Ear Clinic

P038: A RARE CASE OF MULTIFOCAL CHORDOMA INVOLVING THE LOWER CLIVUS AND MULTIPLE SPINE LEVELS - [Mohammad Bilal Alsavaf](#)¹; Eman H. Salem²; Basit Jawad¹; Kittichai Mongkolkul³; Daniel M. Prevedello⁴; Ricardo L. Carrau¹; ¹Department of Otolaryngology-Head and Neck Surgery, Wexner Medical Center at The Ohio State University, Columbus, Ohio, USA; ²Department of Otolaryngology, Faculty of Medicine, Mansoura University, Mansoura, Egypt; ³Department of Otolaryngology-Head and Neck Surgery, Rajavithi Hospital, The College of Medicine of Rangsit University, Bangkok, Thailand; ⁴Department of Neurological Surgery, Wexner Medical Center at The Ohio State University, Columbus, Ohio, USA

P039: PROGNOSTIC MOLECULAR BIOMARKERS IN CHORDOMAS: A SYSTEMATIC REVIEW AND IDENTIFICATION OF CLINICALLY USABLE BIOMARKER PANELS - [Franco Rubino, MD](#); Christopher Alvarez-Breckenridge, MD, PhD; Kadir Akdemir, PhD; Anthony P Conley, MD; Andrew J Bishop, MD; Wei-Lien Wang, MD, PhD; Alexander J Lazar, MD, PhD; Laurence D Rhines, MD; Franco DeMonte, MD; Shaan M Raza, MD; MD Anderson Cancer Center

P040: POSTERIOR INTRADURAL PETROUS APICECTOMY AND TOTAL SENSORY TRIGEMINAL RHIZOTOMY FOR RESIDUAL TRIGEMINAL SCHWANNOMA WITH SECONDARY TRIGEMINAL NEURALGIA - Andres Felipe Pineda-Martinez, MD; Pablo Sanchez-Quinones, MD; [Javier M. Saavedra, MD](#); William-Mauricio Riveros-Castillo, MD; Jorge Torres-Mancera, MD; Camilo Armando Benavides-Burbano, MD; Center for Research and Training in Neurosurgery (CIEN)

P041: SOFT TISSUE NASAL CHORDOMA IN THE SETTING OF CLIVAL CHORDOMA RESECTION - Matthew S Krutz, MD; Kiana Y Prather, BS; Lance M Villeneuve, MD; Joelle G Peterson, MD; Mark M Mims, MD; Ian F Dunn, MD; Edward T El Rassi, MD; [Kibwei A McKinney, MD](#); The University of Oklahoma Health Sciences Center

P042: MULTIFOCAL ECTOPIC RECURRENCE OF A C2 CHORDOMA: A CASE REPORT AND REVIEW OF THE LITERATURE - [Maikerly Reyes, BS](#)¹; Allison Kayne, BS¹; Sarah Collopy, BS²; Giyarpuram Prashant, MD²; Patrick Kelly, MD²; James J Evans, MD²; ¹Sidney Kimmel Medical College; ²Thomas Jefferson University Hospital Department of Neurosurgery

P043: COMPLICATION MANAGEMENT AND PREVENTION DURING ENDOSCOPIC ENDONASAL SKULL BASE SURGERY FOR GIANT PITUITARY ADENOMAS: 60 PATIENT CASE SERIES. - [Agustin Dorantes-Argandar, MD](#)¹; Flavio Rodas-Berrezueta, MD²; Luis Perez-Garcia, MD¹; Brenda Lopez-Quintana, MD, MSc²; Javier Mancilla-Mejia, MD²; Berenice Garcia-Guzman, MD, MSc²; ¹Hospital Angeles Pedregal - Facultad Mexicana de Medicina - Universidad La Salle; ²Hospital Angeles Pedregal

P044: POST-OPERATIVE PNEUMOCEPHALUS FOLLOWING LABYRINTHECTOMY FOR MENIERE'S DISEASE: A CASE REPORT - [Andrew O Hess, MD](#); Jacob W Poynter, MD; Jeb M Justice, MD; Brian C Lobo, MD; Si Chen, MD; Rex S Haberman, MD; University of Florida

Poster Listing (cont.)

P045: AREA DEPRIVATION INDEX CORRELATES WITH A LOWER RATE OF HOSPITAL READMISSION FROM THE EMERGENCY ROOM FOLLOWING ENDOSCOPIC SKULL BASE SURGERY - Neal R Godse, MD¹; Jakub Jarmula, BS²; Alan Gordillo, BS²; Mario-Cyriac Tcheukado, BS²; Varun R Kshetry, MD³; Troy D Woodard, MD¹; Pablo F Recinos, MD³; Raj Sindwani, MD¹; ¹Head and Neck Institute, Cleveland Clinic Foundation; ²Cleveland Clinic Foundation, Lerner College of Medicine; ³Rose Ella Burkhardt Brain Tumor and Neuro-Oncology Center, Neurological Institute, Cleveland Clinic Foundation

P046: BALANCING THE POSTOPERATIVE RISKS OF VENOUS THROMBOEMBOLISM WITH INTRACRANIAL HEMORRHAGE IN SKULL BASE SURGERY - [Jessica Rabski](#); Wenya Linda Bi; Ossama Al-Mefty; Brigham and Women's Hospital

P047: SINONASAL COMPLICATIONS AFTER ENDOSCOPIC TRANSSPHENOID APPROACH: A SINGLE CENTER STUDY - [Da-Hee Park, MD](#); Pusan National University Yangsan Hospital

P048: MALIGNANT HYPERTHERMIA DURING SKULL BASE SURGERY: WHAT SKULL BASE SURGEONS NEED TO KNOW TO DETECT AND MANAGE A POTENTIALLY FATAL COMPLICATION - [Neal M Jackson, MD, FACS](#); Erika Moxley; Andrew Belnap; Tulane University

P050: RACIAL AND ETHNIC HEALTH DISPARITIES AMONG TUMOR CASES OF THE ANTERIOR CRANIAL FOSSA: A PROPENSITY SCORE MATCHED ACS-NSQIP STUDY - Matthew C Findlay, BS¹; [Sawyer Z Bauer, BS²](#); Majiid Khan²; Robert B Kim, MD, MS¹; Seojin Park³; Alexander Hepzibha, MD⁴; Michael Karsy, MD, PhD¹; ¹University of Utah; ²University of Nevada; ³New York University; ⁴Michigan State University

P051: PSEUDOMENINGOCELE AND CSF LEAK FOLLOWING POSTERIOR FOSSA AND POSTEROLATERAL SKULL BASE SURGERIES: DEVELOPMENT OF A PREDICTIVE MODEL AND RISK SCORE - [Travis Atchley, MD](#); Evan Gross, BS²; Yasaman Alam, MD¹; Dagoberto Estevez-Ordonez, MD¹; Benjamin Saccomano, MD¹; Nicholas Laskay, MD¹; Jordan George, BS²; Philip Schmalz, MD¹; Kristen Riley, MD¹; Winfield Fisher, III, MD¹; ¹University of Alabama at Birmingham Health System; ²University of Alabama at Birmingham Heersink School of Medicine

P052: ANALYSIS OF THE COST EFFECTIVENESS OF DURAL SEALANTS IN THE ENDOSCOPIC REPAIR OF CSF LEAKS - [Jared Johnson](#)¹; Roy Casiano¹; Zoukka Sargi¹; Corinna Levine¹; Adam Folbe²; ¹University of Miami School of Medicine; ²William Beaumont School of Medicine

P054: PHYSICAL THERAPY TREATMENT STRATEGIES FOR FACIAL NERVE WEAKNESS AND PARALYSIS DUE TO PERIPHERAL AND CENTRAL PATHOLOGIES: EFFICACY AND OUTCOMES. - [Amed Natour, MD](#); Edward Doyle, MD; Colton Sayer; Gabrielle Petito; Ryan Collar, MD, MBA; Tsung-yen Hsieh, MD; Adam McCann; Ravi N. Samy, MD, FACS; University of Cincinnati Medical Center

P055: STRATEGIES FOR CRANIAL NERVE PRESERVATION IN SURGERY FOR SKULL BASE TUMOURS - [Sunil K Gupta, MD](#); PGIMER

P056: PREDICTORS OF SURVIVAL AND OUTCOME IN TRAUMA PATIENTS PRESENTED WITH GLASGOW COMA SCALE SCORE OF 3 AND FIXED PUPILS - [Sami Khairy, MD](#); Ahmed Alkhani, MD; King Abdulaziz Medical City- Riyadh

P057: OPTICAL COHERENCE TOMOGRAPHY AS A PREDICTOR OF VISUAL PROTECTION AND RECOVERY IN THE SETTING OF PITUITARY APOPLEXY - [Jesse D Lawrence, MD](#); Jeremy Lewis, MD; West Virginia University

P058: DEVELOPMENT OF POSTTRAUMATIC FRONTAL BRAIN ABSCESS IN ASSOCIATION WITH AN ORBITAL ROOF FRACTURE AND ODONTOGENIC ABSCESS: A CASE REPORT - [Hael Abdulrazeq](#); Konrad Walek; Shailen Sampath; Elias Shaaya; Dardan Beqiri; Albert Woo; Prakash Sampath; Alpert Medical School of Brown University

Poster Listing (cont.)

P059: ENDOSCOPIC ENDONASAL TRANS-PLANUM SPHENOIDALE, TRANS-TUBERCULUM SELLAE, TRANS-SELLAR WITH PITUITARY TRANSPOSITION, AND TRANS-CLIVAL RESECTION FOR PREVIOUSLY IRRADIATED RETRO-INFUNDIBULAR CRANIOPHARYNGIOMA. - [Agustin Dorantes-Argandar, MD¹](#); Luis Perez-Garcia, MD¹; Flavio Rodas-Berrezueta, MD¹; Javier Mancilla-Mejia, MD²; Brenda Lopez-Quintana, MD²; Berenice Garcia-Guzman, MD, MSc²; ¹Hospital Angeles Pedregal - Facultad Mexicana de Medicina - Universidad La Salle; ²Hospital Angeles Pedregal

P060: CADAVERIC ANATOMIC STUDY FOR CRANIOPHARYNGIOMAS ON THE RETROCHIASMATIC REGION THROUGH A TRANSCAVERNOUS OR SUBFRONTAL APPROACH. - Romel C Santos, MD; [Raphael B Santiago, MD](#); Rocco Dabecco, DO; Brandon Kaye, BS; Michal Obrzut, MD; Hamid Borghei-Razavi, MD; Badih Adada, MD; Cleveland Clinic Florida

P061: TRANSVENTRICULAR TRANS-CHOROIDAL APPROACH FOR ISOLATED 3RD VENTRICLE CRANIOPHARYNGIOMA AND OTHER TUMORS - [Joonho Byun, Prof¹](#); Chang Ki Hong²; Jin Hoo Seok¹; ¹Korea University Guro Hospital; ²Asan Medical Center, Seoul, Korea

P062: EXPANDED ENDOSCOPIC ENDONASAL APPROACH AND SURGICAL ADJUNCTS FOR MAXIMISING EXTENT OF RESECTION IN CRANIOPHARYNGIOMA PATIENTS: TECHNICAL NUANCES AND OUTCOMES FROM A CONTEMPORARY PRELIMINARY SURGICAL SERIES FOLLOWING COMPLETION OF FELLOWSHIP TRAINING - [Patricio Gimenez, MD¹](#); Mikhail Harty, MD¹; Greg Fellows, FRCS, SN¹; Richard Edwards²; Warren Bennett, FRCS¹; Kumar Abhinav, MD, FRCS, SN¹; ¹Bristol Institute of Clinical Neuroscience; ²Bristol Royal Hospital for Children

P063: ENDOSCOPIC ENDONASAL APPROACH FOR RESIDUAL AND RECURRENT CRANIOPHARYNGIOMA AFTER TRANSCRANIAL APPROACH - [Ronak H Jani, MD¹](#); Miri Kim, MD, PhD¹; Rachyl Shanker, MD¹; Sudesh Raju, MD²; Hanna Algattas, MD²; Carl Snyderman, MD²; Paul Gardner, MD²; Chirag Patel, MD¹; Anand Germanwala, MD¹; ¹Loyola University Medical Center; ²University of Pittsburgh Medical Center

P064: EVALUATION OF A NOVEL BETA-CHITIN PATCH IN THE TREATMENT OF SMALL AND LARGE VESSEL VASCULAR INJURIES IN A SHEEP MODEL - [Annika R Mascarenhas, MBBS¹](#); Alistair K Jukes, MBBS, PhD, FRACS¹; Santosh I Poonnoose, MCh, FRACS¹; John Finnie, DVSc, PhD²; Sarah Vreugde, PhD¹; Alkis J Psaltis, MBBS, PhD, FRACS¹; Peter-John Wormald, MBChB, MD, FRACS¹; ¹The Queen Elizabeth Hospital, Basil Hetzel Institute; ²Department of Anatomy and Pathology, Adelaide Medical School, University of Adelaide

P065: A NEW PARADIGM FOR ULTRA-HIGH DEFINITION PHOTOGRAPHY IN SURGICAL NEUROANATOMY - [Yuanzhi Xu, MD¹](#); Vera Vigo, MD²; Josh Klein, MSMI³; Maximiliano A Nunez²; Juan C Fernandez-Miranda, MD²; Aaron A Cohen-Gadol, MD, MSc, MBA⁴; Ying Mao, MD¹; ¹Department of Neurosurgery, Huashan Hospital, Shanghai Medical College, Fudan University, Shanghai, China; ²Department of Neurosurgery, Stanford Hospital, Stanford, California; ³The Neurosurgical Atlas, Carmel, Indiana; ⁴Department of Neurological Surgery, Indiana University, Indianapolis, Indiana

P066: RE-EVALUATING THE EVOLUTION OF VERTEBROBASILAR DOLICHOECTASIA (VBD) THROUGH PACAK-ZHUANG SYNDROME - [Danielle D Dang, MD¹](#); Halle Ronk¹; Jared S Rosenblum, MD²; Vkram Chandrashekar²; Vibhu Chandrashekar²; Herui Wang, PhD¹; Danielle R Donahue³; Karel Pacak, MD, PhD⁴; Zhengping Zhuang, MD, PhD¹; John Heiss, MD, PhD⁵; ¹Neuro-Oncology Branch, National Cancer Institute, National Institutes of Health; ²NeuroSimplicity, LLC; ³Mouse Imaging Facility, National Institute of Neurological Disorders and Stroke, National Institutes of Health; ⁴Eunice Kennedy Shriver National Institute of Child Health; ⁵Surgical Neurology Branch, National Institute of Neurological Disorders, National Institutes of Health

P068: REAPPRAISAL OF THE PREVIOUSLY DESCRIBED FALSE LOCALIZING SIGN AT C1-C2 IN CASES OF SPONTANEOUS INTRACRANIAL HYPOTENSION - [Gianna Fote¹](#); Nolan J Brown¹; Hania Shahin¹; Joseph Falcone¹; Alexander Lopez¹; Michael Oh¹; Edward Kuan²; Frank Hsu³; Ahmed Mohyeldin⁴; ¹UC Irvine Department of Neurological Surgery; ²UC Irvine Department of Otolaryngology, Skull Base and Pituitary Program; ³UC Irvine Departments of Neurological Surgery, Physical Medicine and Rehabilitation; ⁴UC Irvine Department of Neurological Surgery, Skull Base and Pituitary Center

Poster Listing (cont.)

P069: OUTCOMES FOLLOWING ENDOVASCULAR VS. OPEN SURGERY FOR CRANIOCERVICAL JUNCTION DURAL ARTERIOVENOUS FISTULAS - Rohin Singh¹; [Nolan J Brown](#)²; Jhon Bocanegra-Becerra¹; Nicholas Bui³; Hana Hallak¹; Stefan Koester⁴; Shane Shahrestani⁵; Henry Stonnington¹; Julian Gendreau⁶; ¹Mayo Clinic Alix School of Medicine; ²UC Irvine Department of Neurological Surgery; ³Loma Linda University School of Medicine; ⁴Vanderbilt University School of Medicine; ⁵Keck School of Medicine of USC; ⁶Johns Hopkins Whiting School of Engineering

P070: ANATOMICAL DESCRIPTION OF THE ENDOSCOPIC ENDONASAL TRANSLIVAL TRANSODONTOID APPROACH COMBINED WITH THE ENDOSCOPIC TRANSORAL DECOMPRESSION TO THE ANTERIOR CRANIOVERTEBRAL JUNCTION: TWO ARE BETTER THAN ONE. - [Romel C Santos, MD](#); Raphael B Santiago, MD; Rocco Dabecco, DO; Brandon Kaye, BS; Michal Obrzut, MD; Badih Adada, MD; Hamid Borghei-Razavi, MD; Cleveland Clinic Florida

P071: SUPRAORBITAL KEYHOLE ENDOSCOPIC ASSISTED APPROACH FOR SUPRASELLAR TUMORS - [Alberto Torres Diaz, MD](#); University Bellvitge Hospital

P072: UTILIZATION OF KEYHOLE SKULL BASE APPROACHES IN FIRST 2 YEARS OF PRACTICE; OUTCOMES, COMPLICATIONS, POST-DISCHARGE NARCOTIC USE AND 30-DAY READMISSIONS - Daniel Cales; Luke Harris; John P Saway; Olivier Darbin; Danielle N Chason; Ursula Hummel; Anthony Martino; [Jai D Thakur](#); University of South Alabama

P073: SURGICAL EXPOSURE WITH MINIMALLY INVASIVE CRANIAL EXPOSURES - [Esteban Quiceno, MD](#)¹; Vin Shen Ban, MBBChir, MRCS, MSc²; Peter Nakaji, MD¹; ¹Banner University Medical Center Phoenix; ²Banner University Medical Center Phoenix; University of Texas Southwestern

P075: COMBINED TRANSNASAL, TRANSMAXILLARY ENDOSCOPIC APPROACH TO A LARGE PTERYGOPALATINE FOSSA SCHWANNOMA - [Jennifer E Douglas, MD](#); Daniel J Lee, MD; Michael A Kohanski, MD, PhD; Nithin D Adappa, MD; James N Palmer, MD; University of Pennsylvania Department of Otorhinolaryngology - Head & Neck Surgery

P076: FULLY ENDOSCOPIC KEYHOLE SURGERY FOR CRANIAL BASE LESIONS - [Kenichi Oyama, MD, PhD](#)¹; Ichiro Nakazato, MD¹; Hisashi Ishikawa, MD¹; Yusuke Tabei, MD, PhD¹; Takeshi Suma, MD, PhD¹; Akira Teramoto, MD, PhD²; Akira Matsuno³; ¹Department of Neurosurgery, International University of Health & Welfare Mita Hospital; ²Shonan University of Health Science; ³Department of Neurosurgery, International University of Health & Welfare Narita Hospital

P077: AVERAGE SKULL THICKNESS IN DIFFERENT MINIMALLY INVASIVE CRANIAL APPROACHES AND ITS CORRELATION WITH THE SURGICAL EXPOSURE - [Vin Shen Ban, MBBChir, MRCS, MSc](#)¹; Esteban Quiceno, MD²; Peter Nakaji, MD²; ¹Banner University Medical Center Phoenix; University of Texas Southwestern; ²Banner University Medical Center Phoenix

P078: MINIMALLY INVASIVE ENDONASAL ENDOSCOPIC APPROACHES IN THE GRAND ELDERLY - [Alessio Iacoangeli, MD](#)¹; Fabio Greco, MD²; Maurizio Iacoangeli, MD, PhD¹; Francesca Bonifacio, MD²; Giulio Cavicchioni, MD²; Maurizio Gladi, MD¹; Denis Aiudi, MD¹; Fabrizio Salvinelli, MD, PhD²; ¹Department of Neurosurgery, Marche Polytechnic University and General University Hospital, Ancona, Italy; ²Department of ENT Surgery, Campus Bio-Medico University and Hospital, Rome, Italy

P079: AVOIDANCE OF POSTOPERATIVE EPISTAXIS UTILIZING A SPHENOPALATINE PEDICLE PRESERVING TECHNIQUE IN ENDONASAL ENDOSCOPIC SKULL BASE SURGERY: 11 YEAR EXPERIENCE - [Chester F Griffiths](#)¹; Daniel F Kelly, MD¹; Garni Barkhoudarian, MD²; Walavan Sivakumar, MD²; Frank Berry, MD²; ¹Saint John's Cancer Institute; ²Pacific Neuroscience Institute

P080: EXTENDED ENDOSCOPIC ENDONASAL SKULL BASE SURGERY IN A NEUROSURGICAL CENTER IN CHILE - [Matias Gómez, MD](#)¹; Galia Villarroel, MD²; Homero Sariego, MD¹; Katherine Walker, MD¹; Cristian Naudy, MD¹; ¹Instituto de Neurocirugía Dr. Asenjo; ²Universidad de Chile

Poster Listing (cont.)

P081: ANATOMICAL STEP-BY-STEP DISSECTION OF COMPLEX SKULL BASE APPROACHES FOR TRAINEES: SURGICAL ANATOMY OF THE ENDOSCOPIC ENDONASAL AND ENDOSCOPIC-ASSISTED TRANSMAXILLARY TRANSPTERYGOID APPROACH TO INFRATEMPORAL FOSSA, LATERAL RECESS OF THE SPHENOID SINUS, MEC - [Edoardo Agosti, MD](#)¹; Natália Cerqueira Rezende, MD²; Luciano Leonel, PhD²; Alex Y Alexander, BA³; Garret W Choby, MD²; Carlos D Pinheiro-Neto, MD, PhD²; Maria Peris-Celda, MD, PhD²; ¹University of Brescia; ²Mayo Clinic; ³University of Minnesota

P082: PREOPERATIVE FRAILTY MEASURED BY CLINICAL RISK ANALYSIS INDEX (RAI-C) AND ADVERSE EVENTS AFTER ENDOSCOPIC ENDONASAL SURGERY FOR PITUITARY ADENOMA: A SINGLE CENTER PROSPECTIVE CASE SERIES - [Joshua Marquez, MSc](#); Benjamin Q Spangler, BS; Kavelin Rumalla, MD; Syed Faraz Kazim, MD, PhD; Evan Courville, MD; Sagar A Patel, BS; Dominic K Lundquist, BA; Theodore N Muka, BS; Samantha Varela, BS; Garth T Olson, MD; Liat N Shama, MD; Rohini G Mckee, MD, MPH; Meic H Schmidt, MD, MBA; Christian A Bowers, MD; University of New Mexico Health Sciences Center

P083: MUCOSAL REPOSITIONING DURING THE ENDOSCOPIC ENDONASAL TRANSSPHENOIDAL APPROACH FACILITATES NORMALIZATION OF THE SINUS WALL THICKENING - [Jae Yoon Lee, MD](#); [Do Hyun Kim, MD, PhD](#); Department of Otolaryngology-Head and Neck Surgery, Seoul St. Mary's Hospital, College of Medicine

P084: THE CLINICAL POTENTIALS OF 3D PRINTING IN ENDOSCOPIC RECONSTRUCTION OF THE SKULL BASE - [Luka Baha, BS](#)¹; Rachel Fenberg, BS²; Basit Jawad, MD³; Kyle VanKoeveering, MD³; ¹Rocky Vista University College of Osteopathic Medicine; ²Albert Einstein College of Medicine; ³The Ohio State University Department of Otolaryngology - Head and Neck Surgery

P086: ENDOSCOPIC ENDONASAL APPROACH WITH NASAL SEPTAL FLAP FOR DRAINAGE OF PETROUS APEX CHOLESTEROL GRANULOMA - [Sarah Blair](#)¹; Kathryn Y Noonan, MD²; Jonathon S Sillman, MD, FACS²; Carl B Heilman, MD²; Ramya Bharathi, MD²; Emily Gall, MD²; ¹Tufts University School of Medicine; ²Tufts Medical Center

P087: ENDOSCOPIC ENDONASAL APPROACH TO RESECTION OF ANTERIOR CRANIAL FOSSA MENINGIOMAS WITH SINONASAL EXTENSION BASED ON PRIMARY TUMOR LOCATION - [Shannon J Jiang](#)¹; Joshua D Smith, MD²; Stephen E Sullivan, MD³; Erin L McKean, MD, MBA, FACS²; ¹Medical School, University of Michigan, Ann Arbor, Michigan, United States; ²Department of Otolaryngology-Head and Neck Surgery, University of Michigan, Ann Arbor, Michigan, United States; ³Department of Neurosurgery, University of Michigan, Ann Arbor, Michigan, United States

P088: ARTERIAL "ARBORIZATION" OF THE NASOSEPTAL FLAP: A DESCRIPTIVE STUDY IN LIVE-PATIENTS USING INDOCYANINE GREEN FLUORESENCE UNDER ENDOSCOPIC VISUALIZATION - [Raywat Noiphithak, MD](#)¹; [Juan C. Yanez-Siller, MD, MPH](#)²; Edmund Howe, BS³; ¹Dept of Surgery, Division of Neurosurgery, Pathumthani University; ²Dept of Otolaryngology-Head and Neck Surgery, University of Missouri; ³University of Missouri-Columbia, School of Medicine

P089: NASAL CHONDROSARCOMA - A SEPARATE ENTITY? - [Muhammad Salman Ali, MD](#); Prakash Gupta; Georgios Zenonos, MD; Carl Snydermann, MD; Eric Wang, MD; Paul Gardner, MD; University of Pittsburgh Medical Center

P090: DELAYS IN ADJUVANT RADIATION FOR SINONASAL MALIGNANCY - [Emily Garvey, BA](#); Bitu Naimi, BA; Joshua Mease, BS; Douglas Farquhar, MD, MPH; Elina Toskala, MD, PhD, MBA; Marc Rosen, MD; Mindy Rabinowitz, MD; Gurston Nyquist, MD; Thomas Jefferson University Hospital

P091: TOWARDS AN ACCURATE ASSESSMENT OF HEAD AND NECK PARAGANGLIOMA GROWTH RATES IN AN ERA OF NON-SURGICAL MANAGEMENT - [London Kozlowski, BS](#); Joshua D Smith, MD; Chirag Dani, MD; Mohamad Bazerbashi, MD; Tobias Else, MD; Remy Lobo, MD; Gregory J Basura, MD, PhD; University of Michigan

Poster Listing (cont.)

P092: SOLITARY PLASMACYTOMA OF THE HEAD AND NECK: CASE SERIES AND REVIEW OF THE LITERATURE - Meredith M Lamb, BS; Abdullah Zeatoun, MD; Taylor Stack-Pyle, BS; [Sulgi Kim](#); Cristine N Klatt-Cromwell, MD; Brent A Senior, MD; Adam J Kimple, MD, PhD; Adam Zanation, MD; Brian D Thorp, MD; Department of Otolaryngology – Head and Neck Surgery, The University of North Carolina, Chapel Hill, NC

P093: NOT EVERYTHING WITH A DURAL TAIL IS A MENINGIOMA: A CASE-BASED APPROACH TO NAILING THE DIAGNOSIS OF SKULL BASE MENINGIOMA MIMICS. - [Andrew Soliman, MD](#)¹; Ann K Jay, MD²; Jacqueline C Junn, MD¹; ¹Mount Sinai Hospital; ²Georgetown University Hospital

P094: TRENDS IN POSTOPERATIVE IMAGING FOLLOWING ENDOSCOPIC ENDONASAL SKULL BASE SURGERY FOR PEDIATRIC SELLAR MASSES - [Benjamin F Bitner, MD](#); Kaveri Curlin, BS¹; Sina J Torabi, MD¹; Eric H Abello, MD¹; Jordan L Davies, MD²; Alexander S Himstead, MD²; Frank P Hsu, MD, PhD²; Edward C Kuan, MD, MBA¹; Jay M Bhatt, MD, FAAP³; ¹UC Irvine Department of Otolaryngology - Head and Neck Surgery; ²UC Irvine Department of Neurological Surgery; ³Children's Hospital of Orange County Division of Otolaryngology and Head and Neck Surgery

P095: RADIOGRAPHIC SKULL BASE ANATOMY IN PATIENTS WITH NASAL DERMOID - [Mustafa G Bulbul, MD, MPH](#); Norman Orabi, MD; Chadi Makary, MD; Johnathan Castano, MD; Meghan T Turner, MD; Department of Otolaryngology, West Virginia University

P096: IGG4 RELATED SCLEROSING DISEASE PRESENTING AS AN EROSION SKULL BASE LESION: A CASE REPORT - [Caitlin M Coviello, MD, MBA](#); Tran B Locke, MD; Meha G Fox, MD; Baylor College of Medicine Department of Otolaryngology

P097: OBSTRUCTIVE SLEEP APNEA AND CHRONIC RHINOSINUSITIS: UNDERSTANDING THE IMPACT OF OSA ON CRS DISEASE BURDEN ? - [Emily Garvey, BA](#); Alexander Duffy, MD; Sruti Tekumalla, BA; Bitu Naimi, BA; Zachary Urdang, MD, PhD; Gurston Nyquist, MD; Marc Rosen, MD; Elina Toskala, MD, PhD, MBA; Mindy Rabinowitz, MD; Thomas Jefferson University Hospital

P098: AGGRESSIVE SPHENOID SINUS ASPERGILLOSIS WITH INVASION OF BILATERAL INTERNAL CAROTID ARTERIES - Nicole Khezri, MD¹; [John Servider, MD](#)²; Cecilia Mastrogiacomo, BS²; Roberta Seidman, MD³; Robert Peyster, MD⁴; Reza Dashti, MD, PhD²; ¹Department of Neurology at Stony Brook University Hospital; ²Department of Neurosurgery at Stony Brook University Hospital; ³Department of Pathology at Stony Brook University Hospital; ⁴Department of Radiology at Stony Brook University Hospital

P099: FROM EAR TO EAR: FUNGAL SKULL BASE OSTEOMYELITIS TRAVERSING FROM ONE TEMPORAL BONE TO ANOTHER VIA CENTRAL SKULL BASE - [Kody G Bolk, MD](#); Rahul Mehta, MD, FRCS; Louisiana State University Health Sciences Center New Orleans

P100: LOCALIZED AMYLOIDOSIS AFFECTING THE SPHENOID SINUS: CASE REPORT AND REVIEW OF THE LITERATURE - [Kelly Wentland, BBA](#); Mohammad K Shukairy, MD; Maria Picken, MD; Monica Patadia, MD; Loyola University Medical Center

P101: IDIOPATHIC SKULL BASE INFLAMMATORY DISEASE: TRANSORBITAL DIAGNOSTICS - [Nathan Pirakitikulr](#)¹; Nabill Munshi²; Kelsey A Roelofs¹; Robert A Goldberg¹; Daniel B Rootman¹; ¹Division of Orbital and Ophthalmic Plastic Surgery, Department of Ophthalmology, University of California Los Angeles; ²David Geffen School of Medicine, University of California Los Angeles

P102: PRIMARY PITUITARY ABSCESS: A SMALL CASE SERIES AND A LITERATURE REVIEW - [Sayak R Ghosh, BS](#); Abigail Funari, BS; Alexander J Ledet, BS; Anne Lally, BA; Alireza Karandish, BA; Vijay Agarwal, MD; Albert Einstein College of Medicine

P103: ENDAURAL SUBTEMPORAL APPROACH FOR MIDDLE FOSSA ENCEPHALOCELE AND CSF LEAK REPAIR - Kevin A Peng, MD¹; [Adam Olszewski, MD](#)²; Robin Bigelow, MD¹; Gregory P Lekovic, MD, PhD²; ¹The House Institute Ear Clinic; ²The House Neurosurgery Clinic

P104: INNOVATION IN NEUROSURGERY: LESSONS LEARNED, OBSTACLES, AND POTENTIAL FUNDING SOURCES - [Brandon Lucke-Wold](#); University of Florida

Poster Listing (cont.)

P106: IMPROVING ENDOSCOPIC ENDONASAL NEUROVASCULAR SPARING TRANSPOSITION OF THE PTERYGOPALATINE FOSSA BY ORBITO-PTERYGO-SPHENOIDAL LIGAMENT RELEASING AND DESCENDING PALATINE CANAL DECOMPRESSION: ANATOMICAL FOUNDATIONS AND SURGICAL TECHNIQUES - [Edoardo Agosti, MD](#)¹; Luciano Leonel, PhD²; Ronsard Mondesir, BA²; Stephen Graepel, MA²; Maria Peris-Celda, MD, PhD²; Carlos D Pinheiro-Neto, MD, PhD²; ¹University of Brescia; ²Mayo Clinic

P107: USE OF INTRAOPERATIVE ULTRASOUND TO IMPROVE NEURONAVIGATION FOR RESECTION OF SKULL BASE TUMORS - Ehsan Dowlati, MD¹; [Charles Withington](#)¹; Seif El Masry¹; Daniel R Felbaum, MD¹; Samir Sur, MD¹; Jorge Roa, MD²; Edward F Aulisi, MD³; Jeffrey C Mai, MD, PhD¹; ¹Medstar Georgetown University Hospital; ²MedStar Franklin Square Hospital; ³MedStar Washington Hospital Center

P108: A PROPOSED CLASSIFICATION SYSTEM FOR PRESIGMOID APPROACHES. - [Samer S Hoz, MD](#); Paolo Palmisciano, MD¹; Sama S Albairmani²; Ahmed Muthana²; Edward J Doyle III, MD¹; Charles Prestigiaco, MD¹; Ravi Samy, MD¹; Mario Zuccarello, MD¹; Norberto Andaluz, MD¹; ¹University of Cincinnati; ²University of Baghdad

P109: DIRECT PUNCTURE ONYX EMBOLIZATION: AN ENHANCED TECHNIQUE FOR JUVENILE NASOPHARYNGEAL ANGIOFIBROMAS? - [Judd H Fastenberg, MD](#); Collin Hill; Mark B Chaskes, MD; Amir Dehdashti, MD; Kevin Shah, MD; Athos Patsalides, MD; Zucker School of Medicine at Northwell/Hofstra

P110: EVALUATING FEASIBILITY OF A COOPERATIVE-CONTROL ROBOTIC ASSISTANT FOR ENDOSCOPIC ENDONASAL SKULL BASE SURGERY: A PRE-CLINICAL STUDY - [Jose L Porras, MD](#); Manish Sahu, PhD; Roger Soberanis-Mukul, PhD; Isabela Hernandez, BS; Jonas Winter, BS; Francis X Creighton, MD; Swaroop Vedula, MBBS, PhD, MPH; Gary L Gallia, MD, PhD; Henry Brem, MD; Mathias Unberath, PhD; Gregory Hager, PhD; Russell Taylor, PhD; Masaru Ishii, MD, PhD; Johns Hopkins University

P111: GUIDELINES FOR HIGH-QUALITY THREE-DIMENSIONAL MODELS USING PHOTOGRAMMETRY: A TECHNICAL NOTE ON THE FUTURE OF NEUROANATOMY EDUCATION - André de Sá Braga Oliveira, PhD¹; [Luciano Leonel, PhD](#)¹; Edward R LaHood²; Hana Hallak, MD¹; Michael J Link, MD²; Jonathan M Morris, MD³; Carlos D Pinheiro-Neto, MD, PhD⁴; Maria Peris-Celda, MD, PhD²; ¹Mayo Clinic Rhoton Neurosurgery and Otolaryngology Surgical Anatomy Program; ²Department of Neurosurgery, Mayo Clinic, Rochester, Minnesota; ³Department of Radiology, Mayo Clinic, Rochester, Minnesota; ⁴Department of Otorhinolaryngology Head and Neck Surgery Mayo Clinic, Rochester, Minnesota

P112: LONG-TERM RESULTS OF ENDOSCOPIC ENDONASAL MARSUPIALIZATION OF RATHKE'S CLEFT 2 CYSTS WITH BIOABSORBABLE STEROID-ELUTING STENTS. TECHNICAL CASE SERIES AND 3 REVIEW OF THE LITERATURE - Christopher P Carroll, MD^{1,2}; [Norberto Andaluz, MD](#)³; Jennifer Kosty, MD⁴; Mario Zuccarello⁵; Lee Zimmer, MD, PhD⁶; ¹Department of Brain & Spine Surgery, Naval Medical Center Portsmouth; Portsmouth, VA USA; ²Department of Surgery, Division of Neurosurgery, Uniformed Services University of Health Sciences; Bethesda, MD USA; ³Departments of Neurosurgery and Otolaryngology, University of Cincinnati; ⁴Louisiana State University Health Sciences Center-Shreveport; Shreveport, LA; ⁵Department of Neurosurgery, University of Cincinnati; ⁶Mercy Health, Cincinnati, OH

P113: STAGED RESECTION OF DIFFICULT-TO-TREAT INTRACRANIAL MENINGIOMAS: INDICATIONS, SURGICAL APPROACHES, AND POSTOPERATIVE OUTCOMES - Nolan J Brown¹; Julian Gendreau²; Angie Zhang¹; Neal Patel³; [Nicholas Bui](#)⁴; Hana Sung¹; Brian Lien¹; Daniel Prevedello⁵; Edward Kuan⁶; Frank Hsu¹; Ahmed Mohyeldin¹; ¹UC Irvine Department of Neurological Surgery; ²Johns Hopkins Whiting School of Engineering; ³Mercer University School of Medicine; ⁴Loma Linda University School of Medicine; ⁵The Ohio State University Wexner Medical Center Department of Neurological Surgery; ⁶UC Irvine Department of Otolaryngology, Head and Neck Surgery

P114: CADAVERIC MORPHOMETRIC ANALYSIS FOR STANDARDIZATION OF NEURONAVIGATION IN RADIOFREQUENCY LESIONING FOR TRIGEMINAL NEURALGIA: INTRODUCTION OF THE MODIFIED TEW HYPOTHESIS - [Vishan P Ramanathan](#); Joel M Kaye, MD; John P Sheehy, MD; John M Tew, MD; Charles J Prestigiaco, MD; Norberto O Andaluz, MD; Jonathan A Forbes, MD; University of Cincinnati

Poster Listing (cont.)

P116: APPLICATION OF RADIOMICS TO THE DIFFERENTIAL DIAGNOSIS OF TEMPORAL BONE SKULL BASE LESIONS - Matthew C Findlay, BS¹; Samantha W Yost, BS¹; [Sawyer Z Bauer, BS²](#); Kyril L Cole, BS, MPH, MBA¹; J Curran Henson, MD³; Brandon Lucke-Wold, MD, PhD⁴; Yusuf Mekhri, BS⁴; Tritan Plute, BS⁵; Hussam Abou-Al-Shaar, MD⁵; Tyler Richards, MD⁶; Michael Karsy, MD, PhD⁷; ¹University of Utah School of Medicine; ²Reno School of Medicine, University of Nevada, Reno; ³Department of Surgery, University of Arkansas for Medical Sciences; ⁴Department of Neurosurgery, University of Florida; ⁵Department of Neurological Surgery, University of Pittsburgh Medical Center; ⁶Department of Neuroradiology, University of Utah; ⁷Department of Neurosurgery, University of Utah

P119: THE ORIGIN AND EVOLUTION OF STAGED CRANIAL SURGERY FOR RESECTION OF SKULL BASE TUMORS - Nolan Brown¹; Shane Shahrestani²; Julian Gendreau³; [Chenyi Yang¹](#); Frank Hsu¹; Ahmed Mohyeldin¹; ¹UC Irvine Department of Neurological Surgery; ²Keck School of Medicine of USC; ³Johns Hopkins Whiting School of Engineering

P121: SYLVIAN ANGLE AND THE PRE-OPERATIVE PLANNING OF THE MINI-PTERIONAL APPROACH - [Esteban Quiceno, MD](#); Vin Shen Ban, MBBChir, MRCS, MSc; Peter Nakaji, MD; Banner University Medical Center Phoenix

P122: DESIGNING AND DEVELOPING A NOVEL DEEP COMPUTER VISION PLATFORM FOR INTRAOPERATIVE PREDICTION AND ANALYTICS IN SKULL BASE SURGERY - [Rachel Blue, MD¹](#); Nehal Doiphode¹; Rohit Jena¹; Peter Madsen, MD¹; John YK Lee, MD, MSCE¹; Jianbo Shi, PhD¹; Vivek Buch, MD²; ¹University of Pennsylvania; ²Stanford University

P123: INTRAOPERATIVE EX-VIVO PITUITARY ADENOMA SUBTYPE CLASSIFICATION USING NON-CONTACT LASER FLUORESCENCE SPECTROSCOPY - [Tanner J Zachem¹](#); Jordan M Komisarow, MD²; Ralph A Hachem, MD³; David W Jang, MD³; Weston Ross, PhD⁴; Patrick J Codd, MD²; ¹Duke University, Pratt School of Engineering; ²Duke University, Department of Neurosurgery; ³Division of Head and Neck Surgery & Communications Sciences, Department of Surgery, Duke University; ⁴Duke University, School of Medicine

P125: NATURAL HISTORY AND MANAGEMENT OF PEDIATRIC CEREBELLOPONTINE ANGLE LIPOMAS: A CASE SERIES - [Caitlin M Coviello, MD, MBA](#); Guillermo Aldave Orzaiz, MD, PhD; Akash Patel, MD; Benjamin Lovin, MD; Alex D Sweeney, MD; Baylor College of Medicine

P126: FAR LATERAL APPROACH TO THE VENTROLATERAL SKULL BASE: CASE SERIES - [Emma R Dioso¹](#); Robert C Rennert²; Majid Khan³; Sawyer Z Bauer³; Christopher B Cutler⁴; Michael Karsy²; William T Couldwell²; ¹University of Utah School of Medicine; ²University of Utah, Department of Neurosurgery; ³University of Nevada Reno School of Medicine; ⁴Rosalind Franklin University of Medicine and Science

P127: OUTCOMES IN PEDIATRIC AUDITORY BRAINSTEM IMPLANTATION: REVISITING PERFORMANCE OVER TIME - [Justin Cottrell](#); Lauren Rotman; David Friedmann; Daniel Jethanamest; Sean McMenomey; Donato Pacione; Chandra Sen; John Golfinos; Thomas Roland; NYU

P128: TRANSJUGULAR APPROACH FOR RECURRENT INTRACRANIAL GLOMUS VAGALE TUMORS: AN IDEAL APPROACH TO PRESERVE HEARING AND FACIAL NERVE FUNCTION - [Neal M Jackson](#); Tulane University

P129: TRANSCANAL TRANSPROMONTORIAL APPROACH IN SKULL BASE SURGERY: A SYSTEMATIC REVIEW OF THE INDICATIONS, OPERATIVE TECHNIQUES, AND TREATMENT OUTCOMES - [Paolo Palmisciano¹](#); Edward J Doyle²; Samer S Hoz¹; Daryn Cass¹; Ravi N Samy²; Norberto Andaluz¹; Mario Zuccarello¹; ¹Department of Neurosurgery, University of Cincinnati College of Medicine, Cincinnati, OH, USA; ²Department of Otolaryngology Head and Neck Surgery, University of Cincinnati College of Medicine, Cincinnati, OH, USA

P130: CURVULARIA AND THE BRAIN: CASE DEMONSTRATION OF OPTIMAL MANAGEMENT - [Brandon Lucke-Wold](#); University of Florida

Poster Listing (cont.)

P131: A SUCCESSFUL MANAGEMENT OF ISOLATED LANGERHANS CELL HISTIOCYTOSIS LESION IN THE TEMPORAL BONE WITH ORAL CORTICOSTEROID - [Mohammad Bilal Alsavaf](#)¹; Nezaket Tektas²; Serap Dogan³; Özlem Canöz⁴; Mehmet İlhan Sahin⁵; ¹Department of Otolaryngology-Head and Neck Surgery, Wexner Medical Center at The Ohio State University, Columbus, Ohio, USA; ²Department of Otolaryngology, Erciyes University School of Medicine, Kayseri, Turkey; ³Department of Radiology, Erciyes University School of Medicine, Kayseri, Turkey; ⁴Department of Pathology, Erciyes University School of Medicine, Kayseri, Turkey; ⁵Department of Otolaryngology, Yeditepe University School of Medicine, İstanbul, Turkey

P132: SURGICAL TREATMENT OF TUBERCULUM SELLAE MENINGIOMAS - [Andrés Cervio](#), PhD; Ricardo Marengo, ENT; Facundo Villamil; Mauro Ruella; Lucila Domecq; Guido Caffaratti; FLENI

P133: CHRONIC SEROUS OTITIS MEDIA WITH EFFUSION IN PATIENTS WITH "EN PLAQUE" MENINGIOMAS. - [Andrés Cervio](#); Mauro Ruella; Facundo Villamil; Martín Carnevale; Ricardo Marengo; FLENI

P134: FACTORS INVOLVED IN SELECTION OF ENDOSCOPIC ENDONASAL APPROACH FOR OLFACTORY GROOVE MENINGIOMAS - Max Blanch, BS; [Amy J Wang, MD](#); Christine K Lee, MD, PhD; Pratik Talati, MD, PhD; William T Curry, MD; Massachusetts General Hospital

P135: DIFFERENCES IN INCIDENCE OF MENINGIOMA CLASSES IN GENDER AND ETHNICITY - [Caroline Hadley](#); Arya Shetty; Tiemo Klisch, Dr. rer. nat.; Akash Patel, MD; Baylor College of Medicine Department of Neurosurgery

P136: VOLUMETRIC ANALYSIS OF SEIZURE NAÏVE PATIENTS UNDERGOING MENINGIOMA RESECTION: A MULTICENTER RETROSPECTIVE STUDY - [Chase McKevitt](#)¹; Lina Marenco Hillebrand, MD²; Michael Bamimore, DO³; Rosemary Chandler²; Andrea Otamendi Lopez, MD²; Paola Suarez Meade, MD²; Joao Paulo Almeida, MD, PhD²; Alfredo Quinones-Hinojosa, MD²; Kaisorn L Chaichana, MD²; ¹Philadelphia College of Osteopathic Medicine; ²Mayo Clinic Jacksonville; ³Cooper University Hospital

P137: COMBINED ENDOSCOPIC-ENDONASAL SUPRAORBITAL KEYHOLE SURGERY FOR THE MANAGEMENT OF ANTERIOR SKULL BASE MENINGIOMAS: DIFFERENT VIEW OF THE SAME PATHOLOGY - [Denis Aiudi, MD](#); Maurizio Gladi, MD; Valentina Liverotti, MD; Mara Capece, MD; Maria Rossella Fasinella, MD; Alessio Iacoangeli, MD; Alessio Raggi, MD; Maurizio Iacoangeli, MD, PhD; Department of Neurosurgery, Marche Polytechnic University and General University Hospital, Ancona, Italy

P138: QUANTIFYING EXTENT OF MENINGIOMA PREOPERATIVE EMBOLIZATION THROUGH VOLUMETRIC ANALYSIS: A RETROSPECTIVE CASE SERIES - [Denzel E Faulkner, MEng](#)¹; Rui Feng, MD²; Stavros Matsoukas, MD²; Ian Odland, BS³; Brandon Philbrick, MD²; Eveline Gutzweiller, MD²; Halima Tabani, MD²; Alexis Bruhat, MSc³; Fred Kwon, PhD³; Turner S Baker, PhD³; Christopher Kellner, MD²; J Mocco, MD²; Johanna Fifi, MD²; Tomoyosho Shigematsu, MD²; Shahram Majidi, MD²; Hazem Shoirah, MD²; Reade De Leacy, MD²; Alejandro Berenstein, MD²; Raj Shrivastava, MD²; Leslie Schlachter, PA²; Holly Oemke²; Stanley Dunn, PhD¹; Joshua Bederson, MD²; Benjamin I Rapoport, MDPhD²; ¹Department of Biomedical Engineering, Rensselaer Polytechnic Institute, 110 Eighth Street, Troy, NY; ²Department of Neurosurgery, Icahn School of Medicine at Mount Sinai, Mount Sinai Hospital, 1 Gustave Levy place, New York,; ³Mount Sinai BioDesign, Icahn School of Medicine at Mount Sinai, Mount Sinai Hospital, 1 Gustave Levy Place, New York

P140: OLFACTORY GROOVE MENINGIOMAS - SURGICAL APPROACHES AND RESULTS OF A LARGE COHORT - [Erion Junior de Andrade](#); Troy Woodard, MD; Raj Sindwani, MD; Varun Kshetty; Pablo F Recinos; Cleveland Clinic

P143: ASSOCIATIONS OF FRAILTY WITH LONGITUDINAL OUTCOMES IN PATIENTS WITH MENINGIOMAS - [Hanya M Qureshi, BA](#)^{1,2}; Joanna Tabor, BS^{1,2}; Joseph O'Brien, BA^{1,2}; Haoyi Lei^{1,2}; Sagar Vasandani^{1,2}; Muhammad Jalal^{1,2}; Shaurey Vetsa^{1,2}; Aladine Elsamadicy, MD^{1,2}; Saul Morales-Valero, MD^{1,2}; Neelan Marianayagam, MD^{1,2}; Brianna Theriault, MD^{1,2}; Stephanie M Aguilera^{1,2}; Ketu Mishra-Gorur, MD^{1,2}; Declan McGuone, MD^{2,3}; Robert Fulbright, MD^{2,4}; Lan Jin, PhD^{1,2}; Jennifer Moliterno, MD^{1,2}; ¹Department of Neurosurgery, Yale School of Medicine, New Haven, CT, USA; ²The Chenevert Family Brain Tumor Center, Smilow Cancer Hospital, New Haven, CT, USA; ³Department of Pathology, Yale School of Medicine, New Haven, CT, USA; ⁴Department of Radiology and Biomedical Imaging, Neuroradiology Section, Yale School of Medicine, New Haven, CT, USA

Poster Listing (cont.)

P144: EXOSCOPIC CHANNEL-BASED VERSUS OPEN MICROSCOPIC RESECTION OF ATRIAL INTRAVENTRICULAR MENINGIOMAS: A COMPARATIVE CASE SERIES - [Jeffrey J Feng](#); Stephanie K Cheok, Dr; Gabriel Zada, Dr; Keck School of Medicine of USC

P145: MALE OBESITY IS ASSOCIATED WITH MENINGIOMAS: A U.S. POPULATION-BASED STUDY WITH VALIDATION IN AN INSTITUTIONAL COHORT - [Khizar R Nandoliya](#)¹; Rushmin Khazanchi¹; Maryam N Shahin, MD²; Stephen T Magill, MD, PhD¹; ¹Northwestern University; ²Oregon Health and Science University

P146: OPTIMAL TIME WINDOW BETWEEN TUMOR EMBOLIZATION AND SURGERY IN PATIENTS WITH MENINGIOMAS - [Mahlet Mekonnen](#), BS; Yelena Malkhasyan, BS; Maya Harary, MD; Anubhav Chandla; Khashayar Mozaffari, BS; Isaac Yang, MD; UCLA

P147: MENINGIOMA GROWTH IN TRANSSEXUAL PATIENTS IN THE SETTING OF GENDER-REAFFIRMING ESTROGEN THERAPY - [Christine Mau](#), MD¹; Annika Mascarenhas, MBBS¹; Gavin Lockard, BS²; Jonah Gordon, BS²; Adam Alayli, BS²; Craig Hatchwell, MBBS¹; Adam Wells, MBBS, PhD¹; Stephen Santoreneos, MBBS, FRACS¹; ¹Royal Adelaide Hospital; ²USF Health Morsani College of Medicine

P148: REGROWTH FACTORS FOLLOWING INCOMPLETE SURGICAL RESECTION FOR WHO GRADE I SKULL BASE MENINGIOMAS - [Hun Ho Park](#), MD, PhD¹; Jihwan Yoo, MD¹; Hyeong-Cheol Oh, MD¹; Yoon Jin Cha, MD, PhD¹; Se Hoon Kim, MD, PhD²; Chang-Ki Hong, MD, PhD¹; Kyu Sung Lee, MD, PhD¹; ¹Gangnam Severance Hospital, Yonsei University; ²Severance Hospital, Yonsei University

P150: ATYPICAL MENINGIOMAS COMPARED TO OTHER WHO GRADE 2 MENINGIOMAS: HISTOLOGICAL FEATURES AND PROGNOSIS - Abdulrazag Ajlan, MD, FRCSC¹; Saif Al-Meshari¹; [Sarah Basindwah](#)¹; Majed AlJohani¹; Fahad Aldhowaihy¹; Yazed Aldeheem¹; Ashwag Alqurashi²; ¹Division of Neurosurgery, College of Medicine, King Saud University, Riyadh, Saudi Arabia.; ²Division of Neurosurgery, Department of Surgery, King Saud University Medical City, Riyadh, Saudi Arabia.

P151: A 6-YEAR RETROSPECTIVE STUDY ON THE POSTOPERATIVE ADMISSION OF SKULL-BASE MENINGIOMA RESECTION PATIENTS TO THE NEUROSCIENCE WARD VS. ICU - Ondrej Choutka, MD, FAANS¹; [Shravan C Atluri](#), MHA²; ¹Saint Alphonsus Regional Medical Center; ²Idaho College of Osteopathic Medicine

P153: TRANSCARUNCULAR, TRANSORBITAL APPROACH FOR REPAIR OF CHALLENGING FRONTAL SINUS ENCEPHALOCELE - [Ahmed Mohyeldin](#)¹; Esther Son²; Zara Patel²; Andrea Kossler²; Nolan J Brown¹; Juan Fernandez-Miranda³; ¹UC Irvine Department of Neurological Surgery; ²Stanford University School of Medicine; ³Stanford University School of Medicine Brain Tumor, Skull Base, and Pituitary Centers

P154: SIMPLE SURGICAL REPAIR TECHNIQUE OF MIDDLE CRANIAL FOSSA ENCEPHALOCELE USING DURA SUBSTITUTE - [Rakan Dodin](#), MD; Joseph S Domino, MD, MPH; Roukoz Chamoun, MD; University of Kansas Medical Center Department of Neurosurgery

P155: ENDOSCOPIC ENDONASAL REPAIR OF ENCEPHALOCELES OF THE LATERAL SPHENOID SINUS: A MULTI-INSTITUTION EXPERIENCE - [Umberto Tosi](#), MD¹; Christina Jackson²; Glen D'Souza³; Sean Parsel³; Vijay Anand¹; Gurston Nyquist³; Paul Gardner²; Theodore Schwartz¹; ¹Weill Cornell Medicine; ²University of Pittsburgh School of Medicine; ³Thomas Jefferson University

P156: CHALLENGES OF SUB-SPECIALITY NEUROSURGERY WITHIN THE MILITARY AND A CALL FOR PARTNERSHIP - [Brian D Sindelar](#), MAJ¹; Kristopher Hooten, LTC²; ¹University of North Carolina Chapel Hill; ²Walter Reed National Military Medical Center

P157: ENDOSCOPY-ASSISTED NEUROVASCULAR MICRODECOMPRESSION: COMPARATIVE EVALUATION OF THE CLASSIC RETROSIGMOID VS THE PRESIGMOID RETROLABYRINTHINE APPROACH IN NEUROVASCULAR CONFLICTS OF THE V, VII AND VIII CRANIAL NERVES - [Fabio Greco](#), MD¹; Maurizio Iacoangeli, MD, PhD²; Francesca Bonifacio, MD¹; Giulio Cavicchioni, MD¹; Maurizio Gladi, MD²; Denis Aiudi, MD²; Alessio Iacoangeli, MD²; Fabrizio Salvinelli, MD, PhD¹; ¹Department of ENT Surgery, Campus Bio-Medico University and Hospital, Rome, Italy; ²Department of Neurosurgery, Marche Polytechnic University and General University Hospital, Ancona, Italy

Poster Listing (cont.)

P158: MICROVASCULAR DECOMPRESSION FOR TRIGEMINAL AND GLOSSOPHARYNGEAL NEURALGIA IN A PATIENT WITH DIAGNOSIS OF CHARCOT-MARIE-TOOTH DISEASE - [Vikalpa Dammavalam, DO¹](#); Jason Mathew, DO¹; Robert Peyster, MD²; Reza Dashti, MD, PhD³; ¹Department of Neurology, Stony Brook University Hospital; ²Department of Radiology, Stony Brook University Hospital; ³Department of Neurosurgery, Stony Brook University Hospital

P159: ARTERIAL LASSO: CASE SERIES OF CLIP GRAFT SLING FOR MICROVASCULAR DECOMPRESSION IN LARGE VESSEL HEMIFACIAL SPASM - Kristen M Scheitler, MD; Lucas P Carlstrom, MD, PhD; [Aaron R Plitt, MD](#); Maria Peris-Celda, MD, PhD; Michael J Link, MD; Mayo Clinic

P160: FULL ENDOSCOPIC MICROVASCULAR DECOMPRESSION; PRELIMINARY RESULTS AND SEQUENCE OF STEP-BY-STEP ACCORDING TO SURGICAL PROFICIENCY. - [Hyuk-Jin Oh](#); Soonchunhyang University Cheonan Hospital

P161: A CASE THAT ENCAPSULATES THE CHALLENGES OF PRACTICING VASCULAR NEUROSURGERY IN IRAQ. - [Yara Alfawares, BS¹](#); Mustafa Ismail, MD²; Vishan P Ramanathan, BS¹; Teeba A Al-Ageely, MD²; Ibrahim A Izzet, MD²; Mohammed A Al-Rawi, MD²; Norberto Andaluz, MD¹; Samer S Hoz, MD¹; ¹University Of Cincinnati; ²University of Baghdad

P162: THERAPEUTIC RESPONSE OF A PATIENT WITH AGGRESSIVE PROLACTINOMA USING PAZOPANIB: CASE REPORT AND LITERATURE REVIEW - [Eduardo J Medina, BS¹](#); Edoardo Porto, MD¹; Juan Manuel Revuelta, MD, PhD¹; David Bray, MD, MSc¹; Bryan Morales, MD²; Stewart Neill, MD²; William Read, MD³; Gustavo Pradilla, MD¹; Adriana Ioachimescu, MD⁴; Tomas Garzon-Muvdi, MD, MSc¹; ¹Department of Neurosurgery, Emory University, Atlanta, Georgia, USA; ²Department of Pathology, Emory University, Atlanta, Georgia, USA; ³Department of Oncology, Emory University, Atlanta, Georgia, USA; ⁴Department of Endocrinology, Emory University, Atlanta, Georgia, USA

P163: COCHLEAR FACIAL DEHISCENCE - DETERMINING NATURAL INCIDENCE - Diba Nayeri; [Quinton Gopen, MD](#); UCLA

P165: TRANSTEMPORAL MINI-TREPHINATION APPROACH: A NOVEL CORRIDOR TO EXPOSE A SEPTATED LATERAL FRONTAL SINUS - Michael Fadel¹; [Mohammad Bilal Alsavaf²](#); Eman H. Salem³; Ricardo L. Carrau²; ¹Department of Otolaryngology, Faculty of medicine, Ain Shams University, Cairo, Egypt; ²Department of Otolaryngology-Head and Neck Surgery, Wexner Medical Center at The Ohio State University, Columbus, Ohio, USA; ³Department of Neurological Surgery, Wexner Medical Center at The Ohio State University, Columbus, Ohio, USA; ⁴Department of Otolaryngology, Faculty of Medicine, Mansoura University, Mansoura, Egypt

P166: PROOF OF CONCEPT: THE USE OF CIRCULATING VIRAL DNA BLOOD TESTING IN THE MANAGEMENT OF HPV DRIVEN SINONASAL MALIGNANCY. - [Basit A Jawad, MD](#); Janice Farlow, PhD, MD; Hilary McCrary, MD; Kyle Vankoevinger, MD; Ricardo Carrau, MD; Ohio State University

P167: DIRECT INTRANASAL INTRATUMORAL EMBOLIZATION OF ONYX BEFORE ENDOSCOPIC ENDONASAL RESECTION OF A MASSIVE JUVENILE ANGIOFIBROMA FOR A PATIENT WITH VON WILLEBRAND'S DISEASE - A CASE REPORT AND REVIEW OF LITERATURE - [Laura-Elisabeth Gosselin, MD¹](#); Pascale Lavoie, MD²; Jean-Luc Gariépy, MD²; Vitor Mendes Pereira, MD, MSc³; Pierre-Olivier Champagne, MD, PhD⁴; Sylvie Nadeau, MD¹; ¹Department of Ophtalmology and Otolaryngology - Head and Neck Surgery, Faculty of Medecine, Université Laval, Quebec City, Quebec, Canada; ²Department of Neuroradiology, Faculty of Medecine, Université Laval, Quebec City, Quebec, Canada; ³Division of Neuroradiology and Neurosurgery - Department of Surgery, Canada Toronto Western Hospital, Toronto, Canada; ⁴Department of Neurosurgery, CHU de Québec, Université Laval, Pavillon Enfant-Jésus, Quebec City, Quebec, Canada

P168: MODIOLUS-PRESERVING MODIFIED TRANSCANAL TRANSPROMONTORIAL APPROACH FOR TREATING INTERNAL AUDITORY CANAL LESIONS: A MORPHOMETRIC ANATOMICAL STUDY - [Paolo Palmisciano, MD](#); Edward J Doyle, MD; Samer S Hoz, MD; Daryn Cass, MD; Jonathan A Forbes, MD; Ravi N Samy, MD; Norberto Andaluz, MD; Mario Zuccarello, MD; University of Cincinnati, College of Medicine

Poster Listing (cont.)

P169: DO THEY REALLY NEED A SHUNT? TRANSNASAL ENDOSCOPIC OPTIC NERVE SHEATH DECOMPRESSION (EONSD), TECHNIQUE AND NUANCE. - [Romel C Santos, MD](#); Raphael B Santiago, MD; Rocco Dabecco, DO; Brandon Kaye, BS; Michal Obrzut, MD; Badih Adada, MD; Hamid Borghei-Razavi, MD; Cleveland Clinic Florida

P170: A HARMONIZED DUAL REGISTRY ANALYSIS IDENTIFIES RACIAL INEQUITY IN SURGEON RECOMMENDATIONS FOR RESECTION OF SKULL BASE TUMORS - Jack Butterfield; Sina Golzarian; Reid Johnson; Emily Fellows; Sanjay Dhawan; Erin Marcotte; [Andrew S Venteicher](#); University of Minnesota

P171: FUNCTIONAL AND NEUROPSYCHOLOGICAL OUTCOMES POST GIANT OLFACTORY GROOVE MENINGIOMA RESECTION - [Sami Khairy, MD](#); Ali Alkhaibary, MD; Ahmed Aloraidi, MD; Ahmed Alkhani, MD; King Abdulaziz Medical City- Riyadh

P172: PATTERNS AND MANAGEMENT OF INTRACRANIAL RECURRENCE OF ESTHESIONEUROBLASTOMA - Ali A Alattar, MD, MAS¹; Hussam Abou-Al-Shaar, MD¹; David T Fernandes-Cabral, MD¹; Georgios A Zenonos, MD¹; Eric W Wang, MD²; Carl H Snyderman, MD, MBA²; [Paul A Gardner, MD](#)¹; ¹Department of Neurological Surgery, University of Pittsburgh School of Medicine; ²Department of Otolaryngology, University of Pittsburgh School of Medicine

P173: COMBINED ENDOSCOPIC TRANSNASAL TRANSORBITAL APPROACH FOR THE MANAGEMENT OF COMPLEX SKULL BASE AND ORBITAL TUMORS: EARLY EXPERIENCE OF A TERTIARY REFERRAL CENTER IN COLOMBIA. - Linda Vanesa Robles Robles¹; Daniel Peñaranda, MD²; [Nicolas Gil Cuevara, MD, Neurosurgeon](#)^{3,4}; Jennifer Camargo González, MD, Oculoplastic Ophthalmologist^{3,5}; Javier Ospina, MD, Otorhinolaryngologist^{3,6}; ¹Universidad de La Sabana; ²Fundación Universitaria Ciencias de la Salud; ³Instituto Nacional de Cancerología; ⁴Clínica del Country - Clinica La Colina; ⁵San Ignacio Hospital Universitario; ⁶Fundación Santa Fe de Bogotá

P174: INTRAOPERATIVE USE OF INDOCYANINE GREEN IN THE EVALUATION OF ORBITAL TUMORS - [Stephanie Thermoziar, MD](#); Daniel Kwan Lee, MD; Royce Park, MD; Kevin Heinze, MD; Victoria Lee, MD; Van Ann Tran, MD; Illinois Eye and Ear Infirmary

P175: MODERN SURGICAL OUTCOMES FOR NON-VESTIBULAR SCHWANNOMAS: A SINGLE-CENTER SERIES - Alexander F Haddad, MD¹; Jun Y Oh, BS¹; [Ramin A Morshed, MD](#)¹; Michael McDermott²; Philip V Theodosopoulos, MD¹; ¹University of California San Francisco; ²Miami Neuroscience Institute

P176: STAGED RESECTION OF GIANT MULTI-COMPARTMENTAL SKULL BASE TUMORS: A CASE SERIES - [Stephanie K Cheok, MD](#); Jeffrey J Feng, MS; Steven Giannotta, MD; Gabriel Zada, MD; University of Southern California

P178: MANAGEMENT OF LANGERHANS CELL HISTIOCYTOSIS OF THE LATERAL SKULL BASE - [Neal M Jackson, MD, FACS](#); Molly Bloomenthal; Tulane University

P179: SURGICAL MANAGEMENT OF PETROUS APEX CHOLESTEATOMAS IN THE PEDIATRIC POPULATION - Taylor Reardon¹; Morgan Turnow¹; Sidney Elston¹; [Nolan J Brown](#)²; Shelly Sharma³; Rohin Singh⁴; Michael Kortz⁵; Ahmed Mohyeldin²; Justin Fraser⁶; ¹University of Pikeville - Kentucky College of Osteopathic Medicine; ²UC Irvine Department of Neurological Surgery; ³Rowan University School of Osteopathic Medicine; ⁴Mayo Clinic Alix School of Medicine; ⁵University of Colorado School of Medicine; ⁶University of Kentucky Department of Neurosurgery

P180: PEDIATRIC NEUROENDOSCOPY FOR ANTERIOR SKULL BASE LESIONS - A SINGLE-INSTITUTION 30-DAY OUTCOMES REPORT - Jeffrey Cheng, MD; [Raluca Gosman, BS](#); David Jang, MD; Ralph Abi Hachem, MD; Matthew Vestal, MD, MBA, MHS; Eric Thompson, MD; Duke University

P181: SILENT CORTICOTROPH ADENOMAS DEMONSTRATE PREDILECTION FOR INVASION OF THE SPHENOID SINUS AND CLIVUS COMPARED TO OTHER SUBTYPES - [Alexander S Himstead, MD](#); Jordan L Davies, MD; Gianna M Fote, PhD; Benjamin F Bitner, MD; Maheen Q Khan, MD; Ahmed Mohyeldin, MD, PhD; Frank P. K. Hsu, MD, PhD; Edward C Kuan, MD, MBA; University of California, Irvine

Poster Listing (cont.)

P182: TREATMENT MODALITIES AND OUTCOMES OF SURGERY FOR SELLAR GRANULAR CELL TUMORS AND SPINDLE CELL ONCOCYTOMAS: AN ANALYSIS OF TWO NATIONAL CANCER DATABASES - [A. Yohan Alexander, BA](#)¹; Giorgos D Michalopoulos, MD¹; Panagiotis Kerezoudis, MD, MS¹; Jamie J Van Gompel, MD²; Michael J Link, MD²; Maria Peris-Celda, MD, PhD²; ¹Mayo Clinic, Department of Neurosurgery; ²Mayo Clinic, Department of Neurosurgery and Otorhinolaryngology

P183: REPORTING OF PARTICIPANTS' RACE, ETHNICITY, SOCIOECONOMIC STATUS AND SEX IN PITUITARY SURGERY LITERATURE: A SYSTEMATIC REVIEW - [Anahita Nourmahnad](#)¹; Julian A Purrinos¹; Renata Grozovsky¹; Angela M Richardson²; Corinna G Levine¹; ¹University of Miami; ²Indiana University

P184: A CASE OF PITUITARY APOPLEXY MIMICKING VIRAL MENINGITIS - [Anne Lally, BA](#); Abigail Funari, BS; Sayak R Ghosh, BS; Alexander J Ledet, BS; Alireza Karandish, BA; Vijay Agarwal, MD; Albert Einstein College of Medicine

P186: VARIABLES OF PITUITARY ADENOMA RECURRENCE/REGROWTH - [Brian Hilton](#); Olufisayo Adeyina; Kanat Yalcin; Christopher Hong; Zeynep Erson-Omay; S. Bulent Omay; Yale School of Medicine

P187: THE OUTCOMES OF SURGICAL TREATMENT VIA TRANSPHENOIDAL APPROACH FOR PATIENTS WITH NONFUNCTIONING PITUITARY ADENOMA: A SINGLE INSTITUTION'S EXPERIENCE - [Yoon-Hee Choo](#)¹; Youngbeom Seo²; ¹Department of Neurosurgery, Seoul St.Mary's Hospital, The catholic University of Korea; ²Yeungnam University Hospital

P188: A PARS INTERMEDIA MACROADENOMA SUPPORTING THE ORIGIN OF SILENT CORTICOTROPH ADENOMAS - [Mohammad Bilal Alsavaf](#)¹; Guilherme Finger²; Kyle C. Wu²; Eman H. Salem³; Maria Jose Castello Ruiz⁴; Saniya S. Godil²; Luma Ghalib⁵; Ricardo L. Carrau¹; Daniel M. Prevedello²; ¹Department of Otolaryngology-Head and Neck Surgery, Wexner Medical Center at The Ohio State University, Columbus, Ohio, USA; ²Department of Neurological Surgery, Wexner Medical Center at The Ohio State University, Columbus, Ohio, USA; ³Department of Otolaryngology, Faculty of Medicine, Mansoura University, Mansoura, Egypt; ⁴Department of Neurosurgery, Hospital Universitario Torrecardenas, Almería, Spain; ⁵Department of Endocrinology, Diabetes, and Metabolism, Wexner Medical Center at The Ohio State University, Columbus, Ohio, USA.

P189: PITUITARY ADENOMA: A CASE REPORT AND REVIEW OF THE LITERATURE - [Emma C Celano, MD](#); Amjad N Anaizi, MD; Medstar Georgetown University Hospital

P190: RACIAL DISPARITIES IN ENDOSCOPIC TRANSPHENOIDAL PITUITARY SURGERY: DIFFERENCES IN PRESENTATION AND OUTCOMES - [Eric Nisenbaum, MD, MSc](#)¹; Michael Ghiam, MD¹; Ricardo Komotar, MD²; Michael Ivan, MD¹; Roy Casiano, MD¹; Jacques Morcos, MD²; Corinna Levine, MD¹; Carolina Benjamin, MD²; Zoukaa Sargi, MD¹; ¹University of Miami School of Medicine Department of Otolaryngology; ²University of Miami School of Medicine Department of Neurosurgery

P191: 200 PITUITARY ADENOMAS OPERATED BY ENDOSCOPIC ENDONASAL APPROACH. REVIEW OF OUR EXPERIENCE - [Fernando Munoz-Hernandez, PhD](#)¹; Marta Rico-Pereira²; ¹Hospital del Mar; ²Hospital Sant Pau

P192: CLINICAL OUTCOMES OF MICROSCOPIC VERSUS ENDOSCOPIC SURGICAL APPROACHES FOLLOWING TRANSPHENOIDAL PITUITARY TUMOR RESECTION - [Ashwin Ghadiyaram, BS](#)¹; Asha Krishnakumar, BA¹; Akshay Murthy, BS¹; Charles F Opalak, MD, MPH²; Theodore A Schuman, MD³; William C Broaddus, MD, PhD⁴; ¹Virginia Commonwealth University School of Medicine; ²Prisma Health Neurosurgery; ³Virginia Commonwealth University Department of Otolaryngology; ⁴Virginia Commonwealth University Department of Neurosurgery

Poster Listing (cont.)

P193: OUTCOMES OF REDO ENDOSCOPIC ENDONASAL SKULL BASE SURGERY FOR RECURRENT OR RESIDUAL NONFUNCTIONING PITUITARY ADENOMAS: AN ANALYSIS OF 93 CONSECUTIVE PATIENTS AT THE UNIVERSITY OF PITTSBURGH MEDICAL CENTER - [Hussein M Abdallah, BS, MEng¹](#); Zachary C Gersey, MD, MS²; Zane N Gray¹; David N Fogg¹; James E Duehr¹; Hussam Abou-Al-Shaar, MD²; Keerthi Arani, MD³; Tonya Stefko, MD⁴; Gabrielle R Bonhomme, MD⁴; Pouneh Fazeli⁵; Hussain Mahmud, MD⁵; Eric W Wang⁶; Carl H Snyderman, MD, MBA⁶; Paul A Gardner, MD²; Georgios A Zenonos, MD²; ¹University of Pittsburgh School of Medicine; ²University of Pittsburgh Medical Center, Department of Neurological Surgery; ³University of Pittsburgh Medical Center, Department of Radiology; ⁴University of Pittsburgh Medical Center, Department of Ophthalmology; ⁵University of Pittsburgh Medical Center, Department of Endocrinology; ⁶University of Pittsburgh Medical Center, Department of Otolaryngology

P195: LONG-TERM ENDOCRINE OUTCOMES OF APOPLECTIC PITUITARY ADENOMAS AFTER MICROSURGICAL RESECTION: CASE SERIES AND REVIEW OF THE LITERATURE - [John Souter, MD¹](#); James Nie, BS¹; Sepideh Amin-Hanjani, MD²; ¹University of Illinois - Chicago; ²University Hospitals - Case Western Reserve University & University of Illinois - Chicago

P196: THE IMPACT OF GENOMIC CHARACTERIZATION FOR PITUITARY ADENOMA CLASSIFICATION - [Kanat Yalcin](#); Brian Hilton; Olufisayo Adeyina; Christopher Hong; S. Bulent Omay; Zeynep Erson-Omay; Yale School of Medicine

P197: NATURAL HISTORY OF LONG-TERM OBSERVED NON-FUNCTIONING PITUITARY ADENOMAS: 434 CONSECUTIVE CASES OF A SINGLE INSTITUTE - [Ho Kang, MD](#); Seung Shin Park, MD; Jung Hee Kim, MD, PhD; Yong Hwy Kim, MD, PhD; Seoul National University Hospital

P198: SKULL BASE REGISTRIES: BUILDING CONSENSUS - [Kara A Parikh, MD¹](#); Motiwala Mustafa, MD¹; Sanjeet V Rangarajan, MD²; Donato R Pacione, MD³; Erin McKean, MD⁴; Varun Kshetry, MD⁵; Andre Beer-Furlan, MD⁶; Claudia Kirsch, MD⁷; L. Madison Michael, MD¹; Jeffrey Sorenson, MD¹; ¹University of Tennessee Health Science Center - Memphis, Department of Neurosurgery; ²University of Tennessee Health Science Center - Memphis, Department of Otolaryngology; ³New York University Langone Health; ⁴University of Michigan; ⁵Cleveland Clinic; ⁶Moffitt Cancer Center - Tampa; ⁷Yale Department of Radiology and Biomedical Imaging

P199: PITUITARY APOPLEXY IN THE SETTING OF ACTH-SECRETING ADENOMA: SYSTEMATIC REVIEW AND ILLUSTRATIVE CASE - [Kara A Parikh, MD¹](#); Jordan T Roach¹; Eugene Sansoni, MD²; Boucher B Andrew, MD¹; ¹University of Tennessee Health Science Center - Memphis, Department of Neurosurgery; ²University of Tennessee Health Science Center - Memphis, Department of Otolaryngology

P200: PITUITARY APOPLEXY AFTER CARDIAC SURGERY: CASE REPORT - Linda Vanesa Robles Robles, MD¹; Carlos Alberto Lindado Pacheco, MD, Neurosurgeon²; Laura Catalina Diaz Salas, Neurosurgeon²; Juan Carlos Perez Rodriguez, Neurosurgeon²; Jaime Eduardo Becerra Ospina, Neurosurgeon²; Andres Urrego Nieto, MD³; Aranza Helena Tafur Borrero, MD³; Melissa Mayo, MD, Otolaryngologist³; [Raul Ramirez Grueso, MD, Neurosurgeon³](#); ¹Universidad de La Sabana; ²Pontificia Universidad Javeriana; ³Universidad Nacional de Colombia

P201: SELLAR METASTATIC NEUROENDOCRINE CARCINOMA OF UNKNOWN ORIGIN: A CASE REPORT AND REVIEW OF THE LITERATURE - [Miner N Ross, MD¹](#); Cierra N Harper, BS²; Matthew D Wood, MD¹; Mathew Geltzeiler, MD¹; Maria Fleseriu, MD¹; Olabisi Sanusi, MD¹; ¹Oregon Health & Science University; ²Howard University College of Medicine

P202: EVALUATION OF TRENDS IN TRANSSPHENOIDAL SURGERY FOR PITUITARY ADENOMAS USING A NATIONWIDE PRIVATE INSURANCE DATABASE - [Sara Saleh, MD](#); Cormac O Maher, MD; Erin L McKean, MD, MBA; University of Michigan

P204: THE READABILITY OF THE ANTERIOR SKULL BASE SURGERY DISEASE-SPECIFIC QUALITY OF LIFE SURVEYS AND ALTERNATIVE TEXT - [Abdullah Zeatoun, MD](#); Meredith Lamb, BS; Taylor Stack-Pyle, BS; Sulgi Kim, BS; Omura Kazuhiro, MD, PhD; Erin Lopez, MD; Daniel Alicea, MD; Charles Ebert Jr., MD, MPH; Brent Senior, MD; Cristine Klatt-Cromwell, MD; Adam Kimple, MD, PhD; Brian Thorp, MD; University of North Carolina at Chapel Hill

Poster Listing (cont.)

P205: SINONASAL OUTCOMES FOLLOWING ENDOSCOPIC ENDONASAL SKULL BASE SURGERY - [Nasser Lubega, BSc](#)¹; Aviv Spillinger, MD²; Nainika Nanda, MD²; Timothy M McCulloch, MD, FACS²; Azam S Ahmed, MD, FAANS, FACS³; Ian J Koszewski, MD, FACS, FARS²; ¹University of Wisconsin School of Medicine and Public Health; ²Division of Otolaryngology-Head and Neck Surgery, Department of Surgery, University of Wisconsin; ³Department of Neurological Surgery, University of Wisconsin

P206: IMPACT OF MARITAL STATUS ON POST-OPERATIVE OUTCOMES AFTER ENDOSCOPIC ENDONASAL SKULL BASE SURGERY - Rebecca L Rohde, MD, MPH; Lauren M North, MD; Sarah Cornell, MS, CCRP; [Anna Berezovsky, MD](#); Christopher M Long, MD; Nathan Zwagerman, MD; Medical College of Wisconsin

P207: SUBFASCIAL SOFT TISSUE DISSECTION IN PTERIONAL CRANIOTOMIES: A TECHNICAL NOTE. - Abdulrazag Ajan, MD, FRCSC¹; [Sarah Basindwah](#)¹; Ashwag Alqurashi²; Sherif Elwatidy, FRCSNS, PhD¹; ¹Division of Neurosurgery, College of Medicine, King Saud University, Riyadh, Saudi Arabia.; ²Division of Neurosurgery, Department of Surgery, King Saud University Medical City, Riyadh, Saudi Arabia.

P208: RADIATION-INDUCED VESTIBULAR SCHWANNOMAS: INSTITUTIONAL CASE SERIES - [Lucas P Carlstrom, MD, PhD](#); Colin L Driscoll, MD; Matthew L Carlson, MD; Brian A Neff, MD; Michael J Link, MD; Jamie J Van Gompel, MD; Mayo Clinic

P209: GAMMA KNIFE RADIOSURGERY FOR MENINGIOMAS OF THE CONFLUENCE OF THE FALX AND TENTORIUM - [Arka N Mallela, MD, MS](#); Hussein Abdallah, BA; Zhishuo Wei, BA; Hussam Abou-Al-Shaar, MD; Ajay Niranjan, MD, MBA; L Dade Lunsford, MD; University of Pittsburgh, School of Medicine

P210: A SINGLE INSTITUTION CASE SERIES OF GLOMANGIOPERICYTOMA - [Abdullah Zeatoun, MD](#); Sulgi Kim, BS; Taylor Stack-Pyle, BS; Meredith Lamb, BS; Omura Kazuhiro, MD, PhD; Erin Lopez; Daniel Alicea, MD; Adam Kimple, MD, PhD; Brian Thorp, MD; Charles Ebert Jr., MD, MPH; Cristine Klatt-Cromwell; Brent Senior, MD; University of North Carolina at Chapel Hill

P211: METASTATIC RENAL CELL CARCINOMA OF THE SINONASAL CAVITIES AND SKULL BASE: EXPERIENCE AT A SINGLE INSTITUTION - [Davis P Argersinger, BS](#)¹; Joshua D Smith, MD²; Stephen E Sullivan, MD³; Erin L McKean, MD²; ¹University of Michigan Medical School; ²University of Michigan Department of Otolaryngology-Head and Neck Surgery; ³University of Michigan Department of Neurosurgery

P212: OLFACTORY CARCINOMA SIMILARITIES AND DISTINCTIONS TO OLFACTORY NEUROBLASTOMA: A CASE REPORT AND LITERATURE REVIEW - [Mohammad Bilal Alsavaf](#)¹; Eman H. Salem²; Basit Jawad¹; Kittichai Mongkolkul³; Daniel M. Prevedello⁴; Bruce W. Wenig⁵; Ricardo L. Carrau²; ¹Department of Otolaryngology-Head and Neck Surgery, Wexner Medical Center at The Ohio State University, Columbus, Ohio, USA; ²Department of Otolaryngology, Faculty of Medicine, Mansoura University, Mansoura, Egypt; ³Department of Otolaryngology-Head and Neck Surgery, Rajavithi Hospital, The College of Medicine of Rangsit University, Bangkok, Thailand; ⁴Department of Neurological Surgery, Wexner Medical Center at The Ohio State University, Columbus, Ohio, USA; ⁵Department of Pathology, Moffitt Cancer Center, Tampa, FL

P213: SINONASAL NEUROENDOCRINE CARCINOMA: IS INDUCTION CHEMOTHERAPY AND DEFINITIVE CHEMORADIATION ASSOCIATED WITH WORSE OUTCOMES? - A CASE SERIES - [Andrey Filimonov, MD, PharmD](#); Lauren North, MD; Kelly Daniels, MD; Muhammad S Ali, MD; Georgios Zenonos, MD; Paul Gardner, MD; Carl H Snyderman, MD; Eric W Wang, MD; University of Pittsburgh

P214: RECURRENCE PATTERN AND OVERALL TREATMENT OUTCOME OF OLFACTORY NEUROBLASTOMA FROM A SINGLE MEDICAL CENTER - [Sung-Woo Cho](#); Chae-Seo Rhee, MD, PhD; Tae-Bin Won, MD, PhD; Seoul National University Bundang Hospital

P215: LONG-TERM OUTCOME OF PATIENTS WITH SINONASAL ADENOID CYSTIC CARCINOMA AND ADENOCARCINOMA - [Isaac Wasserman, MD](#)¹; Lauren E Miller, MD, MBA¹; Roy Xiao, MD, MS¹; Anjay P Shah²; Stacey T Gray, MD¹; Derrick T Lin, MD¹; ¹Massachusetts Eye and Ear; ²University of Florida

Poster Listing (cont.)

P216: PRECISION DELIVERY OF ADJUVANT PROTON BEAM RADIOTHERAPY FOR OLFACTORY NEUROBLASTOMA - THE IMPORTANCE OF PERI-OPERATIVE MANAGEMENT AND SINUS CARE - [Jyotsna Bhudia](#); Anna Thompson; Ruheena Mendes; Callum Gillies; Dawn Carnell; UCLH

P217: SIMULTANEOUS PRIMARY SINONASAL ADENOCARCINOMA AND BREAST ADENOCARCINOMA: A CASE REPORT - [Mannat Sandhu, BS](#)¹; Patrick Malafrente, MD²; Lindsey Ryan, MD³; Mark Tabor, MD³; Siviero Agazzi, MD⁴; Kunal Vakharia, MD⁴; Harry Van Lovren, MD⁴; Arjun Parasher, MD³; ¹University of South Florida Morsani College of Medicine; ²Ruffolo, Hooper, and Associates Pathology; ³University of South Florida Department of Otolaryngology; ⁴University of South Florida Department of Neurosurgery

P218: MANAGEMENT OF NUT CARCINOMA OF THE SINONASAL TRACT: A CASE REPORT AND REVIEW OF THE LITERATURE - [Taylor Stack-Pyle, BS](#); Abdullah Zeatoun, MD; Sulgi Kim, BS; Meredith Lamb, BS; Charles S Ebert Jr, MD, MPH; Cristine N Klatt-Cromwell, MD; Jeffrey M Blumberg, MD; Brent A Senior, MD; Adam J Kimpl, MD, PhD; Brian Thorp, MD; University of North Carolina at Chapel Hill

P219: MIXED OLFACTORY NEUROBLASTOMA-CARCINOMA TUMOR: A CASE REPORT AND REVIEW OF THE LITERATURE OF A RARE ANTERIOR SKULL BASE TUMOR. - Edmund Howe, BS¹; [Juan C Yanez-Siller, MD, MPH](#)²; Michael Ortiz, MD²; Douglas Miller, MD, PhD²; Steven Carr, MD²; Laura Dooley, MD²; ¹University of Missouri - School of Medicine; ²University of Missouri - Columbia

P220: MODIFIED DICLE FLAP; A NOVEL TECHNIQUE FOR SKULL BASE RECONSTRUCTION - Michael Fadel¹; [Mohammad Bilal Alsavaf](#)²; Eman H. Salem³; Ramazan Gun²; Daniel M. Prevedello⁴; Kyle VanKoeveering²; Douglas Hardesty⁴; Kathleen Kelly²; Ricardo L. Carrau²; ¹Department of Otolaryngology, Faculty of medicine, Ain Shams University, Cairo, Egypt; ²Department of Otolaryngology-Head and Neck Surgery, Wexner Medical Center at The Ohio State University, Columbus, Ohio, USA; ³Department of Otolaryngology, Faculty of Medicine, Mansoura University, Mansoura, Egypt; ⁴Department of Neurological Surgery, Wexner Medical Center at The Ohio State University, Columbus, Ohio, USA

P221: TAILORED RECONSTRUCTION STRATEGY FOR THE PREVENTION OF CEREBROSPINAL FLUID (CSF) LEAKAGE AFTER ENDOSCOPIC ENDONASAL TRANSCLIVAL APPROACH - [Young-Hoon Kim, MD, PhD](#); Chang-Ki Hong, MD, PhD; Asan Medical Center

P222: NASOSEPTAL FLAP RE-USE FOR RECONSTRUCTION IN REVISION ENDOSCOPIC SKULL BASE SURGERY - [Kevin Grafmiller, MD](#); Marvin Bergsneider, MD; Marilene B Wang, MD; UCLA

P223: EFFICACY OF HYDROXYAPATITE USING SKULL BASE RECONSTRUCTION PERFORMED BY NEUROSURGEONS IN THE LEARNING CURVE - [Kyung Hwan Kim, MD, PhD](#)¹; Youngbeom Seo, MD, PhD²; Seon-Hwan Kim, MD, PhD¹; ¹Chungnam National University Hospital, Chungnam National University School of Medicine; ²Yeungnam University Hospital, Yeungnam University College of Medicine

P224: CLINICAL IMPACT OF HYDROXYAPATITE ON THE OUTCOME OF SKULL BASE RECONSTRUCTION FOR INTRAOPERATIVE HIGH-FLOW CSF LEAK: A PROPENSITY SCORE MATCHING ANALYSIS - [Shin Heon Lee](#)¹; Chang-Min Ha²; Sang Duk Hong³; Jung Won Choi²; Ho Jun Seol²; Do-Hyun Nam²; Jung-Il Lee²; Doo-Sik Kong²; ¹Department of Neurosurgery, Chung-Ang University Hospital, Seoul, South Korea; ²Department of Neurosurgery, Samsung Medical Center, Seoul, South Korea; ³Department of Otorhinolaryngology-Head and Neck Surgery, Samsung Medical Center, Seoul, South Korea

P225: A CASE REPORT OF CHONDROMYXOID FIBROMA OF THE SKULL BASE - [Abdullah Zeatoun, MD](#); Taylor Stack-Pyle, BS; Meredith Lamb, BS; Sulgi Kim, BS; Omura Kazuhiro, MD, PhD; Erin Lopez, MD; Daniel Alicea, MD; Cristine Klatt-Cromwell, MD; Charles Ebert Jr., MD, MPH; Brent Senior, MD; Adam Kimple, MD, PhD; Brian Thorp; University of North Carolina at Chapel Hill

P226: SURGICAL TREATMENT OF POSTERIOR FOSSA HEMANGIOBLASTOMAS - [Andrés Cervio, PhD](#); Facundo Villamil; Mauro Ruella; Rubén Mormandi; FLENI

P227: TECHNIQUE FOR ACCESS OF PETROUS TIP FOR EXPANDED ANTERIOR PETROSECTOMY - [Collin Liu, MD](#)¹; Alexander Evins, MD²; Daniel Surdell¹; William Thorell, MD¹; Philip Stieg, MD²; Antonio Bernardo, MD²; ¹University of Nebraska Medical Center; ²Weill Cornell Medical Center

Poster Listing (cont.)

P228: THE USE OF APREPITANT TO REDUCE POSTOPERATIVE NAUSEA AND VOMITING IN ENDOSCOPIC TRANSSPHENOIDAL PITUITARY SURGERY - [Daniel J Lee, MD, FRCSC](#); Jennifer E Douglas, MD; Jeremy Chang; Michael A Kohanski, MD, PhD; James N Palmer, MD; Nithin D Adappa, MD; University of Pennsylvania

P229: ENDOSCOPIC RESECTION OF JUVENILE NASOPHARYNGEAL ANGIOFIBROMA: A SINGLE INSTITUTION EXPERIENCE - [Devon M Durham, MSII](#); Arjun Parasher, MD; Mark H Tabor, MD; University of South Florida, Department of Otolaryngology- Head and Neck Surgery, Sinus and Endoscopic Skull Base Surgery Division

P230: ONE-STAGE SURGERY FOR MULTIPLE INTRACRANIAL [SKULL BASE] TUMORS - Víctor Alcocer Barradas, MD; [Gabriela García Nieto, MD](#); National Institute of Neurology and Neurosurgery

P231: SPONTANEOUS FACIAL CANAL CEREBROSPINAL FLUID LEAK IN A CHILD - Emily K Gall, MD¹; [Gabiella A Ojeda-Badillo](#)²; Andrew R Scott¹; ¹Tufts Medical Center; ²Tufts University School of Medicine

P232: MIDDLE CRANIAL FOSSA APPROACH FOR ENCEPHALOCELE REPAIR AFTER CANAL WALL DOWN MASTOIDECTOMY - [Emily K Gall](#); Kathryn Y Noonan; Mark Vecchiotti; Tufts Medical Center

P233: CLASSIFICATION SYSTEM FOR SELLAR SUPRASellar EPIDERMOID TUMORS - [Eduardo J Medina, BS](#); Edoardo Porto, MD; Juan Manuel Revuelta, MD, PhD; Ali Alawieh, MD, PhD; Gustavo Pradilla, MD; Tomas Garzon-Muvdi, MD, MSc; Department of Neurosurgery, Emory University, Atlanta, Georgia, USA

P234: THE SITTING POSITION IN SKULL BASE SURGERY: ANALYSIS OF THE RISKS AND SURGICAL OUTCOMES IN A CONTEMPORARY SERIES - [Eric T Quach](#); Amir R Dehdashti; North Shore University Hospital

P235: DELAYED PRESENTATION OF MASSIVE SKULL BASE CHOLESTEATOMA FOLLOWING EAR OVERCLOSURE: THE IMPORTANCE OF RADIOGRAPHIC SURVEILLANCE - [Ilana Fischer](#); Sarah Dermody, MD; Yena Kang; Emily Stucken, MD; University of Michigan

P236: PATIENT SOCIOECONOMIC STATUS MEASURED BY AREA DEPRIVATION INDEX (ADI) WAS NOT PREDICTIVE OF CANCELLATION LIKELIHOOD IN ENDOSCOPIC ENDONASAL SKULL BASE SURGERY - [Jakub Jarmula, BA](#)¹; Tianqi Xiao, BS¹; Roger Murayi, MD¹; Sara Alsulaimani, MD¹; Neal Godse, MD²; Erion Junior de Andrade, MD, MSc¹; Varun R Kshetry, MD¹; Troy D Woodard, MD²; Raj Sindwani, MD²; Pablo F Recinos, MD¹; ¹Section of Skull Base Surgery, Rose Ella Burkhardt Brain Tumor and Neuro-Oncology Center, Neurological Institute, Cleveland Clinic, Cleveland, OH; ²Section of Rhinology, Sinus & Skull Base Surgery, Head & Neck Institute, Cleveland Clinic, Cleveland, OH

P237: NOVEL REPAIR OF EXTENSIVE SKULL BASE HYPERPNEUMATIZATION WITH ASSOCIATED PNEUMOCELE AND PNEUMATOCELE - Tejesh Guddanti; Jan Bian; [Kadie M Nausha, MD](#); Avigeet Gupta, MD; Ian F Dunn, MD; Alexander G Bien, MD; The University of Oklahoma Health Sciences Center

P238: TRANSORBITAL SKULL BASE SURGERY: EXPERIENCE OF AN ORBITAL SURGEON & MULTIDISCIPLINARY TEAM AT A TERTIARY EYE CENTER - Andrea Kossler¹; Filippus Vingopoulos²; [Karam Asmaro](#)¹; Fernandez-Miranda Juan¹; Clara Men¹; ¹Stanford School of Medicine; ²Harvard School of Medicine

P239: FACIAL NERVE DECOMPRESSION IN THE TREATMENT OF PERIPHERAL FACIAL NERVE PALSY - [Ki-Hong Chang, MD](#)¹; Subin Kim, MD¹; Kyung-Ho Park, MD²; Jeong-Hoon Oh, MD³; ¹Eunpyeong St. Mary's Hospital, The Catholic University of Korea, Seoul, Korea; ²Seoul St. Mary's Hospital, The Catholic University of Korea, Seoul, Korea; ³Pucheon St. Mary's Hospital, The Catholic University of Korea, Seoul, Korea

P240: SKULL BASE GIANT CELL TUMOR: A CASE REPORT AND LITERATURE REVIEW - [Maíra Couto, MD](#)¹; Carlos Lobão, Dr¹; Daniele Costa, MD²; ¹Ophir Loyola Hospital; ²Porto Dias Hospital

Poster Listing (cont.)

P241: SKULL BASE AND CRANIO-FACIAL APPROACHES TO MINIMIZE APPROACH-RELATED MORBIDITY FOR INTRACEREBRAL COMPLEX NEOPLASTIC AND VASCULAR LESIONS. - [Maurizio Gladi, MD](#)¹; Fabio Greco, MD²; Alessandro Di Rienzo, MD¹; Maria Rossella Fasinella, MD¹; Mara Capece, MD¹; Omar Porrini Prandini, MD¹; Roberto Ricca, MD¹; Alessio Iacoangeli, MD¹; Fabrizio Salvinelli, MD, PhD²; Maurizio Iacoangeli, MD, PhD¹; ¹Department of Neurosurgery, Marche Polytechnic University and General University Hospital, Ancona, Italy; ²Department of ENT Surgery, Campus Bio-Medico University and Hospital, Rome, Italy

P242: EARLY EXPERIENCE WITH THE ENDOSCOPIC TRANSORBITAL APPROACH IN A PROVINCIAL TERTIARY HOSPITAL - [Youngbeom Seo](#); Department of Neurosurgery, Yeungnam University Hospital

P244: LINAC-BASED STEREOTACTIC BODY RADIATION THERAPY FOR BENIGN TUMORS OF THE SKULL BASE - [Anna Lee](#); He C Wang; Xin A Wang; Amy C Moreno; Jay P Reddy; Michael T Spiotto; David I Rosenthal; Shaan M Raza; Franco DeMonte; Paul W Gidley; Marc-Elie Nader; Shirley Y Su; Ehab Y Hanna; Adam S Garden; Jack Phan; University of Texas MD Anderson Cancer Center

P245: LINAC RADIOSURGERY OF GLOMUS JUGULARE WITH DOSIMETRIC COMPARISON TO GAMMA KNIFE - [Alessandro Valderrama, BS](#)¹; Long Di, MD²; Elizabeth Bossart, PhD¹; Adrien A Eshraghi, MD³; Eric A Mellon, MD, PhD¹; ¹University of Miami, Department of Radiation Oncology; ²University of Miami, Department of Neurosurgery; ³University of Miami, Department of Otolaryngology

P247: COMPARISON OF LONG-TERM TUMOR CONTROL AND SYMPTOM OUTCOMES FOLLOWING MICROSURGICAL RESECTION OR GAMMA KNIFE RADIOSURGERY FOR INTRACRANIAL TRIGEMINAL SCHWANNOMA: THE MAYO CLINIC EXPERIENCE - [Rima Rindler, MD](#)¹; Rahul Kumar, MD, PhD²; Hana Hallak²; Ryan Naylor, MD, PhD²; Pierce Peters, MD²; Ashley Nassiri, MD, MBA³; Colin Driscoll, MD²; Michael Link, MD²; ¹Sierra Neurosurgery Group; ²Mayo Clinic; ³University of Colorado

P248: NASOSEPTAL FLAP SKILLS TRAINING USING 3D SIMULATION AND A CADAVERIC MODEL - [Pakjira Naksen, MD](#)¹; Anupong Sirirungreung, MD²; Anupong Kantiwong, MD³; Eman H. Salem, MD¹; Mohammad Bilal Alsavaf, MD¹; Michael Fadel, MD¹; Bradley A. Otto, MD¹; Kyle k. VanKoevering, MD¹; Kajohnkiat Prasittivatechakool, MD⁴; Ricardo L. Carrau, MD¹; ¹Department of Otolaryngology—Head and Neck Surgery, The James Cancer Hospital at the Wexner Medical Center of The Ohio State University, Columbus, Ohio, USA; ²Department of Military and Community Medicine, Phramongkutklao College of Medicine, Bangkok, Thailand; ³Medical Education Unit, Phramongkutklao College of Medicine, Bangkok, Thailand; ⁴Department of Otolaryngology, Phramongkutklao Hospital, Bangkok, Thailand

P249: A NOVEL METHOD FOR ESTIMATION OF THE INTRA-AXIAL EXPOSURE USING QUANTITATIVE NEUROANATOMY AND 3D MODELLING - [Irakliy Abramov](#); Yuan Xu; Lena Mary Houlihan; Grant Koskay; Dakota Graham; Giancarlo Mignucci-Jimenez; Nicolas Gonzalez-Romo; Michael T Lawton; Mark C Preul; Barrow Neurological Institute

P250: ENDOLYMPHATIC SAC TUMOR (ELST) ASSOCIATED WITH VON HIPPEL-LINDAU (VHL) DISEASE. CASE PRESENTATION. - Juan S Ramirez-Moreno, MD¹; Franklin O Perez-Quijano, MD²; [Nathalia Velasquez, MD](#)³; Oscar H Ramirez-Moreno, MD²; ¹Sanitas University Foundation; ²Comfamiliar Clinic. Pereira, Colombia; ³Cleveland Clinic Florida

P251: ONCE BENIGN... NOW MALIGNANT: MODERN MANAGEMENT RECOMMENDATIONS FOR MIXED NEUROENDOCRINE TUMORS OF THE MIDDLE EAR (MEMENET) - [Neal M Jackson, MD, FACS](#); Erika Moxley; Tulane University

P252: USE OF A WEB-BASED DATABASE TOOL TO CREATE ACCESSIBLE PREOPERATIVE CHECKLISTS AND TRACK OPERATIVE METRICS - [Alexander N Duffy, MD](#)¹; Maria Armache, MD¹; Ramez Phillips, MD¹; James J Evans, MD²; Elina Toskala, MD, PhD, MBA¹; Marc R Rosen, MD¹; Gurston G Nyquist, MD¹; Mindy R Rabinowitz, MD¹; ¹Department of Otolaryngology, Thomas Jefferson University Hospital; ²Department of Neurosurgery, Thomas Jefferson University Hospital

P253: LITIGATION RATES FOR ENDOSCOPIC SINUS SURGERY OF DIFFERENT OTOLARYNGOLOGY FELLOWSHIPS - [Cassidy Anderson, BS](#); Abigail Funari, BS; Isabella Flaquer, BS; Isabella Pecorari, BS; Nadeem Akbar, MD; Patrick Colley, MD; Vijay Agarwal, MD; Albert Einstein College of Medicine

Poster Listing (cont.)

P254: BRINGING CADAVERS INTO THE METAVERSE: VIRTUAL REALITY IN LEARNING HEAD AND NECK ANATOMY: RESIDENT AND FACULTY PERCEPTIONS - Elizabeth N Liao¹; Kendyl Naugle¹; Nina Zhao²; Katrin Jaradeh¹; Roberto Rodriguez Rubio¹; [Ivan El-Sayed](#)¹; ¹University of California, San Francisco; ²University of California, Davis

P255: TRAINING IN ENDOSCOPIC ENDONASAL NEUROSURGICAL PROCEDURES: A SYSTEMATIC REVIEW OF THE AVAILABLE SETTINGS - [Hanyao Sun, BS](#)¹; Edoardo Porto, MD¹; David P. Bray, MD¹; J. Manuel Revuelta Barbero, MD, PhD²; John M DelGaudio, MD¹; Emily Barrow, MD¹; Oswaldo A. Henriquez, MD¹; Tomas Garzon Muvdi, MD¹; C. Arturo Solares, MD¹; Gustavo Pradilla, MD¹; ¹Emory University; ²Medical College of Georgia - Augusta University

P257: THE IMPACT OF DUTY HOUR RESTRICTIONS ON NEUROSURGICAL TRAINING: AFTERMATH OF THE 2003 ACGME RULING - Joshua Kurtz¹; Alexander Himstead¹; [Nolan J Brown](#)¹; Bayard Wilson²; Shane Shahrestani³; Julian Gendreau⁴; Ien Li²; Brian Lien¹; Seth Ransom¹; Ahmed Mohyeldin¹; Frank Hsu¹; Isaac Yang²; ¹UC Irvine Department of Neurological Surgery; ²UCLA Department of Neurological Surgery; ³Keck School of Medicine of USC; ⁴Johns Hopkins Whiting School of Engineering

P258: A HIERARCHICAL TASK ANALYSIS FOR ENDOSCOPIC RESECTION OF PITUITARY ADENOMAS. - [Shireen Samargandy, MBBS, FRCSC](#); Christopher Le, MD; Michael B Avery, MD, MSc; Eugene Chang, MD; University of Arizona

P259: STATUS OF SKULL BASE TRAINING: A CROSS-SECTIONAL SURVEY OF U.S. NEUROSURGERY PROGRAMS - Kiana Y Prather, BS; Helen H Shi, MD; Dorothy He, BS; Christopher S Graffeo, MD; University of Oklahoma Health Science Center

P260: DEVELOPMENT OF 3-DIMENSIONAL PRINTED SIMULATION SURGICAL TRAINING MODELS FOR ENDOSCOPIC ENDONASAL AND TRANSORBITAL SURGERY - [Won-Jae Lee, MD](#)¹; Young Hoon Kim, MD, PhD²; Yong-Hwy Kim, MD, PhD³; Chang-Ki Hong, MD, PhD²; Tae-Hoon Roh, MD, PhD⁴; Doo-Sik Kong¹; ¹Samsung Medical Center, Sungkyunkwan University; ²Asan Medical Center, Ulsan University; ³Seoul National University Hospital, Seoul National University; ⁴Ajou University Hospital, Ajou University

P261: TRANSPALPEBRAL LATERAL ORBITAL APPROACH TO ANTERIOR AND MIDDLE CRANIAL FOSSA: AN ANATOMICAL STUDY WITH CLINICAL APPLICATIONS - [Edinson Najera, MD](#)¹; Edward Wladis, MD²; Robert Heller, MD¹; ¹Neurosurgery Department, Albany Medical Center; ²Department of Ophthalmology, Albany Medical Center

P262: TRANSORBITAL NEUROENDOSCOPY SURGERY FOR THE MANAGEMENT OF FRONTAL SINUS LESIONS. CASE SERIES. - [Marcos E Yasuda, MD](#); Alexander Mastrolonardo; Thomas Nguyen, MD; Jessy Moore; Doron Sommer, MD, FRSC; Kesava Reddy, MBBS, FRCSC, FACS, FAANS, DABNS; McMaster University

P263: NON-TRADITIONAL TRANS-ORBITAL ACCESS TO SURROUNDING STRUCTURES - Kelsey A Roelofs, MD, FRCSC; [Nathan Pirakitikur, MD, PhD](#); Daniel Beswick, MD; Kendall Goodyear, MD; Ethan Osias; Robert A Goldberg, MD, FACS; Daniel B Rootman, MD, MS; University of California, Los Angeles

P264: ENDOSCOPIC-TRANSORBITAL APPROACH FOR TOTAL REMOVAL OF THE TRIGEMINAL SCHWANNOMA - A CASE REPORT - [Sorracha Sombatwantana, MD](#); Thanakorn Thiensri, Col, MD, FRCNST; Phramongkutklao Hospital

P265: SURGICAL RE-EXPLORATION OF A CEREBRAL ARTERIOVENOUS MALFORMATION REMNANT: LITERATURE REVIEW AND ILLUSTRATIVE CASE. - [Samer S Hoz, MD](#)¹; Vishan P Ramanathan, MD¹; Mustafa Ismail, MD²; Yara Alfawares, MD¹; Ahmed M Jawad, MD³; Aktham O Al-Khafaji, MD²; Zaid Aljuboori, MD⁴; Norberto Andaluz, MD¹; ¹University of Cincinnati; ²University of Baghdad; ³Royal College of Surgeons, Ireland; ⁴University of Wisconsin-Madison

Poster Listing (cont.)

P266: OCCIPITAL- ARTERY- PROXIMAL ANTERIOR INFERIOR CEREBELLAR ARTERY BYPASS: EVALUATION OF EXPOSURE AND SURGICAL FEASIBILITY THROUGH TRANSTENTORIAL RETRO-LABYRINTHINE APPROACH IN A CADAVERIC MODEL. - [Samer S Hoz, MD¹](#); Paolo Palmisciano, MD¹; Justin Gibson, MD¹; Sanjit Shah, MD¹; Mustafa Ismail, MD²; Teeba A Al-Ageely, MD²; Jonathan A Forbes, MD¹; Charles Prestigiaco, MD¹; Mario Zuccarello, MD¹; Norberto Andaluz, MD¹; ¹University of Cincinnati; ²University of Baghdad

P267: PERI TRIGEMINAL ACCESS FOR PONTINE CAVERNOMA THROUGH A MINIMALLY INVASIVE STANDALONE PRESIGMOID RETROLABYRINTHINE APPROACH: A CADAVERIC STUDY. - [Samer S Hoz, MD¹](#); Paolo Palmisciano, MD¹; Daryn Cass, MD¹; Mustafa Ismail, MD²; Mayur Sharma, MD³; Ahmed Muthana, MD²; Jonathan A Forbes, MD¹; Charles Prestigiaco, MD¹; Mario Zuccarello, MD¹; Norberto Andaluz, MD¹; ¹University of Cincinnati; ²University of Baghdad; ³University of Louisville

P268: POSTERIOR PETROSECTOMY FOR RESECTION OF BRAINSTEM CAVERNOUS MALFORMATION: A CASE SERIES OF OPERATIVE AND SYMPTOMATIC OUTCOMES - [Rima S Rindler, MD¹](#); Kristen Scheitler, MD²; Stephen Graepel, MA²; Ashley Nassiri, MD³; Maria Peris Celda, MD, PhD²; Colin L Driscoll, MD²; Giuseppe Lanzino, MD²; Michael Link, MD²; ¹Sierra Neurosurgery Group; ²Mayo Clinic; ³University of Colorado

P270: ACOUSTIC NEUROMAS WITH INTRATUMORAL HEMORRHAGE: INCIDENCE AND MANAGEMENT OF A RARE ENTITY - [Hussam Abou-Al-Shaar, MD](#); Othman Bin-Alamer, MBBS; Arka N Mallela, MD, MS; L. Dade Lunsford, MD; Paul A Gardner, MD; University of Pittsburgh Medical Center

P271: SOCIOECONOMIC DETERMINANTS IMPACT QUALITY OF LIFE AT VESTIBULAR SCHWANNOMA DIAGNOSIS - [Alexandra E Quimby, MD, MPH¹](#); Mandy Salmon¹; Christopher H Zhao²; John Y Lee, MD, MSCE¹; Douglas C Bigelow, MD¹; Michael J Ruckenstein, MD, MSc¹; Jason A Brant, MD¹; ¹University of Pennsylvania; ²Rowan School of Osteopathic Medicine

P273: COCHLEAR IMPLANTATION AFTER VESTIBULAR SCHWANNOMA: OUTCOMES AT A SINGLE INSTITUTION - [Erin A Harvey, MD](#); Adam Thompson-Harvey, MD; Michael S Harris, MD; Medical College of Wisconsin

P274: REVISION SURGERY FOR VESTIBULAR SCHWANNOMAS: AN INSTITUTIONAL CASE SERIES - Khizar R Nandoliya; [Emily J Winterhalter](#); Rushmin Khazanchi; Mark W Youngblood, MD, PhD; James P Chandler, MD; Stephen T Magill, MD, PhD; Northwestern University

P275: INCIDENCE AND RISK FACTORS OF VESTIBULAR SCHWANNOMA IN KOREA: A POPULATION-BASED STUDY - [Subin Kim, MD](#); Eunpyeong St. Mary's Hospital

2023 Pre-Meeting Dissection Course Lecture

WEDNESDAY, FEBRUARY 15 & THURSDAY, FEBRUARY 16, 2023

CONTINUING MEDICAL EDUCATION CREDIT INFORMATION

Accreditation

This activity has been planned and implemented in accordance with the accreditation requirements and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of 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™

The American College of Surgeons designates this live activity for a maximum of **17.0** AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.



AMERICAN COLLEGE OF SURGEONS
DIVISION OF EDUCATION

Award of CME credits by ACS is based on compliance of the program with the ACCME accreditation requirements and does not imply endorsement by ACS of the content, the faculty, or the sponsor of the program.

February 15, 2023

7:30 AM	Registration
7:45 AM	Introduction
8:15 AM	Step by Step Sellar
8:30 AM	Step by Step Cribriform
8:45 AM	Step by Step Cribriform with Middle Turbinate Preservation
9:00 AM	Step by Step Tubercular/Planar
9:15 AM	Step by Step Transclival/Transodontoid
9:30 AM	Dissection in Lab
12:00 PM	Lunch
1:00 PM	PPF/ITF Anatomy
1:15 PM	Step by Step PPF/ITF with Middle Fossa Meckels/Cavernous
1:30 PM	Managing Endonasal Skull Base Complications
1:45 PM	Break
2:00 PM	Dissection in Lab
5:30 PM	Shuttle return to hotel

Pre-Meeting Course (cont.)

2023 Pre-Meeting Dissection Course Lecture

WEDNESDAY, FEBRUARY 15 & THURSDAY, FEBRUARY 16, 2023

February 16, 2023

7:30 AM	Introduction
7:45 AM	Open Skull Base Anatomy
8:00 AM	Eyebrow Craniotomy
8:15 AM	Step by Step Pterional, OZ, Pretemporal Transcavernous
8:30 AM	Step by Step Middle Fossa with Kawase
8:45 AM	Step by Step Retrosigmoid/Far Lateral
9:00 AM	Break
9:15 AM	Dissection in Lab
12:00 PM	Lunch
1:00 PM	Step by Step Translabyrinthine
1:15 PM	Step by Step Transcochlear
1:30 PM	Break
1:45 PM	Dissection in Lab
5:00 PM	Shuttle return to hotel

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

MARKETING SUPPORT

DIAMOND LEVEL

Stryker

EDUCATIONAL GRANT SUPPORT

PLATINUM LEVEL

Medtronic

Mizuho America, Inc.

GOLD LEVEL

KARL STORZ Endoscopy America, Inc.

SILVER LEVEL

Carl Zeiss Meditec, Inc

BRONZE LEVEL

Integra LifeSciences Corporation

EDUCATIONAL GRANT

Cook Medical

SPIWAY LLC

Exhibitors

ACE Medical Company

Booth #308

www.acemedicalco.com

ACE Medical Company manufactures specialized instruments for the advanced surgeon. Our Kerrison's are always sharp, our bipolars never stick and our scissors always deliver a perfect cut. Come see all of our selections.

Aesculap

Booth #105

www.aesculapusa.com

Aesculap, Inc., a B. Braun company, is part of a 180-year-old global organization focused on meeting the needs of an ever-changing healthcare community. Through close collaboration with its customers, Aesculap provides advanced technologies for neurosurgery – such as our new Aeos® Robotic Digital Microscope – plus general surgery and sterilization technologies.

American Surgical Company

Booth #102

www.americansurgical.com

American Surgical Company specializes in creating and developing innovative disposable medical devices for demanding specialties in neurosurgery, ear, nose and throat, spine, ophthalmology, and plastic surgery. Our manufactured products are made in the U.S.A. and created to meet the requirements of new and improved surgical techniques. Studies show that American Surgical neurosurgical patties outperform our competitors in all key categories, from greatest absorbency to best in pliability.

APEX MEDICAL, INC.

Booth #309

www.apexmed.com

Apex works with leading neurosurgeons to make delicate, safe, sharp microsurgical dissection possible. We agree with one of the first neurosurgeons to use our arachnoid knives that, "everything before this has been micro-tearing." Find out why the leading neurosurgeons in the world are so excited about Apex Arachnoid Knives.

Bioplate, Inc.

Booth #400

www.bioplate.com

Bioplate offers a portfolio of products to advance cranial surgery. Osteopore, a line of bioresorbable bone scaffolds featured at our booth, can restore bone growth post-craniotomy. In addition, we provide customized craniofacial PEEK plates and a range of titanium plates and screws.

Exhibitors (cont.)

BK Medical

Booth #307

<https://www.bkmedical.com/applications/neurosurgery-ultrasound/>

Unlock real-time imaging with advanced visualization solutions from BK Medical. Rely on intraoperative ultrasound designed for neurosurgical procedures to offer high-resolution visualization with clear details and critical decision support. BK Medical's Minimally Invasive Transducer (N20P6) offers active imaging tailored for skull base, endonasal, and spine procedures.

GT Medical Technologies

Booth #306

www.gtmedtech.com

GT Medical Technologies is committed to improving the lives of patients with brain tumors. Extensive clinical expertise informed the design of GammaTile Therapy, which is a surgically targeted radiation therapy (STaRT) that provides immediate, dose-intense treatment at completion of brain tumor resection.

Integra Lifesciences

Booth #107

www.integralife.com

KARL STORZ Endoscopy America Inc.

Booth #'s 301, 303

www.karlstorz.com

KARL STORZ products support surgical efficiency and successful outcomes. Our minimally invasive endoscopic skull base surgery solution includes specialized instrumentation, cautery, and an advanced visualization platform.

Kirwan Surgical Products, LLC

Booth #207

www.ksp.com

Kirwan Surgical Products, LLC is a manufacturer of electrosurgical specialty equipment and leading innovator of non-stick technologies for neurological and microsurgical procedures. Kirwan Surgical will be featuring their line of bipolar non-stick suction coagulators and new comprehensive line of reusable and disposable non-stick bipolar forceps.

KLS Martin

Booth #100

<https://www.klsmartin.com/en-na>

KLS-Martin is a company dedicated to providing innovative medical devices and power systems for craniomaxillofacial surgery. The company's rich history began with surgical instrument production in Germany and continued with miniplate production. KLS Martin has advanced the capabilities of distraction osteogenesis, and revolutionized resorbable fixation with the SonicWeld Rx system.

Exhibitors (cont.)

MEDICAL IP

Booth #402

www.medicalip.com

MEDICAL IP is the first official start-up of Seoul National University Hospital (SNUH). The company develops solutions for medical image data segmentation and analysis based on artificial intelligence deep learning technology and continuously extends business by combining medical images with high-end technologies, such as medical metaverse solution (VR, AR, XR), medical 3d printing solution powered by digital-twin, and so on. The company aims to not only enhance the value of medical image data through the advancement of the company's own technology but also improve the quality of medical care and develop technologies for saving lives by increasing the utilization and understanding of medical image data. Gartner 5 consecutive years. sample vendor / FDA 510(k) · CE · MHRA · MDFS Approved

Mitaka USA, Inc.

Booth #'s 204, 206

www.mitakausa.com

Mitaka's microsurgery solutions are built for the surgeon who is dedicated to performance. Surgeons never stop improving their skills, and Mitaka never stops working with innovative partners to improve its products. Mitaka is focused on developing new technologies in the fields of microscopic, fluorescent, and 3D surgical imaging.

Mizuho America, Inc.

Booth #'s 200, 202

www.mizuho.com

Sugita® and other Mizuho-designed products were developed in collaboration with the world's leading neurosurgeons and are uniquely suited for the rigors of complex procedures. Proven materials, patented features, and precise engineering converge to make Mizuho a practical choice. Mizuho's offers a vast selection of microsurgical instrumentation, featuring Sugita® aneurysm clips.

Moffitt Cancer Center

Booth #405

www.moffitt.org

NICO Corporation

Booth #305

<https://niconeuro.com/>

NICO Corporation's solution integrates imaging and intervention for a safe, minimally disruptive approach to brain surgery. NICO's integrated technologies for navigable access, illumination, automated removal and tissue collection/biological preservation enable opportunities for improved outcomes for patients and efficiencies for healthcare providers. Over 12 years of evidence and 40,000 patients impacted.

Novarad

Booth #106

www.novarad.net

Exhibitors (cont.)

NSK America Corp.

Booth #101

<https://na.nsk-surgery.com/>

Since its foundation in 1930, NSK has been dedicated to high-speed rotary cutting technology and its applications. Primado2 is NSK's second generation high-speed electric drill system. A wide range of motors, attachments, bone saws, and wire pin driver ensures a complete system well suited for a variety of surgical applications.

Olympus America, Inc.

Booth #401

medical.olympusamerica.com

Olympus is passionate about creating customer-driven solutions for the medical, life sciences, and industrial equipment industries. As a leading medical technology company, our Medical business uses innovative capabilities in medical technology, therapeutic intervention, and precision manufacturing to help healthcare professionals deliver diagnostic, therapeutic, and minimally invasive procedures to improve clinical outcomes, reduce overall costs, and enhance the quality of life for patients.

Peter Lazic U.S. Inc.

Booth #406

www.peterlazic.com

Peter Lazic specializes in the development and manufacturing of aneurysm clips and microsurgical instrumentation.

SPIWAY LLC

Booth #209

www.spiway.com

SPIWAY LLC is dedicated to advancing Endonasal skull-base surgery with access technologies that benefit the patient, surgeon and hospital. A hallmark of minimally-invasive surgery is to reduce trauma to the operating site. The SPIWAY EAG platform improves visualization of critical structures and minimizes trauma from the 100+ passes of instruments/hour.

Stryker

Booth #'s 201, 203, 300, 302

www.stryker.com

Stryker is one of the world's leading medical technology companies and, together with its customers, is driven to make healthcare better. The company offers innovative products and services in Medical and Surgical, Neurotechnology, Orthopaedics and Spine that help improve patient and healthcare outcomes. Alongside its customers around the world, Stryker impacts more than 100 million patients annually. More information is available at www.stryker.com.

Sutter Medical Technologies, USA

Booth #403

www.sutter-usa.com

Exhibitors (cont.)

Synaptive Medical

Booth #407

www.synaptivemedical.com

Synaptive Medical is a global neurosurgical device and technology company, solving surgical, imaging, and data challenges to improve the quality of human lives. The Synaptive Integrated Suite of products enables precision care through the synergy of high-quality information and cutting-edge automation at all stages of clinical intervention.

TAKAYAMA / MUTOH

Booth #103

TAKAYAMAmicro.com

"Are you a NeuroSamurai?" TAKAYAMA was established 1905 in Tokyo, but the TAKAYAMA family has been producing Surgical Hand Instruments since the end of the 16th century. The family were blacksmiths making Samurai Swords, "KATANA". In our products, we use those ancient techniques with modern technology. Please come visit our booth #103 and take a look at our products. Are you a NeuroSamurai? Yes, you are!!

Xoran Technologies

Booth #304

xorantech.com

Since 2001, Xoran is the pioneer and medical market leader in low-dose radiation, cone beam CT systems specifically designed for the patient's point-of-care. Providers rely on our industry leading office-based and mobile CT systems to diagnose and treat patients.

Zimmer Biomet

Booth #205

www.zimmerbiomet.com

Zimmer Biomet® is committed to providing value to surgeons, clinicians, and healthcare providers while improving the lives of patients worldwide. ROSA ONE® is part of our integrated set of technologies and we offer further treatment for epilepsy patients with the use of the EVO™ Cortical Electrodes, available in various configurations.

Planning Committee Disclosures

Planning Committee	Nothing to Disclose	Disclosure		
		Company	Role	Received
Siviero Agazzi	x			
Norberto Andaluz	x			
Emily Barrow	x			
Carolina Benjamin	x			
Wenya Linda Bi		Stryker	Consultant	Consulting Fee
Hamid Borghei-Razavi	x			
David Friedmann	x			
Jennifer Moliterno Gunel		BK Medical	Consultant	Consulting Fee
Walter Jean		Surgical Theater	Consultant	Consulting Fee
Walter Jean		Stryker	Speaking/Teaching	Consulting Fee
Claudia Kirsch		Primal Pictures 3D Anatomy	Consultant	Royalty
Claudia Kirsch		Core Curriculum Foundation Grant American Society of Head and Neck Radiology	Grant Recipient	Research Grant
Varun Kshetry		Medtronic	Other	Other
Varun Kshetry		Stryker	Consultant	Consulting Fee
Varun Kshetry		Storz	Other	Other
Corinna Levine		GlaxoSmithKline, LLC.	Other	Other
Corinna Levine		Medtronic	Other	Other
Corinna Levine		Acclarent	Other	Other
Nyall London		Merck	Grant Recipient	Research Grant
Erin McKean	x			
Kibewi Mckinney		Medtronic ENT	Speaking/Teaching	Honoraria
Mia Miller	x			
Jacques Morcos		LEICA	Consultant	Consulting Fee
Jacques Morcos		STRYKER	Other	Consulting Fee
Sarah Mowry		Medtronic	Speaking/Teaching	Honoraria
Sarah Mowry		Cochlear Americas	Speaking/Teaching	Consulting Fee
Sarah Mowry		Cook Medical	Speaking/Teaching	Consulting Fee
Donato Pacione	x			
Maria Peris Celda	x			
Christopher Rassekh		Cook Medical	Consultant	Consulting Fee
Christopher Rassekh		Cook Medical	Speaking/Teaching, Consultant	Honoraria, Consulting Fee
Pablo Recinos		Karl Storz	Dinner	Other
Pablo Recinos		Acera Surgical	Advisory Panel/ Board	Equity/ Ownership
Pablo Recinos		Stryker	Consultant	Consulting Fee
Raj Sindwani		optinose	Consultant	Consulting Fee
Raj Sindwani		acclarent	Consultant	Consulting Fee
Raj Sindwani		stryker	Consultant	Consulting Fee

Planning Committee Disclosures (cont.)

C. Arturo Solares		Medtronic	Consultant	Consulting Fee
C. Arturo Solares		Stryker corporation	Consultant	Consulting Fee
Brian Thorp	x			
Gabriel Zada		Integra	Consultant	Consulting Fee
Gabriel Zada		Stryker	Consultant	Consulting Fee
Lee Zimmer	x			
Nathan Zwagerman	x			

Disclosures



AMERICAN COLLEGE OF SURGEONS
Inspiring Quality:
Highest Standards, Better Outcomes

AMERICAN COLLEGE OF SURGEONS
DIVISION OF EDUCATION
Blended Surgical Education and Training for Life®

IN ACCORDANCE WITH THE ACCME ACCREDITATION CRITERIA, THE AMERICAN COLLEGE OF SURGEONS MUST ENSURE THAT ANYONE IN A POSITION TO CONTROL THE CONTENT OF THE EDUCATIONAL ACTIVITY (PLANNERS AND SPEAKERS/AUTHORS/DISCUSSANTS/MODERATORS) HAS DISCLOSED ALL FINANCIAL RELATIONSHIPS WITH ANY COMMERCIAL INTEREST (TERMED BY THE ACCME AS AN “INELIGIBLE COMPANY”, DEFINED BELOW) HELD IN THE LAST 24 MONTHS (SEE BELOW FOR DEFINITIONS). PLEASE NOTE THAT FIRST AUTHORS WERE REQUIRED TO COLLECT AND SUBMIT DISCLOSURE INFORMATION ON BEHALF ALL OTHER AUTHORS/CONTRIBUTORS, IF APPLICABLE.

Ineligible company: Any entity producing, marketing, re-selling, or distributing health care goods or services used on or consumed by patients. Providers of clinical services directly to patients are NOT included in this definition.

Financial Relationships: Relationships in which the individual benefits by receiving a salary, royalty, intellectual property rights, consulting fee, honoraria, ownership interest (e.g., stocks, stock options or other ownership interest, excluding diversified mutual funds), or other financial benefit. Financial benefits are usually associated with roles such as employment, management position, independent contractor (including contracted research), consulting, speaking and teaching, membership on advisory committees or review panels, board membership, and other activities from which remuneration is received, or expected. ACCME considers relationships of the person involved in the CME activity to include financial relationships of a spouse or partner.

Conflict of Interest: Circumstances create a conflict of interest when an individual has an opportunity to affect CME content about products or services of an ineligible company with which he/she has a financial relationship.

The ACCME also requires that ACS manage any reported conflict and eliminate the potential for bias during the educational activity. Any conflicts noted below have been managed to our satisfaction. The disclosure information is intended to identify any commercial relationships and allow learners to form their own judgments. However, if you perceive a bias during the educational activity, please report it on the evaluation.

Speakers / Moderators / Discussants/Authors	Nothing to Disclose	Disclosure		
		Company	Role	Received
Aarav Badani	x			
Daniel Aaronson	x			
Aleena Abbasi	x			
Rosaria Abbritti	x			

Disclosures (cont.)

Jihad Abdelgadir	x			
Abdulaziz Abdulaziz	x			
Eric Abello	x			
Kumar Abhinav	x			
Ralph Abi Hachem	x			
Arash Abiri	x			
Mickey Abraham	x			
Abtin Abtin	x			
Waleed Abuzeid	x			
Badih Adaba	x			
Nithin Adappa	x			
Oliver Adunka	x			
Prateek Agarwal	x			
Vijay Agarwal	x			
Siviero Agazzi	x			
Manish Aghi	x			
Edoardo Agosti	x			
Stephanie Aguilera	x			
Tarek Ahmadiéh	x			
Ahmed Ahmed	x			
Peter Ahorukomeye	x			
Andrew Ajisebutu	x			
Abdulrazag Ajlan	x			
Sonia Ajmera	x			
Ryojo Akagami	x			
Oluwaseun Akinduro	x			
Rahul Alapati	x			
Ali Alattar	x			
Hussain Albaharna	x			
Maximiliano Alberto	x			
Guillermo Aldave	x			
Andrey Alekseev	x			
A. Yohan Alexander	x			
Alex Alexander	x			
Hepzibha Alexander	x			
Tyler Alexander	x			
Yara Alfawares	x			
Hanna Algattas	x			
Muhammad Ali	x			
Daniel Alicea	x			
Seyed Alireza Shahtaheri	x			
Majed AlJohani	x			
Clint Allen	x			
Alanoud Almansour	x			
Joao Almeida	x			
Romulo Almeida	x			
Saif Al-Meshari	x			
Ashwag Alqurashi	x			

Disclosures (cont.)

Abdulaziz Alrasheet	x			
Ashwag Alqurashi	x			
Saud Alromaih	x			
Ahmad Alroqi	x			
Saad Alsaleh	x			
Fahed Alsanea	x			
Mohammad Alsavaf	x			
Sara Alsulaimani	x			
Jeremiah Alt	x			
Minoo Aminnejad	x			
Moran Amit	x			
Michael Amoo	x			
Amritha Amritha	x			
Sam Anand	x			
Sharath Anand	x			
Norberto Andaluz	x			
Jennifer Anderson	x			
Erion Andrade	x			
Ankit Ankit	x			
Darius Ansari	x			
Marc Antoine	x			
Anubhav Anubhav	x			
Karla Arce	x			
Agustin Argandar	x			
Ariana Ariana	x			
Kei Arisawa	x			
Maria Armache	x			
Rocco Armonda	x			
Omar Arnaout	x			
Kanika Arora	x			
Moises Arriaga	x			
Adam Arthur	x			
Manish Aryal	x			
Asha Hs	x			
Anthony Asher	x			
Karam Asmaro	x			
Prazwal Athukuri	x			
John Atkinson	x			
Oluwaseyi Awonusi	x			
Mohammed Azab	x			
Ali Baaj	x			
Harish Babu	x			
Shivani Baisiwala	x			
Turner Baker	x			
Zainab Balogun	x			
Irina Bancos	x			
Raphael Banoub	x			
Rakesh Bansal	x			

Disclosures (cont.)

Michael Barats	x			
Samuel Barber	x			
Garni Barkhoudarian		Vascular Technologist Inc	Consultant	Consulting Fee
Garni Barkhoudarian		Cerevasc Inc	Review Panel	Consulting Fee
Samuel Barnett	x			
Emily Barrow	x			
Michael Bartellas		PolyUnity Tech Inc.	Founder	Equity
Michelle Basanta	x			
Basel Basel	x			
Sara Basindwa	x			
Mustafa Baskaya		Stryker	Consultant	Consulting Fee
Sai Batchu	x			
Izzi Bauer	x			
Sawyer Bauer	x			
Sylvain Baulande	x			
Megan Bauman	x			
Olivier Beaulieu	x			
Romane Beaurepere	x			
Johsua Bederson	x			
Sabrina Begley	x			
Rosemary Behmer Hansen	x			
Diana Bell	x			
Bernard Bendok	x			
Angad Beniwal	x			
Carolina Benjamin	x			
Warren Bennett	x			
Je Beom Hong	x			
Alejandro Berenstein	x			
Jenna Bergman	x			
Regan Bergmark		I-Mab Biopharma	Grant Recipient	Research Grant
Marvin Bergsneider	x			
Antonio Bernardo	x			
Flavio Berrezueta	x			
Frank Berry	x			
J Franklin Berry	x			
Benjamin Best	x			
Wenya Linda Bi		Stryker	Consultant	Consulting Fee
Homa Biassette	x			
Ivan Bieche	x			
Douglas Bigelow	x			
Diana Bigler	x			
Mohammad Bilal	x			
Othman Bin-Alamer	x			
Anand Binu	x			
Benjamin Bitner	x			
Anna Bixler	x			
Marina Biykova	x			

Disclosures (cont.)

Jason Blatt	x			
Lewis Blevins	x			
William Blocker	x			
Rachel Blue	x			
Randall Bly	x			
Jhon Bocanegra	x			
Srikanth Boddu	x			
Hamid Borghei-Razavi	x			
Donald Born	x			
Alan Boulos	x			
Christine Bourneix	x			
Christian Bowers	x			
Bledi Brahimaj	x			
Lacy Brame	x			
Cameron Brandon	x			
Jason Brant		Incite	Consultant	Consulting Fee
Damien Bresson	x			
Brian Brian	x			
Scott Brigeman	x			
Selena Briggs	x			
Nolan Brown	x			
Steven Browne	x			
Alexis Bruhat	x			
Karol Budohoski	x			
Anh Bui	x			
Sacit Bulent	x			
Jared Burks	x			
Karin Byers	x			
Kenneth Byrd	x			
Joonho Byun	x			
Guido Caffaratti	x			
Nicholas Caffes	x			
Valentin Calugaru	x			
Andreu Canals	x			
Matthew Carlson	x			
Lucas Carlstrom	x			
Melissa Carpino	x			
Steven Carr	x			
Ricardo Carrau		KLS Martin	Inventor	Royalty
Ricardo Carrua		KLS	Consultant	Royalty
William Carson	x			
J�rome Cartailier	x			
Ashley Carter	x			
Antonio Caruso	x			
Joshua Casaos	x			
Roy Casiano		NeilMed Inc	Consultant	Consulting Fee
Roy Casiano		Medtronic	Consultant	Consulting Fee
Maria Castello	x			

Disclosures (cont.)

Cathal Cathal	x			
Jimmy Caudell		Varian Medical Systems	Grant Recipient	Research Grant
Lisa Caulley	x			
Maria Celda	x			
Andrés Cervio	x			
Cristina Cernei	x			
Justin Cetas	x			
Maria Ceyda	x			
Ari Chacko	x			
Kaisorn Chaichana	x			
Sachiv Chakravarti	x			
Eric Chalif	x			
Danielle Chaluts	x			
Mathieu Chamberland	x			
Lola Chambless	x			
Pierre-Olivier Champagne	x			
Laurence Champion	x			
Erik Chan	x			
Yvonne Chan	x			
James Chandler	x			
Ankush Chandra	x			
Michael Chang	x			
SJ Chang	x			
Mark Chaskes	x			
Miguel Chavez	x			
Liang Chen	x			
Melissa Chen	x			
Chenyi Chenyi	x			
Stephanie Check	x			
Heloise Cheruvalath	x			
Steven Cheung	x			
Rebecca Chiffer	x			
Chirag Patel	x			
Logan Cho	x			
Garret Choby		Medtronic ENT	Consultant	Consulting Fee
Garret Choby		BioInspire, LLC	Consultant	Consulting Fee
Melissa Chua	x			
Hye Chung	x			
Ryan Chung	x			
Jeremy Ciporen	x			
Babacar Cisse	x			
Vitorio Civelli	x			
Travis Clarke	x			
Marc Cohen	x			
Salomon Cohen	x			
Yale Cohen	x			
Aaron Cohen-Gadol	x			

Disclosures (cont.)

Kyрил Cole	x			
Amanda Collins	x			
Santiago Condorí	x			
Felipe Constanzo	x			
Sarah Cornell	x			
Carleton Corrales	x			
Víctor Cos	x			
Frank Cossio	x			
Justin Cottrell	x			
William Couldwell	x			
John Cowart	x			
Anna Crawford	x			
Davide Croci	x			
Tomi Crocker	x			
Matthew Crowson	x			
Frank Culicchia	x			
Joseph Curry	x			
Mark Curtis	x			
Michael Cusimano	x			
Christopher Cutler	x			
Srihari Daggumati	x			
Robert Dambrino	x			
Danielle Dang	x			
Kelly Daniels	x			
Valryi Danilov	x			
John de Almeida	x			
Erion de Andrade	x			
Didier Decaudin	x			
Amir Dehdashti	x			
Eduardo Del Campo	x			
John Del Gaudio		Medtronic	Consultant	Consulting Fee
Anthony Del Signore	x			
Franco DeMonte	x			
Dengzhi Dengzhi	x			
Emily Dennis	x			
Walter Dent	x			
Wilson Desouza	x			
Alex Devarajan	x			
Paolo di Russo	x			
Alberto Diaz	x			
Rodney Diaz	x			
Alis Dicipinigaitis	x			
Emma Dioso	x			
Peter Dixon	x			
Timothy Do	x			
Francesco Doglietto		Brainlab	Consultant	Consulting Fee
Diane Donegan	x			
Daniel Donoho	x			

Disclosures (cont.)

Kevin Donohue	x			
James Dornhoffer	x			
Jay Dorsey	x			
Mark Dougherty	x			
Jennifer Douglas	x			
Ehsan Dowlati	x			
Edward Doyle	x			
Keltouma Driouch	x			
Colin Driscoll	x			
Veronica Drozdowski	x			
Glen D'Souza	x			
Alexander Duffy	x			
Jonathan Dullea	x			
Ian Dunn	x			
Stanley Dunn	x			
Elizabeth Duquette	x			
Joseph Durkin	x			
Julia Duvall	x			
Hayden Dux	x			
Rachel Eakins	x			
Richard Edwards	x			
Jacob Eide	x			
Tiffany Ejikeme	x			
Edward El Rassi		Medtronic	Consultant	Consulting Fee
Mohamed El-Abtah	x			
Basim Elahi	x			
Charles Elbert	x			
Mohamed Elkahwagi	x			
Aladine Elsamadicy	x			
Siva Emani	x			
Akram Eraky	x			
Dana Erickson	x			
E Erson-Omay	x			
Jennifer Eschbacher	x			
Shannon Esswein	x			
Emily Estes	x			
Kyle Ettinger	x			
Abhinav ETTYREDDY	x			
James Evans		Mizuho	Other	Royalty
Richard Everson	x			
Alexander Evins	x			
Michael Fadel	x			
Fahad Fahad	x			
Samer Fakhri	x			
Dara Farhadi	x			
Janice Farlow	x			
Jeffrey Farooq	x			
Douglas Farquhar	x			

Disclosures (cont.)

Christopher Farrell	x			
Forough Farrokhyar	x			
Seyed Farzad	x			
Judd Fastenberg	x			
Denzel Faulkner	x			
Daniel Felbaum	x			
Christina Feller	x			
Greg Fellows	x			
Rachel Fenberg	x			
Rui Feng	x			
David Fernandes	x			
Elizabeth Fernandez	x			
Juan Fernandez-Miranda	x			
Abdullah Feroze	x			
Renata Ferrarotto	x			
Leonardo Ferreira	x			
Loic Feuvret	x			
Johanna Fifi	x			
Andrey Filiminov	x			
Matthew Findlay	x			
Guilherme Finger	x			
Monica Finnkirk	x			
John Flickinger	x			
Dan Fliss	x			
Adam Folbe		medtronic	Consultant	Consulting Fee
Adam Folbe		Quintree medical	Founder	Equity/ Ownership
Jonathan Forbes	x			
Meha Fox	x			
Howard Francis	x			
Steven Frank	x			
Michael Freeman	x			
Rick Friedman		Stryker	Consultant	Honoraria
Rick Friedman		J&J	Consultant	Consulting Fee
David Friedmann	x			
Sébastien Froelich	x			
Hitoshi Fukuda	x			
Robert Fulbright	x			
Clifton Fuller	x			
Fumihiko Fumihiko	x			
Abigail Funari	x			
Charuta Furey	x			
Kelly Gallagher	x			
Gary Gallia	x			
Mauricio Gamez	x			
Ian Ganly	x			
Alejandro Garcia	x			
Diogo Garcia	x			

Disclosures (cont.)

Henry Garcia	x			
Luis Garcia	x			
Berenice Garcia-Guzman	x			
Paul A. Gardner		NXDC	Independent Contractor	Contracted Research
Paul A. Gardner		Peter Lazic US, Inc	Consultant	Royalty
Paul A. Gardner		Renerva	CMO	Stock in Private Company
Paul A. Gardner		SPIWay, LLC	Consultant	Stock in Private Company
Charles Gariépy	x			
Richard Garling	x			
Emily Garvey	x			
Mathew Geltzeiler		Medtronic	Speaking/Teaching	Consulting Fee
Mathew Geltzeiler		Stryker	Speaking/Teaching	Consulting Fee
Camilo Gelves	x			
Eric Genden	x			
Julian Gendreau	x			
Fred Gentili	x			
Bernard George	x			
Georgios Zenonos	x			
Mathew Getzeiler	x			
Yong Gi	x			
Lorenzo Giammattei	x			
Alexandra Giantini	x			
Madeline Gibson	x			
Paul Gidley	x			
Ziv Gil	x			
Amabir Gill	x			
Brittany Gill	x			
Catherine Gilkes	x			
Patricio Gimenez	x			
Marco Giovannini	x			
Elodie Girard	x			
Nasima Gizzatullina	x			
Maurizio Gladi	x			
Jordan Glicksman	x			
Saniya Godil	x			
Neal Godse	x			
Justin Gold	x			
Dana Goldenberg	x			
Ezequiel Goldschmidt	x			
David Goldstein	x			
John Golfinos		Surgical Theater	Consultant	Equity/ Ownership
Rachel Gologorsky	x			
David Gomez	x			
Javier Gomez	x			
Jamie Gompel	x			

Disclosures (cont.)

Peter Gooderham	x			
Quinton Gopen	x			
Frederik Goplen	x			
Steven Gordon	x			
Ketu Gorur	x			
Khodayar Goshtasbi	x			
Laura Gosselin	x			
Nishanth Gowda	x			
Anshit Goyal	x			
Laretta Grabowska	x			
M Sean Grady	x			
Sean Grady	x			
Stephen Graepel	x			
Christopher Graffeo	x			
Kevin Grafmiller	x			
Jeffrey Graves	x			
Stacey Gray	x			
Fabio Greco	x			
Jeremy Greenlee	x			
Gretchen Gretchen	x			
Maeher Grewal	x			
David Grimm	x			
Alfiya Gubaeva	x			
Jean Guichard	x			
Guilherme Finger	x			
Jean Guinebretière	x			
Murat Gunel	x			
Gary Gunn	x			
Anand Gupta	x			
Saksham Gupta	x			
Sunil Gupta	x			
Tulika Gupta	x			
Richard Gurgel	x			
José Gurrola	x			
Gurvanit Gurvanit	x			
Bharat Guthikonda	x			
Tom Gutman	x			
Eveline Gutzweiller	x			
Berenice Guzman	x			
Alexander Haddad	x			
A Haghdel	x			
Ruby Hall	x			
Travis Haller	x			
Hamid Mammar	x			
David Hamilton	x			
Forrest Hamrick	x			
Abderaouf Hamza	x			
Karam Han	x			

Disclosures (cont.)

Hana Hallak	x			
Amit Hanadari	x			
Ehab Hanna	x			
Cathal Hannan	x			
Marlan Hansen		iotaMotion, Inc	Founder	Equity/ Ownership
Marlan Hansen		ASKBIO	Consultant	Consulting Fee
Ryan Hansen	x			
Samir Harake	x			
Maya Harary	x			
Douglas Hardesty		Varian Medical Systems	Speaking/Teaching	Honoraria
Cate Haring	x			
Kareem Haroun	x			
Jacob Harris	x			
Micah Harris	x			
Daniel Harrison	x			
Roger Hartl	x			
Hiroataka Hasegawa	x			
Fahad Hasnain	x			
David Haynes	x			
Carl Heilman	x			
Sabrina Heman-Ackah	x			
Benjamin Hendricks	x			
Oswaldo Henriquez	x			
Jack Henry	x			
J Curran Henson	x			
Jefferey Henson	x			
Philippe Herman	x			
Edgar Hernandez	x			
Mike Hernandez	x			
Justine Herndon	x			
Lina Hillebrand	x			
Alfredo Hinojosa	x			
Thomas Hirschauer	x			
James Hodge	x			
Haydn Hoffman	x			
Austin Hoke	x			
Todd Hollon	x			
Michael Holroyd	x			
Christopher Hong	x			
Je Hong	x			
Sang Hong		Horizon Therapeutics	Advisory Panel/ Board	Honoraria
Byron Hontiveros	x			
Meagan Hoppe	x			
Lena Mary Houlihan	x			
Edmund Howe	x			
Samer Hoz	x			

Disclosures (cont.)

Liu Hsi	x			
Frank Hsu	x			
Timothy Hsu	x			
Alex Hu	x			
Alice Huang	x			
Raymond Huang	x			
Nolan Huck	x			
Ian Humphreys	x			
Joshua Hunsaker	x			
Jacob Hunter	x			
Racher Hunter	x			
Aatif Husain	x			
Ahmed Hussein	x			
Hussein Abdallah	x			
Easwer Hv	x			
Tiffany Hwa	x			
Peter Hwang	x			
Do Hyun	x			
Ju Hyung	x			
Alessio Iacoangeli	x			
Maurizio Iacoangeli	x			
Elisa Illing	x			
Alfred Iloreta	x			
Irakliy Abramov	x			
Isaac Isaac	x			
Brandon Isaacson	x			
Mustafa Ismail	x			
Jana Ivanidze		Novartis Pharmaceuticals	Grant Recipient	Research Grant
Ehiremen Iyoha	x			
Roland Jabre	x			
Lindsey Jackson	x			
Matiar Jafari	x			
Saket Jain	x			
Ali Jalali	x			
Suman Jana	x			
David Jang		Amgen	Grant Recipient	Research Grant
David Jang		GlaxoSmithKline	Grant Recipient	Research Grant
David Jang		Medtronic	Consultant	Consulting Fee
David Jang		Regeneron	Speaking/Teaching	Honoraria
Jan Jankowski	x			
Jakub Jarmula	x			
Shah Jatin	x			
Mohsen Javadpour	x			
Basit Jawad	x			
Walter Jean		Surgical Theater	Consultant	Consulting Fee
Walter Jean		Stryker	Speaking/Teaching	Consulting Fee
Victor Jegede	x			
Chiman Jeon	x			

Disclosures (cont.)

Joshua Jeong	x			
Daniel Jethanamest	x			
Keven Ji	x			
Daniel Jimenez	x			
Miguel Jimenez	x			
Lan Jin	x			
Jacob Jo	x			
Derek Johnson	x			
Jason Johnson	x			
Mark Johnson	x			
Edmond Jonathan	x			
Sherrea Jones	x			
Rushikesh Joshi	x			
Alistair Jukes	x			
Jeb Justice	x			
Ashutosh Kacher	x			
Chase Kahn	x			
Aristotelis Kalyvas	x			
Ahmad Kamaludin	x			
Sandeep Kandregula	x			
Rema Kandula	x			
Davendran Kanesen	x			
KiChang Kang	x			
Ali Karandish	x			
Atil Kargi		Novo Nordisk	Advisory Panel/ Board	Consulting Fee
Atil Kargi		Recordati rare Disease	Advisory Panel/ Board	Consulting Fee
Atil Kargi		Ipsen Biopharmaceuticals	Advisory Panel/ Board	Consulting Fee
Michael Karsy	x			
Alexander Kassicieh	x			
Katarzyna Katarzyna	x			
Laurence Katznelson	x			
Vivian Kaul	x			
Yuki Kawahara	x			
Emily Kay	x			
Joel Kaye	x			
Allison Kayne	x			
Foad Kazemi	x			
Syed Kazim	x			
Omura Kazuhiro	x			
Donald Keating	x			
Christopher Kellner	x			
Daniel Kelly		Mizuho Inc	Consultant	Royalty
Daniel Kelly		Mizuho	Consultant	Royalty
Kathleen Kelly	x			
Kentaro Kentaro	x			

Disclosures (cont.)

Holly Kerezoudis	x			
Panagiotis Kerezoudis	x			
Bharti Kewlani	x			
Majid Khan	x			
Nickalus Khan	x			
Usman Khan	x			
Ashoke Khanwalkar	x			
Rushmin Khazanchi	x			
Harmon Khela	x			
Pooya Khosravi	x			
Deepak Khumbare	x			
Chang Ki	x			
Kiana Kiana	x			
Shu Kikuta	x			
Daniel Killeen	x			
Grace Kim	x			
Jee Kim	x			
John Kim	x			
Michael Kim	x			
S Kim	x			
Sulgi Kim	x			
Won Kim	x			
Adam Kimple	x			
Andrew King	x			
Claudia Kirsch		Primal Pictures 3D Anatomy	Consultant	Royalty
Claudia Kirsch		Core Curriculum Foundation Grant American Society of Head and Neck Radiology	Grant Recipient	Research Grant
Kittichai Kittichai	x			
J Knisely	x			
Myungjun Ko	x			
Brandon Koch	x			
Stefan Koester	x			
Michael Kohanski	x			
Kenji Kondo	x			
Doo Kong	x			
Keonho Kong	x			
Zachary Kons	x			
Neeraja Konunthula	x			
Nikitha Kosaraji	x			
Jacob Kosarchuk	x			
Jennifer Kosty	x			
Rupesh Kotecha		Accuray Inc.	Consultant	Honoraria
Dhruv Kothari	x			
Howard Krauss		Horizon Therapeutics plc	Other	Other
Daniel Kreatsoulas	x			
Raju Krishnaprabhu	x			

Disclosures (cont.)

Varun Kshetry		Medtronic	Other	Other
Varun Kshetry		Stryker	Consultant	Consulting Fee
Varun Kshetry		Storz	Other	Other
Rijul Kshirsagar	x			
Edward Kuan		Optinose	Advisory Panel/ Board	Consulting Fee
Edward Kuan		Stryker ENT	Consultant	Consulting Fee
Edward Kuan		CoolTech	Advisory Panel/ Board	Consulting Fee
Slawomir Kujawski	x			
Pallavi Kulkarni	x			
Adithya Kumar	x			
Ayan Kumar	x			
Rahul Kumar	x			
Deepak Kumbhare	x			
Sandeep Kunwar	x			
Michael Kupferman	x			
Goldie Kurtz	x			
Joe Kutz		Medtronic	Speaking/Teaching	Honoraria
Walter Kutz	x			
Fred Kwon	x			
Han Kyu Kim	x			
Olivia La Monte	x			
Mohamed Labib	x			
Camille Lacasse	x			
Anne Lally	x			
Meredith Lamb	x			
Layton Lamsam	x			
David Langer		Longeviti	Consultant	Consulting Fee
David Langer		Medtronic	Consultant	Consulting Fee
David Langer		Olympus America	Consultant	Consulting Fee
Giuseppe Lanzino	x			
Tsz Lau	x			
Lorenzo Lauda	x			
Anne Laure Bernat	x			
Michael Lawton		Mizuho	Consultant	Royalty
Milagros Lazos	x			
Reade Leacy	x			
Matt Lechner	x			
Alexander Ledermann	x			
Cristian Ledermann	x			
Anna Lee	x			
Christine Lee	x			
Jivianne Lee	x			
John Lee	x			
Joshua Lee	x			
Sungho Lee	x			
Haoyi Lei	x			

Disclosures (cont.)

Luciano Leonel	x			
David Lerner	x			
Corinna Levine		GlaxoSmithKline, LLC.	Other	Other
Corinna Levine		Medtronic	Other	Other
Corinna Levine		Acclarent	Other	Other
Daniel Lewis	x			
Brandon Liang	x			
Jeffrey Liaw	x			
Seth Lieberman	x			
Micheal Lim	x			
Seung-Hoon Lim	x			
Derrick Lin	x			
E Lin	x			
Theodore Lin	x			
Nathan Lindquist	x			
Michael Link	x			
Andrew Little		Spiway	Consultant	Stock Options
Andrew Little		BK Medical	Consultant	Consulting Fee
Andrew Little		Kogent	Other	Equity/ Ownership
Collin Liu	x			
Guodong Liu	x			
James Liu		Stryker	Speaking/Teaching	Consulting Fee
Yaohua Liu	x			
Yin Liu	x			
Ainhoa Lliberós	x			
Simon Lloyd	x			
Brian Lobo		Medtronic	Other	Consulting Fee
Brian Lobo		Acclarent	Other	Consulting Fee
Nyall London		Merck	Grant Recipient	Research Grant
Cai Long	x			
Christopher Long	x			
Diana Lopez	x			
Erin Lopez	x			
Joseph Lopez	x			
Lorenzo Lorenzo	x			
Harry Loveren	x			
Benjamin Lovin	x			
Christopher Low	x			
Trevor Low	x			
Joshua Loya	x			
Lucila Lucila	x			
Brandon Lucke-Wold	x			
Morten Lund-Johansen	x			
L Dade Lunsford	x			
Meigi Luo	x			
Robert Lustig	x			
Daniel Lynch	x			

Disclosures (cont.)

Josh Ma	x			
Jess Mace	x			
Simon Richard Mackenzie Freeman	x			
Taketoshi Maehara	x			
R Magge	x			
Stephen Magill	x			
Jeffrey Mai	x			
Shahram Majidi	x			
Serge Makarenko	x			
Yelena Malkhasyan	x			
Regin Mallari	x			
Arka Mallela	x			
Hamid Mammar	x			
Javier Mancilla-Mejia	x			
Emmanuel Mandonnet	x			
Ravisankar Manogaran	x			
Avinash Mantravadi		Cook Biotech	Advisory Panel/ Board	Consulting Fee
Ying Mao	x			
Andrzej Marchel	x			
Margherita Margherita	x			
Neelan Marianayagam	x			
Odetta Mariani	x			
Michael Martini	x			
Annika Mascarenhas	x			
Julien Masliah-Planchon	x			
Stavros Matsoukas	x			
Carlos Matsuoka	x			
Douglas Mattox	x			
Abhijith Matur	x			
Andrew McCall	x			
Lily McCarthy	x			
Hilary Mccrary	x			
Michael McDemott	x			
Michael McDowell	x			
Ben McGahan	x			
Susan McGovern	x			
Maggie McGrath	x			
Declan McGuone	x			
Santosh McGuone	x			
Erin McKean	x			
Rohini McKee	x			
Kibewi Mckinney		Medtronic ENT	Speaking/Teaching	Honoraria
Sean McMenomey	x			
Ryan McMilan	x			
Mahlet Mekonnen	x			
Katie Melder	x			

Disclosures (cont.)

Sarah Menacho	x			
L M Michael	x			
Brennen Middleton	x			
Mathew Mifsud	x			
Erin Miller	x			
Jessa Miller	x			
Lauren Miller	x			
Mia Miller	x			
Susie Min	x			
Yu Ming	x			
Stephen Miranda	x			
Akshatkumar Mistry	x			
J Mocco	x			
Joseph Mocharnuk	x			
Kris Moe		SpiSurgical LLC	Founder	Stock Options
Ahmed Mohyeldin	x			
Jennifer Moliterno Gunel		BK Medical	Consultant	Consulting Fee
Ronsard Mondesir	x			
Molly Monsour	x			
Eric Monteiro	x			
Andrew Montoure	x			
Eric Moore	x			
Kenneth Moore	x			
Lindsay Moore	x			
Jacques Morcos		LEICA	Consultant	Consulting Fee
Jacques Morcos		STRYKER	Other	Consulting Fee
Nicolas Morin	x			
Rubén Mormandi	x			
Peter Morone	x			
Jonathan Morris	x			
Ramin Morshed	x			
Omid Moshtaghi	x			
Mustafa Motiwala	x			
Sarah Mowry		Medtronic	Speaking/Teaching	Honoraria
Sarah Mowry		Cochlear Americas	Speaking/Teaching	Consulting Fee
Sarah Mowry		Cook Medical	Speaking/Teaching	Consulting Fee
Khashayar Mozaffari	x			
Muhammad Muhammad	x			
Debraj Mukherjee	x			
Jennifer Mulligan	x			
Vikas Munjal	x			
Jorge Mura	x			
Sanjay Murali	x			
Roger Murayi	x			
Nallammai Muthiah	x			
Ashok Muthukrishnan	x			
Tomas Muvdi	x			
Mylène Mylène	x			

Disclosures (cont.)

Erling Myrseth	x			
John Myseros	x			
Shorook Na'ara	x			
Sylvie Nadeau	x			
Marc Nader	x			
Arhum Naeem	x			
Jackson Nagamoto	x			
Bitu Naimi	x			
Prakash Nair	x			
Edinson Najera	x			
Peter Nakaji		Ospitek	Other	Equity/ Ownership
Peter Nakaji		DocSpera	Other	Equity/ Ownership
Peter Nakaji		Acumed Osteomed	Independent Contractor	Royalty
Peter Nakaji		GT Medical Technologies	Founder	Stocks
Peter Nakaji		Toragen	Other	Equity/ Ownership
Ian Naksen	x			
Pakjira Naksen	x			
Khizar Nandoliya	x			
James Naples	x			
Ashley Nassiri		Cochlear Corp	Grant Recipient	Research Grant
David Nathanson	x			
Katherine Nathanson	x			
Jayakar Nayak	x			
Brian Neff	x			
Darian Nejad	x			
Vladimir Nekhendzy	x			
John Nerva		Midwest Interventional Systems, Inc	Advisory Panel/ Board	Equity/ Ownership
John Nerva		Synchron, LLC	Other	Equity/ Ownership
John Nerva		Bendit Technologies Ltd	Other	Equity/ Ownership
Bachtri Nguyen	x			
Cecilia Nguyen	x			
Minh Nguyen	x			
Theodore Nguyen	x			
Vincent Nguyen	x			
Garrett Ni	x			
Noah Nichols	x			
Christopher Nickele	x			
Ajay Niranjana	x			
Eric Nisenbaum	x			
Raywat Noiphithak	x			
Motonobu Nonaka	x			
Lauren North	x			

Disclosures (cont.)

Madeline Nottoli	x			
Nicholas Novak	x			
Maximiliano Nunez	x			
Ravi Nunna	x			
Gurston Nyquist	x			
Rupert Obholzer		Stryker	Speaking/Teaching	Honoraria
Daniel O'Brien	x			
Joseph O'Brien	x			
Jamie O'Bryne	x			
Thomas O'Bryne	x			
Jamie O'Byrne	x			
Eric Oermann	x			
Fatih Okcu	x			
Derek O'Keefe	x			
David Okonkwo	x			
Olabisi Olabisi	x			
André Oliveira	x			
Osarenoma Olomu	x			
Omaditya Omaditya	x			
Vera Ong	x			
Eng Ooi	x			
David Orbital	x			
Jose Orenday-Barraza	x			
Daniel Orfila	x			
Anna Orr	x			
Michael Ortiz	x			
J Osborne	x			
Robert Osorio	x			
Brad Otto	x			
Cynthia Otto	x			
Soliman Oushy	x			
Alberto Ovalle	x			
Donato Pacione	x			
Michelle Padget	x			
Samantha Palma	x			
Andrew Palmer	x			
James Palmer	x			
Joshua Palmer		Varian Medical Systems	Speaking/Teaching	Honoraria
Daniel Palmieri	x			
Paolo Palmisciano	x			
Jonathan Pang	x			
Dhiraj Pangal	x			
Paniz Paniz	x			
S Pannullo	x			
Arjun Parasher	x			
Anirrhuda Parikh	x			
Kara Parikh	x			
Jae Park	x			

Disclosures (cont.)

Bakhtiyar Pashaev	x			
Thibault Passeri	x			
Aneek Patel	x			
Chirag Patel	x			
Evan Patel	x			
Mihir Patel		Intuitive Surgical	Speaking/Teaching	Consulting Fee
Neil Patel	x			
Ruchit Patel	x			
Saarang Patel	x			
Saavan Patel	x			
Shreyas Patel		Deciphera	Consultant	Honoraria
Shreyas Patel		GSK	Consultant	Honoraria
Shreyas Patel		Rain Therapeutics	Consultant	Honoraria
Shreyas Patel		Adaptimmune	Consultant	Honoraria
Shreyas Patel		Daiichi Sankyo	Consultant	Honoraria
Vijay Patel	x			
Vishal Patel	x			
Zara Patel	x			
Zara Patel		Medtronic	Consultant	Consulting Fee
Zara Patel		Dianosic	Advisory Panel/ Board	Consulting Fee
Zara Patel		Consumer Medical	Consultant	Consulting Fee
Zara Patel		Mediflix	Consultant	Consulting Fee
Zara Patel		Regeneron/Sanofi	Advisory Panel/ Board	Consulting Fee
Zara Patel		Optinose	Advisory Panel/ Board	Consulting Fee
Zara Patel		Wyndly	Advisory Panel/ Board	Consulting Fee
Zara Patel		Johnson&Johnson (Ethicon)	Consultant	Consulting Fee
Omar Pathmanaban	x			
Athos Patsalides	x			
Joao Paulo	x			
Zain Peeran	x			
Panayiotis Pelargos	x			
Myles Pensak	x			
Lazaro Peraza	x			
Kaitlyn Pereira	x			
Matheus Pereira	x			
Rafael Perez	x			
Maria Peris Celda	x			
Avital Perry	x			
Racheal Peterson	x			
Gabrielle Petito	x			
Jordan Petitt	x			
Jack Phan	x			
Brandon Philbrick	x			
Katie Philips	x			
Jean Pierre	x			

Disclosures (cont.)

Carlos Pinheiro-Neto	x			
Jaime Pinto	x			
Gianluca Piras	x			
Caroline Pitts	x			
Aaron Plitt	x			
Tritan Plute	x			
Falk Poenisch	x			
Marc Polivka	x			
Sean Polster	x			
Seerat Poonia	x			
Jose Porras	x			
Edoardo Porto	x			
Kalmon Post	x			
Gillian Potter	x			
Gustavo Pradilla		Stryker	Consultant	Consulting Fee
Gustavo Pradilla		NICO Corporation	Grant Recipient	Research Grant
Gustavo Pradilla		Stryker Corporation	Consultant	Consulting Fee
Giyarpuram Prashant	x			
Charles Prestigiacomo	x			
Mark Preul	x			
Daniel Prevedello		KLS Martin	Inventor/Consultant	Royalty
Daniel Prevedello		Mizuho	Consultant	Royalty
Daniel Prevedello		ACE Medical	Inventor/Consultant	Royalty
Daniel Prevedello		Stryker	Consultant	Consulting Fee
Daniel Prevedello		Medtronic	Consultant	Consulting Fee
Daniel Prevedello		Integra	Consultant	Consulting Fee
Daniel Prevedello		BK Medical	Consultant	Consulting Fee
Robert Prins	x			
Laura Prolo	x			
Przemyslaw Przemyslaw	x			
Lukasz Przepiorka	x			
Alkis Psaltis	x			
Ricardo Pulido	x			
Anas Qatanani	x			
Yun Qing	x			
Eric Quach	x			
Alexandra Quimby	x			
Hanya Qureshi	x			
Brenda Quintana	x			
Mindy Rabinowitz	x			
Ashwin Ramayya	x			
Alexander Ramos	x			
Amelia Ramsey	x			
Nicholas Randall	x			
Sanjeet Rangarajan		Medtronic Corporation	Consultant	Consulting Fee
Sanjeet Rangarajan		Karl Storz	Consultant	Consulting Fee
R. Chase Ransom	x			
Daniel Ranti	x			

Disclosures (cont.)

Manasa Rao	x			
Anna Raper	x			
Benjamin Rapoport	x			
Christopher Rassekh		Cook Medical	Consultant	Consulting Fee
Christopher Rassekh		Cook Medical	Speaking/Teaching, Consultant	Honoraria, Consulting Fee
Nataly Raviv	x			
Shaan Raza	x			
Taylor Reardon	x			
Pablo Recinos		Karl Storz	Dinner	Other
Pablo Recinos		Acera Surgical	Advisory Panel/ Board	Equity/ Ownership
Pablo Recinos		Stryker	Consultant	Consulting Fee
Nathaniel Reeve	x			
Regi Regi	x			
Gerda Reischer	x			
Yin Ren	x			
Robert Rennert	x			
J. Manuel Revuelta-Barbero	x			
Maikerly Reyes	x			
André Ribeiro	x			
Angela Richardson		Stryker CMF	Consultant	Consulting Fee
Angela Richardson		GT Med Tech	Advisory Panel/ Board	Consulting Fee
George Richardson	x			
Alessandro Rienzo	x			
Riley Riley	x			
Ryan Rimmer	x			
Lorenzo Rinaldo	x			
Rima Rindler	x			
Barak Ringel	x			
Adwight Risbun	x			
Arnaldo Rivera	x			
R Rmakrishna	x			
Jorge Roa	x			
Austin Robbins	x			
Diana Roberts	x			
Rocco Rocco x	x			
James Rodgers	x			
Adrian Rodrigues	x			
Aubrey Rogers	x			
Rohan Rohan	x			
Rebecca Rohde	x			
Thomas Roland	x			
Dominic Romeo	x			
Steven Roper	x			
Rosaria Rosaria	x			
Marc Rosen	x			

Disclosures (cont.)

Ross Rosen	x			
Lauren Rotman	x			
Nicholas Rowan	x			
M Roytman	x			
Franco Rubino	x			
Michael Ruckenstein	x			
Mauro Ruella	x			
Kavelin Rumalla	x			
Scott Rutherford	x			
John Rutland	x			
Jacob Ruzevick	x			
James Ryoo	x			
Gwanghui Ryu	x			
Nabil Saba		Exelixis	Consultant	Consulting Fee
Nabil Saba		GSK	Consultant	Consulting Fee
Nabil Saba		Eisai	Consultant	Consulting Fee
Nabil Saba		Merck Serono	Advisory Panel/ Board	Consulting Fee
Nabil Saba		Novartis	Advisory Panel/ Board	Consulting Fee
Nabil Saba		Astra Zeneca	Advisory Panel/ Board	Consulting Fee
Nabil Saba		Uptodate	Speaking/Teaching	Royalty
Nabil Saba		Merck	Consultant	Consulting Fee
Nabil Saba		Inovio	Consultant	Consulting Fee
Nabil Saba		Med edge	Speaking/Teaching	Honoraria
Mohammadmahdi Sabahi	x			
Miguel Saez-Alegre		Levendis	Owner	Owner
D Sahni	x			
Ronald Sahyouni	x			
Nobuhito Saito	x			
Eman Salem	x			
Muhammad Salman Ali	x			
Fabrizio Salvinelli	x			
Susan Samson	x			
Ravi Samy		Otonomy, Inc.	Grant Recipient	Research Grant
Ravi Samy		Frequency Therapeutics	Grant Recipient	Research Grant
Ravi Samy		Cochlear Corporation	Grant Recipient	Research Grant
Alejandro Sanchez	x			
Mani Sandu	x			
Jose Sanmillan	x			
Mario Sanna	x			
Stephen Santoreneos	x			
Olabisi Sanusi	x			
Zoukaa Sargi	x			
Christina Sarris	x			
Sasi Karuparti	x			
Anish Sathe	x			

Disclosures (cont.)

Amey Savardekar	x			
Akshay Save	x			
Sayak Sayak	x			
Ivan Sayed	x			
Leslie Schlachter	x			
Meic Schmidt	x			
Thomas Schmidt	x			
Daniel Scholfield	x			
David Schramm	x			
Theodore Schuman	x			
Solon Schur	x			
Alexander Schwartz	x			
Marc Schwartz	x			
T Schwartz	x			
Theodore Schwartz	x			
Justin Schwarz	x			
Hannah Scruggs	x			
Ahmad Sedaghat	x			
Raja Seethala	x			
Aaron Segura	x			
Chandra Sen	x			
Meghdeep Sen	x			
Brent Senior	x			
Jin Seok	x			
Seonah Choi	x			
Simona Serioli	x			
Riccardo Serra	x			
Nicolas Servant	x			
Hussam Shaar	x			
Jacob Shabason	x			
Taha Shabazi	x			
Sanjit Shah	x			
Kiarash Shahlaie	x			
Shane Shane	x			
Mayur Sharma	x			
Shelley Sharma	x			
Devender Shekawat	x			
David Sher		Varian Medical Systems	Grant Recipient	Research Grant
Kevin Sheth	x			
Ryan Shield	x			
Tomoyoshi Shigematsu	x			
Ryan Shih	x			
Joongbo Shin	x			
Masahiro Shin	x			
Yuki Shinya	x			
Patrick Shiong	x			
Sylvia Shitsama	x			
Hazem Shoirah	x			

Disclosures (cont.)

Raj Shrivastava	x			
Mohammad Shujaat	x			
Geet Shukla	x			
Sana Siddiqui	x			
Juan Siller	x			
Nicole Silva	x			
Raj Sindwani		optinose	Consultant	Consulting Fee
Raj Sindwani		acclarent	Consultant	Consulting Fee
Raj Sindwani		stryker	Consultant	Consulting Fee
Ameet Singh	x			
Rohin Singh	x			
Dimitrios Sismanis	x			
Janissardhar Skulsampaopol	x			
Elizabeth Smith	x			
Kristine Smith	x			
Tim Smith	x			
Carl Snyderman		SPIWay, LLC	Consultant	Stock in Private Company
Carl Snyderman		Peter Lazic US, Inc.	Consultant	Royalty
Carl Snyderman		Respair, Inc.	Owner	Ownership interest as founder
Justin Soffer	x			
C. Arturo Solares		Medtronic	Consultant	Consulting Fee
C. Arturo Solares		Stryker corporation	Consultant	Consulting Fee
Lucia Somma	x			
Connor Sommerfeld	x			
Adam Sonabend	x			
Sonja Sonja	x			
Jeffrey Sorenson	x			
Roberto Soriano	x			
Glen Souza	x			
Michael Spadola	x			
Daniel Spielman	x			
Michael Spiotto	x			
Satyan Sreenath		Acclarent	Consultant	Consulting Fee
Satyan Sreenath		3D Matrix	Grant Recipient	Research Grant
Visish Srinivasan	x			
Taylor Stack	x			
Konstantina Stankovic	x			
Antony Stanley	x			
Toby Steele	x			
Philip Steig	x			
Janalee Stokken	x			
Phillip Storm	x			
Edward Strong	x			
Shirley Su	x			
Tejas Subramanian	x			

Disclosures (cont.)

Sweta Sudhir	x			
Takashi Sugawara	x			
Jeffery Suh	x			
Hanyao Sun	x			
Matthew Sun	x			
Rajan Sunderesan	x			
Terje Sundstrøm	x			
Jae Sung	x			
Samir Sur	x			
Susie Susie	x			
Stephen Susman	x			
Larissa Sweeny	x			
Hashim Syed	x			
Halima Tabani	x			
Viviane Tabar	x			
Joanna Tabor				
Mark Tabor	x			
Kent Tadokoro	x			
Yoko Takahashi	x			
Hirokazu Takami	x			
Masayoshi Takashima	x			
Alan Tang	x			
Dennis Tang		Acclarent, Inc.	Consultant	Consulting Fee
Qizhi Tang	x			
Zakia Tariq	x			
Tasha Tasha	x			
Sherwin Tavakol	x			
Kareem Tawfik	x			
Eric Taylor	x			
Philip Theodosopolous	x			
Rachel Thommen	x			
Reid Thompson	x			
Brian Thorp	x			
Liliana Tiberti	x			
Jonathan Ting	x			
Jamie Toms	x			
Sina Torabi	x			
Ildiko Torok	x			
Michael Torres	x			
Umberto Tosi	x			
Elina Toskala	x			
Siddhant Tripathi	x			
Meghan Turner		Intuitive Surgical	Speaking/Teaching	Other
Justin Turpin	x			
Tyler Tyler	x			
Matthew Udine	x			
Beatrice Ugiliweneza	x			
Madhusoodanan Uk	x			

Disclosures (cont.)

Ruben Ulloa	x			
Uma Uma	x			
Motoyuki Umekawa	x			
Amith Umesh	x			
Zachary Urdang	x			
Benjamin Uy	x			
Gulnar Vagapova	x			
Benita Valappil	x			
Rowan Valentine	x			
Saul Valero	x			
Jamie Van	x			
Kyle VanKoevering		KLS Martin	Other	Other
Kyle VanKoevering		Make Medical	Owner	Other
Vikram Vasan	x			
Sagar Vasandani	x			
Carlos Vega	x			
Andrew Venteicher	x			
Alec Verta	x			
Shaurey Vetsa	x			
Joshua Vignolles-Jeong	x			
Vera Vigo	x			
Vijay Vijay	x			
Larissa Vilany	x			
Harry Vildibill	x			
Facundo Villamil	x			
Ramandeep Virk	x			
Jeremie Vitte	x			
Esther Vivas	x			
Esther Vivas		Advanced Bionics	Advisory Panel/ Board	Consulting Fee
Esther Vivas		Stryker	Speaking/Teaching	Other
Hannes Vogel	x			
Nikitas Vrodos	x			
Jackson Vuncannon	x			
Madhuri Wadehra	x			
Walavan Walavan	x			
Elaina Wang	x			
Eric Wang	x			
He Wang	x			
Marilene Wang	x			
Xin Wang	x			
Charlotte Ward	x			
Isaac Wasserman	x			
Zhishuo Wei	x			
Chris Wen	x			
Thomas Whitaker	x			
William Whitehead	x			
Thomas Wilcox	x			

Disclosures (cont.)

Alex Wilkinson	x			
Brian William	x			
Justin Williams	x			
Meghan Wilson	x			
Robert Winkelman	x			
Emily Winterhalter	x			
Charles Withington	x			
Ian Witterick	x			
Katarzyna Wojtowicz	x			
Brandon Wold	x			
Amanuel Woldesenbet	x			
Gunther Wong	x			
Taemin Woodard	x			
Troy Woodard	x			
Robbie Woods	x			
Peter Wormald	x			
Erin Wright	x			
Rachel Wrigley	x			
Arthur Wu	x			
Eva Wu	x			
Kyle Wu	x			
Zachary Wykoff	x			
Roy Xiao	x			
Michael Xie	x			
Tongxin Xie	x			
Yuanzhi Xu	x			
Waseem Yaghmoor	x			
Kanat Yalcin	x			
Junichi Yamamoto	x			
Hiroto Yamaoka	x			
Bakhtiar Yamini	x			
Andrew Yang	x			
Hong Yang	x			
Isaac Yang		UCLA Visionary Ball Fund	Grant Recipient	Grant
Isaac Yang		Eli and Edythe Broad UCLA Center	Grant Recipient	Grant
Isaac Yang		Jason Dessel Memorial Seed Grant	Grant Recipient	Grant
Isaac Yang		UCLA Honberger Endowment Grant	Grant Recipient	Grant
Isaac Yang		Stop Cancer (US) Research Award	Grant Recipient	Grant
Isaac Yang		Baxter	Consultant	Honoraria
Isaac Yang		Brainlab	Consultant	Grant
Isaac Yang		Stryker	Consultant	Grant
Kaiyun Yang	x			
Dan Yaniv	x			
Shun Yao	x			
Yazed Yazed	x			

Disclosures (cont.)

Michael Ye	x			
Aaron Yengo-Kahn	x			
Hyo Yeol	x			
Michael Yim		Chitogel	Consultant	Consulting Fee
Michael Yim		Acclarent/J&J	Consultant	Consulting Fee
Alex Yohan	x			
Kaleb Yohay		AstraZeneca	Consultant	Consulting Fee
Keven Yong	x			
Jae Yoon	x			
Wan Yoon	x			
Shoko Yoshimoto	x			
Daniel Yoshor	x			
Jacob Young	x			
Kurtis Young	x			
William Young	x			
Mark Youngblood	x			
Omid Yousefi	x			
John Yu		Kairos Pharma, Ltd.	Founder	Payment for IP Rights
John Yu		Coherus Biosciences	Consultant	Consulting Fee
Shirley Yu	x			
Yuanzhi Yuanzhi	x			
Kevin Yuen	x			
Yvette Yvette	x			
Marcus Zachariah	x			
Zachary Robbins	x			
Gabriel Zada		Integra	Consultant	Consulting Fee
Gabriel Zada		Stryker	Consultant	Consulting Fee
Gelareh Zadeh	x			
Myra Zaheer	x			
Zakia Tariq	x			
Adrian Zammit	x			
Elcin Zan		SOFIE	Advisory Panel/ Board	Consulting Fee
Elcin Zan		Siemens	Speaking/Teaching	Honoraria
Elcin Zan		NIH UG3	Grant Recipient	Research Grant
Elcin Zan		Novartis/AAA	Advisory Panel/ Board	Consulting Fee
Abdullah Zeatoun	x			
Georgios Zenonos	x			
Angie Zhang	x			
Botao Zhang	x			
Grace Zhang	x			
Han Zhang	x			
Michael Zhang	x			
Qi Zhang	x			
Xiaochun Zhao	x			

Disclosures (cont.)

Lee Zimmer	x			
Ali Zomorodi	x			
Mario Zuccarello	x			
Nathan Zwagerman	x			

NASBS Skull Base Surgery SUMMER WORKSHOP



August 17-20, 2023 • LSU Health Sciences Center, New Orleans, LA

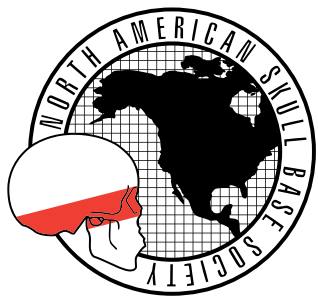
SAVE THE DATE

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

This course is not to be missed! Registration will be first-come, first served and opens February 2023. For more information, visit <https://www.nasbs.org/summer-course/> or contact NASBS Course Coordinator, Jillian Kelly jillian@nasbs.org.



2024 Save the Date!



North American Skull Base Society

33rd Annual Meeting

The Skull Base is Flat

February 16-18, 2024

Atlanta Marriott Marquis, Atlanta, GA

February 14-15, 2024 | Pre-Meeting Dissection Course

PRESIDENT: Siviero Agaazi, MD, MBA

PROGRAM CHAIRS: Donato Pacione, MD & Shirley Su, MBBS



@nasbsorg

Save the Date!

Visit nasbs.org/future_meetings
for additional information.