2017 **FINAL PROGRAM**

North American Skull Base Society

27th Annual Meeting

"Mastery and Legacy in Skull Base Surgery: Lessons in Synchronicity"

March 3-5, 2017
The Roosevelt New Orleans, New Orleans, Louisiana

Pre-Meeting Course: **March 1-2, 2017**
LSU Health Sciences Center, New Orleans, Louisiana

PRESIDENT: Jacques Morcos, MD, FRCS, FAANS

PROGRAM CHAIRS: Mustafa K. Baskaya, MD & Zoukaa Sargi, MD, MPH

SCIENTIFIC PROGRAM COMMITTEE: Jacques Morcos, MD, FRCS, FAANS, President, Mustafa K. Baskaya, MD, Program Co-Chair, Zoukaa Sargi, MD, MPH, Program Co-Chair, Rony Aouad, MD, Ian Dunn, MD, Nagy Elsayyad, MD, Adam Folbe, MD, MS, Paul Gardner, MD, Kris Moe, MD, Jeffrey Sorenson, MD, Tonya Stefko, MD, George Wanna, MD & Samy Youssef, MD, PhD

PRE-MEETING COURSE CHAIRS: Carlos David, MD & Daniel Nuss, MD

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Welcome

DEAR COLLEAGUES:

It is with great joy that I welcome all of you to New Orleans for the 27th Annual Meeting of the North American Skull Base Society! If this meeting has broken records of attendance and abstract submissions, it is due to the expert help of the very talented staff at BSC, our Management Company, the dedication of a spectacular Scientific Program Committee, and last but not least, the contributions of all of you.

We are delighted to have more than 33 countries represented, 250 invited speakers and moderators, close to 187 oral abstracts (traditional and rapid fire), and 165 posters. We are also very thankful to have 28 industry partners exhibiting and we have exceeded 625 registrants.

But the success of a meeting is not only measured in quantity, but mostly in quality. The Scientific Program Committee, under the leadership of Mustafa K. Baskaya, MD and Zoukaa Sargi, MD, MPH, has met twice a month for the past year to plan and execute the wonderful scientific content of this Program Book. We have made a concerted effort to expand the scope of speakers to beyond North America. I would like to see the NASBS Meeting become one of the hubs for the international skull base community. We have also included more speakers from the world of oculoplastic/orbital surgery, neuroophthalmology and radiation oncology. I hope to see more representation from neuropathology, neuroradiology and other related disciplines in future years.

As always, our meeting will begin with a 2 day Pre-Meeting Cadaveric Course, made possible by the generosity of our Past President Dan Nuss, MD and the wonderful staff at Louisiana State University, and the leadership of Carlos David, MD. The format this year is based on anatomical location rather than technique. As the main meeting unfolds, we have built on the success of last year's meeting, and decided to continue with the novel format of PechaKucha sessions, that allow more rapid fire, but distilled presentation of relevant information. We introduce for the first time rapid fire abstract presentations, a Lipton-style interview of leaders in our field, Constructive Criticisms sessions where your submitted surgical videos are critiqued/commented upon by chosen experts, Dinner Symposia sponsored by Industry partners and other features that we hope you will appreciate. We also took great care in trying to be as inclusive as possible in our choice of invited speakers. We are also highlighting, for the first time in our Annual Meetings, a "Women in Skull Base Surgery initiative", with a dedicated special scientific session and increased participation of women at all levels. This is only part of a larger goal of attracting more female talent into our field, and recognizing the established and accomplished female surgeons in our midst. I am confident that this initiative will blossom further, year after year under my successors.

But perhaps the 2017 Meeting should and will be remembered for the Al Rhoton Memorial. After the loss of this giant of the field last February, it felt so appropriate to celebrate his life and contributions on the plenary stage of our meeting, in the presence of his family and fellows that he has trained from around the globe. The theme of the meeting is "Mastery and Legacy in Skull Base Surgery: Lessons in Synchronicity". The legacy of Dr. Rhoton is indeed boundless and priceless. I also take great pride in welcoming my Honored Guests, Alan Crockard, MB, BCh, DSc, FRCS, FRCP, FDSRCS, Roberto Heros, MD, FACS and Fred Gentili, MD, MSc, FRCSC, FACS, celebrated leaders that have contributed to my personal growth, through their surgical mastery, inspiring personality and dedication to education. I regret that Bernard George, MD could not join their rank and be physically present with us, but he sends his best wishes to all.

I am very grateful to Lieutenant General Russel Honoré for accepting the task of Keynote Speaker. He will undoubtedly inspire us with lessons from the field and his days of orchestrating the relief efforts on the ground in New Orleans after the devastation left by Hurricane Katrina.

Lastly, how can we escape the allure of the City of New Orleans, a phoenix of a city risen from ashes, a story of survival, authentic food, and soulful music. Our gala night on Saturday will be celebrated at the iconic House of Blues. I am so excited to be seeing all of you in New Orleans, and thank each and every one of you for your support and contribution. The NASBS could not be in better shape.

Let the good times roll!

Jacques J. Morcos, MD, FRCS, FAANS
NASBS President, 2016-2017
January 2017

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CONTACT

North American Skull Base Society
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Los Angeles, California 90064

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FAX: 310-437-0585
www.nasbs.org

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The Roosevelt New Orleans
123 Baronne St.
New Orleans, LA 70112

PHONE: 504-648-1200

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
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www.bscmanage.com

General/CME Information

ANNUAL MEETING OBJECTIVES

At the conclusion of this activity, participants should be able to:

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

THE FINAL PROGRAM AND ABSTRACTS CAN BE VIEWED BY VISITING **NASBS.ORG**

WHO SHOULD ATTEND

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

TARGET AUDIENCE

- Head and neck surgeons, neurosurgeons, reconstructive surgeons, radiation oncologists, radiologists, medical oncologists, physical rehabilitation physicians, ophthalmologists, oculoplastic and orbital surgeons, neurologists, maxillofacial surgeons, maxillofacial prosthodontists, endocrinologists and other physicians treating patients with diseases of the skull base.
- Targeted allied health professionals will include physical therapists, oncology nurses, oral health specialists, occupational therapists, speech and language pathologists, optometrists, psychologists and anaplastologists.

CONTINUING MEDICAL EDUCATION CREDIT INFORMATION

Accreditation

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

AMA PRA Category 1 Credits™

The American College of Surgeons designates this live activity for a maximum of **20.50** *AMA PRA Category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

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AMERICAN COLLEGE OF SURGEONS
DIVISION OF EDUCATION
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DISCLOSURE INFORMATION

In compliance with the ACCME Accreditation Criteria, the American College of Surgeons, as the accredited provider of this activity, must ensure that anyone in a position to control the content of the educational activity has disclosed all relevant financial relationships with any commercial interest. All reported conflicts are managed by a designated official to ensure a bias-free presentation. Please see the insert to this program for the complete disclosure list.

General/CME Information

MEMBERSHIP BENEFITS

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

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

WHY JOIN NASBS?

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

MEETING LEADERSHIP

NASBS Scientific Program Committee

Jacques Morcos, MD, FRCS, FAANS
President
Mustafa K. Baskaya, MD
Program Co-Chair
Zoukaa Sargi, MD, MPH
Program Co-Chair
Carlos David, MD
Pre-Meeting Course Co-Chair
Daniel Nuss, MD
Pre-Meeting Course Co-Chair
Rony Aouad, MD
Ian Dunn, MD
Nagy Elsayyad, MD
Adam Folbe, MD, MS
Paul Gardner, MD
Kris Moe, MD
Jeffrey Sorenson, MD
Tonya Stefko, MD
George Wanna, MD
Samy Youssef, MD, PhD

NASBS Executive Committee

Jacques Morcos, MD, FRCS, FAANS
President – University of Miami
Ian Witterick, MD, MSc, FRCSC
President-Elect – University of Toronto
Jim Evans, MD
Vice President – Thomas Jefferson University
John Golfinos, MD
Secretary – New York University
Ricardo Carrau, MD
Treasurer – The Ohio State University
Carl Snyderman, MD, MBA
Immediate Past President – University of Pittsburgh

Directors at Large

Siviero Agazzi, MD, MBA
Matthew Carlson, MD
Ivan El-Sayed, MD
Steven Frank, MD
Paul Gardner, MD
Madison Michael, MD, FAANS, FACS
Thomas Roland, MD
George Wanna, MD
Gelareh Zadeh, MD, PhD, FRCS
Adam Zanation, MD
Lee Zimmer, MD, PhD

Board of Advisors

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

Meeting Hours

REGISTRATION HOURS

Roosevelt Foyer

Thursday, March 2, 2017	2:00 pm – 7:00 pm
Friday, March 3, 2017	6:00 am – 7:30 pm
Saturday, March 4, 2017	6:30 am – 6:30 pm
Sunday, March 5, 2017	7:00 am – 12:30 pm

SPEAKER READY ROOM HOURS

Napoleon Room

Thursday, March 2, 2017	2:00 pm – 7:00 pm
Friday, March 3, 2017	6:00 am – 6:00 pm
Saturday, March 4, 2017	6:00 am – 6:30 pm
Sunday, March 5, 2017	6:00 am – 12:50 pm

EXHIBIT HALL/POSTER HOURS

Roosevelt Ballroom

Friday, March 3, 2017

9:00 am – 3:35 pm	Exhibit Hall Open
9:30 am – 10:00 am	Refreshment Break in Exhibit
12:15 pm – 1:00 pm	Lunch for Non-Members in Exhibit Hall
3:05 pm – 3:35 pm	Refreshment Break in Exhibit Hall
3:35 pm – 6:00 pm	Break for Exhibitors/Exhibit Hall Closed
6:00 pm – 7:30 pm	Welcome Reception in Exhibit Hall

Saturday, March 4, 2017

9:00 am – 3:35 pm	Exhibit Hall Open
9:30 am – 10:00 am	Refreshment Break in Exhibit Hall
12:05 pm – 1:00 pm	Lunch/Poster Viewing in Exhibit Hall
3:05 pm – 3:35 pm	Refreshment Break in Exhibit Hall

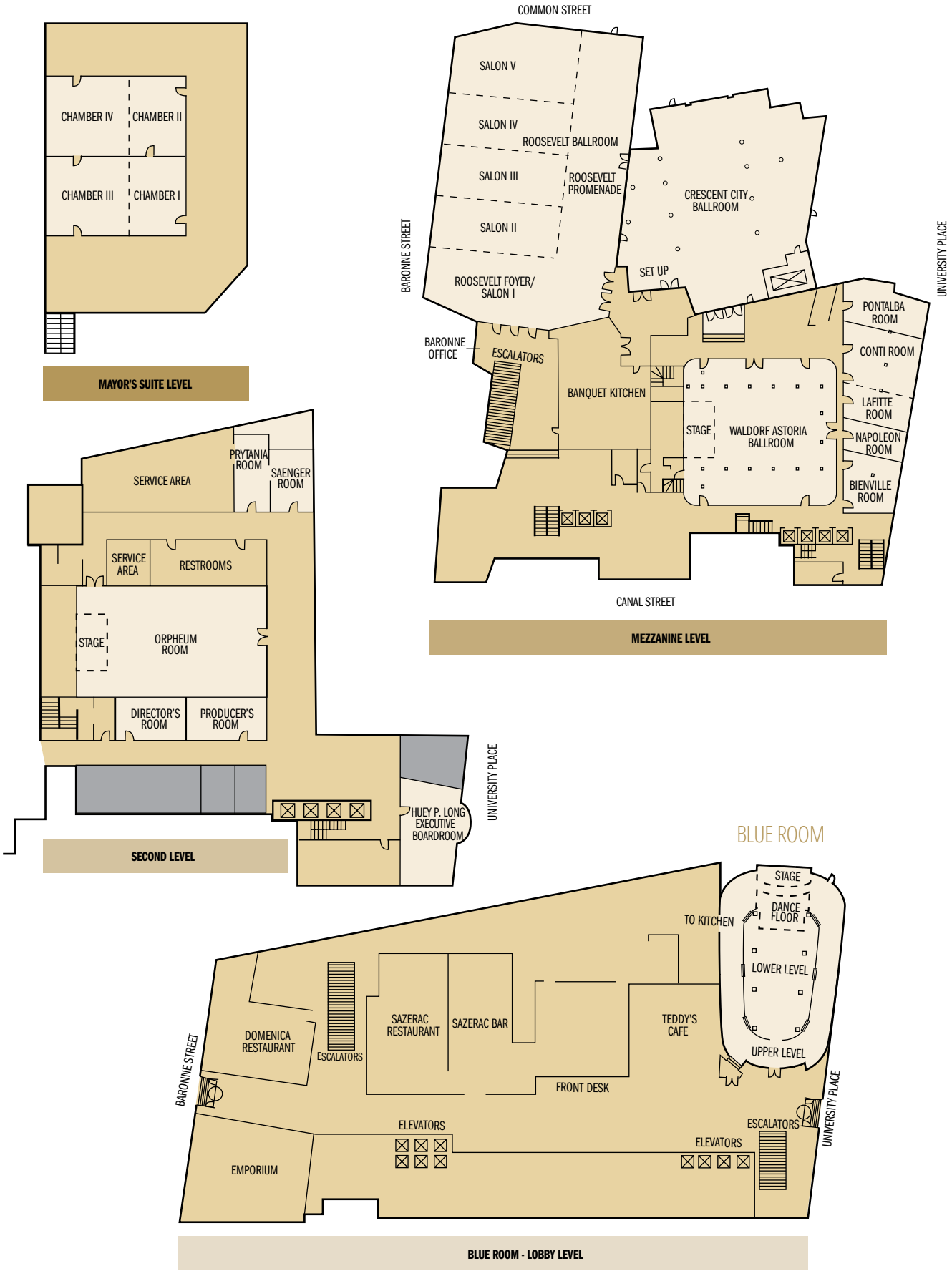
Sunday, March 5, 2017

8:00 am – 11:00 am	Exhibit Hall Open
9:50 am – 10:20 am	Refreshment Break in Exhibit Hall

PAST PRESIDENTS

1990	Paul J. Donald, MD
1991	Laligam N. Sekhar, MD
1992	Ivo P. Janecka, MD
1993	Peter G. Smith, MD, PhD
1994	Albert L. Rhoton, Jr., MD
1995	Hugh Curtin, MD
1996	Derald E. Brackmann, MD
1997	Ossam Al Mefty, MD
1998	Steven A. Newman, MD
1999	John P. Leonetti, MD
2000	Robert F. Spetzler, MD
2001	Ian T. Jackson, MD
2002	Vinod K. Anand, MD
2003	Jon H. Robertson, MD
2004	Jatin Shah, MD
2005	Patrick J. Gullane, MD
2006	Anil Nanda, MD
2007	Guy J. Petruzzelli, MD
2008	Franco DeMonte, MD
2009	Daniel Nuss, MD
2010	Peter Neligan, MD
2011	Dennis Kraus, MD
2012	Carl Heilman, MD
2013	Ehab Hanna, MD, FACS
2014	Michael Link, MD
2015	Carl Snyderman, MD, MBA
2016	Jacques Morcos, MD, FRCS, FAANS

Convention Hotel Floor Plan



ACKNOWLEDGEMENT OF EDUCATIONAL GRANTS

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

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Jackson Memorial Hospital/ University of Miami
Mizuho America, Inc.
Olympus America
Zimmer Biomet

EDUCATIONAL GRANT
In Support of Honored Guest – Dr. Roberto C. Heros
Jackson Memorial Hospital/ University of Miami

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

Apex Medical, Inc.
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NSK America Corp.
Olympus America
pro med instruments
Stryker
TrueVision Systems

Keynote Lecturer

Lt. GENERAL RUSSEL L. HONORÉ

Commander of Joint Task Force Katrina and Global Preparedness Authority

SATURDAY, MARCH 4, 10:30 AM – 11:20 AM


Lt. General Russel L. Honoré

If anyone knows how to successfully lead and execute a mission, it's Lt. General Russel Honoré, USA (Ret.), who saved a city by taking swift charge of military relief efforts in Hurricane Katrina-battered New Orleans in 2005.

Drawing from 37 years of military experience, General Honoré brings his bold, no-nonsense leadership approach to businesses and organizations to help them better identify and prepare for the challenges of the future. With an emphasis on the importance of innovation, risk assessment and social entrepreneurship, he provides valuable insight and strategies for the public and private sector to solve a broad array of issues—from jobs and energy to healthcare and technology. He also reveals leadership tactics that optimize efficiency and effectiveness of operations for all sectors and outlines the importance of developing the next generation of problem-solvers.

Gen. Honoré offers insight from decades of experience directing military operations in his book, *Survival: How a Culture of Preparedness Can Save You and Your Family from Disasters*. In his recent book, *Leadership in the New Normal*, he extends rare perspective on our current state of the "New Normal," where all stakeholders have a role in creating a "Culture of Preparedness," to safeguard our economy and natural resources.

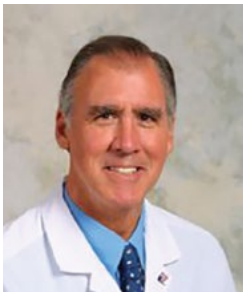
A senior scientist with the Gallup Organization, he is also an adjunct professor at Emory University, an independent director of Crawford & Company, and serves as chairman of the board for LA Bicentennial Commission, and as a member on the Louisiana Disaster Recovery Foundation Board. He is also the recipient of the Distinguished Service Award from the Military Order of the World Wars.

With meticulous perspective and quotable delivery, General Honoré captivates audiences with bold leadership strategies and insight on preparedness, the "New Normal," and how the world has changed in the 10 years since Hurricane Katrina.

Honored Guest Lecturers

ROBERTO C. HEROS, MD, FACS

FRIDAY, MARCH 3, 11:45 AM – 12:15 PM


Roberto, Heros, MD, FACS

Roberto C. Heros was born in 1942 in Havana, Cuba. He left Cuba for exile after the Communist takeover in 1960. He participated as a paratrooper in the ill-fated Bay of Pigs invasion. After two years in prison, he was released as part of an exchange with the United States government. He attended medical school at the University of Tennessee where he graduated, first in his class, in 1968. Following an internship and first year general surgery residency at the Massachusetts General Hospital he joined the U.S. Air Force for two years with the rank of Major, USAF.

Dr. Heros had his Neurosurgical Residency at the Massachusetts General Hospital (MGH). After completion of his residency in 1977, he moved to the University of Pittsburgh as Assistant Professor. In 1980, he moved back to the MGH to become Director of Cerebrovascular Surgery. He moved through the academic ranks at Harvard to reach full professorship in 1989. At that time, he moved to the University of Minnesota as the Lyle A. French Professor and Chairman of the Department of Neurosurgery. At different times while at Minnesota he was also asked to serve as Acting Chairman of the Departments of Neurology and Urology and as Vice Chair of the Medical School Practice Plan. In 1995, Dr. Heros moved to the University of Miami as Professor, Program Director and Co-Chairman of the Department of Neurosurgery and founding Director of the University of Miami International Health Center.

Dr. Heros' major clinical, academic and research interest has been in cerebrovascular surgery. He has authored or co-authored four textbooks and has published over 200 refereed articles and approximately 70 textbook chapters dealing with cerebral aneurysms, arteriovenous malformations, experimental cerebral ischemia and skull base surgical approaches. His research has been in the area of cerebral protection from ischemia, particularly hemodilution; he held NIH funding as primary investigator in this area for 15 years and served the NIH in Study Sections and as a full member of the National Advisory Council of the NINDS. He has been Visiting Professor at over 70 institutions in this country and abroad and he has given over 500 invited national and international presentations. He holds honorary memberships in several Latin American and European neurosurgical societies and in the Japanese Neurosurgical Society.

Dr. Heros has been Chairman of the Editorial Board of Neurosurgery and Co-Chairman of the Editorial Board of the Journal of Neurosurgery and serves on the Editorial Board of seven other journals. He was the founding Chairman of the Brain Attack Coalition and the Neurovascular Committee of the World Federation of Neurological Societies (WFNS). He has served as Vice President of the Congress of Neurological Surgeons (CNS) and as President of American Association of Neurological Surgeons (AANS), the American Academy of Neurological Surgeons and the World Congress of the WFNS. He has been the Honored Guest of the CNS and of the Federation of Latin American Neurosurgical Societies and is Honorary President of the WFNS. In 2007 he won the coveted Parker J. Palmer "Courage to Teach" award of the ACGME. In 2010 he won the prestigious Cor Vitae Award of the American Heart Association for his contributions to Stroke Care. He was the 2010 AANS's Cushing Medalist. The Cushing Medal is the highest award given to a neurosurgeon by the AANS.

Dr. Heros stepped down as Co-Chair of the Department of Neurological Surgery in July 2015. He continues to be Program Director and continues to be active clinically. He has taken additional responsibilities at Jackson Health System as Senior Vice President and Chief Medical Officer.

Honored Guest Lecturers

ALAN CROCKARD, MB, BCH, DSC, FRCS, FRCP, FDSRCS

SATURDAY, MARCH 4, 10:00 AM – 10:30 AM


Alan Crockard, MB, BCh, DSc, FRCS, FRCP, FDSRCS

Alan Crockard graduated from the Queen's University Belfast in 1966 and 3 years later entered neurosurgical training there a few months before the outbreak of "civil unrest". The Royal Victoria Hospital, situated in the centre of the troubled area, looked after the bulk of all injuries, civilian, paramilitary, police and military. The importance of a multidisciplinary approach and the, then, novel technique of Controlled Ventilation of severe head injuries was developed and published in the early 1970's.

He moved to the Institute of Neurology London (Welcome Senior Research Fellow 1973/4) and the University of Chicago (first as NIH/MRC Fogarty Fellow 1974 then Assistant Professor 1975). He returned to Belfast as Senior Lecturer Neurosurgery until 1978 when he was appointed Consultant Neurosurgeon National Hospitals for Neurology and Neurosurgery, Queen Square, London. It was there that he became interested in Skull Base and Craniocervical pathology along with his colleagues in Anaesthesia, Neuroradiology, ENT, Maxillofacial and Orthopaedic Surgery. A wide range of unusual pathology was attracted from afar, allowing management protocols for these rare conditions to be established. Surgical Instruments for transoral surgery (Crockard) craniocervical fixation (Ransford) and fireoptic endonasal anaesthetic intubation (Calder) had their beginnings within this group at that time.

In the early 1990's he spent more time developing cadaveric instruction for all surgeons and set up the Hill Surgical Workshops at the Royal College of Surgeons London and University of Western Australia (UWA), Perth. He was appointed Director of the Raven Department of Education at RCS London 1997-2003 and Professor of Neurosurgery in UWA 2001 and UC London 2002. From 2004- 2007 he was the Director of Modernising Medical Careers and responsible for the introduction of UK Foundation training after the undergraduate years. He has authored over 350 scientific papers, 82 chapters and 4 books.

He now spends a great deal of time with his wife, Caroline, sailing and watching and photographing birds.

BRAINLAB DINNER SYMPOSIUM

BRAINLAB

"Surgical Innovations and Novel Technologies for Anterior, Middle and Posterior Fossa Skull Base Tumors"

MARCH 3, 2017, 7:30 PM – 9:30 PM, ROOSEVELT NEW ORLEANS HOTEL

SPEAKERS:
Orin Bloch, MD, Northwestern (Posterior Skull Base)
Isaac Yang, MD, UCLA (Middle Skull Base)
Manish Aghi, MD, UCSF (Anterior Skull Base)

This event is not part of the official program of the Annual NASBS Meeting.

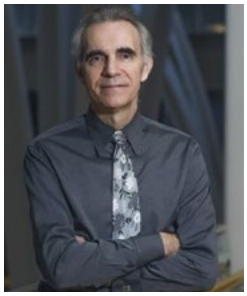
There is no cost to attend the symposium. To register, please go to **https://www.novaliscircle.org/events**.

For more information, contact Rachel Hoeft at **rachel.hoeft@brainlab.com**.

Honored Guest Lecturers

FRED GENTILI, MD, MSC, FRCSC, FACS

SUNDAY, MARCH 5, 10:20 AM – 10:50 AM


Fred Gentili, MD, MSc, FRCSC, FACS

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

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

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

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

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

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

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

Scholarship Winners & Journal Awards

INTERNATIONAL TRAVEL SCHOLARSHIP WINNERS 2017

The International Travel Scholarship was first introduced at the NASBS 2016 Annual Meeting. The fellowship promotes international participation and gives the opportunity for international academic skull base surgeons to study at an NASBS Fellowship. Awardees receive $2,000 in travel funds and free registration to the annual meeting. For more information, please visit: **www.nasbs.org/international-travel-scholarship**. Submissions for the 2018 International Travel Scholarship will open in August 2017.

Amos Adeleye, MD
University of Ibadan
Nigeria

Suha Beton, MD
Ankara University Medical School
Turkey

Simple Bhadania, MD
Sanjay Gandhi Post Graduate Institute of Medical Sciences
India

JOURNAL AWARD: HIGHEST QUALITY PAPER – MOST FREQUENTLY CITED

Incidence and Survival Patterns of Sinonasal Undifferentiated Carcinoma in the United States – Chambers, Kyle J.; Lehmann, Ashton E.; Remenschneider, Aaron; Dedmon, Matthew; Meier, Josh; Gray, Stacey T.; Lin, Derrick T.
Total Citation in 2016: 6

Round-the-Clock Surgical Access to the Orbit – Paluzzi, Alessandro; Gardner, Paul A.; Fernandez-Miranda, Juan C.; Tormenti, Matthew J.; Stefko, S. Tonya; Snyderman, Carl H.; Maroon, Joseph C.
Total Citation in 2016: 6

Esthesioneuroblastoma: An Update on the UCLA Experience, 2002-2013 – Tajudeen, Bobby A.; Arshi, Armin; Suh, Jeffrey D.; Palma-Diaz, Miguel Fernando; Bergsneider, Marvin; Abemayor, Elliot; St John, Maie; Wang, Marilene B.
Total Citation in 2016: 4

To Preserve or Not to Preserve the Orbit in Paranasal Sinus Neoplasms: A Meta-Analysis
Reyes, Camilo; Mason, Eric; Solares, C. Arturo; Bush, Carrie; Carrau, Ricardo
Total Citation in 2016: 4

INSTITUTIONS WITH THE MOST PUBLICATIONS IN 2016

Princess Alexandra Hospital Brisbane: *8*
David Geffen School of Medicine at University of California Los Angeles: *5*
University of California Davis Medical Center: *5*
University of Queensland: *5*
Massachusetts Eye and Ear Infirmary: *4*
Ohio State University: *3*
University of North Carolina at Chapel Hill: *3*
University of Pittsburgh: *3*
University of Pittsburgh Medical Center: *3*
University of Washington School of Medicine: *3*

TOP 10 REVIEWERS IN 2016

Michael Link – *completed 7 reviews*
Nicholas Thomas – *completed 7 reviews*
Anil Nanda – *completed 6 reviews*
Vikram Prabhu – *completed 6 reviews*
John De Almeida – *completed 5 reviews*
Stephen Connor – *completed 5 reviews*
Takeshi Kawase – *completed 5 reviews*
Ben Panizza – *completed 5 reviews*
Carl Snyderman – *completed 5 reviews*
Paul Gardner – *completed 4 reviews*

Faculty Listing

Ralph Abi Hachem, MD
Duke University Medical Center
Durham, NC

Siviero Agazzi, MD, MBA
University of South Florida
Tampa, FL

Manish Aghi, MD, PhD
University of California San Francisco
San Francisco, CA

Azam Ahmed, MD
University of Wisconsin Medical School & Public Health
Madison, WI

Martin Aichholzer, MD
Kepler University Clinic
Linz, Austria

Ayal Aizer, MD
Brigham and Women's Hospital
Boston, Brazil

Chrisfouad Alabiad, MD
University of Miami
Miami, FL

Luis Carlos Alencastro, MD
Hospital Mae de Deus
Porto Alegre, Brazil

Pablo Aljer, MD
Hospital Italiano de Buenos Aires
Buenos Aires, Argentina

Richard Allen, MD, PhD
MD Anderson Cancer Center
Houston, TX

Ossama Al-Mefty, MD
Brigham and Women's Hospital
Boston, MA

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

Below are the members who have sought out new members for our Society. Their commitment to the NASBS is the key to our success. We look forward to welcoming our new members at the New Member Reception at the House of Blues on Saturday, March 4 from 6:45 pm to 7:30 pm. Please help us reach even more Skull Base Programs in 2017-2018.

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Meeting Map

FRIDAY, MARCH 3, 2017

	ROOSEVELT BALLROOM	CRESCENT CITY BALLROOM	ORPHEUM ROOM	CHAMBER I	CHAMBER II	CHAMBER III
7:00 am	*Breakfast will be served outside all breakout rooms (7:00 am – 7:30 am)*					
7:30 am		**MAIN TOPIC 1: Lateral Skull Base: How to Choose the Optimal Approach?** *(7:30 am – 8:35 am)*	**MAIN TOPIC 2: Vestibular Schwannomas in NF2: Surgery, Radiosurgery and Adjuvant Therapies** *(7:30 am – 8:35 am)*		**MAIN TOPIC 3: The Orbit: Access and Target for the Skull Base Surgeon** *(7:30 am – 8:35 am)*	**MAIN TOPIC 4: The Infratemporal Fossa: Surgical Anatomy and Approaches** *(7:30 am – 8:35 am)*
8:45 am		**EXPERT DEBATE 1: Vestibular Schwannomas: Controversies in Modern Management** *(8:45 am – 9:30 am)*	**EXPERT DEBATE 2: Optimal Strategy for Reconstruction after Endoscopic Skull Base Surgery** *(8:45 am – 9:30 am)*		**EXPERT DEBATE 3: Management of Challenging Meningiomas** *(8:45 am – 9:30 am)*	**EXPERT DEBATE 4: Chordomas: Optimal Approach and Multidisciplinary Management** *(8:45 am – 9:30 am)*
9:30 am	**Morning Break in Exhibit Hall** *(9:30 am – 10:00 am)*					
10:00 am		**Dr. Albert L. Rhoton Memorial** *(10:00 am – 11:10 am)* **Historical Video Narrative** *(11:10 am – 11:15 am)* **Presidential Address** *(11:15 am – 11:45 am)* **Honored Guest** *(11:45 am – 12:15 pm)*				
12:20 pm	**Lunch in Exhibit Hall** *(12:20 pm – 1:00 pm)*					
1:00 pm		**PECHA KUCHA 1: Vestibular Schwannomas** *(1:00 pm – 2:00 pm)*	**MASTER VIDEO 1: Microvascular Anastomosis, Bypass and Vascular Repair** *(1:00 pm – 2:00 pm)*		**PECHA KUCHA 2: Petroclival Meningiomas** *(1:00 pm – 2:00 pm)*	**MASTER VIDEO 2: Microsurgical Techniques in Cranial Nerve Preservation** *(1:00 pm – 2:00 pm)*
2:05 pm		**PECHA KUCHA 3: Chordomas** *(2:05 pm – 3:05 pm)*	**MASTER VIDEO 3: Approaches to the Cavernous Sinus and Meckel's Cave** *(2:05 pm – 3:05 pm)*		**PECHA KUCHA 4: Ergonomics of Surgery and Instrumentation** *(2:05 pm – 3:05 pm)*	**MASTER VIDEO 4: Endoscope-Assisted Skull Base Surgery** *(2:05 pm – 3:05 pm)*
3:05 pm	**Refreshment Break in Exhibit Hall** *(3:05 pm – 3:35 pm)*					
3:35 pm		**PROFFERED PAPERS 1: Best of Anatomy** *(3:35 pm – 5:05 pm)*	**PROFFERED PAPERS 2: Best of Vestibular Schwannomas** *(3:35 pm – 5:05 pm)*	**PROFFERED PAPERS 5: Best of Functional Outcome and Quality of Life** *(3:35 pm – 5:05 pm)*	**PROFFERED PAPERS 3: Best of Meningiomas I** *(3:35 pm – 5:05 pm)*	**PROFFERED PAPERS 4 (Rapid Fire): Best of Pituitary Adenomas, Sellar and Suprasellar Lesions** *(3:35 pm – 5:55 pm)*
5:10 pm		**CONSTRUCTIVE CRITICISM VIDEOS 1: Endoscopic Endonasal Approaches** *(5:10 pm – 5:55 pm)*	**CONSTRUCTIVE CRITICISM VIDEOS 2: Lateral Skull Base** *(5:10 pm – 5:55 pm)*	**CONSTRUCTIVE CRITICISM VIDEOS 3: Potpourri** *(5:10 pm – 5:55 pm)*	**PROFFERED PAPERS 6 (Rapid Fire): Best of Learning Curve, Training, Multidisciplinary Work and More** *(5:10 pm – 5:55 pm)*	
6:00 pm	**Welcome Reception and Poster Viewing in Exhibit Hall** *(6:00 pm – 7:30 pm)*					
7:30 pm	**Past Presidents' Dinner,** Invitation Only *(7:30 pm – 10:00 pm)*					

Meeting Map

SATURDAY, MARCH 4, 2017

	ROOSEVELT BALLROOM	CRESCENT CITY BALLROOM	ORPHEUM ROOM	CHAMBER I	CHAMBER II	CHAMBER III
7:00 am	*Breakfast will be served outside all breakout rooms (7:00 am – 7:30 am)*					
7:30 am		**MAIN TOPIC 5: Benign Cavernous Sinus Tumors: Can We Agree on Management?** *(7:30 am – 8:35 am)*	**MAIN TOPIC 6: Challenging Tumors of the Jugular Foramen** *(7:30 am – 8:35 am)*		**MAIN TOPIC 7: Petroclival Meningiomas: Philosophy, Techniques and Results** *(7:30 am – 8:35 am)*	**MAIN TOPIC 8: Skull Base Reconstruction Techniques** *(7:30 am – 8:35 am)*
8:45 am		**EXPERT DEBATE 5: How to Become and Train Great Skull Base Surgeons: An International Panel** *(8:45 am – 9:30 am)*	**EXPERT DEBATE 6: Pituitary Adenomas: The Right Approach, Endocrine Considerations and Recurrent Tumors** *(8:45 am – 9:30 am)*		**EXPERT DEBATE 7: Craniopharyngiomas: Changing Roles of Surgery, Radiation and Novel Medical Treatments** *(8:45 am – 9:30 am)*	**EXPERT DEBATE 8: Complex Head and Neck Malignancies: Controversies in Management** *(8:45 am – 9:30 am)*
9:30 am	**Morning Break in Exhibit Hall** *(9:30 am – 10:00 am)*					
10:00 am		**Honored Guest** *(10:00 am – 10:30 am)* **Keynote Speaker** *(10:30 am – 11:20 am)* **The Lipton Interview** *(11:20 am – 12:05 pm)*				
12:05 pm	**Lunch in Exhibit Hall/Book Signing** *(12:05 pm – 1:00 pm)*	**Business Lunch for Members in the Waldorf Astoria Ballroom** *(12:05 pm – 1:00 pm)*				
1:00 pm		**PECHA KUCHA 5: Sinonasal Malignancies** *(1:00 pm – 2:00 pm)*	**MASTER VIDEO 5: Temporal Bone Drilling: From Simple to Complex** *(1:00 pm – 2:00 pm)*		**PECHA KUCHA 6: Orbital Tumors** *(1:00 pm – 2:00 pm)*	**MASTER VIDEO 6: Reconstruction Techniques for Skull Base Defects: From Tiny to Huge** *(1:00 pm – 2:00 pm)*
2:05 pm		**PECHA KUCHA 7: Anterior Skull Base Meningiomas** *(2:05 pm – 3:05 pm)*	**MASTER VIDEO 7: Expanded Endonasal Approaches** *(2:05 pm – 3:05 pm)*		**PECHA KUCHA 8: Reconstructive Techniques: Know Your Toolbox!** *(2:05 pm – 3:05 pm)*	**MASTER VIDEO 8: Intraoperative Complications: From Nuisances to Disasters** *(2:05 pm – 3:05 pm)*
3:05 pm	**Refreshment Break in Exhibit Hall** *(3:05 pm – 3:35 pm)*					
3:35 pm		**PROFFERED PAPERS 7: Best of Basic Science and Biology** *(3:35 pm – 5:05 pm)*	**PROFFERED PAPERS 8: Best of Meningiomas II** *(3:35 pm – 5:05 pm)*	**PROFFERED PAPERS 11 (Rapid Fire): Best of Surgical Techniques and Innovation** *(3:35 pm – 5:55 pm)*	**PROFFERED PAPERS 9: Best of Sinonasal and Skull Base Malignancies** *(3:35 pm – 5:05 pm)*	**PROFFERED PAPERS 10: Best of Large Series, Clinical Trials and Metanalyses** *(3:35 pm – 5:05 pm)*
5:10 pm		**SPECIAL SESSION 1: Building a Community: Women in Skull Base Surgery** *(5:10 pm – 6:30 pm)*	**SPECIAL SESSION 2: Advances in Skull Base Imaging: Techniques, Applications, Differential Diagnoses and Surgical Relevance** *(5:10 pm – 6:30 pm)*		**SPECIAL SESSION 3: Benign Intracranial Hypertension: Etiopathology, Imaging, Differential Diagnosis and Management** *(5:10 pm – 6:30 pm)*	**PROFFERED PAPERS 12 (Rapid Fire): Best of Case Series** *(5:10 pm – 6:30 pm)*
6:45 pm	**New Member Reception with Leadership (Invitation Only) at the House of Blues** *(6:45 pm – 7:30 pm)*					
7:30 pm	**NASBS Social Event at the House of Blues** *(7:30 pm – 10:30 pm)*					

Meeting Map

SUNDAY, MARCH 5, 2017

	ROOSEVELT BALLROOM	CRESCENT CITY BALLROOM	ORPHEUM ROOM	CHAMBER I	CHAMBER II	CHAMBER III
7:00 am	**Committee Meetings** *(7:00 am – 7:45 am)* *Breakfast will be served outside all breakout rooms (7:00 am – 7:30 am)*					
7:45 am	**Transition Break** *(7:45 am – 7:55 am)*					
7:55 am		**MAIN TOPIC 9: Key Hole Skull Base Surgery: Anterior, Middle and Posterior Fossa** *(7:55 am – 9:00 am)*	**MAIN TOPIC 10: Sinonasal Cancers: Classification, Management and Results in 2017** *(7:55 am – 9:00 am)*		**MAIN TOPIC 11: Craniocervical Junction: Pathologies, Imaging and Approaches** *(7:55 am – 9:00 am)*	**MAIN TOPIC 12: Trigeminal Neuralgia and Hemifacial Spasm: Management and Results** *(7:55 am – 9:00 am)*
9:05 am		**EXPERT DEBATE 9: Vascular Considerations in Skull Base Surgery: Arteries (Preserve, Sacrifice or Bypass), Veins and Preoperative Tumor Embolization** *(9:05 am – 9:50 am)*	**EXPERT DEBATE 10: Complications in Skull Base Surgery: Avoidance and Management** *(9:05 am – 9:50 am)*		**EXPERT DEBATE 11: Surgery in and Through the Orbit: Techniques and Controversies** *(9:05 am – 9:50 am)*	**EXPERT DEBATE 12: Tumor Board: A Panorama of Skull Base Lesions** *(9:05 am – 9:50 am)*
9:50 am	**Morning Break in Exhibit Hall** *(9:50 am – 10:20 am)*					
10:20 am		**Honored Guest** *(10:20 am – 10:50 am)* **Featured Scientific Presentations and Awards Ceremony** *(10:50 am – 11:30 am)* **State of the Art and Future of ...** *(11:30 am – 12:45 pm)* **NASBS 2018 Meeting in San Diego, CA** *(12:45 pm – 12:50 pm)*				
12:50 pm	**Meeting Adjourned**					

Schedule-at-a-Glance

FRIDAY, MARCH 3, 2017

6:00 am – 7:30 pm	**Registration**	*Roosevelt Foyer*
7:30 am – 8:35 am	**MAIN TOPIC SESSIONS** *(Breakfast 7:00 am – 7:30 am)* *Breakfast will be served outside all breakout rooms.*	
	MAIN TOPIC 1: Lateral Skull Base: How to Choose the Optimal Approach?	*Crescent City Ballroom*
	MAIN TOPIC 2: Vestibular Schwannomas in NF2: Surgery, Radiosurgery and Adjuvant Therapies	*Orpheum Room*
	MAIN TOPIC 3: The Orbit: Access and Target for the Skull Base Surgeon	*Chamber II*
	MAIN TOPIC 4: The Infratemporal Fossa: Surgical Anatomy and Approaches	*Chamber III*
8:45 am – 9:30 am	**EXPERT DEBATE SESSIONS**	
	EXPERT DEBATE 1: Vestibular Schwannomas: Controversies in Modern Management	*Crescent City Ballroom*
	EXPERT DEBATE 2: Optimal Strategy for Reconstruction after Endoscopic Skull Base Surgery	*Orpheum Room*
	EXPERT DEBATE 3: Management of Challenging Meningiomas	*Chamber II*
	EXPERT DEBATE 4: Chordomas: Optimal Approach and Multidisciplinary Management	*Chamber III*
9:30 am – 10:00 am	**Morning Break in Exhibit Hall**	*Roosevelt Ballroom*
10:00 am – 11:10 am	**Dr. Albert L. Rhoton Memorial**	*Crescent City Ballroom*
11:10 am – 11:15 am	**HISTORICAL VIDEO NARRATIVE: North American Skull Base Society: A Model of Collaboration**	*Crescent City Ballroom*
11:15 am – 11:45 am	**PRESIDENTIAL ADDRESS: Mastery and Legacy in Skull Base Surgery: Lessons in Synchronicity** Jacques Morcos, MD, FRCS, FAANS	*Crescent City Ballroom*
11:45 am – 12:15 pm	**HONORED GUEST: Some Thoughts about Resident Mentorship: Challenges Facing the Surgeon-Educator** Roberto Heros, MD, FACS	*Crescent City Ballroom*
12:20 pm – 1:00 pm	**Lunch in Exhibit Hall**	*Roosevelt Ballroom*
1:00 pm – 2:00 pm	**PECHA KUCHA SESSIONS/MASTER VIDEO SESSIONS**	
	PECHA KUCHA 1: Vestibular Schwannomas	*Crescent City Ballroom*
	MASTER VIDEO 1: Microvascular Anastomosis, Bypass and Vascular Repair	*Orpheum Room*
	PECHA KUCHA 2: Petroclival Meningiomas	*Chamber II*
	MASTER VIDEO 2: Microsurgical Techniques in Cranial Nerve Preservation	*Chamber III*
2:05 pm – 3:05 pm	**PECHA KUCHA SESSIONS/MASTER VIDEO SESSIONS**	
	PECHA KUCHA 3: Chordomas	*Crescent City Ballroom*
	MASTER VIDEO 3: Approaches to the Cavernous Sinus and Meckel's Cave	*Orpheum Room*
	PECHA KUCHA 4: Ergonomics of Surgery and Instrumentation	*Chamber II*
	MASTER VIDEO 4: Endoscope-Assisted Skull Base Surgery	*Chamber III*
3:05 pm – 3:35 pm	**Refreshment Break in Exhibit Hall**	*Roosevelt Ballroom*
PROFFERED PAPER SESSIONS		
	PROFFERED PAPERS 1: Best of Anatomy *(3:35 pm – 5:05 pm)*	*Crescent City Ballroom*
	PROFFERED PAPERS 2: Best of Vestibular Schwannomas *(3:35 pm – 5:05 pm)*	*Orpheum Room*
	PROFFERED PAPERS 3: Best of Meningiomas I *(3:35 pm – 5:05 pm)*	*Chamber II*
	PROFFERED PAPERS 4 (Rapid Fire): Best of Pituitary Adenomas, Sellar and Suprasellar Lesions *(3:35 pm – 5:55 pm)*	*Chamber III*
	PROFFERED PAPERS 5: Best of Functional Outcome and Quality of Life *(3:35 pm – 5:05 pm)*	*Chamber I*

Schedule-at-a-Glance

5:10 pm – 5:55 pm **CONSTRUCTIVE CRITICISM VIDEOS SESSION**

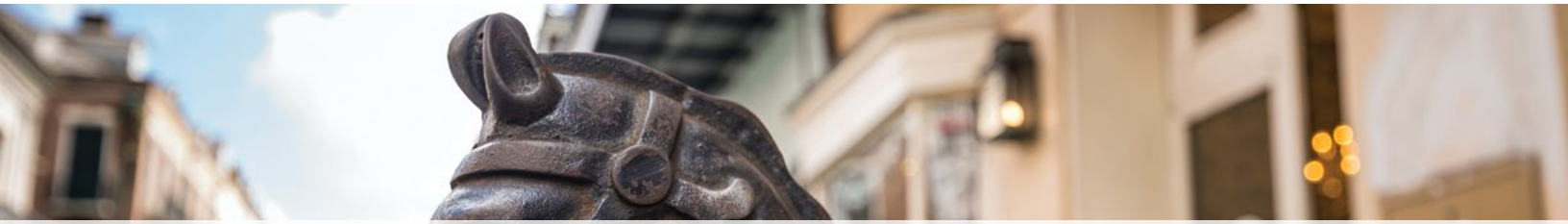
CONSTRUCTIVE CRITICISM VIDEOS 1: Endoscopic Endonasal Approaches	*Crescent City Ballroom*
CONSTRUCTIVE CRITICISM VIDEOS 2: Lateral Skull Base	*Orpheum Room*
CONSTRUCTIVE CRITICISM VIDEOS 3: Potpourri	*Chamber I*

PROFFERED PAPER SESSION

PROFFERED PAPERS 6 (Rapid Fire): Best of Learning Curve, Training, Multidisciplinary Work and More *(5:10 pm – 5:55 pm)*	*Chamber II*

6:00 pm – 7:30 pm **Welcome Reception and Poster Viewing in Exhibit Hall** *Roosevelt Ballroom*

7:30 pm – 10:00 pm **Past Presidents' Dinner** (Invitation Only)



Schedule-at-a-Glance

SATURDAY, MARCH 4, 2017

6:30 am – 6:30 pm	**Registration**	*Roosevelt Foyer*
7:30 am – 8:35 am	**MAIN TOPIC SESSIONS** *(Breakfast 7:00 am – 7:30 am)* *Breakfast will be served outside all breakout rooms.*	
	MAIN TOPIC 5: Benign Cavernous Sinus Tumors: Can We Agree on Management?	*Crescent City Ballroom*
	MAIN TOPIC 6: Challenging Tumors of the Jugular Foramen	*Orpheum Room*
	MAIN TOPIC 7: Petroclival Meningiomas: Philosophy, Techniques and Results	*Chamber II*
	MAIN TOPIC 8: Skull Base Reconstruction Techniques	*Chamber III*
8:45 am – 9:30 am	**EXPERT DEBATE SESSIONS**	
	EXPERT DEBATE 5: How to Become and Train Great Skull Base Surgeons: An International Panel	*Crescent City Ballroom*
	EXPERT DEBATE 6: Pituitary Adenomas: The Right Approach, Endocrine Considerations and Recurrent Tumors	*Orpheum Room*
	EXPERT DEBATE 7: Craniopharyngiomas: Changing Roles of Surgery, Radiation and Novel Medical Treatments	*Chamber II*
	EXPERT DEBATE 8: Complex Head and Neck Malignancies: Controversies in Management	*Chamber III*
9:30 am – 10:00 am	**Morning Break in Exhibit Hall**	*Roosevelt Ballroom*
10:00 am – 10:30 am	**HONORED GUEST: What the Skull Base has Taught Me** Alan Crockard, MB, BCh, DSc, FRCS, FRCP, FDSRCS	*Crescent City Ballroom*
10:30 am – 11:20 am	**KEYNOTE SPEAKER: Resilient Leadership: Prepare Today to Prevail Tomorrow** Lt. General Russel L. Honoré	*Crescent City Ballroom*
11:20 am – 12:05 pm	**THE LIPTON INTERVIEW: A Glimpse into the Mind and Legacy of the Wise**	*Crescent City Ballroom*
12:05 pm – 1:00 pm	**Business Lunch for Members**	*Waldorf Astoria Ballroom*
	Lunch in Exhibit Hall/Book Signing Lt. General Russel L. Honoré book signing "Leadership in the New Normal"	*Roosevelt Ballroom*
1:00 pm – 2:00 pm	**PECHA KUCHA SESSIONS/MASTER VIDEO SESSIONS**	
	PECHA KUCHA 5: Sinonasal Malignancies	*Crescent City Ballroom*
	MASTER VIDEO 5: Temporal Bone Drilling: From Simple to Complex	*Orpheum Room*
	PECHA KUCHA 6: Orbital Tumors	*Chamber II*
	MASTER VIDEO 6: Reconstruction Techniques for Skull Base Defects: From Tiny to Huge	*Chamber III*
2:05 pm – 3:05 pm	**PECHA KUCHA SESSIONS/MASTER VIDEO SESSIONS**	
	PECHA KUCHA 7: Anterior Skull Base Meningiomas	*Crescent City Ballroom*
	MASTER VIDEO 7: Expanded Endonasal Approaches	*Orpheum Room*
	PECHA KUCHA 8: Reconstructive Techniques: Know Your Toolbox!	*Chamber II*
	MASTER VIDEO 8: Intraoperative Complications: From Nuisances to Disasters	*Chamber III*
3:05 pm – 3:35 pm	**Refreshment Break in Exhibit Hall**	*Roosevelt Ballroom*

Schedule-at-a-Glance

PROFFERED PAPER SESSIONS

PROFFERED PAPERS 7: Best of Basic Science and Biology *(3:35 pm – 5:05 pm)*	*Crescent City Ballroom*
PROFFERED PAPERS 8: Best of Meningiomas II *(3:35 pm – 5:05 pm)*	*Orpheum Room*
PROFFERED PAPERS 9: Best of Sinonasal and Skull Base Malignancies *(3:35 pm – 5:05 pm)*	*Chamber II*
PROFFERED PAPERS 10: Best of Large Series, Clinical Trials and Metanalyses *(3:35 pm – 5:05 pm)*	*Chamber III*
PROFFERED PAPERS 11 (Rapid Fire): Best of Surgical Techniques and Innovation *(3:35 pm – 5:55 pm)*	*Chamber I*

5:10 pm – 6:30 pm **SPECIAL SESSIONS**

SPECIAL SESSION 1: Building a Community: Women in Skull Base Surgery	*Crescent City Ballroom*
SPECIAL SESSION 2: Advances in Skull Base Imaging: Techniques, Applications, Differential Diagnoses and Surgical Relevance	*Orpheum Room*
SPECIAL SESSION 3: Benign Intracranial Hypertension: Etiopathology, Imaging, Differential Diagnosis and Management	*Chamber II*

PROFFERED PAPER SESSION

PROFFERED PAPERS 12 (Rapid Fire): Best of Case Series *(5:10 pm – 6:30 pm)*	*Chamber III*

6:45 pm – 7:30 pm **New Member Reception with Leadership** (Invitation Only) *House of Blues*

7:30 pm – 10:30 pm **NASBS Social Event at House of Blues**

SUNDAY, MARCH 5, 2017

7:00 am – 12:30 pm **Registration** *Roosevelt Foyer*

7:00 am – 7:45 am **Committee Meetings** *(Breakfast 7:00 am – 7:30 am)*
Breakfast will be served outside all breakout rooms.

7:45 am – 7:55 am **Transition Break**

7:55 am – 9:00 am **MAIN TOPIC SESSIONS** *(Breakfast 7:00 am – 7:30 am)*
Breakfast will be served outside all breakout rooms.

MAIN TOPIC 9: Key Hole Skull Base Surgery: Anterior, Middle and Posterior Fossa	*Crescent City Ballroom*
MAIN TOPIC 10: Sinonasal Cancers: Classification, Management and Results in 2017	*Orpheum Room*
MAIN TOPIC 11: Craniocervical Junction: Pathologies, Imaging and Approaches	*Chamber II*
MAIN TOPIC 12: Trigeminal Neuralgia and Hemifacial Spasm: Management and Results	*Chamber III*

9:05 am – 9:50 am **EXPERT DEBATE SESSIONS**

EXPERT DEBATE 9: Vascular Considerations in Skull Base Surgery: Arteries (Preserve, Sacrifice or Bypass), Veins and Preoperative Tumor Embolization	*Crescent City Ballroom*
EXPERT DEBATE 10: Complications in Skull Base Surgery: Avoidance and Management	*Orpheum Room*
EXPERT DEBATE 11: Surgery in and Through the Orbit: Techniques and Controversies	*Chamber II*
EXPERT DEBATE 12: Tumor Board: A Panorama of Skull Base Lesions	*Chamber III*

9:50 am – 10:20 am **Morning Break in Exhibit Hall** *Roosevelt Ballroom*

10:20 am – 10:50 am **HONORED GUEST: Changes in the Landscape of Skull Base Surgery: Reflections on a 30 Year Career** *Crescent City Ballroom*
Fred Gentili, MD, MSc, FRCSC, FACS

10:50 am – 11:30 am **Featured Scientific Presentations and Awards Ceremony** *Crescent City Ballroom*

11:30 am – 12:45 pm **State of the Art and Future of ...** *Crescent City Ballroom*

12:45 pm – 12:50 pm **NASBS 2018 Meeting in San Diego, CA** *Crescent City Ballroom*

12:50 pm **Meeting Adjourned**

Pre-Meeting Course

Open and Endoscopic Skull Base Surgery

March 1-2, 2017 • Louisiana State University Health Sciences Center
COURSE DIRECTORS: Carlos David, MD & Daniel Nuss, MD

The pre-meeting dissection workshop of the 27th Annual NASBS Meeting offers participants with hands-on cadaver dissection sessions and didactic sessions. Modules will take participants through open and endoscopic exercises to the central, lateral, and posterior skull base.

The two-day cadaveric course is to promote anatomical understanding and practice of complex approaches to the skull base. Where possible different approaches to the same region will be employed with the benefit of contrasting and comparing the achieved exposure.

At the conclusion of this course, participants will be able to:
- Demonstrate knowledge regarding the applicability, limitations and advantages of open versus endonasal approaches to the skull base.
- Execution of the approaches via microsurgical cadaveric dissection.
- Understand potential complications related to each approach.

LOCATION

Louisiana State University Health Sciences Center
2020 Gravier St.
New Orleans, LA 70112

SHUTTLES

Wednesday, March 1, 2017
- 7:00 am: Shuttle will pick up attendees at the Roosevelt Hotel and bring to LSU Health Sciences Center. The shuttle will leave on time, please be prompt.
- 6:15 pm: Shuttle will pick up attendees to LSU Health Sciences Center and return to the Roosevelt Hotel.

Thursday, March 2, 2017
- 7:00 am: Shuttle will pick up attendees at the Roosevelt Hotel and bring to LSU Health Sciences Center. The shuttle will leave on time, please be prompt.
- 5:45 pm: Shuttle will pick up attendees to LSU Health Sciences Center and return to the Roosevelt Hotel.

CONTINUING MEDICAL EDUCATION CREDIT INFORMATION

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

AMA PRA Category 1 Credits™
The American College of Surgeons designates this live activity for a maximum of **17.50** *AMA PRA Category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Of the *AMA PRA Category 1 Credits™* listed above, a maximum of **17.50** credits meet the requirements for Self-Assessment.

American College of Surgeons
Inspiring Quality:
Highest Standards, Better Outcomes
100+years

AMERICAN COLLEGE OF SURGEONS
DIVISION OF EDUCATION
Accredited with Commendation by the
Accreditation Council for Continuing Medical Education

DISCLOSURE INFORMATION

In compliance with the ACCME Accreditation Criteria, the American College of Surgeons, as the accredited provider of this activity, must ensure that anyone in a position to control the content of the educational activity has disclosed all relevant financial relationships with any commercial interest. All reported conflicts are managed by a designated official to ensure a bias-free presentation. Please see the insert to this program for the complete disclosure list.

Pre-Meeting Course Schedule

WEDNESDAY, MARCH 1, 2017

7:45 am – 8:00 am **Registration & Breakfast**

7:45 am – 8:00 am **Course Overview**
Carlos David, MD & Daniel Nuss, MD

8:00 am – 8:30 am **Transbasal Approaches**

8:00 am Lecture: Anatomy of Anterior Skull Base – *Arnau Benet, MD*
8:15 am Transbasal Approach – Step by Step – *Albert Kim, MD*

8:30 am – 9:00 am **Extended Endonasal Approaches**

8:30 am Anatomy of Endonasal Approach – *Maria Peris-Celda, MD, PhD*
8:45 am Extended Endonasal Transplanum Approach – Step by Step – *Ralph Abi-Hachem, MD*

9:00 am – 9:30 am **Prosection of Transbasal Approach**
Bharat Guthikonda, MD

9:30 am – 10:30 am **Dissection by Participants**

10:30 am – 11:00 am **Prosection of Extended Endonasal Approach**
Ivan El-Sayed, MD & Philip Theodosopoulos, MD

11:00 am – 12:00 pm **Dissection by Participants**

12:00 pm – 1:00 pm **Lunch**

1:00 pm – 1:30 pm **Cavernous Sinus**

1:00 pm Anatomy of Cavernous Sinus – *Pablo Rubino, MD*
1:15 pm Dolenc Approach – Step by Step – *Ali Krisht, MD*

1:30 pm – 2:00 pm **Orbit**

1:30 pm Anatomy of Orbit – *Sara Wester, MD*
1:45 pm Transorbital Approach – Step by Step – *Darlene Lubbe, MD*

2:00 pm – 2:30 pm **Prosection of Dolenc Approach**
Ali Krisht, MD

2:30 pm – 3:30 pm **Dissection by Participants**

3:30 pm – 4:00 pm **Prosection of Transorbital Approach**
Kris Moe, MD

4:00 pm – 5:00 pm **Dissection by Participants**

5:00 pm – 5:30 pm **Anterior Fossa, Orbit, and/or Cavernous Sinus Open Discussion**
MODERATOR: Carlos David, MD
DISCUSSANTS: Ali Zomorodi, MD & Ben Bleier, MD

5:30 pm – 6:15 pm **Reception for Attendees and Faculty**

Pre-Meeting Course Schedule

THURSDAY, MARCH 2, 2017

7:45 am – 8:00 am **Registration & Breakfast**

7:45 am – 8:00 am **Course Overview**
Carlos David, MD & Daniel Nuss, MD

8:00 am – 8:30 am **Extended Middle Fossa Approaches**

8:00 am Anatomy of Middle Fossa – *Satoshi Matsuo, MD*
8:15 am Kawase Approach – Step by Step - *Chandra Sen, MD*

8:30 am – 9:00 am **Endonasal Approach to Petrous Apex**

8:30 am Anatomy of Endonasal Transpterygoid Approach – *Noritaka Komune, MD, PhD*
8:45 am Endonasal Transpterygoid Approach – Step by Step – *Roy Casiano, MD*

9:00 am – 9:30 am **Prosection of Kawase Approach**
James Liu, MD

9:30 am – 10:30 am **Dissection by Participants**

10:30 am – 11:00 am **Prosection of Endonasal Transpterygoid Approach**
Rick Carrau, MD & Dani Prevedello, MD

11:00 am – 12:00 pm **Dissection by Participants**

12:00 pm – 1:00 pm **Lunch**

1:00 pm – 1:30 pm **Far Lateral Approach**

1:00 pm Anatomy of Foramen Magnum and Craniovertebral Junction – *Ken Matsushima, MD*
1:15 pm Far Lateral Approach – *Samy Youssef, MD, PhD*

1:30 pm – 2:00 pm **Endonasal Approach to Craniovertebral Junction**

1:30 pm Anatomy of Endonasal Approach to Craniovertebral Junction – *Abuzer Gungor, MD*
1:45 pm Endonasal Approach to Craniovertebral Junction – Step by Step – *Zoukaa Sargi, MD, MPH*

2:00 pm – 2:30 pm **Prosection of Far Lateral Approach**
Gustavo Pradilla, MD

2:30 pm – 3:30 pm **Dissection by Participants**

3:30 pm – 4:00 pm **Prosection of Endonasal Approach to Craniovertebral Junction**
Marc Rosen, MD & Jim Evans, MD

4:00 pm – 5:00 pm **Dissection by Participants**

5:00 pm – 5:30 pm **Middle Fossa and Posterior Fossa Open Discussion**
MODERATOR: Carlos David, MD
DISCUSSANTS: Rahul Mehta, MD, FRCS, John Golfinos, MD & Madison Michael, MD, FAANS, FACS

Scientific Program

FRIDAY, MARCH 3, 2017

6:00 am – 7:30 pm **Registration** *Roosevelt Foyer*

7:30 am – 8:35 am **MAIN TOPIC SESSIONS** *(Breakfast 7:00 am – 7:30 am)*
Breakfast will be served outside all breakout rooms.

MAIN TOPIC 1: Lateral Skull Base: How to Choose the Optimal Approach? *Crescent City Ballroom*
MODERATOR: Ehab Hanna, MD
SPEAKERS: Kenji Ohata, MD, PhD, Laligam Sekhar, MD, Fred Telischi, MD, FACS, MEE & George Wanna, MD

- Introduction – *Ehab Hanna, MD*
- Regional Pathology and Differential Diagnosis – *George Wanna, MD*
- Transtemporal Approaches – *Fred Telischi, MD, FACS*
- Orbito Zygomatic Osteotomy, Zygomatic Osteotomy and Subtemporal - Infratemporal Approach – *Laligam Sekhar, MD*
- Selecting the Optimal Approach – *Kenji Ohata, MD, PhD*
- Discussion – *All*

This session will address the regional pathology and differential diagnosis of lateral skull base tumors, common surgical approaches, and selection of the optimal approach. This session should be attended by neurosurgeons and otolaryngologists who care for patients with lateral skull base pathology.

At the conclusion of this session, participants will be able to:
1. Distinguish among the various pathologic conditions of lateral skull base tumors.
2. Classify the various surgical approaches to the lateral skull base.
3. Choose the optimal surgical approach for a specific pathology in the lateral skull base.

MAIN TOPIC 2: Vestibular Schwannomas in NF2: Surgery, Radiosurgery and Adjuvant Therapies *Orpheum Room*
MODERATOR: Michael Link, MD
SPEAKERS: Fred Barker, MD, Steven Giannotta, MD, Samuel Gubbels, MD & Tom Roland, MD

- Introduction – *Michael Link, MD*
- Discussion of Challenging Cases – *Fred Barker, MD*
- Discussion of Challenging Cases – *Steven Giannotta, MD*
- Discussion of Challenging Cases – *Samuel Gubbels, MD*
- Discussion of Challenging Cases – *Tom Roland, MD*

This session will be an interactive case-based discussion of some of the challenging and controversial topics of managing patients with NF2. The moderator will present specific cases of patients with NF2 and then ask the expert panel specific questions to highlight the important management decisions. All providers involved in the counseling and management of NF2 patients should attend including, neurosurgeons, neurotologists, neuro-oncologists, radiation oncologists and rehabilitation specialists.

At the conclusion of this session, participants will be able to:
1. Evaluate patients with NF2 and prioritize their presenting and possible future symptoms.
2. Identify the broad range of treatment strategies available for patients with NF2.
3. Develop a logical and effective algorithm for the evaluation and management of patients with NF2.

MAIN TOPIC 3: The Orbit: Access and Target for the Skull Base Surgeon *Chamber II*
MODERATOR: Michael McDermott, MD
SPEAKERS: Chrisfouad Alabiad, MD, Khaled Aziz, MD, PhD, Howard Krauss, MD & Sara Wester, MD

- Introduction – *Michael McDermott, MD*
- Eyelid Approaches to Anterior Cranial Fossa – *Khaled Aziz, MD, PhD*
- Orbital Exenteration for Periorbital Skin Cancers, Prognostic Factors and Survival – *Sara Wester, MD*
- En Bloc Resection and Reconstruction for Lacrimal Tumors – *Chrisfouad Alabiad, MD*
- Endoscopic Approaches for Conditions of the Orbit – *Howard Krauss, MD*

This one hour session will include four presentations surgical approaches to the orbit from three oculoplastic surgeons and a neurosurgeon. Open and endoscopic approaches to the orbit, lacrimal gland tumors and prognostic factors for outcome after orbital exenteration will be discussed.

At the conclusion of this session, participants will be able to:
1. Articulate the steps in eyelid approaches to anterior cranial base and outcomes.
2. Develop an understanding of orbital exenteration for tumors of the orbit, prognostic factors and outcomes.
3. Assess the utility of endoscopic approaches for conditions of the orbit and outcomes.

MAIN TOPIC 4: The Infratemporal Fossa: Surgical Anatomy and Approaches *Chamber III*
MODERATOR: Dennis Kraus, MD
SPEAKERS: Ivan El-Sayed, MD, Michael Gleeson, MD, Andre Grotenhuis, MD & Daniel Nuss, MD

- Introduction – *Dennis Kraus, MD*
- Lateral Approaches to the Foramen Ovale and Jugular Foramen – *Michael Gleeson, MD*
- A Proposed Endoscopic Staging System of the Infratemporal Fossa – *Ivan El-Sayed, MD*
- Endoscopic Endonasal Approaches to the Infratemporal Fossa - A Neurosurgical Perspective – *Andre Grotenhuis, MD*
- Indications for Open Approaches and Reconstruction of the Infratemporal Fossa – *Daniel Nuss, MD*
- Discussion and Case Presentation – *Dennis Kraus, MD*

The panel will review a host of surgical approaches and resections for the many neoplasms that involve and originate in the infratemporal fossa. The multidisciplinary nature of the presentation will allow the attendee to access the many surgical approaches and determine the optimal surgical resection based on type of neoplasm and extent of the lesion. Upon completion of the panel, the attendee should be comfortable in understanding the multiple surgical approaches employed in infratemporal fossa surgery.

At the conclusion of this session, participants will be able to:
1. Articulate the complex anatomy of the infratempoal fossa including preservation of neurovascular structures.
2. Distinguish between the pros and cons of the different surgical approaches and the optimal use based on pathology and extent of disease.
3. Plan appropriate reconstruction of infratemporal fossa defects based on the extent of the lesion.

8:45 am – 9:30 am **EXPERT DEBATE SESSIONS**

EXPERT DEBATE 1: Vestibular Schwannomas: Controversies in Modern Management *Crescent City Ballroom*
MODERATORS: John Golfinos, MD, Paul Camarata MD & Simon Angeli, MD
SPEAKERS: Seilesh Babu, MD, George Bovis, MD, Stephen Haines, MD, Roberto Leal Silveira, MD, Randall Porter, MD, Marc Schwartz, MD, Byron Thompson, MD & Elisabetta Zanoletti, MD

This session will explore the raging controversies over the management of an outwardly simple and benign disease. The session is aimed at enriching the knowledge of neurosurgeons from all fields as well as radiation oncologists, radiologists, neuro-oncologists and advanced practice practitioners.

At the conclusion of this session, participants will be able to:
1. Implement new decision-making ability in patients with vestibular schwannomas.
2. Understand the factors affecting quality of life in vestibular schwannoma patients.
3. Compare different treatment modalities in patients with vestibular schwannomas.

EXPERT DEBATE 2: Optimal Strategy for Reconstruction after Endoscopic Skull Base Surgery *Orpheum Room*
MODERATORS: Gabriel Zada, MD, Pablo Recinos, MD & Adam Folbe, MD, MS
SPEAKERS: Ricardo Carrau, MD, Jean Anderson Eloy, MD, Stacey Gray, MD, Seth Lieberman, MD, Eric Wang, MD, Bradford Woodworth, MD & Adam Zanation, MD & Marilene Wang, MD

This expert debate session will feature expert panelists who will discuss optimal strategy for skull base reconstruction during endonasal endoscopic skull base surgery. A discussion regarding operative planning, techniques, adjunct measures, and rescue/salvage procedures will provide panelists' thoughts on presented cases. Key topics will include indications for vascularized flap reconstruction, grafting materials, reconstruction techniques, and indications for CSF diversion. This session would be of particular interest to otolaryngologists and neurosurgeons practicing endoscopic endonasal surgery.

At the conclusion of this session, participants will be able to:
1. Demonstrate an understanding of varying approaches and adjunct techniques for skull base reconstruction during endoscopic endonasal approaches.
2. Identify high-risk cases that may benefit from planning for vascularized flaps and/or CSF diversion.
3. Formulate a general algorithm to reconstruct the skull base for a variety of direct and extended EEA approaches.

EXPERT DEBATE 3: Management of Challenging Meningiomas *Chamber II*

MODERATORS: William Couldwell, MD, PhD, FACS, Roukoz Chamoun, MD & Jamie Van Gompel, MD
SPEAKERS: Ossama Al-Mefty, MD, Nicholas Bambakidis, MD, Ian Dunn, MD, James Evans, MD, Carl Heilman, MD, Steve Howard, MD, PhD, Ali Krisht, MD & Patrick Wen, MD

This session will discuss the multidisciplinary management of complex skull base meningiomas in a case presentation format The role of observation, surgery, radiation therapy, and medical management will be debated.

At the conclusion of this session, participants will be able to:
1. Articulate treatment options for difficult skull base meningiomas.
2. Identify the complications related to surgical treatment and radiation therapy.
3. Formulate mulitdisciplinary treatment plans for patients with complex skull base meningiomas.

EXPERT DEBATE 4: Chordomas: Optimal Approach and Multidisciplinary Management *Chamber III*

MODERATORS: Philip Theodosopoulos, MD, Daniel Kelly, MD & Michael McDermott, MD
SPEAKERS: Amy Anstead, MD, Nagy Elsayyad, MD, Juan Fernandez-Miranda, MD, Sebastien Froelich, MD, Juan Gomez-Amador, MD, Norbert Liebsch, MD, PhD, Jianfeng Liu, MD, PhD & Chandranath Sen, MD

The session is designed as a concise but comprehensive review of chordoma management. Diagnosis, surgical and adjuvant treatment both at initial diagnosis and at recurrence will be discussed with a panel of experts. Open surgical and endoscopic techniques as well as patient outcomes will be discussed.

At the conclusion of this session, participants will be able to:
1. Learn indications for treatment.
2. Identify the correct diagnosis.
3. Organize the treatment algorithm.

9:30 am – 10:00 am **Morning Break in Exhibit Hall** *Roosevelt Ballroom*

10:00 am – 11:10 am **Dr. Albert L. Rhoton Memorial** *Crescent City Ballroom*

MODERATORS: Jacques Morcos, MD, FRCS, FAANS & Jeff Sorenson, MD
SPEAKERS: Juan Fernandez-Miranda, MD, Maria Peris-Celda, MD, PhD, Toshio Matsushima, MD, PhD, Jacques Morcos, MD, FRCS, FAANS, Jeff Sorenson, MD & Xiaoguang Tong, MD

- Al Rhoton: A Human Being Like No Other – *Jacques Morcos, MD, FRCS, FAANS*
- The Rhoton Scientific Legacy – *Jeff Sorenson, MD*
- From the Anatomy Lab to the OR: The Value of Time Spent with Dr. Rhoton – *Juan Fernandez-Miranda, MD*
- Dr. Rhoton and Head and Neck Anatomy – *Maria Peris-Celda, MD, PhD*
- The Impact of Dr. Rhoton on China – *Xiaoguang Tong, MD*
- Dr. Rhoton's Legacy – *Toshio Matsushima, MD*
- Conclusion – *Jacques Morcos, MD, FRCS, FAANS*

This session will summarize the entire body of work of the celebrated neurosurgeon, skull base surgeon and neuroanatomist, Dr. Al Rhoton, as described by several of his past fellows.

At the conclusion of this session, participants will be able to:
1. Relate to the vast spectrum of Dr. Rhoton's contributions to the field of neuroanatomy.
2. Evaluate Dr. Rhoton's influence in the training of more than 120 fellows.
3. Evaluate Dr. Rhoton's impact on the study of different aspects of the skull base in different areas of the world.

Scientific Program

11:10 am – 11:15 am	**HISTORICAL VIDEO NARRATIVE: North American Skull Base Society: A Model of Collaboration**	*Crescent City Ballroom*
11:15 am – 11:45 am	**PRESIDENTIAL ADDRESS: Mastery and Legacy in Skull Base Surgery: Lessons in Synchronicity** Jacques Morcos, MD, FRCS, FAANS	*Crescent City Ballroom*
11:45 am – 12:15 pm	**HONORED GUEST: Some Thoughts about Resident Mentorship: Challenges Facing the Surgeon-Educator** INTRODUCTION: Jacques Morcos, MD, FRCS, FAANS HONORED GUEST: Roberto Heros, MD, FACS	*Crescent City Ballroom*
12:20 pm – 1:00 pm	**Lunch in Exhibit Hall**	*Roosevelt Ballroom*
1:00 pm – 2:00 pm	**PECHA KUCHA SESSIONS/MASTER VIDEO SESSIONS**	

PECHA KUCHA 1: Vestibular Schwannomas *Crescent City Ballroom*

MODERATORS: Michael Chicoine, MD & Anthony Zeitouni, MD
SPEAKERS: Robert Behr, MD, Soha Ghossaini, MD, Pierre Hughes Roche, MD, John Lee, MD, Michael Link, MD, Pamela Roehm, MD, PhD, Mitesh Shah, MD & Byron Thompson, MD

- Natural History – *Soha Ghossaini, MD*
- Retrosigmoid Approach – *Mitesh Shah, MD*
- Middle Fossa Approach – *Byron Thompson, MD*
- Translabyrinthine Approach – *Pamela Roehm, MD, PhD*
- Role of Subtotal Resection – *Michael Link, MD*
- Endoscopic Assisted Surgery – *John Lee, MD*
- Role of Radiosurgery – *Pierre Hughes Roche, MD*
- Recurrent Tumors – *Robert Behr, MD*

A review of the current state of the art for the management of vestibular schwannomas including discussion of the natural history, surgical techniques (including retrosigmoid, middle fossa, translabyrinthine, and endoscopic assisted approaches), and the role of radiosurgery. Also, included will be tan assessment of the strategy of subtotal excision, and how to manage recurrent tumors.

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

1. Review the natural history of untreated vestibular schwannomas so as to identify for which patients the "watch and wait" strategy is most appropriate.
2. Review the published outcomes for patients undergoing surgery for vestibular schwannomas using various approaches and strategies so as to identify which techniques are best suited to which patients.
3. Review the published outcomes for patients undergoing treatment for vestibular schwannomas using surgery and radiosurgery so as to identify which techniques are best suited to which patients.

MASTER VIDEO 1: Microvascular Anastomosis, Bypass and Vascular Repair *Orpheum Room*

MODERATORS: Mark DeLacure, MD & Nicholas Bambakidis, MD
SPEAKERS: Mustafa K. Baskaya, MD, Aaron Dumont, MD, Zoukaa Sargi, MD, MPH, Rokuya Tanikawa, MD & Mark Varvares, MD

- Introduction – *Mark DeLacure, MD*
- Microvascular Repair of Vascular Injuries and Challenging Bypass Cases – *Mustafa K. Baskaya, MD*
- Endovascular Repair – *Aaron Dumont, MD*
- Bypass for Aneurysms – *Rokuya Tanikawa, MD*
- Question & Answer – *Mark DeLacure, MD*
- Introduction – *Nicholas Bambakidis, MD*
- Microvascular Free Tissue Transfer – *Zoukaa Sargi, MD, MPH*
- Non-Microvascular Reconstruction of the Skull Base – *Mark Varvares, MD*
- Question & Answer – *Nicholas Bambakidis, MD*

This session should benefit practitioners and trainees at all levels in Neurosurgery, Otolaryngology-Head & Neck Surgery, and Plastic and Reconstructive Surgery. This session will deal with microvascular and non-revascularized reconstruction of the skull base using free tissue transfer techniques focusing on case selection, choice of flap, the vessel depleted recipient site, and the management of flap failure and complications.

The session will also cover microvascular repair of vascular injuries and challenging bypass scenarios, emphasizing case selection.

At the conclusion of this session, participants will be able to:
1. Select cases most appropriate for primary microvascular reconstructive techniques, and choose among flap options to accomplish this task.
2. Identify cases appropriate for vascular bypass techniques and integrate these plans in developing successful treatment plans for these patients.
3. Apply vascular repair techniques to the repair of injuries of the skull base.

PECHA KUCHA 2: Petroclival Meningiomas *Chamber II*

MODERATORS: Moises Arriaga, MD & Paul Camarata, MD
SPEAKERS: Roukoz Chamoun, MD, Christine Dinh, MD, Kadir Erkmen, MD, Juan Fernandez-Miranda, MD, Gustavo Isolan, MD, PhD, Robert Malyapa, MD, PhD, Lars Poulsgaard, MD & Ali Zomorodi, MD

- Introduction – *Moises Arriaga, MD*
- Natural History – *Lars Poulsgaard, MD*
- Transylvian Approaches – *Ali Zomorodi, MD*
- Retrosigmoid Approach – *Gustavo Isolan, MD*
- Anterior Petrosal Approach – *Roukoz Chamoun, MD*
- Presigmoid Combined Approach – *Kadir Erkmen, MD*
- Transcrural Modification – *Christine Dinh, MD*
- Endoscopic Endonasal Approach – *Juan Fernandez-Miranda, MD*
- Role of Radiation Treatment – *Robert Malyapa, MD*
- Question and Answer – *Paul Camarata, MD*

This session will consider the natural history and treatment of petroclival meningiomas including open approaches, endoscopic approaches and radiation. This session is intended for neurosurgeons, otolaryngologists, neurotologists and radiation oncologists.

At the conclusion of this session, participants will be able to:
1. Articulate the natural history of Meningiomas.
2. Implement open approaches including craniotomy alone and transtemporal approaches.
3. Compare the role of endoscopic, radiation and open approaches.

MASTER VIDEO 2: Microsurgical Techniques in Cranial Nerve Preservation *Chamber III*

MODERATORS: Gerald Lemole Jr, MD & Jon Robertson, MD
SPEAKERS: Takanori Fukushima, MD, Michihiro Kohno, MD, Tiit Mathiesen, MD, PhD, Stefano Sellari-Franceschini, MD & Marcos Tatagiba, MD, PhD

- Glomus Jugulare Tumors – *Marcos Tatagiba, MD, PhD*
- Petroclival Meningiomas – *Takanori Fukushima, MD*
- Vestibular Schwannomas – *Michihiro Kohno, MD*
- Clinoidal Meningiomas – *Tiit Mathiesen, MD, PhD*
- Orbital Surgery – *Stefano Sellari-Franceschini, MD*

This session is targeted toward skull base surgeons utilizing surgical approaches around the cranial nerves. Special attention will be given to observations and techniques to preserve cranial nerve anatomy and function.

At the conclusion of this session, participants will be able to:
1. Discuss approaches to skull base regions and the associated cranial nerves.
2. Demonstrate techniques for cranial nerve identification and monitoring.
3. Identify techniques to preserve cranial nerve anatomy and function.

2:05 pm – 3:05 pm **PECHA KUCHA SESSIONS/MASTER VIDEO SESSIONS**

PECHA KUCHA 3: Chordomas *Crescent City Ballroom*

MODERATORS: Siviero Agazzi, MD, MBA & Lori Lemonnier, MD
SPEAKERS: Michelle Alonso-Basanta, MD, PhD, Franco DeMonte, MD, Gary Gallia, MD, PhD, Maurizio Iacoangeli, MD, David Jang, MD, Maria Koutourousiou, MD, Norbert Liebsch, MD, PhD & Georgios Zenonos, MD

- Introduction – *Siviero Agazzi, MD, MBA*
- Natural History and Prognosis – *Maria Koutourousiou, MD*
- Transcranial Approaches: Posterolateral – *Maurizio Iacoangeli, MD*
- Transcranial Approaches: Anterolateral – *Franco DeMonte, MD*
- Endonasal Endoscopic Approaches: Anatomical Basis – *David Jang, MD*
- Endonasal Endoscopic Approaches: Technique and Results – *Georgios Zenonos, MD*
- Radiation Therapy: Photon – *Michelle Alonso-Basanta, MD, PhD*
- Radiation Therapy: Proton – *Norbert Liebsch, MD, PhD*
- Genetics and Novel Therapies for Chordomas – *Gary Gallia, MD, PhD*

This session will review the most current management strategies for skull base chordomas from a surgical, oncological, radiation and genetic point of view. Surgeons, oncologist and radiation oncologist as well as any other specialty managing these complex tumors should attend this comprehensive review on the subject.

At the conclusion of this session, participants will be able to:
1. Categorize chordomas according to prognostic indicators.
2. Define the different surgical strategies and understand selection criteria for each one of them.
3. Integrate adjuvant therapies in the management of chroma patients.

MASTER VIDEO 3: Approaches to the Cavernous Sinus and Meckel's Cave *Orpheum Room*

MODERATORS: Mark Eisenberg, MD & Chandranath Sen, MD
SPEAKERS: Ben Bleier, MD, William Couldwell, MD, PhD, Paul Gardner, MD, Ali Krisht, MD & Ricardo Ramina, MD, PhD

- Orbital Surgery – *Ben Bleier, MD*
- Lateral Orbitotomy Approach to the Cavernous Sinus – *William Couldwell, MD, PhD*
- Endoscopic Approach to Cavernous Sinus and Meckel's Cave – *Paul Gardner, MD*
- Transcranial Approaches to Cavernous Sinus and Meckel's Cave – *Ali Krisht, MD*
- Approaches to Meckel's Cave – *Ricardo Ramina, MD, PhD*

The Master Video sessions will feature exemplary case videos, presented by recognized surgical masters, to illustrate surgical approaches and techniques. Details regarding the nuances of operating in the region of Meckel's Cave and the Cavernous Sinus will be discussed

At the conclusion of this session, participants will be able to:
1. Identify cavernous sinus and Meckel's Cave Anatomy.
2. Develop pre and post-operative management strategy for patients with cavernous sinus and Meckel's Cave Pathology.
3. Identify patients requiring surgery on the cavernous sinus and Meckel's Cave.

PECHA KUCHA 4: Ergonomics of Surgery and Instrumentation *Chamber II*

MODERATORS: Vikram Prabhu, MD & Marc Rosen, MD
SPEAKERS: Roy Casiano, MD, Carlos David, MD, Jason Hunt, MD, Amin Kassam, MD, Jacques Morcos, MD, FRCS, FAANS, Rokuya Tanikawa, MD, PhD, Marcos Tatagiba, MD, PhD & Bradford Woodworth, MD

- Introduction – *Vikram Prabhu, MD & Marc Rosen, MD*
- Basic Ergonomics of Microsurgery – *Rokuya Tanikawa, MD, PhD*
- Ergonomics of Instrument Design – *Roy Casiano, MD*
- Ergonomics of EEA - Otolaryngology Perspective – *Bradford Woodworth, MD*
- Ergonomics of EEA - Neurosurgical Perspective – *Amin Kassam, MD*
- Ergonomics of Interhemispheric Approach – *Carlos David, MD*
- Ergonomics of Bypass Surgery – *Jacques Morcos, MD, FRCS*
- Ergonomics of Free Flap Surgery – *Jason Hunt, MD*
- Ergonomics of the Sitting Position – *Marcos Tatagiba, MD, PhD*

This Pecha Kucha session will explore the ergonomic challenges faced by skull base surgeons from both otolaryngology and neurosurgery disciplines. Our panel will focus on improving attendees' understanding of the various strategies which can be employed to reduce fatigue and injury through improved surgical ergonomics.

At the conclusion of this session, participants will be able to:
1. Recognize the intrinsic ergonomic challenges and risks faced by skull base surgeons in a variety of practice situations.
2. Identify instrumentation, products, and strategies employed by the panelists to reduce fatigue during surgery.
3. Integrate diverse strategies to improve ergonomics in the attendees' specific practice situation.

MASTER VIDEO 4: Endoscope-Assisted Skull Base Surgery *Chamber III*
MODERATORS: Ketan Bulsara, MD & Roukoz Chamoun, MD
SPEAKERS: Sebastien Froelich, MD, Andre Grotenhuis, MD, PhD, Nikolai Hopf, MD, PhD, Kiyoshi Saito, MD, PhD & Charles Teo, MD

- Introduction – *Ketan Bulsara, MD*
- Endoscope Assisted Surgery for Posterior Fossa/CPA Angle Lesions – *Andre Grotenhuis, MD, PhD*
- Endoscopic Assisted Surgery for Deep Seated Skull Base Tumors – *Sebastien Froelich, MD*
- Combined Microscopic and Endonasal Endoscopic Surgery for Skull Base Lesions – *Kiyoshi Saito, MD, PhD*
- Eyebrow Approach – *Charles Teo, MD*

This session demonstrates through videos the benefit of using an endoscope as an adjunct for skull base surgery.

At the conclusion of this session, participants will be able to:
1. Recognize the utility of using endoscopes as adjuncts in skull base surgery.
2. Select appropriate indications for use of the endoscope as an adjunct in skull base surgery.
3. Compare the benefit of using an endoscope as a skull base surgery adjunct versus not using one at all.

3:05 pm – 3:35 pm **Refreshment Break in Exhibit Hall** *Roosevelt Ballroom*

PROFFERED PAPER SESSIONS

PROFFERED PAPERS 1: Best of Anatomy *(3:35 pm – 5:05 pm)* *Crescent City Ballroom*
MODERATORS: Noberto Andaluz, MD & Zeina Korban, MD

(3:35 pm – 4:05 pm)
001: OLFACTORY ANATOMY AND SURGICAL IMPLICATIONS FOR THE PRESERVATION OF ITS FUNCTION. - Matias Gomez, MD, Ricardo Carrau, MD, Daniel Prevedello, MD, Brad Otto, MD, Alaa Montaser, MD, Diego Servian, MD, Lucas Lima, MD, Victor Leal de Vasconcelos, MD, Cristian Naudy, MD; Ohio State University
002: INTERNAL CAROTID ARTERY EXPOSURE: AN ANATOMIC STUDY OF ENDOSCOPIC AND OPEN ANTERIOR TRANSFACIAL APPROACHES. - Cristine Klatt-Cromwell, Katherine Adams, Theodore Schuman, Brian Thorp, Charles Ebert, Deanna Sasaki-Adams, Matthew Ewend, Adam Zanation; UNC Chapel Hill
003: MODULAR CLASSIFICATION OF ENDOSCOPIC ENDONASAL TRANSSPHENOIDAL APPROACHES: QUANTITATIVE ANATOMICAL STUDY - Francesco Doglietto, MD, PhD[1], Francesco Belotti, MD[1], Andrea Bolzoni Villaret, MD[2], Alberto Schreiber, MD[2], Davide Lancini, MD[2], Marco Ferrari, MD[2], Vittorio Rampinelli, MD[2], Marco Ravanelli, MD[3], Roberto Maroldi, MD[3], Piero Nicolai, MD[2], Luigi F Rodella, MD, MSc[4], Marco M Fontanella, MD[1]; [1]Unit of Neurosurgery, Department of Medical and Surgical Specialties, Radiological Sciences and Public Health, University of Brescia, Brescia, Italy, [2]Unit of Otorhinolaryngology, Department of Medical and Surgical Specialties, Radiological Sciences and Public Health, University of Brescia, Brescia, Italy, [3]Unit of Radiology, Department of Medical and Surgical Specialties, Radiological Sciences and Public Health, University of Brescia, Brescia, Italy, [4]Section of Anatomy and Pathophysiology, Department of Clinical and Experimental Sciences, University of Brescia, Brescia, Italy
004: COMPARTMENTAL ENDOSCOPIC SURGICAL ANATOMY OF THE INFERIOR INTRACONAL ORBITAL SPACE - Alice Z Maxfield, MD, Christopher D Brook, MD, Marcel M Miyake, Benjamin S Bleier, MD; MEEI
Discussion – 5 minutes

Proffered Paper 1 Continued (4:05 pm – 4:35 pm)
005: MAXILLARY STRUT ANATOMY AND IMPLICATIONS FOR A TRANSPTERYGOID APPROACH TO THE MIDDLE FOSSA - Melissa Stamates[1], Ricky Wong[2]; [1]University of Chicago, [2]Northshore University Health System
006: THE VENTRAL PERSPECTIVE: TOPOGRAPHIC NEUROVASCULAR ANATOMY OF THE CRANIAL BASE FROM ENDOSCOPIC ENDONASAL PERSPECTIVE: THE MEDIAN SAGITTAL PLANE - Lior Gonen, MD, Srikant Chakravarthi, MD, MSc, Martin Corsten, MD, Amin B Kassam, MD; Aurora Neuroscience Innovation Institute

007: THE VENTRAL PERSPECTIVE: TOPOGRAPHIC NEUROVASCULAR ANATOMY OF THE CRANIAL BASE FROM AN ENDOSCOPIC ENDONASAL PERSPECTIVE: THE PARAMEDIAN REGION - Lior Gonen, MD, Srikant S Chakravarthi, Martin Corsten, MD, Amin B Kassam, MD; Aurora Neuroscience Innovation Institute
008: SURGICAL ANATOMY OF THE MEDIAL WALL OF THE CAVERNOUS SINUS AND TECHNICAL NUANCES FOR ITS SURGICAL RESECTION - Stefan Lieber, MD[1], Maximiliano Nunez, MD[1], Cristian Ferrareze Nunes, MD[1], Eric W Wang, MD[2], Carl H Snyderman, MD, MBA[2], Paul A Gardner, MD[1], Juan C Fernandez-Miranda, MD[1]; [1]Department of Neurological Surgery, University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania, United States, [2]Department of Otolaryngology, University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania, United States
Discussion – 5 minutes

Proffered Paper 1 Continued (4:35 pm – 5:05 pm)
009: DECOMPRESSION OF THE OPTIC CANAL VIA AN ENDOSCOPIC ENDONASAL VERSUS A TRANSCRANIAL APPROACH: A QUANTITATIVE ANALYSIS. - Steven L Gogela, MD[1], Lee A Zimmer, MD, PhD[2], Jeffrey T Keller, PhD[2], Norberto Andaluz, MD[1]; [1]University of Cincinnati, Mayfield Clinic, [2]University of Cincinnati
010: MICROSURGICAL RELATIONSHIPS BETWEEN INTERNAL CAROTID-POSTERIOR COMMUNICATING ARTERY ANEURYSMS AND SKULL BASE - Satoshi Matsuo[1], Noritaka Komune[2], So Takagishi[1], Kenichi Matsumoto[3], Sei Haga[4], Takuya Inoue[1], Albert L. Rhoton, Jr.[5]; [1]Department of Neurosurgery, Kyushu Central Hospital, Fukuoka, Japan, [2]Department of Otolaryngology, Graduate School of Medical Sciences, Kyushu University, Fukuoka, Japan, [3]Department of Neurosurgery, Saga Medical Center Koseikan, Saga, Japan, [4]Department of Neurosurgery, Kyushu Rosai Hospital, Fukuoka, Japan, [5]Department of Neurosurgery, University of Florida, Gainesville, Florida
011: POST-TREATMENT IMAGING APPEARANCES FOLLOWING SKULL BASE THERAPY - Adam A Dmytriw, MD, MSc[1], Jin Soo A Song, MD[1], John A Rutka, MD[1], Arjun Sahgal, MD, PhD[1], Peter Som, MD[2], Eugene Yu[1]; [1]University Health Network, [2]Mount Sinai Health Center
012: NAVIGATING THE SKULL BASE - IMAGING PEARLS AND PITFALLS - Eduardo A Lacayo, MD, Timothy R DeKlotz, MD, Amjad N Anaizi, MD, Ann K Jay; MedStar Georgetown University Hospital
Discussion – 5 minutes

PROFFERED PAPERS 2: Best of Vestibular Schwannomas *(3:35 pm – 5:05 pm)* *Orpheum Room*
MODERATORS: Seilesh Babu, MD & Cordula Matthies, MD

(3:35 pm – 4:05 pm)
013: TRENDS OF CHANGE IN THE MANAGEMENT OF VESTIBULAR SCHWANNOMA - Andrew F Alalade, FRCS, FEBNS[1], Nagina Subrati, MRCS[1], Shakeel Saeed, MD, FRCS[2], Robert Bradford, MD, FRCS[1]; [1]The National Hospital for Neurology and Neurosurgery, 33 Queen Square, London WC1N 3BG, [2]Royal National Throat, Nose and Ear Hospital, 330 Gray's Inn Road, London WC1X 8DA
014: AUDIOLOGICAL OUTCOMES IN GROWING VESTIBULAR SCHWANNOMAS MANAGED EITHER CONSERVATIVELY, OR WITH STEREOTACTIC RADIOSURGERY - Thomas D Milner, Richard Locke, Georgios Kontorinis, John A Crowther; Queen Elizabeth University Hospital
015: OUTCOMES OF COCHLEAR RADIATION DOSE ON HEARING PRESERVATION FOLLOWING STEREOTACTIC RADIOSURGERY AND FRACTIONATED RADIOTHERAPY IN VESTIBULAR SCHWANNOMA - Lawrance K Chung, BS, Winward Choy, BS, Nolan Ung, BS, Brittany Voth, MPH, Carlito Lagman, MD, Alessandra Gorgulho, MD, Stephen Tenn, PhD, Nader Pouratian, MD, Tania Kaprealian, MD, Michael Selch, MD, Antonio De Salles, MD, PhD, Quinton Gopen, MD, Isaac Yang, MD; University of California, Los Angeles
016: ASPIRIN, NONSTEROIDAL ANTI-INFLAMMATORY DRUGS AND VESTIBULAR SCHWANNOMA GROWTH - Jacob B Hunter, MD, Brendan P O'Connell, MD, Marc L Bennett, MD, Alejandro Rivas, MD, George B Wanna, MD, Reid C Thompson, MD, David S Haynes, MD; Vanderbilt University Medical Center
Discussion – 5 minutes

Proffered Paper 2 Continued (4:05 pm – 4:35 pm)
017: HEARING LOSS IS MORE STRONGLY ASSOCIATED WITH PROTEIN ACCUMULATION IN THE LABYRINTH THAN WITH VESTIBULAR SCHWANNOMA GROWTH IN SMALL TUMORS: A PROSPECTIVE NATURAL HISTORY STUDY OF NEUROFIBROMATOSIS TYPE 2 - Gautam U Mehta, MD[1], Robert L Walker III[1], Carmen Brewer[1], Kelly King[1], Christopher Zalewski[1], Gretchen Scott[1], Sarah Benzo[1], Ashok Asthagiri[1], John Butman, MD[1], Jeffrey Kim, MD[2], Prashant Chittiboina, MD[1]; [1]National Institutes of Health, [2]Georgetown University School of Medicine
018: MAGNETIC RESONANCE ELASTOGRAPHY IN VESTIBULAR SCHWANNOMA - Joshua D Hughes, Mona ElSheikh, Ziying Yin, Nikoo Fattahi, Jamie J Van Gompel, Michael J Link, Arvin Arani, Richard Ehman, John Huston; Mayo Clinic

019: POPULATION CHARACTERISTICS AND PROGRESSIVE DISABILITY IN NEUROFIBROMATOSIS TYPE 2 IN JAPAN - Kensho Iwatate; Fukushima Medical University
020: ACOUSTIC NEUROMA RECURRENCE AFTER TRANSLABYRINTHINE GROSS-TOTAL RESECTION - Brian C Rodgers, MD, Aaron A Metrailer, MD, Christopher Metz, MD, Seilesh Babu, MD, Dennis I Bojrab, MD, Michael J LaRouere, MD; Michigan Ear Institute
Discussion – 5 minutes

Proffered Paper 2 Continued (4:35 pm – 5:05 pm)
021: SURGICAL OUTCOME IN SMALLER SYMPTOMATIC VESTIBULAR SCHWANNOMAS. IS THERE A PLACE FOR SURGERY AS FIRST OPTION? - Amrit Chiluwal, MD, Alyssa Rothman, Maja Svrakic, MD, Amir R Dehdashti, MD, FACS; Northshore University Hospital
022: CORRELATES OF FACIAL NERVE OUTCOMES AFTER ACOUSTIC NEUROMA SURGERY: RESULTS OF A CONSECUTIVE SERIES AT A TERTIARY CARE CENTER. - Angela M Richardson, MD, PhD, Si Chen, MD, Manish Kuchakalla, Anish Bhavsar, Ashish Shah, MD, Michael E Ivan, MD, Adrien A Eshraghi, MD, Simon I Angeli, MD, Fred F Telischi, Jacques J Morcos, MD, FRCS, FAANS; University of Miami / Jackson Health System
023: AUDITORY BRAINSTEM IMPLANTS IN NEUROFIBROMATOSIS TYPE 2: EARLY AND LONG-TERM RESULTS - Cordula Matthies, Prof, MD, PhD[1], Goetz Gelbrich, Prof, PhD[2], Robert Mlynski, Prof, MD, PhD[3], Rudolf Hagen, Prof, MD, PhD[3], Wafaa Shehata-Dieler, Prof, MD, PhD[3]; [1]Department of Neurosurgery, Julius-Maximilians University Hospital, Wuerzburg, Germany, [2]Institute of Epidemiology and Biometrics, Julius-Maximilians University Wuerzburg, Germany, [3]Department of Otorhinolaryngology, Julius-Maximilians University Hospital Wuerzburg, Germany
Discussion – 5 minutes

PROFFERED PAPERS 3: Best of Meningiomas I *(3:35 pm – 5:05 pm)* *Chamber II*
MODERATORS: James Evans, MD & Lori Lemonnier, MD

(3:35 pm – 4:05 pm)
024: DIFFERENTIATING MENINGIOMA GRADE BY IMAGING FEATURES ON MRI - Andrew T Hale, Li Wang, Megan K Strother, Lola B Chambless; Vanderbilt
025: PROSPECTIVE STUDY OF SLIP-INTERFACE IMAGING IN MENINGIOMA FOR BRAIN-TUMOR ADHESION - Joshua D Hughes, Ziying Yin, Mona ElSheikh, Jamie Van Gompel, Michael J Link, Fredrick Meyer, Arvin Arani, Richard Ehman, John Huston III; Mayo Clinic
026: INTRAOPERATIVE NEAR INFRARED FLUORESCENT VISUALIZATION OF MENINGIOMAS - John Y Lee, MD, John T Pierce, MS, Ryan Zeh, BA, Steve Cho, BS, Sunil Singhal, MD; University if Pennsylvania
027: CLINICALLY-ACTIONABLE MUTATIONS IN POSTERIOR SKULL BASE MENINGIOMAS - Sally R Williams[1], Brandyn A Castro, MD[1], Tyler T Lazaro[1], Corey M Gill[1], Naema Nayyar[1], Matthew P Frosch, MD, PhD[2], Matthew Strickland, MD[1], Daniel P Cahill, MD, PhD[3], Fred G Barker II, MD[3], Priscilla K Brastianos, MD[1]; [1]Massachusetts General Hospital Cancer Center, [2]Massachusetts General Hospital Department of Pathology, [3]Massachusetts General Hospital Department of Neurosurgery
Discussion – 5 minutes

Proffered Paper 3 Continued (4:05 pm – 4:35 pm)
028: CLINICAL OUTCOME AFTER ENDOSCOPIC ENDONASAL RESECTION OF PLANUM AND TUBERCULUM SELLA MENINGIOMAS - Khaled Elshazly, MD[1], Varun R Kshettry, MD[2], Christopher J Farrell, MD[1], Gurston Nyquist, MD[1], Marc Rosen, MD[1], James J Evans, MD[1]; [1]Thomas Jefferson University, [2]Cleveland Clinic
029: THE ROLE OF STAGING IN ENDOSCOPIC ENDONASAL APPROACHES FOR LARGE AND GIANT ANTERIOR SKULL BASE MENINGIOMAS - Pradeep Setty, DO, Mathew Geltzeiler, MD, Andrea Hebert, MD, Georgios Zenonos, MD, Eric W Wang, MD, Carl H Snyderman, MD, Juan C Fernandez-Miranda, MD, Paul A Gardner, MD; University of Pittsburgh
030: ENDOSCOPIC TRANSSPHENOIDAL VERSUS MICROSCOPIC TRANSCRANIAL APPROACH FOR ANTERIOR SKULL BASE MENINGIOMAS: A META-ANALYSIS - Is Muskens, BSc[1], V Briceno, MSc[2], Tl Ouwehand, BSc[1], Wb Gormley, MD, MPH, MBA[3], Ls Aglio, MD, MS[4], Tr Smith, MD, PhD, MPH[3], Ra Mekary, MSc, PhD[2], Ml Broekman, MD, JD, PhD[1]; [1]Utrecht University Medical Center, Brain Center Rudolf Magnus, Utrecht, The Netherlands, [2]MCPHS University, Boston, USA, [3]Cushing Neurosurgery Outcomes Center, Brigham and Women's Hospital, Department of Neurosurgery Harvard Medical School, [4]Department of Anesthesiology, Brigham & Women's Hospital, Harvard Medical School

031: TUBERCULUM SELLA MENINGIOMAS: SURGICAL OUTCOMES, ENDOSCOPIC VS OPEN APPROACH, AND A PROPOSED TUMOR GRADING SCALE - Stephen T Magill, MD, PhD[1], Calixto-Hope G Lucas, BA[1], Manish K Aghi, MD, PhD[1], Philip V Theodosopoulos, MD[1], Mitchel S Berger, MD[1], Oreste de Divitis, MD[2], Domenico Solari, MD[2], Paolo Cappabianca, MD[2], Luigi M Cavallo, MD, PhD[2], Michael W McDermott, MD[1]; [1]University of California, San Francisco, [2]Universita degli Studi di Napoli Federico II, Naples, Italy
Discussion – 5 minutes

Proffered Paper 3 Continued (4:35 pm – 5:05 pm)
032: BRACHYTHERAPY FOR RECURRENT HIGH-GRADE MENINGIOMAS: AN INSTITUTIONAL EXPERIENCEE - Pankaj Agarwalla, Matthew Koch, Trevor Royce, Kevin Oh, Helen Shih, Frederick Barker, William Curry, Jay Loeffler; Massachusetts General Hospital
033: OVERALL SURVIVAL BENEFIT ASSOCIATED WITH ADJUVANT RADIOTHERAPY IN WHO GRADE II MENINGIOMA - Chenyang Wang, MD, PhD[1], Tania Kaprealian, MD[1], John Suh, MD[2], Charlotte Kubicky, MD, PhD[5], Jeremy N Ciporen, MD[3], Yiyi Chen, PhD[4], Jerry J Jaboin, MD, PhD[5]; [1]UCLA Department of Radiation Oncology, [2]Cleveland Clinic Department of Radiation Oncology, [3]OHSU Department of Neurosurgery, [4]OHSU School of Public Health, [5]OHSU Department of Radiation Medicine
034: USING LOGISTIC REGRESSION AND A NOVEL MACHINE LEARNING TECHNIQUE TO PREDICT DISCHARGE STATUS AFTER CRANIOTOMY FOR MENINGIOMA - Whitney E Muhlestein, BA, Peter J Morone, MD, Justiss A Kallos, BS, MPhil, Lola B Chambless, MD; Vanderbilt University Medical Center
Discussion – 5 minutes

PROFFERED PAPERS 4 (Rapid Fire): Best of Pituitary Adenomas, Sellar and Suprasellar Lesions *Chamber III*
(3:35 pm – 5:55 pm)
MODERATORS: Seth Lieberman, MD, Nirav Patel, MD, Jamie Van Gompel, MD & Gelareh Zadeh, MD, PhD, FRCS

(3:35 pm – 4:10 pm)
035: OUTCOMES OF PEDIATRIC CRANIOPHARYNGIOMA RESECTIONS AFTER OPEN VERSUS EXPANDED ENDONASAL SURGICAL APPROACH - Jennifer E Douglas, BA[1], Bobby A Tajudeen, MD[2], Edward C Kuan, MD, MBA[3], Marvin Bergsneider, MD[4], Marilene B Wang, MD[3], John Y.K. Lee, MD, MSCE[5], James N Palmer, MD[2], Nithin D Adappa, MD[2], Phillip B Storm, MD[6]; [1]University of Pennsylvania Perelman School of Medicine, [2]University of Pennsylvania Department of Otorhinolaryngology-Head and Neck Surgery, [3]University of California Los Angeles Department of Head and Neck Surgery, [4]University of California Los Angeles Department of Neurosurgery, [5]University of Pennsylvania Department of Neurosurgery, [6]Children's Hospital of Philadelphia, Division of Neurosurgery
036: CRANIOPHARYNGIOMAS: THE IMPORTANCE OF EARLY RECOGNITION OF THE PITUITARY STALK - Daniel Seclen Voscoboinik[1], Miguel Mural[1, 2], Eduardo Salas[1, 2], Maximiliano Nuñez[1], Pablo Rubino[1], Jorge Lambre[1], Tito Cersosimo[2]; [1]Hospital de Alta Complejidad en Red "El Cruce", [2]Hospital "Prof. A. Posadas"
037: ENDOSCOPIC PITUITARY SURGERY - A RETROSPECTIVE REVIEW TO DETERMINE THE RISK FACTORS FOR CSF LEAK AND VASCULAR COMPLICATIONS. - Alistair Jukes, MD, Annika Mascarenas, MD, Alkis Psaltis, MD, PhD, Pj Wormald, MD, Stephen Floreani, MD, Stephen Santoreneos, MD; Royal Adelaide Hospital
038: RATER RELIABILITY OF THE HARDY CLASSIFICATION FOR PITUITARY ADENOMAS IN THE MRI ERA - Michael A Mooney, MD, Douglas A Hardesty, MD, John P Sheehy, MD, Roger Bird, MD, Kristina Chapple, PhD, William L White, MD, Andrew S Little, MD; Barrow Neurological Institute
039: ENDOSCOPIC ENDONASAL APPROACH FOR PROLACTINOMA: OUTCOMES IN 56 PATIENTS - Georgios Zenonos, MD[1], Sam S Shin, MD, PhD[2], Andrea Hebert, MD[4], Phillip Choi, MD[3], Amir Faraji[1], Eric W Wang[4], Juan C Fernandez-Miranda, MD[1], Carl H Snyderman, MD, MS[4], Paul A Gardner, MD[1]; [1]University of Pittsburgh Department of Neurosurgery, [2]Johns Hopkins University, Department of Neurology, [3]UT Houston, Department of Neurosurgery, [4]University of Pittsburgh, Department of Otorhinolaryngology
040: COMPARISON OF MALE AND FEMALE PROLACTINOMA PATIENTS REQUIRING SURGICAL INTERVENTION - Frederick Yoo, MD[1], Edward C Kuan, MD[1], Marvin Bergsneider, MD[2], Marilene B Wang, MD[1]; [1]Department of Head and Neck Surgery - UCLA, [2]Department of Neurosurgery – UCLA
041: ENDOSCOPIC ENDONASAL TRANSSPHENOIDAL FENESTRATION OF RATHKE CLEFT CYSTS IN CHILDREN - Mohamed A Elzoghby, MD[1], Matthew J Shepard, MD[2], Erin N Kiehna, MD[3], Spencer C Payne, MD[2], John A Jane Jr., MD[2]; [1]Ain Shams university, Cairo, Egypt., [2]University of Virginia, Charlotesville, USA, [3]Childeren Hospital, Los Angeles, USA

042: OUTCOMES FOLLOWING ENDOSCOPIC RESECTION OF CRANIOPHARYNGIOMAS IN THE PEDIATRIC POPULATION - Andrew Thamboo, MD, MHSc, Vishal S Patel, BS, Jennifer L Quon, MD, Jayakar Nayak, MD, PhD, Peter H Hwang, MD, Michael Edwards, MD, Zara M Patel; Stanford University Medical Center
Discussion – 13 minutes

Proffered Paper 4 Continued (4:10 pm – 4:45 pm)
043: RNA DEEP SEQUENCING OF ADAMANTINOMATOUS CRANIOPHARYNGIOMA REVEALS MOLECULAR DIVERGENCE BETWEEN YOUNGER AND OLDER PATIENTS - Douglas Hardesty[1], Ashish Yeri[2], Taylor Beecroft[2], Beth Hermes[1], Jennifer Eschbacher, MD[1], Kendall Jensen, PhD[2], Peter Nakaji, MD[1]; [1]Barrow Neurological Institute, [2]Translational Genomics Research Institute
044: ENDOSCOPIC ENDONASAL APPROACH AS THE PRIMARY SURGICAL MANAGEMENT OF GIANT PITUITARY ADENOMAS - Khaled Elshazly, MD, Alan Siu, MD, Christopher Farrell, MD, Gurston Nyquist, MD, Marc Rosen, MD, James Evans, MD; Thomas Jefferson university hospital
045: THE EFFECT OF EARLY VS. LATE SURGERY ON CRANIAL NERVE FUNCTION IN PITUITARY APOPLEXY - Kevin A Cross, Brendan Fong, MD, Ananth K Vellimana, MD, Julie Silverstein, MD, Michael R Chicoine, MD, Albert H Kim, MD, PhD; Washington University in St. Louis School of Medicine
047: CRANIAL 3D NEURONAVIGATION TO THE SELLAR REGION: OUR EXPERIENCE AND PROOF OF PRINCIPLE. - A. Nimer Amr, MD, Sven R Kantelhardt, MD, Jens Conrad, MD; University of Mainz
048: DOES VOLUMETRIC RESECTION MATTER IN NON-FUNCTIONING MACROADENOMAS? - Joshua D Hughes, Marcus Gates, Kelly Koeller, Jamie J Van Gompel; Mayo Clinic
049: UTILIZING SURGICEL FOR SIMPLE CLOSURE OF POST-OPERATIVE SELLAR DEFECTS: THE JEFFERSON EXPERIENCE - Vivek R Varma, BS[1], Sanjeet V Rangarajan, MD, MEng[1], Varun Kshettry, MD[2], Marc R Rosen, MD[1], James J Evans, MD[2]; [1]Thomas Jefferson University Department of Otolaryngology-Head and Neck Surgery, [2]Thomas Jefferson University Department of Neurosurgery
050: SURGEON IDENTIFICATION VS PATHOLOGICAL CONFIRMATION OF THE PITUITARY GLAND-TUMOR INTERFACE AND THE IMPACT OF GLAND SAMPLING ON POSTOPERATIVE ENDOCRINOLOGIC FUNCTION - Maria Peris-Celda, MD, PhD, Carlos D Pinheiro-Neto, MD, PhD, Tyler J Kenning; Albany Medical Center
Discussion – 13 minutes

Proffered Paper 4 Continued (4:45 pm – 5:20 pm)
051: RISK FACTORS FOR COMPLICATIONS AND LONG-TERM SEQUELAE IN ENDOSCOPIC RESECTION OF PEDIATRIC CRANIOPHARYNGIOMA - Arjun K Parasher, MD[1], Alan D Workman[1], Steven G Brooks, MPH[1], Jordan T Glicksman, MD[1], Jennifer E Douglas[1], Bobby A Tajudeen, MD[2], Erin Alexander[3], Kennedy W David, MD[1], James N Palmer, MD[1], Nithin D Adappa, MD[1], Phillip B Storm, MD[3]; [1]University of Pennsylvania, [2]Rush, [3]Children's Hospital of Philadelphia
052: SURGICAL OUTCOMES OF PRIMARY VERSUS REVISION TRANSSPHENOIDAL RESECTION FOR PITUITARY ADENOMAS AT A HIGH-VOLUME CENTER - Arjun Aggarwal, BS, Ankur Patel, MD, Yann-Fuu Kou, MD, Matthew Ryan, MD, Samuel L Barnett, MD; UT Southwestern
053: EFFECTIVENESS OF BILATERAL INFERIOR PETROSAL SINUSES SAMPLING IN TUMOR LATERALIZATION: INTRAOPERATIVE FINDINGS AND POSTOPERATIVE RESULTS. - Pablo Harker, MD, Oscar H Feo, MD, Manuel Giraldo-Grueso, Juan C Puentes, MD; Hospital Universitario San Ignacio
054: EXTENT OF RESECTION, VISUAL AND ENDOCRINOLOGICAL OUTCOMES FOR ENDOSCOPIC ENDONASAL SURGERY FOR RECURRENT PITUITARY ADENOMAS - Hyunwoo Do[1], Varun Kshettry[2], Alan Siu[1], Irina Belinksy[1], Christopher Farrell[1], Gurston Nyquist[1], Marc Rosen[1], Jim Evans[1]; [1]Thomas Jefferson University, [2]Cleveland Clinic
055: PATTERNS OF PITUITARY INJURY DURING ENDOSCOPIC TRANSSPHENOIDAL PITUITARY SURGERY: CORRELATION OF INTRA-OPERATIVE VIDEOS WITH ENDOCRINOLOGICAL OUTCOMES IN 76 PATIENTS - Solon Schur, MD, Salvatore Dimaio, MD; McGill University Health Center, Department of Neurosurgery
056: PREDICTING THE PROBABILITY OF DIAPHRAGMATIC DESCENT WITH VERY LARGE PITUITARY ADENOMAS - Marvin Bergsneider, MD, Wendy Huang, MD, David McArthur, PhD, MPH, Anthony Heaney, MD, Jeffrey D Suh, MD, Marilene B Wang, MD; UCLA David Geffen School of Medicine
057: USING CISS MRI SEQUENCE TO EVALUATE CAVERNOUS SINUS INVASION OF PITUITARY MACROADENOMAS - Min Lang, MS, Danilo Silva, MD, Varun R Kshettry, MD, Troy D Woodard, MD, Raj Sindwani, MD, Rupa G Juthani, MD, Pablo F Recinos, MD; Rose Ella Burhardt Brain Tumor and Neuro-Oncology Center, Neurological Institute, Cleveland Clinic
Discussion – 13 minutes

Proffered Paper 4 Continued (5:20 pm – 5:55 pm)
058: OUTCOMES OF THE TRANSPHENOIDAL APPROACH FOR PITUITARY ADENOMAS IN ELDERLY PATIENTS - S H Chen, MD, K Madhavan, MD, S Buttrick, MD, L Chieng, BS, S Ali, BS, R Komotar; University of Miami
059: NEUROENDOCRINOLOGICAL OUTCOMES FOLLOWING EARLY VERSUS DELAYED SURGERY FOR ACUTE PITUITARY APOPLEXY - Martin Rutkowski, MD, Sandeep Kunwar, MD, Lewis Blevins, MD, Manish Aghi, MD, PhD; University of California, San Francisco, Department of Neurological Surgery
060: REOPERATION FOR GROWTH-HORMONE SECRETING PITUITARY ADENOMAS: ENDONASAL ENDOSCOPIC SERIES AND SYSTEMATIC REVIEW OF THE LITERATURE - Joao Paulo Almeida, MD[1], Armando Ruiz-Treviño, MD[1], Buqing Liang, MD[1], Sathwik Shetty, MD[1], Yu-Ning Chen, MD[1], Sacit B Omay, MD[1], Vijay K Anand, MD[2], Theodore H Schwartz, MD[1]; [1]Department of Neurosurgery. Weill Cornell Medical College. New York Presbyterian Hospital. New York, NY, [2]Department of Otolaryngology and , New York Presbyterian Hospital, New York, NY, USA.
061: TIME TO BIOCHEMICAL REMISSION IN CUSHING'S DISEASE: A RETROSPECTIVE REVIEW OF "INTRACAPSULAR" VERSUS "EXTRACAPSULAR" RESECTIONS - Ali O Jamshidi, MD, Luke Smith, MD, Jeeho D Kim, Daniel Prevedello, MD; The Ohio State University Medical Center
062: PREDICTIVE FACTORS FOR RECURRENCE FOLLOWING ENDOSCOPIC TREATMENT OF CUSHING'S DISEASE - Karolyn Au[1], Ying Meng[2], Suganth Suppiah[2], George Klironomos[1], Lior Gonen[1], Fred Gentili[1], Gelareh Zadeh[1]; [1]Toronto Western Hospital, Toronto, Canada, [2]University of Toronto, Toronto, Canada
063: CSF LEAK RATE AFTER ENDOSCOPIC SKULL BASE TUMOR RESECTIONS IN CHILDREN: A SINGLE INSTITUTION EXPERIENCE. - Javan J Nation, MD[1], Alexis Lopez, MD[2], Adam Deconde, MD[2], Michael Levy, MD[1]; [1]Rady Childrens/ UCSD, [2]UCSD
046: 30 DAY METRICS FOLLOWING ENDOSCOPIC EXPANDED ENDONASAL APPROACH FOR PITUITARY ADENOMAS - Adish D Parikh, BS, Andrew J Rosko, MD, Melissa A Pynnonen, MD, Stephen E Sullivan, Erin L McKean, MD; University of Michigan
Discussion – 11 minutes

PROFFERED PAPERS 5: Best of Functional Outcome and Quality of Life *(3:35 pm – 5:05 pm)* *Chamber I*
MODERATORS: Stacey Gray, MD & Andrew Little, MD

(3:35 pm – 4:05 pm)
064: THE MINIMALLY CLINICALLY IMPORTANT DIFFERENCE OF THE ANTERIOR SKULL BASE NASAL INVENTORY-12 - Andrew Little, MD[1], Daniel Kelly, MD[2], Garni Barkhoudarian, MD[2], Nicholas Gravbrot, BS[1], William White, MD[1]; [1]Barrow Neurological Institute, [2]John Wayne Cancer Institute
065: QUALITY OF LIFE AFTER ENDOSCOPIC RESECTION OF MALIGNANT SINONASAL AND SKULL-BASE TUMORS - Jordan T Glicksman, MD, MPH, FRCSC, Arjun K Parasher, MD, Steven G Brooks, Justina L Lambert, BA, Jenna E Bregman, BA, Alan D Workman, BA, James N Palmer, MD, Nithin D Adappa, MD; University of Pennsylvania
066: A NOVEL SCALE FOR DESCRIBING VISUAL OUTCOMES IN PATIENTS FOLLOWING RESECTION OF LESIONS AFFECTING THE OPTIC APPARATUS-UNIFIED VISUAL FUNCTION SCALE - Serge Makarenko, MD, BSc, Vincent Ye, BSc, Ryojo Akagami, MD, BSc, MHSc, FRCSC; Vancouver General Hospital
067: ESTHESIONEUROBLASTOMA AND OLFACTORY PRESERVATION: DOES THIS UNICORN EXIST AND IS IT REASONABLE TO ATTEMPT SMELL PRESERVATION? - Jamie J Van Gompel, Tarek Ryan, Josh Hughes, Janalee Stokken, Jeff Janus, Dan Price, Micheal J LInk; Mayo Clinic Rochester, MN
Discussion – 5 minutes

Proffered Paper 5 Continued (4:05 pm – 4:35 pm)
068: LIFE QUALITY AFTER VESTIBULAR SCHWANNOMA SURGERY: IMPORTANCE OF FACIAL NERVE FUNCTION? - Cordula Matthies, Prof, MD, PhD[1], Robert Nickl, MD[1], Jennifer Friedrich[1], Goetz Gelbrich[2], Maria Hummel, MD[1], Rudolf Hagen, Prof, MD, PhD[3], Ralf-Ingo Ernestus, Prof, MD, PhD[1]; [1]Department of Neurosurgery, Julius-Maximilians University Hospital, Wuerzburg, Germany, [2]Institute of Epidemiology and Biometrics, Julius-Maximilians University Wuerzburg, Germany, [3]Department of Otorhinolaryngology, Julius-Maximilians University Hospital Wuerzburg, Germany
069: COMPARATIVE COST ANALYSIS OF ENDOSCOPIC VERSUS MICROSCOPIC TRANSSPHENOIDAL SURGERY FOR PITUITARY ADENOMAS - Chikezie I Eseonu, MD, Karim ReFaey, MD, Oscar Garcia, MPH, Alfredo Quinones-Hinojosa, MD; Johns Hopkins University

070: THE IMPACT OF TRANSSPHENOIDAL SURGERY ON NEUROCOGNITIVE FUNCTION: A SYSTEMATIC REVIEW - Adnan Alsumali, MSc[1], David J Cote, BSc[2], Quentin R Regestein, MD[3], Erin Crocker[2], Abdulaziz Alzarea, BSPharm[1], Hasan A Zaidi[2], Wenya Linda Bi, MD, PhD[2], Hassan Y Dawood, BSc[2], Marike L Broekman, MD, PhD, JD[4], Martine J.E. van Zandvoort, PhD[4], Rania A Mekary[1], Timothy R Smith[2]; [1]MCPHS University, Boston, USA, [2]Cushing Neurosurgery Outcomes Center, Brigham and Women's Hospital Department of Neurosurgery, Harvard Medical School, Boston, USA, [3]Department of Psychiatry, Brigham and Women's Hospital, 1249 Boylston St., Boston, MA 02215, [4]Department of Neurosurgery, University Medical Centre, Utrecht, The Netherlands

071: QUALITY OF LIFE CHANGES FOLLOWING CONCURRENT SEPTOPLASTY AND/OR INFERIOR TURBINOPLASTY DURING ENDOSCOPIC PITUITARY SURGERY - Daniel Lee[1], Maria Peris-Celda, MD, PhD[2], Anna Butrymowicz, MD[3], Tyler Kenning, MD[2], Carlos Pinheiro-Neto[3]; [1]Albany Medical College, [2]Department of Neurosurgery, Albany Medical Center, Albany, New York., [3]Division of Otolaryngology / Head and Neck Surgery, Department of Surgery, Albany Medical Center, Albany, New York.

Discussion – 5 minutes

Proffered Paper 5 Continued (4:35 pm – 5:05 pm)

072: SINO-NASAL QUALITY OF LIFE BEFORE AND AFTER ENDOSCOPIC TRANSSPHENOIDAL SKULL-BASE SURGERY - Vincent Wu, BHSc[1], Michael D Cusimano, MD, PhD, FRCSC, DABNS, FACS, MHPE[2], John M Lee, MD, FRCSC, MSc[3]; [1]School of Medicine, Queen's University, Kingston, Ontario, Canada, [2]Department of Neurosurgery, University of Toronto, Toronto, Ontario, Canada, [3]Department of Otolaryngology - Head and Neck Surgery, University of Toronto, Toronto, Ontario, Canada

073: QUALITY OF LIFE AFTER ENDOSCOPIC TRANSSPHENOIDAL PITUITARY SURGERY: RHINOLOGICAL OUTCOME EVALUATION - Jens Conrad, MD[1], Jasmin Rezapour[1], Marco Blaese[1], Tilman Huppertz[2], Sven Becker[2], Ali Ayyad[1]; [1]Department of Neurosurgery, [2]Department of ENT

074: LONG-TERM FACIAL NERVE OUTCOMES FOLLOWING MICROSURGICAL RESECTION OF VESTIBULAR SCHWANNOMAS IN PATIENTS WITH PRE-OPERATIVE FACIAL NERVE PALSY - Michael A Mooney, MD, Christina Sarris, MD, Benjamin Hendricks, MD, Randall Porter, MD, Robert F Spetzler, MD, Kaith Almefty, MD; Barrow Neurological Institute

075: DETERMINANTS OF QUALITY OF LIFE IMPROVEMENT AFTER PITUITARY SURGERY IN PATIENTS WITH ACROMEGALY - Mostafa Fatehi, MD, MSc, Camille Hunt, BSc, Ryojo Akagami, MD; Vancouver General Hospital

Discussion – 5 minutes

5:10 pm – 5:55 pm **CONSTRUCTIVE CRITICISM VIDEOS SESSION**

CONSTRUCTIVE CRITICISM VIDEOS 1: Endoscopic Endonasal Approaches *Crescent City Ballroom*

MODERATORS: Lori Lemonnier, MD & John Jane, MD

SPEAKERS: Marvin Bergsneider, MD, Roy Casiano, MD, Amir Dehdashti, MD, Paul Gardner, MD, James Liu, MD & Eduardo Vellutini, MD

- Introduction – *Lori Lemonnier, MD*
- Dissection of Pituitary Adenoma Capsule – *Eduardo Vellutini, MD*
- EEA for Giant Pituitary Adenoma with Intraventricular Extension – *Marvin Bergsneider, MD*
- EEA for Craniopharyngioma – *Amir Dehdashti, MD*
- Giant Invasive Pituitary Adenoma – *Paul Gardner, MD*
- Anterior Skull Base Resection with Periorbita Resection – *James Liu, MD*
- Transorbital Endoscopic Repair of Bilateral Intracranial Frontal Mucoceles – *Roy Casiano, MD*

Constructive Criticism 1 utilizes video case presentations that employ endoscopic endonasal approaches in the treatment of complex skull base lesions. The speakers will critique the presentations and provide expert opinion on preferred methods of surgical management.

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

1. Appraise the role of the endoscopic endonasal approach to resection of sella lesions with suprasellar extension.
2. Evaluate the application of the endoscopic endonasal approach in anterior skull base resection.
3. Compare the endoscopic endonasal and transorbital approaches in the treatment of frontal sinus mucocele.

CONSTRUCTIVE CRITICISM VIDEOS 2: Lateral Skull Base *Orpheum Room*

MODERATORS: Ramachandra Tummala, MD & Michael Gleeson, MD

SPEAKERS: Siviero Agazzi, MD, MBA, Simon Angeli, MD, Steven Giannotta, MD, Jens Lehmberg, MD, Michael Link, MD, Jacques Morcos, MD, FRCS, FAANS & March Scwartz, MD

- Session Introduction – *Ramachandra Tummala, MD*
- Left Medium Vestibular Schwannoma – *March Scwartz, MD*
- Cystic Vestibular Schwannoma – *Michael Link, MD*
- Middle Cranial Fossa Superior Semicircular Canal – *Simon Angeli, MD*
- Extended Middle Cranial Fossa – *Siviero Agazzi, MD, MBA*
- Intractable Neuralgic Ear Pain – *Jens Lehmberg, MD*
- Resection of Jugular Foramen Tumor with Postauricular Transjugular Transsigmoid Approach – *Steven Giannotta, MD*
- Resection of Extensive Chondrosarcoma – *Jacques Morcos, MD, FRCS, FAANS*

In this session, several videos of operations involving the lateral skull base will be shown. The speakers in this session will offer their insights and constructive criticism regarding the surgical approach and techniques.

At the conclusion of this session, participants will be able to:
1. Develop a systematic method to review operative videos.
2. Identify key steps in an operative video on which to focus.
3. Compare various techniques of lateral skull base surgery after reviewing selective videos.

CONSTRUCTIVE CRITICISM VIDEOS 3: Potpourri *Chamber I*

MODERATORS: Dennis Kraus, MD & Rokua Tanikawa, MD

SPEAKERS: Ossama Al-Mefty, MD, Takanori Fukushima, MD, Bharat Guthikonda, MD, Mitesh Shah, MD, Jeffrey Sorenson, MD & Charles Teo, MD

- Introduction – *Dennis Kraus, MD & Rokua Tanikawa, MD*
- Staged Resection of Large Petroclival Meningioma – *Ossama Al-Mefty, MD*
- Median Suboccipital Subtonsillar Approach to the Lateral Brainstem – *Mitesh Shah, MD*
- Resection of Superior Vermian Mass – *Jeffrey Sorenson, MD*
- Microsurgical Treatment of Giant Trigeminal Schwannoma – *Takanori Fukushima, MD*
- Combined Petrosal Approach for Resection of Giant Clival Chondroma – *Bharat Guthikonda, MD*
- Giant Invasive Pituitary Adenoma – *Charles Teo, MD*
- Discussion – *All*

The presentations will focus on videos as created by invited, master surgeons focusing on complex surgical skull base cases. The procedures will be critiqued by the moderators and other panelist in terms of indications for surgical management and the efficiency of the procedures displayed.

At the conclusion of this session, participants will be able to:
1. Convey the challenging aspect of decision making process for a number of complex skull base procedures.
2. Choose the appropriate surgical approach for a number of complex skull base procedures.
3. Distinguish the surgical technique which distinguishes the master skull base surgeon.

PROFFERED PAPER SESSION

PROFFERED PAPERS 6 (Rapid Fire): Best of Learning Curve, Training, Multidisciplinary Work and More *(5:10 pm – 5:55 pm)* *Chamber II*

MODERATORS: Francisco Civantos, MD & Tiit Mathiesen, MD, PhD

(5:10 pm – 5:25 pm)

076: THE LEARNING CURVE IN ENDOSCOPIC ENDONASAL RESECTION OF CRANIOPHARYNGIOMAS - Varun R Kshettry, MD[1], Hyunwoo Do, MD[2], Khaled Elshazly, MD[2], Christopher Farrell, MD[2], Gurston Nyquist, MD[2], Marc Rosen, MD[2], James J Evans, MD[2]; [1]Cleveland Clinic, [2]Thomas Jefferson University

077: QUANTIFICATION AND COMPARISON OF NEUROSURGICAL APPROACHES IN THE ANATOMY LABORATORY: DESCRIPTION AND VALIDATION OF A NOVEL, NAVIGATION-BASED METHOD - Francesco Doglietto, MD, PhD[1], Jimmy Qiu, BASc, MASc[2], Mayoorendra Ravichandiran, MD, BSc[3], Ivan Radovanovic, MD, PhD[4], Francesco Belotti, MD[1], Anne Agur, BScOT, MSc, PhD[3], Gelareh Zadeh, MD, PhD[4], Marco M Fontanella, MD[1], Walter Kucharczyk, MD, FRCPC[2], Fred Gentili, MD, MSc, FRCSC[4]; [1]Unit of Neurosurgery, Department of Medical and Surgical Specialties, Radiological Sciences and Public Health, University of Brescia, Brescia, Italy, [2]Division of Neuroradiology, Toronto General Hospital - UHN, Toronto, Canada, [3]Division of Anatomy, University of Toronto, Toronto, Canada, [4]Division of Neurosurgery, Toronto Western Hospital - UHN, Toronto, Canada

078: 12-YEAR RETROSPECTIVE ANALYSIS OF 2,993 CONSECUTIVE SKULL BASE CASES - Perry T Mansfield, MD, FRCSC, Hannah G Goldman, Natalya Sarkisova, BSc; Senta Clinic

079: TRENDS IN PERIOPERATIVE MANAGEMENT OF ENDOSCOPIC SKULL BASE SURGERY PATIENTS - Brian C Lobo, MD[2], Brian D'Anza, MD[1], Pablo F Recinos, MD[2], Varun R Kshettry, MD[2], Carl H Snyderman, MD[3], Troy D Woodard, MD[2], Raj Sindwani, MD[2]; [1]Case Western Reserve University, [2]Cleveland Clinic Foundation, [3]University of Pittsburgh Medical Center

Discussion – 5 minutes

Proffered Paper 6 Continued (5:25 pm – 5:40 pm)

080: ENDOSCOPE IMAGE CAPTURE SYSTEM WITH MIRROLESS CAMERA - Wei Li[1], Arnau Benet[2], Ivan El-Sayed[2]; [1]Otolaryngology Dept, First Affiliated Hospital of China Medical University, [2]Otolaryngology Minimally Invasive Skull Base Center, Otolaryngology Head and Neck Surgery, University California San Francisco

081: A SKULL BASE COURSE PARTICIPANTS' EXPERIENCE WITH ENDOSCOPIC ENDONASAL CAROTID ARTERY INJURIES - Nicholas R Rowan, MD, Meghan T Turner, MD, Eric W Wang, MD, Juan Fernandez-Miranda, MD, Paul A Gardner, MD, Carl H Snyderman, MD, MBA; University of Pittsburgh Medical Center

082: THE VESTIBULAR SCHWANNOMA SURGERY LEARNING CURVE: MODERN SERIES OF A YOUNG NEUROSURGEON - Jens Lehmberg, Ehab Shiban, Bernhard Meyer; Neurosurgery Department, Technical University of Munich

Discussion – 5 minutes

Proffered Paper 6 Continued (5:40 pm – 5:55 pm)

083: MULTIDISCIPLINARY CRISIS MANAGEMENT OF CAVERNOUS CAROTID INJURY: THE VALUE OF DEBRIEF AND INDEPENDENT OBSERVATION - Brandon Lucke-Wold, PhD[1], Haley E Gillham, MS[2], Mark Baskerville, MD, JD, MBA[2], William Cameron, PhD[2], Dawn Dillman, MD[2], L. Michele Noles, MD[2], Donn Spight, MD[2], Jeremy N Ciporen, MD[2]; [1]West Virginia University, [2]Oregon Health & Science University

084: HIGH VOLUME MULTIDISCIPLINARY SURGICAL TEAM EXPERIENCE: REDUCED OPERATIVE TIMES AND BETTER PATIENT OUTCOMES. - Christian Eisert, MD[1], Tymon Tai[2], Laurel M Fisher, PhD[2], Steven L Giannotta, MD[3], Rick A Friedman, MD, PhD[1]; [1]Keck USC Caruso Department of Otolaryngology - Head and Neck Surgery, [2]Keck USC School of Medicine, [3]Keck USC Department of Neurosurgery

085: ENDOSCOPIC SKULL BASE SURGEONS. PROFILE OF A NEW SUBSPECIALTY - Joao Paulo Almeida, MD[1], Sacit B Omay, MD[1], Armando Ruiz-Treviño, MD[1], Sathwik Shetty, MD[1], Yu-Ning Chen, MD[1], Buqing Liang, MD[1], Vijay Anand, MD[2], Theodore H Schwartz, MD[1]; [1]Department of Neurological Surgery. Weill Cornell Medical College, New York Presbyterian Hospital, New York, New York, [2]Department of Otolaryngology and , New York Presbyterian Hospital, New York, NY, USA

Discussion – 5 minutes

6:00 pm – 7:30 pm **Welcome Reception and Poster Viewing in Exhibit Hall** *Roosevelt Ballroom*

7:30 pm – 10:00 pm **Past Presidents' Dinner** (Invitation Only)

Scientific Program

SATURDAY, MARCH 4, 2017

6:30 am – 6:30 pm **Registration** *Roosevelt Foyer*

7:30 am – 8:35 am **MAIN TOPIC SESSIONS** *(Breakfast 7:00 am – 7:30 am)*
Breakfast will be served outside all breakout rooms.

MAIN TOPIC 5: Benign Cavernous Sinus Tumors: Can We Agree on Management? *Crescent City Ballroom*
MODERATOR: A. Samy Youssef, MD, PhD
SPEAKERS: Ossama Al-Mefty, MD, Steve Howard, MD, Daniel Prevedello, MD & Harry Van Loveren, MD

- Cavernous Sinus Meningiomas: What I Learned Over the Years – *Harry Van Loveren, MD*
- Non-Meningiomatous Cavernous Sinus Tumors: What is the Ideal Management? – *Ossama Al-Mefty, MD*
- The Role of Endoscopy in the Management of Benign Cavernous Sinus Tumors – *Daniel Prevedello, MD*
- Radiotherapy for Benign Cavernous Sinus Tumors: The Paradigm Shift – *Steve Howard, MD*

An expert group of panelists will discuss the most up to date management strategies for benign cavernous sinus tumors in light of advances in surgery, endoscopy and radiotherapy.

At the conclusion of this session, participants will be able to:
1. Identify the practice gap in managing benign cavernous sinus tumors.
2. Outcome analysis and comparison of the different management strategies.
3. Recommend a tailored treatment model for the different subgroups of pathologies.

MAIN TOPIC 6: Challenging Tumors of the Jugular Foramen *Orpheum Room*
MODERATOR: Amir Dehdashti, MD
SPEAKERS: Phil Bird, MD, PhD, Nagy Elsayyad, MD, Ana Kim, MD & Jon Robertson, MD

- Jugular Foramen Anatomy and Implication in Complication Avoidance during Surgery – *Jon Robertson, MD*
- Jugular Foramen Tumours - How Aggressive Should We Be? – *Phil Bird, MD, PhD*
- Challenging Tumors of the Jugular Foramen from Radiation Oncology Perspective: It is Vain to Do with More What Can be Done with Fewer – *Nagy Elsayyad, MD*
- Jugular Foramen Tumors - Treatment Dilemmas – *Ana Kim, MD*
- Management of Complex Jugular Foramen Tumors- Panel Debate – *Amir Dehdashti, MD*

This session presents a multidisciplinary approach to tumors of the jugular foramen. Starting from an ENT perspective, to neurosurgical techniques evaluating surgical anatomy and complication avoidance, and the role of radiation in these tumors. The session is useful for neurosurgeons, neuro-otologists, radiation oncologists and health practitioners interested in posterior fossa surgery.

At the conclusion of this session, participants will be able to:
1. To learn the surgical anatomy and surgical techniques to foramen jugular tumors.
2. To understand the multidisciplinary approach to these lesions.
3. To optimize surgical outcome by considering less aggressive surgery in selected patients and adjunct treatment.

MAIN TOPIC 7: Petroclival Meningiomas: Philosophy, Techniques and Results *Chamber II*
MODERATOR: Anil Nanda, MD
SPEAKERS: Mustafa K. Baskaya, MD, Takanori Fukushima, MD, Pierre Hughes Roche, MD & Mark McDonald, MD

- Introduction – *Anil Nanda, MD*
- Technical Points in Resection of Petroclival Meningiomas – *Takanori Fukushima, MD*
- Role of Microsurgical Neuroanatomy in Selection of Approach to Complex Petroclival Meningiomas: Video Demonstration – *Mustafa K. Baskaya, MD*
- Long-Term Follow-Up, Complications and Functional Outcome after Microsurgery for Petroclival Meningiomas – *Pierre Hughes Roche, MD*
- Role of Radiosurgery and Chemoherapy in Treatment of Petroclival Meningiomas – *Mark McDonald, MD*

This session will address the varied philosophies, techniques, and results surrounding the surgical management petroclival meningiomas. Residents, fellows, and interested medical students should attend.

At the conclusion of this session, participants will be able to:
1. Articulate the philosophical reasoning for different surgical approaches to petroclival meningiomas.
2. Identify the various surgical approaches to petroclival meningiomas.
3. Assess methods for avoiding and managing intraoperative complications of petroclival meningiomas.

MAIN TOPIC 8: Skull Base Reconstruction Techniques *Chamber III*

MODERATOR: Ricardo Carrau, MD
SPEAKERS: Roy Casiano, MD, Elie Rebeiz, MD, Joseph Roche, MD & Theodore Schwartz, MD

- Introduction – *Ricardo Carrau, MD*
- Free Tissue Grafting for the Reconstruction of Anterior Skull Base Defects – *Roy Casiano, MD*
- Middle Turbinate Flap for Coverage of Anterior Skull Base Defects – *Elie Rebeiz, MD*
- Gasket Seal and the Use of Lumbars Drains – *Theodore Schwartz, MD*
- Rotational Flaps and Free Tissue Transfers for Lateral Skull Base Defects – *Joseph Roche, MD*
- Interactive Discussion and Conclusions – *Ricardo Carrau, MD*

The session will discuss the indications, advantages and disadvantages of various techniques used for the reconstruction of the skull base. This session is of interests of all skull base surgeons.

At the conclusion of this session, participants will be able to:
1. Discriminate between different reconstructive techniques.
2. Identify the advantages and caveats of various reconstructive techniques.
3. Employ appropriate adjunctive techniques.

8:45 am – 9:30 am **EXPERT DEBATE SESSIONS**

EXPERT DEBATE 5: How to Become and Train Great Skull Base Surgeons: An International Panel *Crescent City Ballroom*

MODERATORS: Jacques Morcos, MD, FRCS, FAANS, Shaan Raza, MD & Erin McKean, BS, MD, MBA
SPEAKERS: Johnny Delashaw, MD, FAANS, Michael Gleeson, MD, PhD, Andre Grotenhuis, MD, PhD, Patrick Gullane, MD, CM, OOnt, MB, FRCSC, FACS, Hon FRACS, Hon FRCS, Hon FRCSI, Ricardo Ramina, MD, PhD, Jatin Shah, MD, Carl Snyderman, MD, MBA & Atsunobu Tsunoda, MD

The session will allow a frank discussion among experts and leaders in the field to voice their opinions as to what are the ingredients that make up a well trained skull base surgeon, and how to ensure a legacy of master surgeons.

At the conclusion of this session, participants will be able to:
1. Articulate the ingredients that are felt to be essential to the formation of a great skull base surgeon.
2. Prioritize the goals that are felt by the experts to be most important in training residents.
3. Compare the profile of several great skull base surgeons and understand what the commonalities are.

EXPERT DEBATE 6: Pituitary Adenomas: The Right Approach, Endocrine Considerations and Recurrent Tumors *Orpheum Room*

MODERATORS: Andrew Little, MD, Manish Aghi, MD, PhD & Gelareh Zadeh, MD, PhD, FRCS
SPEAKERS: Ayal Aizer, MD , Jeremiah Alt, MD, PhD, Mario Ammirati, MD, MBA, Michael Ivan, MD, Engelbert Knosp, MD, Jose Landeiro, MD, Wenyin Shi, MD, PhD & Brian Thorp, MD

In this session, pituitary surgery experts will debate key management principles in pituitary tumor patients. The panel will cover case presentations illustrating surgical approaches, endocrine concerns, and recurrent tumors. This session is appropriate for residents, neurosurgeons, radiation oncologists, endocrinologists, and other pituitary team members.

At the conclusion of this session, participants will be able to:
1. Identify surgical approaches for treating pituitary tumors.
2. Plan the correct diagnostic tests for postoperative hormone management.
3. Recommend the treatment options available for recurrent pituitary tumors.

EXPERT DEBATE 7: Craniopharyngiomas: Changing Roles of Surgery, Radiation and Novel Medical Treatments *Chamber II*

MODERATORS: Daniel Prevedello, MD, Marvin Bergsneider, MD & John Jane, MD, PhD, FACS, FRCS
SPEAKERS: Apio Antunes, MD, MSc, PhD, Samuel Barnett, MD, Priscilla Brastianos, MD, PhD, Christopher Farrell, MD, Tyler Kenning, MD, Robert Malyapa, MD, PhD, Kenji Ohata, MD, PhD & Jeff Wisoff, MD

In this section the current treatment for craniopharyngiomas will be discussed. Moderators will present three to five craniopharyngioma cases illustrating particularly controversial issues promoting discussion among the panelists. The roster of panelists will discourse of each controversial and/or complicated case, with discussion directed by the moderators. The cases discussed will focus on the current available treatment options including surgery, with multiple possible approaches, radiation modalities, and novel medical treatments, including the possibility of BHAF inhibitors etc.

Input from the audience will be encouraged.

At the conclusion of this session, participants will be able to:
1. Point out new treatment for craniopharyngiomas.
2. Address the limitation of surgical treatment for craniopharyngiomas.
3. The importance of radiation and novel medical treatment on the management of craniopharyngiomas.

EXPERT DEBATE 8: Complex Head and Neck Malignancies: Controversies in Management *Chamber III*

MODERATORS: Zoukaa Sargi, MD, MPH, Ehab Hanna, MD & Allan Vescan, MD
SPEAKERS: Donald Annino, MD, DMD, Francisco Civantos, MD, Mark DeLacure, MD, Daniel Nuss, MD, Jack Phan, MD, PhD, Christopher Rassekh, MD, Vicente Resto, MD, PhD & Aaron Wieland, MD

This session highlights controversies in management of head and neck malignancies with skull base involvement addressing surgical challenges, resectability and the role of non surgical modalities in the treatment of advanced disease. Discussion will be centered around case presentations covering different malignancies. Surgeons, radiologists, medical oncologists, radiation oncologists and other providers treating patients with skull base malignancies should attend.

At the conclusion of this session, participants will be able to:
1. Compare surgical resectability criteria between different types of malignancies involving the skull base.
2. Evaluate the role of non surgical treatments in the definitive management of selected malignancies with skull base involvement.
3. Recognize perineural invasion as significant challenge and a common reason for treatment failure in malignancies involving the skull base.

9:30 am – 10:00 am	**Morning Break in Exhibit Hall**	*Roosevelt Ballroom*
10:00 am – 10:30 am	**HONORED GUEST: What the Skull Base has Taught Me** INTRODUCTION: Jacques Morcos, MD, FRCS, FAANS HONORED GUEST: Alan Crockard, MB, BCh, DSc, FRCS, FRCP, FDSRCS	*Crescent City Ballroom*
10:30 am – 11:20 am	**KEYNOTE SPEAKER: Resilient Leadership: Prepare Today to Prevail Tomorrow** INTRODUCTION: Jacques Morcos, MD, FRCS, FAANS HONORED GUEST: Lt. General Russel L. Honoré	*Crescent City Ballroom*

11:20 am – 12:05 pm **THE LIPTON INTERVIEW: A Glimpse into the Mind and Legacy of the Wise** *Crescent City Ballroom*

MODERATORS: Jacques Morcos, MD, FRCS, FAANS
SPEAKERS: Alan Crockard, MB, BCh, DSc, FRCS, FRCP, FDSRCS, Fred Gentili, MD, MSc, FRCSC, FACS, Roberto Heros, MD, FACS, Lt. General Russel L. Honoré, John Leonetti, MD, Daniel Nuss, MD, FACS & Jatin Shah, MD

The panel is made up of the three Honored Guests of the Meeting, three Past Presidents of the NASBS, and the Keynote Speaker, Lieutenant General Russel Honoré. The Moderator will interview the panel in the famous format of the Lipton Interview style, probing the panelists with questions about personal leadership style, character traits, role modeling, lessons learned and advice to the younger generation.

At the conclusion of this session, participants will be able to:
1. Articulate the common traits of leaders and educators in skull base surgery and on the military battle field.
2. Distinguish between winning and losing strategies in education and leadership.
3. Employ effective techniques to better their approach to team building and problem solving.

12:05 pm – 1:00 pm **Business Lunch for Members** *Waldorf Astoria Ballroom*

Lunch in Exhibit Hall/Book Signing *Roosevelt Ballroom*
Lt. General Russel L. Honoré book signing "Leadership in the New Normal"

1:00 pm – 2:00 pm **PECHA KUCHA SESSIONS/MASTER VIDEO SESSIONS**

PECHA KUCHA 5: Sinonasal Malignancies *Crescent City Ballroom*
MODERATORS: Anand Devaiah, MD & Corinna Levine, MD, MPH
SPEAKERS: Ralph Abi Hachem, MD, David Beahm, MD, Bryan Bienvenu, MD, David Clump, MD, PhD, John de Almeida, MD, MSc, FRCSC, Zeina Korban, MD, Derrick Lin, MD & Shirley Su, MD

- Introduction – *Anand Devaiah, MD*
- Role of Surgery – *David Beahm, MD*
- Overview of Sinonasal Malignancies – *John de Almeida, MD, MSc, FRCSC*
- 'Open' Anterior Craniofacial Resection – *Derrick Lin, MD*
- Endoscopic Endonasal Approach – *Zeina Korban, MD*
- Reconstruction – *Ralph Abi Hachem, MD*
- Radiation Therapy – *David Clump, MD, PhD*
- Chemotherapy – *Bryan Bienvenu, MD*
- Treatment of Recurrent Sinonasal Malignancy – *Shirley Su, MD*
- Case Presentation, Panel Discussion, Conclusion, Questions – *Corinna Levine, MD, MPH*
- Case Presentation, Panel Discussion, Conclusion, Questions – *Anand Devaiah, MD*

This session will employ the rapid-fire Pecha Kucha format to discuss key points in the diagnosis, management, and care of patients with sinonasal malignancy. We will integrate the overarching goals of the 2017 NASBS Annual Meeting in discussing surgical considerations, technical considerations, organ preservation, innovations in open surgery and endoscopic approaches, reconstruction, radiation therapy, chemotherapeutics, biological agents, and management of recurrent disease.

At the conclusion of this session, participants will be able to:
1. Convey innovative approaches in the diagnosis, treatment, and post-treatment management of sinonasal malignancies.
2. Compare differences important in the diagnosis, treatment, and post-treatment for sinonasal malignancy.
3. Synthesize any necessary changes in their current approach towards plans of care for sinonasal malignancies.

MASTER VIDEO 5: Temporal Bone Drilling: From Simple to Complex *Orpheum Room*

MODERATORS: Marcos Tatagiba, MD, PhD & George Wanna, MD

SPEAKERS: Simon Angeli, MD, Samuel Gubbels, MD, John Leonetti, MD, Rahul Mehta, MD, FRCS & Fred Telischi, MD, FACS, MEE

- Basic Mastoidectomy Techniques – *Rahul Mehta, MD, FRCS*
- Temporal Bone Resection – *John Leonetti, MD*
- Simple and Extended Middle Fossa Exposures – *Samuel Gubbels, MD*
- Infracochlear Approaches – *Fred Telischi, MD, FACS, MEE*
- Posterior Petrosal Exposures – *Simon Angeli, MD*

The session will go over surgical video cases done by master surgeon. The video will be narrated, surgical steps, nuances and pitfalls will be discussed. Participants will have the chance to ask questions and discussed the cases.

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

1. Recognize the key anatomical structures during temporal bone drilling.
2. Evaluate the potential risks and complications when performing temporal bone drilling.
3. Develop safe surgical steps for complex approaches to the skull base.

PECHA KUCHA 6: Orbital Tumors *Chamber II*

MODERATORS: Khalid Aziz, MD, PhD & Tonya Stefko, MD

SPEAKERS: Richard Allen, MD, PhD, James Chelnis, MD, Bita Esmaeli, MD, FACS, Howard Krauss, MD, Christian Matula, MD, PhD, Kris Moe, MD, FACS, Ronny Rotondo, MD & Jenny Yu, MD

- Evaluation of Orbital Tumors – *Bita Esmaeli, MD, FACS*
- Radiology of Orbital Tumors – *James Chelnis, MD*
- Anterior Orbital Approaches – *Jenny Yu, MD*
- Lateral Orbitotomy – *Richard Allen, MD, PhD*
- Endoscopic Endonasal Approach for Orbital Tumors – *Christian Matula, MD, PhD*
- Craniotomy for Orbital Tumors – *Howard Krauss, MD*
- TONES – *Kris Moe, MD, FACS*
- Role of Radiation – *Ronny Rotondo, MD*

This Pecha Kucha session will present, in a very succinct manner, an overview of the evaluation and management of orbital tumors. Surgeons of all disciplines should attend.

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

1. Prioritize the treatment objectives of orbital masses.
2. Plan appropriate multidisciplinary care for the patient with orbital disease.
3. Organize appropriate workup of a patient who presents to any specialty with a mass of the orbit.

MASTER VIDEO 6: Reconstruction Techniques for Skull Base Defects: From Tiny to Huge *Chamber III*

MODERATORS: Ken Kazahaya, MD, MBA, FACS & James Liu, MD

SPEAKERS: Peter Neligan, MD, Samuel Poore, MD, PhD, Elie Rebeiz, MD, Raj Sindwani, MD, FACS, FRCSC & Atsunobu Tsunoda, MD

- Overview of Skull Base Defects and Principles of Repair – *Atsunobu Tsunoda, MD*
- Use of Free Flaps to Repair Cranial Defects – *Peter Neligan, MD*
- Maxillofacial Reconstruction – *Samuel Poore, MD, PhD*
- Nasoseptal Flaps for Midline Skull Base Defects – *Elie Rebeiz, MD*
- Reconstructive Options for Expanded/Lateral Endonasal Approaches – *Raj Sindwani, MD, FACS, FRCSC*

In this video session, the presenters will show various techniques for reconstruction of skull base defects. Topics to be covered include classifying skull base defects and principles of repair. Use of free flaps for the repair of cranial defects, maxillofacial reconstruction, nasoseptal flap reconstruction for midline skull base defects, and reconstructive options for expanded/lateral endonasal approaches.

At the conclusion of this session, participants will be able to:
1. Better ability to categorize skull base defects.
2. Better understanding of principles of repair of skull base defects and the application of these principles.
3. Demonstrate a variety of skull base reconstructive techniques.

2:05 pm – 3:05 pm **PECHA KUCHA SESSIONS/MASTER VIDEO SESSIONS**

PECHA KUCHA 7: Anterior Skull Base Meningiomas *Crescent City Ballroom*
MODERATORS: Amy Anstead, MD & Carlos David, MD
SPEAKERS: Azam Ahmed, MD, Luis Carlos Alencastro, MD, Pablo Aljer, MD, Lola Chambless, MD, Askin Seker, MD, Kris Smith, MD, Marc Tewfik, MDCM, MSc, FRCSC & Ramachandra Tummala, MD

- Classification – *Askin Seker, MD*
- Open vs. Endoscopic Approaches – *Luis Carlos Alencastro, MD*
- Subfrontal Approach for Olfactory Groove Meningioma – *Ramachandra Tummala, MD*
- EEA for Olfactory Groove Meningioma – *Marc Tewfik, MDCM, MSc, FRCSC*
- Craniotomy for Tuberculum Sella Meningioma – *Pablo Aljer, MD*
- EEA for Tuberculum Sella Meningiomas – *Azam Ahmed, MD*
- Compare Eyebrow, Eyelid and Pterional Approaches for ASB Meningiomas – *Lola Chambless, MD*
- Role of Radiosurgery – *Kris Smith, MD*

This session will cover Anterior Skull Base Meningiomas and their classification, indications for open vs. endoscopic approach, multiple approach techniques and their comparison as well as the role of radiosurgery in their treatment. All practitioners who participate in the care of these complex cases should attend to add their insight.

At the conclusion of this session, participants will be able to:
1. Classify anterior skull base meningiomas.
2. Be knowledgeable about different approaches to anterior skull base meningiomas.
3. Know when radiation treatment is appropriate to use in ant skull base meningiomas.

MASTER VIDEO 7: Expanded Endonasal Approaches *Orpheum Room*
MODERATORS: Kenichi Oyama, MD, PhD & Daniel Kelly, MD
SPEAKERS: Ricardo Carrau, MD, Ivan El-Sayed, MD, Paul Gardner, MD, Jose Landeiro, MD & Darlene Lubbe, MD

- Introduction – *Kenichi Oyama, MD, PhD*
- Accessing the Cavernous Sinus – *Jose Landeiro, MD*
- Accessing the Orbit – *Darlene Lubbe, MD*
- Transpterygoid Approaches – *Ivan El-Sayed, MD*
- Accessing the Anterior Skull Base – *Paul Gardner, MD*
- Transclival Approaches – *Ricardo Carrau, MD*
- Conclusion – *Daniel Kelly, MD*

Video presentations by world famous experts in this field. This session covers entire endonasal skull base procedures, i.e. the coronal plane- and sagittal plane modules. Everybody should attend.

At the conclusion of this session, participants will be able to:
1. Demonstrate the wide range of applications of the expanded endonasal approach.
2. Convey the various pathologies that can be treated.
3. Articulate the limitations of each variant.

PECHA KUCHA 8: Reconstructive Techniques: Know Your Toolbox! *Chamber II*

MODERATORS: Erin McKean, BS, MD, MBA & Emiro Caicedo-Granados, MD
SPEAKERS: Albert Attia, MD, Roy Casiano, MD, Gustavo Nogueira, MD, Carlos Pinheiro-Neto, MD, PhD, Samuel Poore, MD, PhD, C. Arturo Solares, MD, Donald Weed, MD, FACS & Adam Zanation, MD

- Nonvascularized Reconstruction – *Roy Casiano, MD*
- Anatomy of Flaps – *Carlos Pinheiro-Neto, MD, PhD*
- Local Flaps for Craniotomy – *Samuel Poore, MD, PhD*
- Free Flap Following Craniotomy – *Donald Weed, MD, FACS*
- Question and Answer – *Erin McKean, BS, MD, MBA*
- Local Flaps for EEA – *Gustavo Nogueira, MD*
- Scalp Flaps for EEA – *Adam Zanation, MD*
- Free Flap Following EEA – *C. Arturo Solares, MD*
- Impact of Radiation on Reconstruction – *Albert Attia, MD*
- Question and Answer – *Emiro Caicedo-Granados, MD*

The session will discuss reconstructive techniques in cranial base surgery, from nonvascularized free grafts through the reconstructive ladder to free tissue reconstruction. Patient and treatment factors impacting reconstruction will also be discussed.

At the conclusion of this session, participants will be able to:
1. Apply learning to reconstructions in future operations.
2. Recognize factors that impact reconstructive failures and successes.
3. Demonstrate an understanding of the reconstructive ladder.

MASTER VIDEO 8: Intraoperative Complications: From Nuisances to Disasters *Chamber III*

MODERATORS: Rony Aouad, MD & Sebastian Koga, MD
SPEAKERS: Kenan Arnautovic, MD, PhD, Michael Chicoine, MD, Nikolai Hopf, MD, PhD, Madison Michael, MD, FAANS, FACS & Anil Nanda, MD

- Introduction – *Rony Aouad, MD*
- Intraoperative Complications of the Retrosigmoid Approach – *Madison Michael, MD, FAANS, FACS*
- The Paramedian Infratentorial Supracerebellar Keyhole Approach (PISKA) to Lesions of the Pineal Region – *Nikolai Hopf, MD, PhD*
- Microsurgical Resection of Brain Stem Hemangioblastoma – *Kenan Arnautovic, MD, PhD*
- Skull Base Meningiomas: Trials and Tribulations – *Anil Nanda, MD*
- Management of Vascular Injuries During Parasellar Approaches from Both the Endonasal Endoscopic and Transcranial Approaches – *Michael Chicoine, MD*
- Discussion and Question and Answer – *Sebastian Koga, MD*

This session consists of expert surgeons presenting short videos of different cases and approaches in skull base surgery with emphasis on discussing tips and tricks necessary for the prevention and management of intraoperative complications, such as vascular injuries.

At the conclusion of this session, participants will be able to:
1. Describe and manage potential intraoperative complications of the retrosigmoid approach
2. Manage vascular injuries during parasellar approaches from both the endonasal endoscopic and transcranial approaches.
3. Present tips and tricks to prevent complications of microsurgical resection of brain stem tumors.

3:05 pm – 3:35 pm **Refreshment Break in Exhibit Hall** *Roosevelt Ballroom*

Scientific Program

PROFFERED PAPER SESSIONS

PROFFERED PAPERS 7: Best of Basic Science and Biology *(3:35 pm – 5:05 pm)* *Crescent City Ballroom*
MODERATORS: Christine Dinh, MD & Ian Dunn, MD

(3:35 pm – 4:05 pm)
086: FIBRIN/THROMBIN PATCHES AND GLUES IN A PRE-CLINICAL MODEL OF ENDOSCOPIC SKULL BASE HAEMORRHAGE - Alistair Jukes, MD[1], Jae Murphy, MD[2], Sathish Psivan, MD[2], Stephen Santoreneos, MD[1], Alkis Psaltis, MD, PhD[2], Pj Wormald, MD[2]; [1]Royal Adelaide Hospital, [2]Queen Elizabeth Hospital
087: PLATELET ACTIVATION BY CRUSHED AND UNCRUSHED MUSCLE PATCH: FLOW CYTOMETRY ANALYSIS - Alistair Jukes, MD[1], Dijana Milijkovic, PhD[2], Alkis Psaltis, MD, PhD[2], Sarah Verugde, PhD[2], Pj Wormald, MD[2]; [1]Royal Adelaide Hospital, [2]Queen Elizabeth Hospital
088: GENE EXPRESSION SIGNATURE IN SINONASAL UNDIFFERENTIATED CARCINOMA - Yoko Takahashi, PhD, Diana Bell, MD, Frederico O Netto, DDS, MSc, PhD, Tong-Xin Xie, MD, PhD, Dianna Roberts, PhD, Curtis Pickering, PhD, Jeffrey N Myers, MD, PhD, Ehab Y Hanna, MD; The University of Texas MD Anderson Cancer Center
089: APPLICATIONS OF DYNAMIC CT ANGIOGRAPHY - Saksham Gupta, BA[1], Wenya L Bi, MD, PhD[1], Srinivasan Mukundan, MD, PhD[2], Ossama Al-Mefty[1], Ian F Dunn, MD[1]; [1]Department of Neurosurgery, Brigham and Women's Hospital, [2]Department of Radiology, Brigham and Women's Hospital
Discussion – 5 minutes

Proffered Paper 7 Continued (4:05 pm – 4:35 pm)
090: MACROPHAGE DENSITY PREDICTS FACIAL NERVE OUTCOME AND TUMOR GROWTH AFTER SUBTOTAL RESECTION OF VESTIBULAR SCHWANNOMA - Christopher S Graffeo, MD[1], Avital Perry, MD[1], Aditya Raghunathan, MD[1], Mark E Jentoft, MD[1], Colin L Driscoll, MD[1], Brian A Neff, MD[1], Matthew L Carlson, MD[1], Jeffrey T Jacob, MD[2], Michael J Link, MD[1], Jamie J Van Gompel, MD[1]; [1]Mayo Clinic, [2]Michigan Head & Spine Institute
091: MUTATION STATUS IN SINONASAL MUCOSAL MELANOMA - Moran Amit, MD, PhD, Samantha Tam, Yoko Takahashi, Diana Bell, Diana Roberts, Ehab Hanna; MD Anderson Cancer Center
092: NATURAL HISTORY OF SPEECH AND SWALLOWING FUNCTION IN NEUROFIBROMATOSIS 2 INCLUDES HYPOGLOSSAL DYSFUNCTION - Sibi Rajendran, BS[1], Beth Solomon, MS, CCCSLP[2], H Jeffrey Kim, MD[3], Tianxia Wu, PhD[4], Gretchen Scott, BSN, RN[5], Sarah Benzo, BSN, RN[5], Christina Hayes, CRNP[5], John D Heiss, MD[5], Prashant Chittiboina, MD[5]; [1]University of Kentucky College of Medicine, [2]Speech and Pathology Service, National Institutes of Health Clinical Center, [3]National Institute on Deafness and Communication Disorders, [4]Office of Biostatistics, National Institute of Neurological Diseases and Stroke, [5]Surgical Neurology Branch, National Institute of Neurological Diseases and Stroke
093: DO CRANIOPHARYNGIOMA MOLECULAR SIGNATURES CORRELATE WITH CLINICAL CHARACTERISTICS? - Sacit Bulent Omay[1], Yu-Ning Chen[1], Joao Paulo Almeida[1], Armando Saul Ruiz-Treviño[1], John A Boockvar[1], Philip E Stieg[1], Jeffrey P Greenfield[1], Mark M Souweidane[1], Ashutosh Kacker[2], David J Pisapia[3], Vijay K Anand[2], Theodore H Schwartz[4]; [1]Department of Neurosurgery, Weill Cornell Medical College, New York Presbyterian hospital, New York, NY, [2]Department of Otolaryngology, Weill Cornell Medical College, New York Presbyterian hospital, New York, NY, [3]Department of Pathology, Weill Cornell Medical College, New York Presbyterian hospital, New York, NY, [4]Department of Neurosurgery,Otolaryngology and Neuroscience, Weill Cornell Medical College, New York Presbyterian Hospital, New York, NY
Discussion – 5 minutes

Proffered Paper 7 Continued (4:35 pm – 5:05 pm)
094: ATYPICAL PITUITARY ADENOMA: A CLINICOPATHOLOGIC CASE SERIES - Martin Rutkowski, MD, Ryan Alward, Rebecca Chen, Jeffrey Wagner, Arman Jahangiri, Derek Southwell, MD, Sandeep Kunwar, MD, Lewis Blevins, MD, Han Lee, MD, Manish Aghi, MD, PhD; University of California, San Francisco, Department of Neurological Surgery
095: PITUITARY DYSFUNCTION AFTER RADIATION FOR ANTERIOR SKULL BASE MALIGNANCIES: INCIDENCE AND SCREENING - Kyle K VanKoevering, MD[1], Katayoon Sabetsarvestani[2], Stephen Sullivan, MD[1], Ariel Barkan, MD[1], Erin L McKean, MD[1]; [1]University of Michigan, [2]Michigan State University
096: GENETIC AND EPIGENETIC ALTERATIONS BETWEEN PITUITARY ADENOMA AND PITUITARY CARCINOMA - Garni Barkhoudarian, Xiaowen A Wang, Matthew Salomon, Diego Marzese, Wei H Hua, Daniel F Kelly, David Hoon; John Wayne Cancer Institute

097: GENOMIC LANDSCAPE OF HIGH-GRADE MENINGIOMAS - Wenya Linda Bi, MD, PhD[1], Noah Greenwald[1], Malak Abedalthagafi, MD[1], Peleg Horowitz, MD, PhD[2], Pankaj Agarwalla, MD[3], Will J Gibson, PhD[4], Ossama Al-Mefty, MD[1], Sandro Santagata, MD, PhD[1], Rameen Beroukhim, MD, PhD[5], Ian F Dunn[1]; [1]Brigham and Women's Hospital, [2]The University of Chicago, [3]Massachusetts General Hospital, [4]Harvard Medical School, [5]Dana Farber Cancer Institute
Discussion – 5 minutes

PROFFERED PAPERS 8: Best of Meningiomas II *(3:35 pm – 5:05 pm)* *Orpheum Room*
MODERATORS: Anand Devaiah, MD & Michael McDermott, MD

(3:35 pm – 4:05 pm)
107: ENDOSCOPIC ENDONASAL VERSUS TRANSCRANIAL APPROACH TO TUBERCULUM SELLA AND PLANUM MENINGIOMAS IN A SIMILAR COHORT OF PATIENTS - Evan D Bander, MD[1], Harminder Singh, MD[2], Colin B Ogilvie, BA[3], Ryan C Cusic, MD[3], David J Pisapia, MD[3], Apostolos John Tsiouris, MD[3], Vijay K Anand[3], Theodore H Schwartz[1]; [1]New York Presbyterian - Neurological Surgery, [2]Stanford University School of Medicine, [3]Weill Cornell Medical College
098: ANTERIOR MIDLINE SKULL BASE MENINGIOMAS: INTERHEMISPHERIC APPROACH VS THE DIFFERENT CLASSICAL SURGICAL APPROACHES. CLINICAL OUTCOMES. - Juan Carlos Roa Montes De Oca, MD[1], Nathalie Zaidman[2], Michael Bruneau, MD, PhD[2], Olivier DeWitte[2]; [1]Complejo Asistencial Universitario de Salamanca, [2]Hopital Erasme Bruxelles.
099: HOW TO APPROACH THE ANTERIOR MIDLINE MAGNUM FORAMEN MENINGIOMAS ? MANAGEMENT OF VERTEBRAL AND BASILAR ARTERIES AS WELL AS THE BULBAR NERVES. - Paulo H Pires de Aguiar, PhD[1], Giovanna Matricardi, BA[2], Iracema Estevão, BA[3], Fabio Nakasone, MD[1], Tatiana A Vilas Boas, MD[1], Daniel A Gripp, MD[1], Marcos Perocco, MD[1], Marcos V Maldaun, PhD[1], Bruno Camporeze[3]; [1]Santa Paula and Oswaldo Cruz Hospital, Sao Paulo Brazil, [2]Pontifical catholic University of Sao Paulo, [3]Bragança Medical School, São Francisco University
100: TUBERCULLUM SELLAR MENINGIOMA: IS THERE AN IDEAL APPROACH? - Paulo H Pires de Aguiar, PhD[1], Pedro da Silva Junior, MD[1], Iracema Estevão, BA[2], Giovanna Matricardi, BA[3], Daniel A Gripp, MD[1], Natally M Santiago, MD[1], Bruno Camporeze[2]; [1]Santa Paula Hospital and Oswaldo Cruz Hospital, Sao Paulo Brazil, [2]Bragança Paulista Medical School, Sao Francisco University, Sao Paulo, Brazil, [3]Pontifical catholic University of Sorocaba, Sao paulo, Brazil
Discussion – 5 minutes

Proffered Paper 8 Continued (4:05 pm – 4:35 pm)
101: OLFACTORY GROOVE MENINGIOMA RECURRENCE AFTER ENDONASAL ENDOSCOPIC SURGERY: CASE REPORT AND UPDATED LITERATURE REVIEW - Sathwik R Shetty, MD, Armando S Ruis-trevino, MD, Sacit B Omay, MD, Joao P Almeida, MD, Buqing Liang, MD, Yu-ning Chen, MD, Theodore H Schwartz, MD; Weil Cornell Medical College
103: SURGICAL TREATMENT OF TENTORIAL MENINGIOMAS: AN OUTCOME ANALYSIS - Devi P Patra, MD, MCH, MRCS, Shyamal C Bir, MD, PHD, FAHA, Tanmoy K Maiti, MD, MCH, Subhash Konar, MD, MCH, Christina Notarianni, MD, Bharat Guthikonda, MD, Anil Nanda, MD, MPH, FACS; Louisiana State University Health Sciences Center, Shreveport, LA, USA
104: ENDONASAL ENDOSCOPIC BONY DECOMPRESSION, LIMITED TUMOR REMOVAL AND STEREOTACTIC RADIATION THERAPY IN INVASIVE PARASELLAR MENINGIOMAS TO IMPROVE CRANIAL NEUROPATHY AND ENDOCRINOPATHY - Walavan Sivakumar[1], Bjorn Lobo, MD[2], Xin Zhang, MD[2], Fan Zhao, MD[2], Eisenberg Amy, MSN[2], Santosh Kesari, MD, PhD[2], Robert Wollman, MD[2], Lisa Chaiken, MD[2], Pejman Cohan, MD[2], Chester Griffiths, MD[2], Garni Barkhoudarian, MD[2], Daniel Kelly, MD[2]; [1]University of Utah, [2]Pacific Neurosciences Institute
105: RESIDUAL AND RECURRENT DISEASE AFTER ENDOSCOPIC ENDONASAL APPROACH TO MIDLINE ANTERIOR SKULL BASE MENINGIOMAS - Pradeep Setty, DO, Georgios Zenonos, MD, Mathew Geltzeiler, MD, Andrea Hebert, MD, Eric W Wang, MD, Carl H Snyderman, MD, Juan C Fernandez-Miranda, MD, Paul A Gardner, MD; University of Pittsburgh
Discussion – 5 minutes

Proffered Paper 8 Continued (4:35 pm – 5:05 pm)
106: LARGER MENINGIOMA SIZE AT PRESENTATION IS ASSOCIATED WITH HIGHER TUMOR GRADE - Stephen T Magill, MD, PhD, Ricky Chae, Manish K Aghi, MD, PhD, Philip V Theodosopoulos, MD, Michael W McDermott, MD; University of California, San Francisco
108: RADIATION INDUCED MENINGIOMA: A SINGLE INSTITUTION'S EXPERIENCE AND LITERATURE REVIEW - Owais Ahmad, MD, Philip Tatman, Bsc, Joshua Osbun, MD, Manuel Ferreira, MD, PhD; University of Washington

109: RADIOGRAPHIC PREDICTION OF MENINGIOMA GRADE AND GENOMIC PROFILE - Wenya Linda Bi, MD, PhD[1], Thibaud Corroller[2], Noah F Greenwald[1], Elizabeth Huynh[3], Malak Abedalthagafi, MD[1], Ayal Aizer, MD[1], Sandro Santagata, MD, PhD[1], Ossama Al-Mefty, MD[1], Brian Alexander, MD[1], Ian F Dunn, MD[1], Raymond Huang, MD, PhD[1], Hugo Aerts, PhD[2]; [1]Brigham and Women's Hospital, [2]Dana Farber Cancer Institute, [3]Harvard Medical School
Discussion – 5 minutes

PROFFERED PAPERS 9: Best of Sinonasal and Skull Base Malignancies *(3:35 pm – 5:05 pm)* *Chamber II*
MODERATORS: Stella Lee, MD & Donald Weed, MD, FACS

(3:35 pm – 4:05 pm)
110: CHEMORADIATION IN LOCALLY ADVANCED MAXILLARY SINUS SQUAMOUS CELL CARCINOMA-A RETROSPECTIVE STUDY AND REVIEW OF LITERATURE - Ameya A Asarkar, MD, Juraj Berkovic, MD, Federico Ampil, MD, Glenn Mills, MD, Cherie Ann Nathan, MD; LSU Health Sciences Center – Shreveport
111: INCIDENCE OF CERVICAL LYMPH NODE METASTASIS AND ITS ASSOCIATION WITH OUTCOMES IN PATIENTS WITH SINONASAL MUCOSAL MELANOMA - Moran Amit, Samantha Tam, Shirley Y Su, Michael E Kupferman, Diana Roberts, Ehab Hanna; MD Anderson Cancer Center
112: THE ROLE OF ADJUVANT TREATMENT IN SINONASAL MUCOSAL MELANOMA - Moran Amit, Samantha Tam, Shaan M Raza, Franco DeMonte, Shirley Y Su, Michael E Kupferman, Diana Roberts, Ehab Hanna; MD Anderson Cancer Center
113: ADJUVANT INTENSITY-MODULATED RADIOTHERAPY (IMRT) FOR SINONASAL MUCOSAL MELANOMA: A SINGLE-INSTITUTION RETROSPECTIVE EXPERIENCE - Stephanie M Yoon, BS[1], Kevin Nead, MD[2], Alexander Lin, MD[2], John N Lukens, MD[2], Robert A Lustig, MD[2], James N Palmer, MD[3], Nithin D Adappa, MD[3], Michelle Alonso-Basanta, MD, PhD[2]; [1]Temple University Lewis Katz School of Medicine, [2]Department of Radiation Oncology, University of Pennsylvania, [3]Department of Otorhinolaryngology, University of Pennsylvania
Discussion – 5 minutes

Proffered Paper 9 Continued (4:05 pm – 4:35 pm)
114: DELAYING POST-OPERATIVE RADIATION IN LOW GRADE ESTHESIONEUROBLASTOMA: IS IT WORTH THE WAIT? - Vijay Agarwal, MD, Joshua D Hughes, MD, Robert Foote, MD, Eric Moore, MD, Janalee Stokken, MD, Jeffrey Janus, MD, Michael J Link, MD, Jamie J Van Gompel, MD; Mayo Clinic
115: SKULL BASED SURGERY AND INTENSITY MODULATED PROTON THERAPY (IMPT) ACHIEVE EXCELLENT CANCER CONTROL RATES FOR COMPLEX TUMORS - Steven Frank, MD, Adam Garden, Rong Ye, Shirley Su, Merrill Kies, David Rosenthal, Michael Kupferman, Pierre Blanchard, Jack Phan, David Fuller, Brandon Gunn, Quynh-Nhu Nguyen, Ehab Hanna; MDACC
116: SURVIVAL OUTCOMES OF INFRATEMPORAL FOSSA TUMORS: SINGLE INSTITUTION EXPERIENCE - C. Arturo Solares[1], Sherif Shaaban[2], J.Kenneth Byrd[2], Michael Groves[2]; [1]Emory University, [2]Augusta University
117: THE ROLE OF 18FDG PET/CT IN ROUTINE SURVEILLANCE FOLLOWING TREATMENT OF SINONASAL NEOPLASMS - Alan D Workman, Arjun K Parasher, MD, Jordan T Glicksman, MD, Steven G Brooks, MPH, David W Kennedy, MD, James N Palmer, MD, Nithin D Adappa, MD; University of Pennsylvania
Discussion – 5 minutes

Proffered Paper 9 Continued (4:35 pm – 5:05 pm)
118: WOUND AND RADIATION COMPLICATIONS IN CRANIOFACIAL RESECTION OF SINONASAL TUMORS - Marcus Gates, Joshua Hughes, Michael J Link; Mayo Clinic
119: UNINTENDED CONSEQUENCES OF PROTON BEAM RADIATION FOR SINONASAL MALIGNANCIES - Re Arffa[2], Dc Lanza, MD[2], G Call, MD[1], L Tarrats, MDJD[2], A Solyar, MD[2], N Caballero, MD[2], J Justice[2]; [1]St Anthony's Hospital, [2]Sinus & Nasal Institute of Florida
120: RISK FACTORS IN SHORT TERM MORTALITY IN SINONASAL SQUAMOUS CELL CARCINOMA: A REVIEW OF THE NATIONAL CANCER DATABASE - Carol Yan, Arjun Parasher, Jason Brant, Jordan Glicksman, James Palmer, Steven Cannady, Jason Newman, Nithin Adappa; University of Pennsylvania
121: ETHNIC AND SOCIOECONOMIC DISPARITIES IN SINONASAL MALIGNANCY: AN ANALYSIS OF READMISSION RATES AND MORTALITY - Arjun K Parasher, MD[1], Alan Workman[1], Jason Brant, MD[1], Jordan Glicksman, MD[1], Alfred M Iloreta, MD[2], Satish Govindaraj, MD[2], Steven Cannady, MD[1], Jason Newman, MD[1], David W Kennedy, MD[1], Bert O'Malley, MD[1], James N Palmer, MD[1], Nithin D Adappa, MD[1]; [1]University of Pennsylvania, [2]Icahn School of Medicine at Mount Sinai
Discussion – 5 minutes

PROFFERED PAPERS 10: Best of Large Series, Clinical Trials and Metanalyses *(3:35 pm – 5:05 pm)* *Chamber III*
MODERATORS: David Beahm, MD & Andrew Little, MD

(3:35 pm – 4:05 pm)
122: RANDOMIZED, DOUBLE-BLINDED, PLACEBO-CONTROLLED TRIAL COMPARING TWO MULTIMODAL OPIOID-MINIMIZING PAIN MANAGEMENT REGIMENS FOLLOWING TRANSSPHENOIDAL SURGERY - Andrew Little, MD; Barrow Neurological Institute
123: HYPOPHYSITIS: PRESENTING CHARACTERISTICS AND OUTCOMES OF 146 PATIENTS - Bryan Iorgulescu, MD, Saksham Gupta, Hasan Zaidi, MD, Edward R. Laws, MD, Timothy Smith, MD, PhD; Brigham and Women's Hospital
124: SOCIOECONOMIC FACTORS AFFECTING DISCHARGE STATUS OF PATIENTS UNDERGOING TRANSSPHENOIDAL ADENOHYPOPHYSECTOMY (TSA) - Chelsea S Hamill, MD, Kevin J Sykes, PhD, Jennifer A Villwock, MD, Roukoz B Chamoun, MD, David D Beahm, MD; University of Kansas Medical Center
125: HEADACHE RESOLUTION AFTER RATHKE CLEFT CYST RESECTION: A SYSTEMATIC REVIEW AND META-ANALYSIS - Njoud Altuwaijri, PharmD[1], Nayan Lamba, BSc[2], Walaa Albenayan, PharmD[1], Michael Acosta[2], Hassan Y Dawood, BSc[2], Iman Zaghloul, PharmD, PhD[1], Steven Ren, PharmD[1], Hasan A Zaidi, MD[2], Rania A Mekary, MSc, PhD[1], Timothy R Smith[2]; [1]MCPHS University, Boston, USA, [2]Cushing Neurosurgery Outcomes Center, Brigham and Women's Hospital Department of Neurosurgery, Harvard Medical School, Boston, USA
Discussion – 5 minutes

Proffered Paper 10 Continued (4:05 pm – 4:35 pm)
126: EFFICACY OF TRANSSPHENOIDAL SURGERY IN ACHIEVING BIOCHEMICAL CURE OF GROWTH HORMONE-SECRETING PITUITARY ADENOMAS AMONG PATIENTS WITH CAVERNOUS SINUS INVASION: A SYSTEMATIC REVIEW AND META-ANALYSIS - Vanessa Briceno, MSc[1], Hasan A Zaidi, MD[2], Joanne A Doucette, MS, MSLIS[1], Kaho B Onomichi, MSc[1], Amer Alreshidi, MSc[1], Rania A Mekary, MSc, PhD[1], Timothy R Smith[2]; [1]MCPHS University, Boston, USA, [2]Cushing Neurosurgery Outcomes Center, Brigham and Women's Hospital Department of Neurosurgery, Harvard Medical School, Boston, USA
127: SURGICAL MANAGEMENT OF INTRACRANIAL EPIDERMOID TUMORS. LESSONS LEARNED FROM 334 CASES OVER 3 DECADES - Goh Inoue, MD, Mary Cobb, MD, Peter Grossi, MD, Allan H Friedman, MD, Takanori Fukushima, MD, DMSc; Duke University Department of Neurosurgery
128: OUTCOME OF THE MICROSURGICAL TREATMENT OF 221 PARACLINOID ANEURYSMS - Ali Krisht, Svetlana Pravdenkova, MD; Arkansas Neuroscience Institute
129: ENDONASAL TRANSSPHENOIDAL RESECTION OF NONFUNCTIONING PITUITARY ADENOMAS: A RETROSPECTIVE SINGLE CENTER SERIES OF 411 PATIENTS - Brett Goodfriend, BA, Daniel Kramer, MD, Daniel Donoho, MD, Josh Bakhsheshian, MD, Daniel F Kelly, MD, Michael Lin-Brande, BS, John D Carmichael, MD, Martin H Weiss, MD, Gabriel Zada, MD; USC Keck School of Medicine
Discussion – 5 minutes

Proffered Paper 10 Continued (4:35 pm – 5:05 pm)
130: PREVENTION AND TREATMENT OF CSF-LEAK IN ENDONASAL SKULL BASE SURGERY. - Bakhtiyar Pashaev, MD[1], Dmitry Bochkarev, MD[2], Valery Danilov, MD[1], Vladimir Krasnozhen, MD[3], Andrey Alekseev, MD[2], Gulnar Vagapjva[3]; [1]Kazan Medical State University, [2]Interregional Clinical Diagnostic Center, [3]Kazan Medical State Academy
131: AN ALGORITHM FOR THE USE OF THE FREE TISSUE GRAFT AS A RECONSTRUCTIVE TECHNIQUE IN THE ENDOSCOPIC ENDONASAL APPROACH FOR PITUITARY TUMORS - Andrea M Hebert, MD, MPH, Mathew Getzeiler, MD, Pradeep Setty, MD, Georgios Zenonos, MD, Juan C Fernandez-Miranda, MD, Paul A Gardner, MD, Carl H Snyderman, MD, Eric W Wang, MD; University of Pittsburgh Medical Center
132: A SYSTEMATIC REVIEW OF CLOSURE TECHNIQUES IN LATERAL SKULL BASE SURGERY - Alexander Malone, Michael Randall, BS, Kestutis P Boyev, MD; University of South Florida Department of Otolaryngology - Head & Neck Surgery
133: AN ALGORITHM FOR SELLAR RECONSTRUCTION FOLLOWING TRANSNASAL TRANSSPHENOIDAL SURGERY: A REVIEW OF 300 CONSECUTIVE CASES - Edward C Kuan, MD, Frederick Yoo, MD, Pratik B Patel, MD, Brooke M Su, MD, Marvin Bergsneider, MD, Marilene B Wang, MD; UCLA
Discussion – 5 minutes

PROFFERED PAPERS 11 (Rapid Fire): Best of Surgical Techniques and Innovation *(3:35 pm – 5:55 pm)* *Chamber I*
MODERATORS: Nagy Elsayyad, MD, Howard Krauss, MD, Deanna Sasaki-Adams, MD & Raj Sindwani, MD

(3:35 pm – 4:10 pm)

134: RETROSIGMOID SUPRAJUGULAR APPROACH FOR JUGULAR FORAMEN TUMORS WITH INTRAFORAMINAL INVASION: SURGICAL SERIES OF 14 CASES - Ken Matsushima[1], Michihiro Kohno[1], Shigeo Sora, MD[2]; [1]Tokyo Medical University, [2]Tokyo Metropolitan Police Hospital

135: THE OMENTUM FREE TISSUE TRANSFER: A COMPELLING OPTION FOR CRANIOFACIAL & CRANIAL BASE RECONSTRUCTION - Peter Costantino, MD[1], David Shamouelian, MD[1], Tristan Tham, MD[1], Robert Andrews, MD[2], Dec Wojciech, MD[2]; [1]New York Head & Neck Institute, [2]Lenox Hill Hospital

136: THE CLINICAL UTILITY OF OCULAR COHERENCE TOMOGRAPHY IN EVALUATION AND MANAGEMENT OF SKULL BASE DISORDERS - Howard R Krauss, MD, SM, Daniel F Kelly, MD, Garni Barkhoudarian, MD, Santosh Kesari, MD, PhD, Chester F Griffiths, MD, FACS, Elizabeth Flores, COA; Pacific Neuroscience Institute (PNI)

137: MINIMALLY INVASIVE EXPOSURE OF THE INFRATEMPORAL MAXILLARY ARTERY FOR EXTRACRANIAL-INTRACRANIAL BYPASS - Roberto Rodriguez Rubio, MD, Halima Tabani, MD, Michael T Lawton, MD, Olivia Kola, Sonia Yousef, Ivan El-Sayed, MD, Arnau Benet, MD; UCSF

138: USE OF A TENTORIAL SLING FOR MICROVASCULAR DECOMPRESSION OF THE TRIGEMINAL NERVE IN PATIENTS WITH TRIGEMINAL NEURALGIA: A NOVEL OPERATIVE TECHNIQUE AND REPORT OF CLINICAL OUTCOMES - Jeffrey A Steinberg, MD[1], Jayson Sack, MD[2], Bayard Wilson[1], Bob Carter, MD, PhD[1], John Alksne[1]; [1]University of California at San Diego, [2]University of South Florida

139: ORBITOZYGOMATIC APPROACH - TRANSITION FROM "LARGE AND LAVISH" TO "SMALL AND SIMPLE" - Thomas Kretschmer, Prof, Dr, MD, PhD, IFAANS, Thomas Schmidt, MD, Christian Heinen, MD; Neurosurgical Department, Evangelisches Krankenhaus-Oldenburg University

140: SURGICAL PLANNING OF TEMPORAL BONE SKULL BASE DEFECTS USING 3-D PATIENT SPECIFIC MODELS - Angela L Zhang[1], Carleton Eduardo Corrales, MD[2], Jayender Jagadeesan, PhD[2]; [1]Cornell University, [2]Brigham and Women's Hospital

Discussion – 13 minutes

Proffered Paper 11 Continued (4:10 pm – 4:45 pm)

141: HEARING PRESERVATION DURING ANTERIOR PETROSECTOMY: THE "COCHLEAR SAFETY LINE" - Halima Tabani, MD, Xiaoming Guo, MD, Dylan Griswold, Sonia Yousef, MD, Ali Tayebi Meybodi, MD, Jose Juan Gonzalez Sanchez, MD, Michael T Lawton, MD, Arnau Benet, MD; UCSF

142: THE FUTURE OF INTRA-OPERATIVE NEUROMONITRING IN SKULL BASE SURGERY: INTRAOPERATIVE FLASH VISUAL EVOKED POTENTIALS A NOVEL TECHNIQUE AIMING TO REDUCE THE RISK OF INTRAOPERATIVE VISUAL PATHWAY INJURY - Fahad Alkherayf, Idara Edem, David Houlden, Chantal Turgeon, Shaun Kilty, Charles Agbi, Andre Lamothe; University of Ottawa

162: SSEM (SSEP) AND TCEMEP NEUROMONITORING IN NEUROSURGERY: TECHNOLOGICAL ADVANCEMENT WITH NAVIGATION - Ernesto Lima, MD[1], Srikant S Chakravarthi, MD, MSc[2], Bernard A Cohen, PhD[1], Amin B Kassam, MD[2]; [1]Neurological Monitoring Associates, LLC and St. Luke's Medical Center, [2]Aurora Neuroscience Innovation Institute

144: EVALUATION OF INTRANASAL FLAP PERFUSION BY INTRAOPERATIVE ICG FLUORESCENCE ANGIOGRAPHY - Mathew Geltzeiler, Ana Carolina Igami Nakassa, MD, Pradeep Setty, MD, George Zenonos, MD, Anrea Hebert, MD, Eric Wang, MD, Juan Fernandez-Miranda, Carl Snyderman, MD, Paul Gardner, MD; University of Pittsburgh Medical Center

145: INTRAOPERATIVE NEAR INFRARED VISUALIZATION OF SKULL BASE TUMORS USING ENDOSCOPIC TECHNIQUES - John Y Lee, MD, John T Pierce, MS, Ryan Zeh, BA, Steven Cho, BS, Sunil Singhal, MD; University of Pennsylvania

147: NEAR INFRARED FOLATE-TARGETED, INTRAOPERATIVE VISUALIZATION OF PITUITARY ADENOMA - John Lee, MD, MSCE, Steve Cho, BS, Ryan Zeh, BA, John Pierce, MS, Maria Martinez-Lage, MD, Kim O Learned, MD, Sunil Singhal, MD, Philip Low, PhD, Caitlin White, MD, Julia Kharlip, MD, Peter Snyder, MD, Jason G Newman, MD, Nithin Adappa, MD, James Palmer, MD, M S Grady, MD; University of Pennsylvania

153: USEFULLNESS OF INDOCYANINE GREEN FLUORESCENCE ENDOSCOPY FOR INTRAOPERATIVE DIFFERENTIATION OF INTRACRANIAL TUMORS AND ADJACENT STRUCTURES - Ana Carolina Igami Nakassa, MD, Eric W Wang, MD, Juan C Fernandez-Miranda, MD, Carl H Snyderman, MD, Paul A Gardner; University of Pittsburgh Medical School

Discussion – 13 minutes

Proffered Paper 11 Continued (4:45 pm – 5:20 pm)

149: ENDOSCOPIC SUPRA-ETHMOIDAL APPROACH FOR ANTERIOR CRANIAL BASE RESECTION: TAILORING THE APPROACH FOR MAXIMUM EXPOSURE WITH PRESERVATION OF NASAL STRUCTURES. ANATOMICAL STUDY AND SURGICAL CASES. - Maria Peris-Celda, MD, PhD[1], Tyler Kenning, MD[1], Carlos Pinheiro-Neto, MD, PhD[2]; [1]Department of Neurosurgery, Albany Medical Center, Albany, New York., [2]Division of Otolaryngology / Head and Neck Surgery, Department of Surgery, Albany Medical Center, Albany, New York.

150: TAILORED MIDLINE SUPRA-ORBITAL CRANIOTOMY FOR ANTERIOR SKULL BASE TUMORS: ANATOMIC DESCRIPTION OF A NEW SURGICAL TECHNIQUE AND CASE SERIES - Michael M Safaee, MD, Michael W McDermott, MD, Arnau Benet, MD, Philip V Theodosopoulos, MD; University of California, San Francisco

151: MINIMALLY INVASIVE APPROACHES TO THE LATERAL CAVERNOUS SINUS AND MECKEL'S CAVE: COMPARISON OF TRANSORBITAL AND SUBTEMPORAL ENDOSCOPIC TECHNIQUES. - Lucas R Lima, MD, Diego Servian, MD, Matias Gomez, MD, Alaa Montaser, MD, Victor Vasconcelos, MD, Andre Furlan, MD, Ahmad El-Khatib, MD, Brad Otto, MD, Ricardo Carrau, MD, Daniel Prevedello, MD; Ohio State University

152: A METHOD OF LOCATING THE DEHISCENCE DURING MIDDLE FOSSA APPROACH FOR SUPERIOR SEMICIRCULAR CANAL DEHISCENCE SURGERY - Lawrance K Chung, BS, Joel S Beckett, MD, Carlito Lagman, MD, Seung J Lee, BS, Timothy T Bui, BS, Thien Nguyen, BS, Brittany L Voth, MPH, Bilwaj Gaonkar, PhD, Quinton Gopen, MD, Isaac Yang, MD; University of California, Los Angeles

146: ATLAS BASED ANATOMICAL REGION SEGMENTATION FOR MINIMALLY INVASIVE SKULL BASE SURGERY OBJECTIVE MOTION ANALYSIS - Yangming Li, Richard A Harbison, Randall A Bly, Ian M Humphreys, Blake Hannaford, Kris Moe; University of Washington

154: IS THE CHIASM - PITUITARY CORRIDOR IMPORTANT FOR ACHIEVING GROSS TOTAL RESECTION IN CRANIOPHARYNGIOMAS? - Sacit Bulent Omay, MD[1], João Paulo Almeida, MD[1], Yu-Ning Chen, MD[1], Sathwik R Shetty, MD[1], Buqing Liang, MD[1], Shilei Ni, MD[1], Vijay K Anand, MD[2], Theodore H Schwartz[3]; [1]Department of Neurological Surgery. Weill Cornell Medical College, New York Presbyterian Hospital, New York, New York., [2]Department of Otolaryngology. Weill Cornell Medical College, New York Presbyterian Hospital, New York, New York, [3]Department of Neurological Surgery, Otolaryngology, Neuroscience, Weill Cornell Medical College, New York Presbyterian Hospital, New York, NY

155: A NOVEL MINIMALLY INVASIVE APPROACH TO THE MIDDLE CRANIAL FOSSA: SURGICAL TECHNIQUE AND CLINICAL OUTCOMES - Ruwan Kiringoda, MD, Osama M Tarabichi, MD, Elliott D Kozin, MD, Daniel J Lee, MD; Massachusetts Eye and Ear Infirmary

Discussion – 13 minutes

Proffered Paper 11 Continued (5:20 pm – 5:55 pm)

156: THE NOVEL USE OF 3D RECONSTRUCTION AND IMMERSIVE NEURONAVIGATION FOR RESECTION OF SKULL BASE LESIONS IN ENDOSCOPIC ENDONASAL SKULL BASE SURGERY - Alfred Iloreta, MD, Katelyn Stepan, MD, Josh Ziegler, Anthony Costa, MD, Joshua Bederson, MD, Raj Shrivastava, MD; Icahn School of Medicine at Mount Sinai

157: PERIORBITAL SUSPENSION FOR ENDONASAL ENDOSCOPIC ACCESS TO THE LATERAL PORTION OF THE FRONTAL ANTERIOR SKULL BASE - Cem Meco, MD, FEBORLHNS, Professor, Chairman[1], Suha Beton, MD, FEBORLHNS, Assistant Professor[2], Hazan Basak, MD, FEBORLHNS[2], Selcuk Mulazimoglu, MD, FEBORLHNS[2], Hasay Guliyev, MD[2], Babur Kucuk, MD, PhD, Professor[2], Irfan Yorulmaz, MD, Professor[2]; [1]Ankara University and Salzburg Paracelsus University, [2]Ankara University

158: A CADAVERIC STUDY TO EVALUATE THE REACHES OF FAR LATERAL AND EXPANDED ENDONASAL ENDOSCOPIC APPROACHES TO THE BRAINSTEM. DOES A COMBINED APPROACH RESULT IN BETTER VISUALIZATION VERSUS EITHER APPROACH ALONE? - Edward Yap, MD, Adeolu Olasunkanmi, MD, Michael Cools, MD, Martin Piazza, MD, Randaline Barnett, MD, Brian Thorp, MD, Deanna Sasaki-Adams; UNC

159: MULTIPORTAL, COMBINED TRANSORBITAL AND ENDOSCOPIC ENDONASAL APPROACH TO MIDDLE CRANIAL FOSSA: SURGICAL ANATOMY AND TECHNIQUE - Halima Tabani, MD, Xin Zhang, MD, PhD, Michael T Lawton, MD, Sonia Yousef, Olivia Kola, Ivan El-Sayed, MD, Arnau Benet, MD; UCSF

160: A NOVEL SURGICAL CLASSIFICATION OF MANAGMENT OF ORBITAL TUMORS. - Alejandro Monroy Sosa, MD[1], Gervith Reyes Soto, MD[2], Bernardo Cacho-Díaz[2], Martin Granados-García[2], Srikant Chakravarthi, MD[1], Amin B Kassam, MD[1]; [1]Aurora Neuroscience Innovation Institute, [2]National Cancer Institute Mexico

161: ENDOSCOPIC TECHNIQUE FOR THE RESECTION AND REPAIR OF MALIGNANT SINONASAL TUMORS INVOLVING BOTH THE ANTERIOR SKULL BASE AND THE PERIORBITA. - Corinna G Levine, MD, MPH, Roy Casiano, MD, FACS; University of Miami

143: THE TEMPOROPARIETAL FASCIAL FLAP IN SKULL BASE AND HEAD AND NECK RECONSTRUCTION: TECHNIQUE, EXPERIENCE AND REVIEW - Aron Z Pollack, MD, Tristan Tham, MD, Peter D Costantino, MD; New York Head & Neck Institute
Discussion – 11 minutes

5:10 pm – 6:30 pm **SPECIAL SESSIONS**

SPECIAL SESSION 1: Building a Community: Women in Skull Base Surgery *Crescent City Ballroom*
MODERATOR: Tonya Stefko, MD
SPEAKERS: Lola Chambless, MD, Soha Ghossaini, MD, Devyani Lal, MD, Erin McKean, BS, MD, MBA & Gelareh Zadeh, MD, PhD, FRCS

- Teamwork – *Erin McKean, BS, MD, MBA*
- Mentorship – *Devyani Lal, MD*
- Research – *Gelareh Zadeh, MD, PhD, FRCS*
- Networking – *Soha Ghossaini, MD*
- Pregnancy, Parenthood, and the Skull Base Surgeon – *Lola Chambless, MD*
- Open Discussion with Audience and Speakers – *Tonya Stefko, MD*

This session will address some of the issues faced by any junior skull base surgeon. The topics include some specific to women who are pregnant or have children, but are relevant to all senior faculty mentors and to all less senior surgeons. This is broadly aimed toward anyone who 1.) seeks to bring along junior partners in our field, 2.) seeks to improve his or her understanding of the issues pertaining to themselves or their workers who are women and surgeons.

At the conclusion of this session, participants will be able to:
1. Recognize the challenges faced by each of us, no matter our gender, as we move from junior to more senior in our groups.
2. Prepare our more junior partners, regardless of gender, for productive and rewarding careers in our field.
3. Choose to support frank discussion in the workplace of how we are able to be prepared for the unexpected demands of our workplace and our outside interests.

SPECIAL SESSION 2: Advances in Skull Base Imaging: Techniques, Applications, Differential Diagnoses and Surgical Relevance *Orpheum Room*
MODERATORS: Ketan Bulsara, MD & Hugh Curtin, MD
SPEAKERS: Martin Aichholzer, MD, Rita Bhatia, MD, Ann Jay, MD, Edward Kassel, DDS, MD, FRCPC, FACR, Claudia Kirsch, MD & Eugene Yu, MD

- Advances in MRI: Pearls and Pitfalls of 1.5 vs. 3 Tesla and New Sequences – *Claudia Kirsch, MD*
- PET/MRI, Dual Energy and Cone Beam CT – *Hugh Curtin, MD*
- Angiography of Skull Base Lesions- Concepts and Advances Specific Regions – *Ketan Bulsara, MD*
- Navigating the Skull Base - Imaging Pearls and Pitfalls – *Ann Jay, MD*
- Vascularisation of Skull Base Tumors and Their Impact on Anterolateral Approaches to the Skull Base – *Martin Aichholzer, MD*
- Imaging of Petrous Apex and Jugular Fossa – *Rita Bhatia, MD*
- Central Skull Base: Normal Anatomy and Congenital Variants – *Edward Kassel, DDS, MD, FRCPC, FACR*
- Things Not to Miss in the Central Skull Base – *Eugene Yu, MD*

Special Session on advances in Skull Base Imaging, utilizing new techniques, applications and the differential diagnosis of pathology that may occur in this complex region and the surgical relevance.

At the conclusion of this session, participants will be able to:
1. Assess the advantages and disadvantages of 1.5 Tesla versus 3.0 Tesla MRI.
2. Compare the advantages of using either 1.5 Tesla versus 3.0 Tesla MRI in imaging the skull base.
3. Demonstrate new techniques and sequences for MRI imaging of the skull base.

SPECIAL SESSION 3: Benign Intracranial Hypertension: Etiopathology, Imaging, Differential Diagnosis and Management *Chamber II*

MODERATORS: Vikram Prabhu, MD & Siviero Agazzi, MD, MBA
SPEAKERS: Linda Bi, MD, PhD, James Garrrity, MD, Matthew Kay, MD, Steven Newman, MD, Deanna Sasaki-Adams, MD & Charif Sidani, MD

- Clinical Presentation – *Linda Bi, MD, PhD*
- Etiology and Pathogenesis – *Deanna Sasaki-Adams, MD*
- Review of Imaging Findings for Benign Intranial Hypertension – *Charif Sidani, MD*
- Neuro-Ophthalmological Findings – *Matthew Kay, MD*
- Medical Management – *Steven Newman, MD*
- Surgical Management: Shunting Techniques – *Vikram Prabhu, MD*
- Surgical Management: Optic Nerve Sheath Fenestration – *James Garrrity, MD*

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

At the conclusion of this session, participants will be able to:
1. Categorize the pathogenesis and clinical manifestations of benign intracranial hypertension.
2. Select the best diagnostic tests and medical management for this condition.
3. Apply the optimal surgical strategy with an understanding of the risks and benefits.

PROFFERED PAPER SESSION

PROFFERED PAPERS 12 (Rapid Fire): Best of Case Series *(5:10 pm – 6:30 pm)* *Chamber III*

MODERATORS: Ehab Hanna, MD, Carl Heilman, MD, Corinna Levine, MD, MPH & Daniel Prevedello, MD

(5:10 pm – 5:30 pm)

163: THE ROLE OF THE ENDOSCOPIC ENDONASAL APPROACH IN THE TREATMENT OF TRIGEMINAL SCHWANNOMAS - Georgios A Zenonos, MD[1], Efstathios Kondylis, MS[1], Pradeep Setty, DO[1], Juan C Fernandez-Miranda, MD[1], Eric W Wang, MD[2], Carl H Snyderman, MD, MS[2], Paul A Gardner, MD[1]; [1]University of Pittsburgh Department of Neurosurgery, [2]University of Pittsburgh Department of Otorhinolaryngology

164: IATROGENIC SEEDING OF CLIVAL CHORDOMA AFTER ENDOSCOPIC ENDONASAL SURGERY. - Georgios Zenonos, MD[1], David Fernandes-Cabral, MD[1], Mathew Geltzeiler, MD[2], Eric W Wang, MD[2], Juan C Fernandez-Miranda, MD[1], Carl H Snyderman, MD, MS[2], Paul A Gardner, MD[1]; [1]University of Pittsburgh Department of Neurosurgery, [2]University of PIttsburgh Department of Otorhinolaryngology

165: GAMMA KNIFE RADIOSURGERY IN PATIENTS WITH CUSHING'S DISEASE AND NELSON'S SYNDROME - Joshua D Hughes, MD, Michael J Link, MD, Bruce E Pollock, MD; Mayo Clinic

166: A COMPARATIVE ANALYSIS OF SURGICAL REPAIR OF ANTERIOR AND LATERAL CRANIAL BASE MENINGOENCEPHALOCELES - James H Mooney[1], Varun R Kshettry, MD[2], Sanjeet Rangarajan, MD[3], Mindy Rabinowitz, MD[3], Thomas O Willcox, MD[3], Gurston Nyquist, MD[3], Christopher Farrell, MD[3], Marc Rosen, MD[3], James J Evans, MD[3]; [1]Temple University, [2]Cleveland Clinic, [3]Thomas jefferson University

169: MULTIMODALITY MANAGEMENT OF TRIGEMINAL SCHWANNOMAS AND QUALITY OF LIFE OUTCOMES-A SINGLE INSTITUTION EXPERIENCE - Serge Makarenko, MD, BSc, Vincent Ye, BSc, Ryojo Akagami, MD, BSc, MSc, FRCSC; Vancouver General Hospital

170: POST-OPERATIVE SINUS THROMBOSIS IN THE SETTING OF SKULL BASE AND PARASAGITTAL SURGERY - Rajeev Sen, BA[1], Carolina G Benjamin, MD[2], John G Golfinos, MD[2], Chandranath Sen, MD[2], John T Roland, MD[2], Daniel Jethanamest, MD[2], Donato Pacione, MD[2]; [1]NYU School of Medicine, [2]NYU Langone Medical Center

Discussion – 4 minutes

Proffered Paper 12 Continued (5:30 pm – 5:50 pm)

171: NEUROENDOVASCULAR PROCEDURES FOR SKULL BASE NEOPLASIA - Adam A Dmytriw, MD, MSc, Jin Soo A Song, MD, Aditya Bharatha, MD; St. Michael's Hospital

172: BILAYER BUTTON GRAFT FOR ENDOSCOPIC REPAIR OF HIGH-FLOW CRANIAL BASE DEFECTS - Vivek R Varma, BS[1], Sanjeet V Rangarajan, MD, MEng[1], Alan Siu, MD[2], Mindy R Rabinowitz, MD[1], Gurston G Nyquist, MD[1], James J Evans, MD[2], Marc R Rosen, MD[1]; [1]Thomas Jefferson University, Department of Otolaryngology-Head and Neck Surgery, [2]Thomas Jefferson University, Department of Neurosurgery

173: RISK OF POSTOPERATIVE CEREBROSPINAL FLUID LEAK IN REUSED NASOSEPTAL FLAPS - Ana Carolina Igami Nakassa, MD[1], Joseph D Chabot, DO[2], David Tiago Fernandes Cabral, MD[1], Carl H Snyderman, MD, MBA[1], Paul A Gardner[1]; [1]University of Pittsburgh School of Medicine, [2]St Cloud Hospital
174: THE ROLE OF FRONTAL SINUS DRAF PROCEDURES IN ENDOSCOPIC FRONTOETHMOID DURA REPAIRS - Suha Beton, Hazan Basak, Selcuk Mulazimoglu, Hasay Guliyev, Babur Kucuk, Irfan Yorulmaz, Cem Meco; Ankara University
175: VENOUS SINUS COMPROMISE AFTER PRE-SIGMOID, TRANSPETROSAL APPROACH FOR SKULL BASE TUMORS: A STUDY ON THE ASYMPTOMATIC INCIDENCE AND REPORT OF A RARE DURAL ARTERIOVENOUS FISTULA AS SYMPTOMATIC MANIFESTATION. - Walter C Jean, MD[1], Daniel R Felbaum[2], Andrew B Stemer[2], Michael Hoa, MD[2], Jeffrey Kim, MD[2]; [1]George Washington University Hospital, [2]Georgetown University Hospital
Discussion – 4 minutes

Proffered Paper 12 Continued (5:50 pm – 6:10 pm)
176: ENDOSCOPIC ENDONASAL SKULL BASE SURGERY FOR 38 PEDIATRIC CASES: ANKARA UNIVERSITY EXPERIENCE - Gokmen Kahilogullari, MD, PhD[1], Cem Meco, MD[2], Suha Beton, MD[2], Murat Zaimoglu, MD[1], Hazan Basak, MD[2], Agahan Unlu, MD[1]; [1]Ankara University, Department of Neurosurgery, [2]Ankara University, Department of Otolaryngology HNS
177: HIGH GROSS TOTAL RESECTION RATE IN CLIVAL CHORDOMAS VIA TRANSNASAL PURE ENDOSCOPIC APPROACH - Jens Lehmberg, Ehab Shiban, Bernhard Meyer; Neurosurgery Department, Technical University of Munich
178: THE PREVALENCE OF SUPERIOR SEMICIRCULAR CANAL DEHISCENCE IN PATIENTS WITH CEREBROSPINAL FLUID OTORRHEA WITH AND WITHOUT MASTOID ENCEPHALOCELE - Melissa S Oh[1], Esther X Vivas, MD[3], Patricia A Hudgins, MD, FACR[2], Douglas E Mattox, MD[3]; [1]Emory University School of Medicine, Atlanta, GA, [2]Department of Radiology, Emory University School of Medicine, Atlanta, GA, [3]Department of Otolaryngology-Head and Neck Surgery, Emory University School of Medicine, Atlanta, GA
179: SURGICAL BIOPSY OF INDETERMINATE LESIONS OF THE CAVERNOUS SINUS AND MECKEL'S CAVE: DIAGNOSIS AND THERAPEUTIC IMPACT - Joshua D Hughes, Joseph Kapurch, Jamie Van Gompel, Michael J Link; Mayo Clinic
180: LOWER CRANIAL NERVE SCHWANNOMAS: MICROSURGICAL OUTCOMES IN A MODERN COHORT - Vijay Agarwal, MD, Patrick Maloney, MD, Avital Perry, MD, Christopher Graffeo, MD, Michael J Link, MD; Mayo Clinic
Discussion – 4 minutes

Proffered Paper 12 Continued (6:10 pm – 6:30 pm)
181: OUTCOME OF THE TREATMENT OF BASILAR APEX ANEURYSMS USING ADVANCED TRANSCAVERNOUS MICROSURGICAL CLIPPING155 - Ali Krisht, Svetlana Pravdenkova, MD; Arkansas Neuroscience Institute
182: LITTLE INSIGHTS FROM BIG DATA: RISK AND MISCONCEPTION REGARDING CEREBROSPINAL FLUID LEAK AFTER RESECTION OF SKULL BASE MENINGIOMAS - Avital Perry, Christopher S Graffeo, Panagiotis Kerezoudis., Fredric B Meyer, Mohamad Bydon, Michael J Link; Mayo Clinic Rochester
183: SPONTANEOUS CEREBROSPINAL FLUID RHINORRHEA, IS A LUMBAR DRAIN INDICATED? - Abdullah Albader, Ghassan AlOkby, Roy Casiano; university of Miami
184: INITIAL MANAGEMENT OF SKULL BASE CHORDOMAS: DOES EARLY ACCESS TO MULTI-DISCIPLINARY CARE AFFECT OUTCOME? - Jacob Freeman, MD, Franco DeMonte, MD, Shaan M Raza, MD; The University of Texas MD Anderson Cancer Center
185: MANAGEMENT OF RECURRENT SKULL BASE CHORDOMAS: AN ANALYSIS OF FACTORS AFFECTING PROGRESSION FREE AND OVERALL SURVIVAL - Shaan M Raza, MD, Jacob L Freeman, MD, Franco DeMonte, MD; The University of Texas M.D. Anderson Cancer Center
Discussion – 4 minutes

6:45 pm – 7:30 pm **New Member Reception with Leadership** (Invitation Only) *House of Blues*

7:30 pm – 10:30 pm **NASBS Social Event at House of Blues**

Scientific Program

SUNDAY, MARCH 5, 2017

7:00 am – 12:30 pm **Registration** *Roosevelt Foyer*

7:00 am – 7:45 am **Committee Meetings** *(Breakfast 7:00 am – 7:30 am)*
Breakfast will be served outside all breakout rooms.

7:55 am – 9:00 am **MAIN TOPIC SESSIONS** *(Breakfast 7:00 am – 7:30 am)*
Breakfast will be served outside all breakout rooms.

MAIN TOPIC 9: Key Hole Skull Base Surgery: Anterior, Middle and Posterior Fossa *Crescent City Ballroom*
MODERATOR: Garni Barkhoudarian, MD
SPEAKERS: Azam Ahmed, MD, Maurizio Iacoangeli, MD, John Lee, MD & Charles Teo, MD

- Introduction – *Garni Barkhoudarian, MD*
- Eyebrow Supraorbital Craniotomy for Anterior Skull Base Tumors – *Azam Ahmed, MD*
- Combined Minimally Invasive Key Hole Supraorbital and Endoscopic Endonasal Approaches for Anterior Skull-Base Lesions – *Maurizio Iacoangeli, MD*
- Endoscopic Retrosigmoid Craniotomy for Cerebellopontine Angle Tumors – *John Lee, MD*
- The Trans-Tentorial Approach: From Above and Below – *Charles Teo, MD*

This session will provide a comprehensive overview of minimally invasive and endoscope assisted approaches to skull-base lesions in the anterior, middle and posterior fossa. Participants should include neurological surgeons, ENT surgeons, ophthalmologists, neuroradiologists and radiation oncologists.

At the conclusion of this session, participants will be able to:
1. Demonstrate the eyebrow supraorbital craniotomy and implement this approach for the management of anterior fossa and middle fossa tumors.
2. Demonstrate the posterior fossa keyhole craniotomies and implement this approach for posterior fossa lesions.
3. Implement neuroendoscopy and various capacities to the operations.

MAIN TOPIC 10: Sinonasal Cancers: Classification, Management and Results in 2017 *Orpheum Room*
MODERATOR: Franco DeMonte, MD
SPEAKERS: Ralph Abi Hachem, MD, MSc, Bryan Bienvenu, MD, Adam Folbe, MD, MS & Ian Witterick, MSc, FRCSC

- Overview – *Franco DeMonte, MD*
- Squamous Cell Carnioma and Adenocarcinoma of the Paranasal Sinuses – *Ralph Abi Hachem, MD, MSc*
- Esthesioneuroblastoma – *Adam Folbe, MD*
- SNUC and Neuroendocrine Carcinomas of the Paranasal Sinuses – *Bryan Bienvenu, MD*
- Minor Salivary Gland Tumors of the Paranasal Sinuses – *Ian Witterick, MSc, FRCSC*

Following an introductory overview the members of the panel will discuss several of the most common sinonasal malignancies. Modern classifications incorporating molecular data will be discussed as will implications of these newest classification schema on patient management and on expected patient outcomes.

At the conclusion of this session, participants will be able to:
1. Distinguish between different pathologies and their differing outcomes.
2. Construct management paradigms based on classification schema.
3. Predict patient outcome of chosen management paradigm.

MAIN TOPIC 11: Craniocervical Junction: Pathologies, Imaging and Approaches *Chamber II*
MODERATOR: James Evans, MD
SPEAKERS: Michael Ivan, MD, Claudia Kirsch, MD, Toshio Matsushima, MD, PhD & Carl Snyderman, MD, MBA

- Imaging and Main Pathologies – *Claudia Kirsch, MD*
- The Anatomy of the Lateral Foramen Magnum and Transcondylar Fossa Approach – *Toshio Matsushima, MD, PhD*
- Lateral Approaches to the Clivus and CV Junction – *Michael Ivan, MD*
- Endonasal Approach – *Carl Snyderman, MD, MBA*

This presentation will focus on the congenital, traumatic, and neoplastic pathologies and the imaging modalities that are used to identify pathology.

At the conclusion of this session, participants will be able to:
1. Identify and classify congenital anomalies of the craniocervical junction.
2. Recognize traumatic pathology in the skull base on imaging.
3. Evaluate neoplastic processes that may affect the craniocervical junction.

MAIN TOPIC 12: Trigeminal Neuralgia and Hemifacial Spasm: Management and Results *Chamber III*
MODERATOR: Ian Dunn, MD
SPEAKERS: Mario Ammirati, MD, MBA, Ali Ayyad, MD, FRCS, Stephen Haines, MD & Jens Lehmberg, MD

- Overview – *Ian Dunn, MD*
- The Role of Pre-Operative Imaging in Trigeminal Neuralgia and Hemifacial Spasm – *Stephen Haines, MD*
- Results of Microvascular Decompression and Gamma Knife in Cranial Nerve Disorders – *Mario Ammirati, MD, MBA*
- Endoscope-Assisted Microvascular Decompression – *Ali Ayyad, MD, FRCS*
- Recurrent Facial Pain after MVD: What are Our Best Options – *Jens Lehmberg, MD*

This session will focus on established and contemporary approaches to the management of trigeminal neuralgia and hemifacial spasm. Topics to be discussed will include but will not be limited to the role of pre-operative imaging in patient selection, minimally invasive surgical approaches to microvascular decompression, comparative outcomes of accepted treatment modalities, the role of gamma knife in the management armamentarium, and discussion of the treatment refractory patient. Any practitioner seeing patients with trigeminal neuralgia or hemifacial spasm should find this stimulating.

At the conclusion of this session, participants will be able to:
1. Appraise the role of pre-procedure imaging in the management of patients with trigeminal neuralgia and hemifacial spasm.
2. Assess and compare the outcomes of microvascular decompression, percutaneous approaches, and gamma knife.
3. Evaluate treatment options in patients with recurrent symptoms after microvascular decompression.

9:05 am – 9:50 am **EXPERT DEBATE SESSIONS**

EXPERT DEBATE 9: Vascular Considerations in Skull Base Surgery: Arteries (Preserve, Sacrifice or Bypass), Veins and Preoperative Tumor Embolization *Crescent City Ballroom*
MODERATORS: Kadir Erkmen, MD, Harry Van Loveren, MD & Ali Sultan, MD
SPEAKERS: Mustafa K. Baskaya, MD, Gavin Britz, MD, Aaron Dumont, MD, Pascal Jabbour, MD, Edgar Nathal, MD, Felix Pahl, MD, PhD, Nirav Patel, MD & Ramachandra Tummala, MD

Skull base surgeons, fellows, residents are ideal for this session. We will discuss the cases that involve not only the skull base but associated vascular structures and the approach to dealing with these structures.

At the conclusion of this session, participants will be able to:
1. Develop an understanding of the vascular structures as they pertain to tumors.
2. Identify potential pitfalls in approaching tumors.
3. Manage complications as it relates to vascular injury.

EXPERT DEBATE 10: Complications in Skull Base Surgery: Avoidance and Management *Orpheum Room*
MODERATORS: James Liu, MD, Quynh-Nhu Nguyen, MD & Jeffrey Sorenson, MD
SPEAKERS: Rony Aouad, MD, Amir Dehdashti, MD, Patrick Gullane, MD, CM, OOnt, MB, FRCSC, FACS, Hon FRACS, Hon FRCS, Hon FRCS, Juan Larranaga, MD, John Leonetti, MD, Diego Mendez-Rosito, MD, Jatin Shah, MD & A. Youssef, MD, PhD

This session emphasizes the importance of recognizing intraoperative and postoperative complications that can occur in skull base surgery. The participants should be able to identify potential pitfalls, how to avoid complications, and strategies to manage the complications when they occur.

At the conclusion of this session, participants will be able to:
1. Identify potential pitfalls and complications during skull base surgery.
2. Develop a paradigm of how to avoid common complications encountered in skull base surgery.
3. Be able to identify and successfully manage a complication once it occurs intraoperatively or postoperatively.

EXPERT DEBATE 11: Surgery in and Through the Orbit: Techniques and Controversies *Chamber II*

MODERATORS: Kris Moe, MD, FACS, Christian Matula, MD, PhD & Khaled Aziz, MD, PhD
SPEAKERS: Jean Anderson Eloy, MD, James Chelnis, MD, Bita Esmaeli, MD, FACS, Matthew Kay, MD, Mike Kazim, MD, Steven Newman, MD, Rachel Sobel, MD & Tonya Stefko, MD

This session will provide a broad discussion of treatment of orbital and adjacent structures within the context of skull base pathology. This will include new developments in the field such as endoscopic surgery within the orbit, and use of the orbit as a minimally disruptive endoscopic portal to adjacent structures within the skull base and brain. The session will be of interest to residents, fellows, and experienced attendees in neurological surgery, ophthalmology, and otolaryngology / head and neck surgery.

At the conclusion of this session, participants will be able to:
1. Articulate characteristic of the type and location of pathology that makes it amenable to orbital and transorbital surgical approaches.
2. Compare means of preoperative surgical planning in preparation for these procedures.
3. Compare the various surgical approaches that are available to access this pathology, as well as the assistive technologies that are available.

EXPERT DEBATE 12: Tumor Board: A Panorama of Skull Base Lesions *Chamber III*

MODERATORS: Mohamed Elhammady, MD, Mark Eisenberg, MD & Devyani Lal, MD
SPEAKERS: Robert Behr, MD, Benedicto Colli, MD, PhD, Mohamed El Fiki, MD, Gerald Lemole Jr, MD, Darlene Lubbe, MD, Madison Michael, MD, FAANS, FACS, Yoshihiro Natori, MD & Eduardo Vellutini, MD

Expert panelists will be presented with various skull base lesions and asked to discuss the differential diagnosis, management options, and surgical approaches. This session will be valuable to neurosurgeons, Neuro-otologists, endoscopic sinus surgeons, medical and radiation oncologists.

At the conclusion of this session, participants will be able to:
1. Recognize and differentiate various skull base pathologies.
2. Discuss management options for various skull base lesions.
3. Understand various surgical approaches and their limitations.

9:50 am – 10:20 am	**Morning Break in Exhibit Hall**	*Roosevelt Ballroom*
10:20 am – 10:50 am	**HONORED GUEST: Changes in the Landscape of Skull Base Surgery: Reflections on a 30 Year Career** INTRODUCTION: Jacques Morcos, MD, FRCS, FAANS HONORED GUEST: Fred Gentili, MD, MSc, FRCSC, FACS	*Crescent City Ballroom*
10:50 am – 11:30 am	**Featured Scientific Presentations and Awards Ceremony** PRESENTERS: Mustafa K. Baskaya, MD, Jacques Morcos, MD, FRCS, FAANS & Zoukaa Sargi, MD, MPH	*Crescent City Ballroom*

FEATURED SCIENTIFIC PRESENTATIONS

186: COSTS AND PERIOPERATIVE OUTCOMES ASSOCIATED WITH OPEN VERSUS ENDOSCOPIC RESECTION OF SINONASAL MALIGNANCIES WITH SKULL BASE INVOLVEMENT – Terence S Fu, MBA[1], Eric Monteiro, MD[3], Ian Witterick, MD, MSc[3], Allan Vescan, MD, MSc[3], Gelareh Zadeh, MD, PhD[2], Fred Gentili, MD, MSc[2], John R de Almeida, MD, MSc[3]; [1]University of Toronto, Faculty of Medicine, [2]Department of Neurosurgery, University of Toronto, Toronto, ON, Canada, [3]Department of Otolaryngology – Head and Neck Surgery, University of Toronto, Toronto, ON, Canada

187: KINASE ACTIVITY IN RECURRING PRIMARY CHORDOMAS AND CHONDROSARCOMAS: IDENTIFICATION OF NOVEL PATHWAYS OF ONCOGENESIS AND POTENTIAL DRUG TARGETS – Philip D Tatman, BS, Joshua Osbun, MD, Youssef Yakkioui, MD, PHD, Sumanpret Kaur, MS, Donald Born, MD, PHD, Owais Ahmad, MD, Jing Zhang, MD, PHD, Manuel Ferreira, MD, PHD; Univeristy of Washington

188: INTERDISCIPLINARY TREATMENT AND TRAINING CONCEPT IN A SERIES OF 502 VESTIBULAR SCHWANNOMAS – Cordula Matthies, Prof, MD, PhD, Maria Hummel, MD, Robert Nickl, MD, José M Perez-Téjon, MD, Mario Loehr, MD, PhD, Giles Hamilton Vince, Prof, MD, PhD, Ralf-Ingo Ernestus, Prof, MD, PhD, Rudolf Hagen, Prof, MD, PhD; Department of Neurosurgery, Julius-Maximilians University Hospital, Wuerzburg, Germany

189: ANALYSIS OF FAILURE IN PATIENTS WITH SINONASAL MUCOSAL MELANOMA – Moran Amit, Samantha Tam, Shaan M Raza, Franco DeMonte, Shirley Su, Michael E Kupferman, Diana Roberts, Ehab Hanna; MD Anderson Cancer Center

190: COMPARISON OF GROSS TUMOR RESECTION RATE BETWEEN ENDOSCOPIC TRANSSPHENOIDAL SURGERY VERSUS MICROSCOPIC TRANSSPHENOIDAL SURGERY FOR PATIENTS WITH PITUITARY ADENOMAS: A METAANALYSIS. – Reem Almutairi, MSc[1], Hasan A Zaidi, MD[2], David J Cote, BSc[2], Erin Crocker[2], Marike L Broekman, MD, PhD, JD[2], Rania A Mekary[1], Timothy R Smith[2]; [1]MCPHS University, Boston, USA, [2]Cushing Neurosurgery Outcomes Center, Brigham and Women's Hospital Department of Neurosurgery, Harvard Medical School, Boston, USA

11:30 am – 12:45 pm **State of the Art and Future of …** *Crescent City Ballroom*

MODERATORS: Jacques Morcos, MD, FRCS, FAANS & Ian Witterick, MSc, FRCSC
SPEAKERS: Albert Attia, MD, Ali Sultan, MD, Fred Telischi, MD, MEE, FACS, George Wanna, MD & Gelareh Zadeh, MD, PhD, FRCSC

- Introduction – *Jacques Morcos, MD, FRCS, FAANS*
- State of the Art and Future of … Robotics in Skull Base Surgery – *George Wanna, MD*
- State of the Art and Future of … Hearing Rehabilitation – *Fred Telischi, MD, MEE, FACS*
- State of the Art and Future of … Precision Medicine and Molecular Genetics for Skull Base Tumors – *Gelareh Zadeh, MD, PhD, FRCSC*
- State of the Art and Future of … Endovascular Management of Skull Base Lesions – *Ali Sultan, MD*
- State of the Art and Future of … Radiation Oncology for the Skull Base – *Albert Attia, MD*
- Conclusion – *Ian Witterick, MSc, FRCSC*

Each of the 5 chosen speakers will summarize the state of the art in the topic assigned to them, but most importantly tell the audience what the future holds for the specific topic.

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

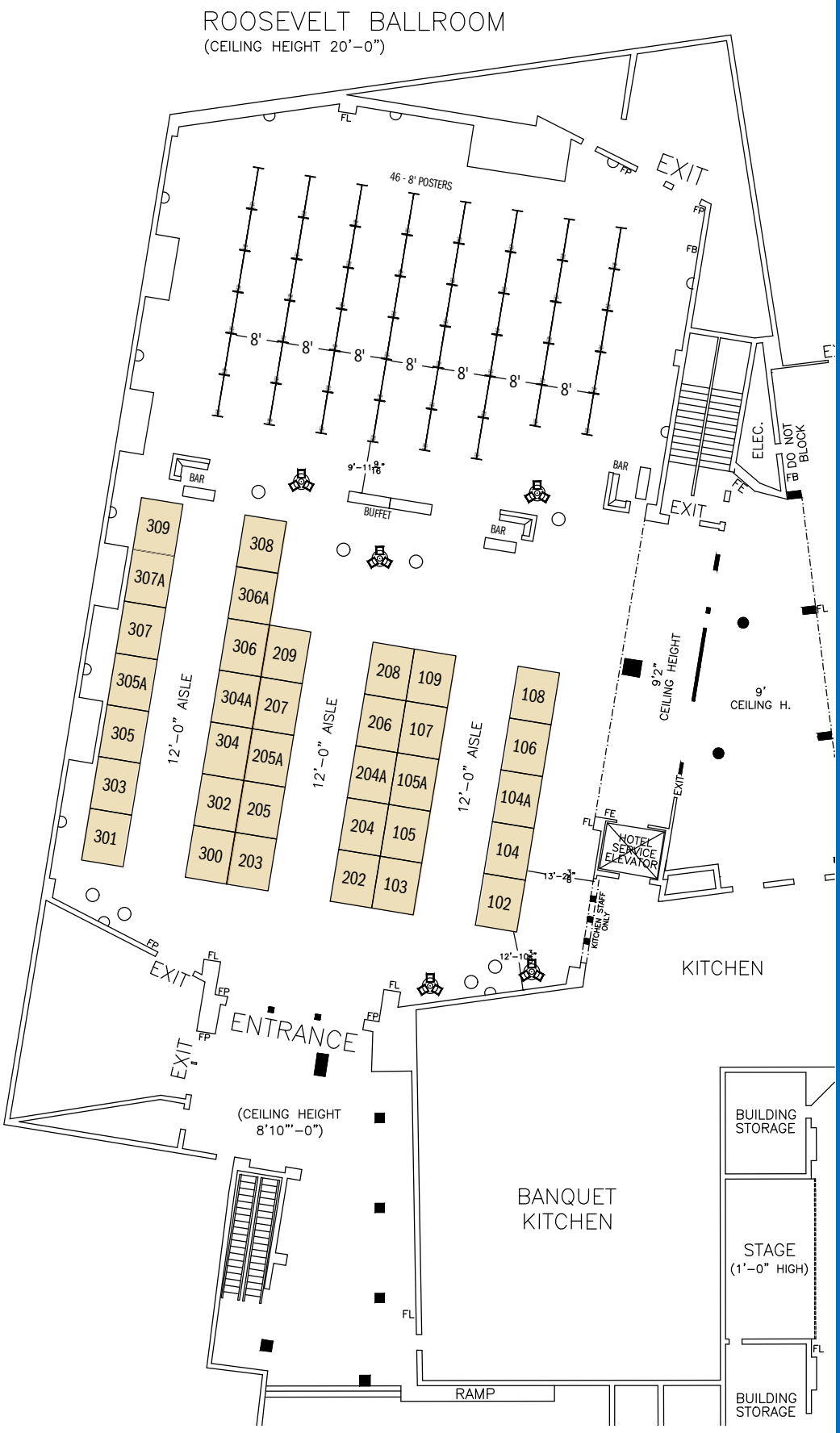
1. Articulate the state of the art and future of robotics in skull base surgery.
2. Articulate the state of the art and future of hearing rehabilitation and molecular genetics in skull base surgery.
3. Articulate the state of the art and future of endovascular surgery and radiation oncology in skull base surgery.

12:45 pm – 12:50 pm **NASBS 2018 Meeting in San Diego, CA** *Crescent City Ballroom*

SPEAKER: Ian Witterick, MD, MSc, FRCSC

12:50 pm **Meeting Adjourned**

Exhibit Hall Floor Plan



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BEST BASIC SCIENCE

090: MACROPHAGE DENSITY PREDICTS FACIAL NERVE OUTCOME AND TUMOR GROWTH AFTER SUBTOTAL RESECTION OF VESTIBULAR SCHWANNOMA – Christopher S Graffeo, MD[1], Avital Perry, MD[1], Aditya Raghunathan, MD[1], Mark E Jentoft, MD[1], Colin L Driscoll, MD[1], Brian A Neff, MD[1], Matthew L Carlson, MD[1], Jeffrey T Jacob, MD2, Michael J Link, MD[1], Jamie J Van Gompel, MD[1]; [1]Mayo Clinic, 2Michigan Head & Spine Institute

BEST INTERNATIONAL

053: EFFECTIVENESS OF BILATERAL INFERIOR PETROSAL SINUSES SAMPLING IN TUMOR LATERALIZATION: INTRAOPERATIVE FINDINGS AND POSTOPERATIVE RESULTS. – Pablo Harker, MD, Oscar H Feo, MD, Manuel Giraldo-Grueso, Juan C Puentes, MD; Hospital Universitario San Ignacio

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111: INCIDENCE OF CERVICAL LYMPH NODE METASTASIS AND ITS ASSOCIATION WITH OUTCOMES IN PATIENTS WITH SINONASAL MUCOSAL MELANOMA – Moran Amit, Samantha Tam, Shirley Y Su, Michael E Kupferman, Diana Roberts, Ehab Hanna; MD Anderson Cancer Center

112: THE ROLE OF ADJUVANT TREATMENT IN SINONASAL MUCOSAL MELANOMA – Moran Amit, Samantha Tam, Shaan M Raza, Franco DeMonte, Shirley Y Su, Michael E Kupferman, Diana Roberts, Ehab Hanna; MD Anderson Cancer Center

189: ANALYSIS OF FAILURE IN PATIENTS WITH SINONASAL MUCOSAL MELANOMA – Moran Amit, Samantha Tam, Shaan M Raza, Franco DeMonte, Shirley Su, Michael E Kupferman, Diana Roberts, Ehab Hanna; MD Anderson Cancer Center

Poster Sessions

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

P001: MULTIPORTAL TRANSNASAL AND TRANSCRANIAL COMBINED APPROACH TO PARA-JUGULAR FORAMEN LESIONS. COMPARISON OF SIX APPROACHES AND CLINICAL CASES – Kentaro Watanabe, MD, Moujahed Labidi, MD, Shunya Hanakita, MD, PhD, Damien Bresson, MD, Sébastien Froelich, MD; Department of Neurosurgery, Lariboisière hospital

P002: ANATOMY OF THE MEDIAL ORBIT AND VARIOUS APPROACHES TO ACCESS IT – Osamu Akiyama, MD[1], Akihide Kondo, MD[1], Hajime Arai, MD[1], Albert L Rhoton, Jr., MD[2]; [1]Department of Neurosurgery, Juntendo University, Tokyo, Japan, [2]Department of Neurological Surgery, University of Florida, Gainesville, Florida

P003: ENDOSCOPIC TRANSMAXILLARY TRANS-ALISPHENOID APPROACH TO THE MECKEL'S CAVE - AN ANATOMICAL STUDY. – Huy Q Truong, MD[1], Xicai Sun, MD, PhD[2], Emrah Celtikci, MD[1], Hamid Borghei-Ravazi, MD, PhD[1], Eric W Wang, MD[3], Carl H Snyderman, MD, MBA[3], Paul A Gardner, MD[1], Juan C Fernandez-Miranda, MD[1]; [1]Department of Neurosurgery, University of Pittsburgh School of Medicine, Pittsburgh, Pennsylvania, [2]Department of Otolaryngology-Head and Neck Surgery, Eye, Ear, Nose and Throat Hospital, Shanghai Medical College, Fudan University, Shanghai 200031, China, [3]Department of Otolaryngology - Head and Neck Surgery, University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania

P004: ADVENTITIAL ADVERSITY: HISTOPATHOLOGY OF THE DISTAL DURAL RING – Christopher S Graffeo, MD, Avital Perry, William R Copeland, MD, Aditya Raghunathan, MD, Michael J Link, MD; Mayo Clinic

P005: CRANIAL NERVE DECOMPRESSION IN CAVERNOUS SINUS TUMORS: A LEGO-LIKE CONCEPT REPRESENTATION – Jai D Thakur, Christopher Storey, Bharat Guthikonda, Anil Nanda, Professor; LSUHSC Shreveport

P006: TO DRILL OR NOT TO DRILL. PROMINENCE OF THE SUPRAMEATAL TUBERCLE AND ITS IMPACT ON MICROVASCULAR DECOMPRESSION FOR TRIGEMINAL NEURALGIA-A PROPOSED CLASSIFICATION SYSTEM. – Gautam Rao[1], Christopher Primiani[1], Jayson Sack, MD[1], Ramsey Ashour, MD[2], Siviero Agazzi, MD[1], Harry van Loveren, MD[1]; [1]University of South Florida, [2]Seton Brain and Spine Institute

P007: COMPARATIVE ANATOMIC SKULL BASE APPROACHES TO THE NASOPHARYNX AND PHARYNGEAL AERODIGESTIVE TRACT – Katherine Adams, Cristine Klatt-Cromwell, Theodore Schuman, Brian Thorp, Charles Ebert, Deanna Sasaki-Adams, Matthew Ewend, Adam Zanation; UNC Chapel hill

P008: SURGICAL ANATOMY FOR ENDOSCOPIC ENDONASAL APPROACH TO THE VENTROLATERAL SKULL BASE LESIONS – Kenichi Oyama, MD, PhD[1], Yudo Ishii[1], Shigeyuki Tahara[2], Takehiro Watanabe[1], Toshio Hirohata[1], Makoto Katsuno[1], Daniel M Prevedello[3], Ricardo L Carrau[4], Sebastien Froelich[5], Akio Morita[2], Akira Matsuno[1]; [1]Department of Neurosurgery, Teikyo University School of Medicine, Tokyo, Japan, [2]Department of Neurological Surgery, Nippon Medical School, Tokyo, Japan, [3]Department of Neurological Surgery, The Ohio State University, [4]Department of Otolaryngology The Ohio State University, [5]Department of Neurosurgery, Lariboisière Hospital, Paris VII-Diderot University, Paris, France

P009: MICROSURGICAL ANATOMY OF THE JUGULAR PROCESS: CADAVERIC AND RADIOLOGICAL STUDY – Noritaka Komune[1], Satoshi Matsuo, PhD[2], Miki Koichi, MD[3], Albert L Rhoton,Jr[4]; [1]Department of Otorhinolaryngology, Graduate School of Medical Sciences, Kyushu University, Japan, [2]Department of Neurosurgery, Kyushu Central Hospital, Fukuoka, Japan, [3]Department of Neurosurgery, Graduate School of Medical Sciences, Fukuoka University, Japan, [4]Department of Neurosurgery, University of Florida College of Medicine, Gainesville, Florida

P010: OLFACTORY GROVE MENINGIOMAS : ENDOSCOPIC ENDONASAL CORRIDORS BASED ON ANATOMICAL LANDMARKS FOR OLFACTION REVISED. – Matias Gomez, MD, Ricardo Carrau, MD, Daniel Prevedello, MD, Brad Otto, MD, Lucas Lima, MD, Diego Servian, MD, Alaa Montaser, MD, Victor Leal de Vasconcelos, MD, Cristian Naudy, MD; Ohio State University

P011: EXPANDING THE ENDOSCOPIC TRANSPTERYGOID CORRIDOR TO THE PETROCLIVAL REGION: ANATOMICAL STUDY AND VOLUMETRIC COMPARATIVE ANALYSIS – Samy Youssef, MD, PhD[2], Jacob L Freeman, MD[2], Steven Craig Quattlebaum, MD[1], Vijay R Ramakrishnan, MD[1], Ciro Vasquez, MD[2]; [1]University of Colorado Department of Otolaryngology, [2]University of Colorado Department of Neurosurgery

P012: SYNCHRONOUS TUMORS OF THE CEREBELLOPONTINE ANGLE – Christopher S Graffeo, MD, Avital Perry, MD, William R Copeland III, MD, Caterina Giannini, MD, PhD, Brian A Neff, MD, Colin L Driscoll, MD, Michael J Link, MD; Mayo Clinic

P013: HISTOPATHOLOGY OF FACIAL NERVE PARALYSIS IN MALIGNANT TUMORS INVOLVING THE TEMPORAL BONE. – Felipe Santos, MD; Mass Eye and Ear

P015: TIMING OF POSTOPERATIVE CSF LEAK AFTER SKULL BASE SURGERY IN PATIENTS WITH OBSTRUCTIVE SLEEP APNEA – Terence M Zimmermann, MD, MPH, Chris Marcellino, MD, Katie Van Abel, MD, Jamie Van Gompel, MD, Michael Link, MD, Erin O'Brien, MD, Janalee Stokken, MD; Mayo Clinic

P016: NOVEL TRANSSPHENOIDAL IMPLANT PLUS ACELLULAR DERMIS GASKET SEAL CLOSURE IN PATIENTS UNDERGOING TRANSSPHENOIDAL RESECTION OF SELLAR LESIONS – Brendan M Fong, MD, Silverstein Julie, MD, McJunkin Jonathan, MD, Albert H Kim, MD, PhD; Washington University

P017: CEREBROSPINAL FLUID RHINORRHEA AFTER SYSTEMIC ERLOTINIB CHEMOTHERAPY FOR METASTATIC LUNG CANCER: A FAMILIAR PROBLEM FROM AN UNFAMILIAR CULPRIT – Douglas A Hardesty, MD[1], Andre Beer-Furlan, MD[2], Ali O Jamshidi, MD[2], Brad Otto, MD[2], Daniel Prevedello, MD[2]; [1]Barrow Neurological Institute, [2]Ohio State Wexner Medical Center

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P018: SPONTANEOUS CEREBROSPINAL FLUID LEAK PRECIPITATING CATASTROPHIC AND COMPLICATED VENOUS SINUS THROMBOSIS – Avital Perry, Christopher S Graffeo, William R Copeland III, Waleed Brinjikji, Jonathan M Morris, Harry J Cloft, Alejandro A Rabinstein, Michael J Link; Mayo Clinic Rochester

P019: UNIQUE APPLICATION OF A KNOWN TECHNIQUE: USE OF ABDOMINAL DERMAL-FAT GRAFTS IN DURAL RECONSTRUCTION AFTER TRANSSPHENOIDAL SURGERY FOR THOSE WITH INTRAOPERATIVE CSF LEAKS – E Yap, MD, M Ewend, MD, A Zanation, MD, D Sasaki-Adams, MD; UNC

P021: COMPLICATIONS OF ADVANCED KADISH STAGE ESTHESIONEUROBLASTOMA: SINGLE INSTITUTION EXPERIENCE AND LITERATURE REVIEW – Sheri Palejwala[1], Saurabh Sharma, MD[2], Christopher H Le, MD[2], Eugene Chang, MD[2], G. Michael Lemole, Jr., MD[1]; [1]University of Arizona, Division of Neurosurgery, [2]University of Arizona, Department of Otolaryngology

P022: POSTOPERATIVE BRACHIAL PLEXUS INJURY FOLLOWING RETROSIGMOID EXCISION OF A VESTIBULAR SCHWANNOMA: REVIEW OF INSTITUTIONAL CASE SERIES – R S Lumb, BMBS, FANZCA[1], V Nagaratnam, MBBS, MRCP, FRCA[1], R Bradford, MBBS, MD, FRCS[2]; [1]Imperial Health NHS Trust, [2]University College London Hospitals

P023: TREATMENT OF A TRAUMATIC PSEUDOANEURYSM WITH A PIPELINE EMBOLIZATION DEVICE: CASE REPORT AND REVIEW OF THE LITERATURE – Derrick Umansky, MD; Tulane Medical Center

P024: COMPLEX SKULL BASE RECONSTRUCTION IN KADISH D ESTHESIONEUROBLASTOMA: CASE REPORT – Sheri K Palejwala, MD[1], Saurabh Sharma, MD[2], Christopher H Le, MD[2], Eugene Chang, MD[2], Audrey B Erman, MD[2], G. Michael Lemole, Jr., MD[1]; [1]University of Arizona, Division of Neurosurgery, [2]University of Arizona, Department of Otolaryngology

P025: ADVANTAGES AND COMPLICATIONS OF FISCH PARTIAL MASTOIDO-TYMPANECTOMY FOR TUMORS OF THE RETROMANDIBULAR FOSSA AND POST-STYLOID SPACE – Dominic J Catalano, Michael B Gluth, Associate, Professor; The University of Chicago

P026: PROSPECTIVE STUDY 24YY. CONSERVATIVE TREATMENT OF SKULL BASE TRAUMA. – Jan Hemza, MD, PhDPhD, MPA; Dpt. of Neurosurgery, Faculty Hospital at saint Ann

P027: CAVERNOUS SINUS SYNDROME AND TRAUMATIC CAROTID-CAVERNOUS FISTULA ATTRIBUTABLE TO A SELF-INFLICTED BB GUNSHOT INJURY – Christopher R Marcellino, MD, Christopher S Graffeo, MD, Avital Perry, Nicholas M Wetjen, MD, Michael Link, MD; Mayo Clinic

P028: PHINEAS GAGE REVISITED : AN "INDIAN CROWBAR CASE" – Sathwik R Shetty[1], Susheel Wadhwa[2], Praveen M Ganigi[1], Thimappa Hegde[2], Kanjithanda M Bopanna[1]; [1]MANIPAL HOSPITAL, [2]NARAYANA INSTITUTE OF NEUROSCIENCES

P029: EMERGENT SKULL-BASE MESH CRANIOPLASTY FOR LARGE DEFECTS USING TITANIUM IMPLANTS IN SEVERE HEAD TRAUMA: A CASE REPORT OF DIFFICULT CRANIONASAL SEPARATION – Akshay Sharma, BA[1], Christina Wright, MD[1], Catherine Weng, MD[2], Sunil Manjila, MD[3], Freedom Johnson, MD[4], Robert Geertman, MD[4]; [1]Case Western Reserve University School of Medicine, [2]University of Rochester, [3]McLaren Bay Region Hospital, [4]MetroHealth Medical Center

P030: RESECTION OF A GIANT CRANIOFACIAL CHONDROSARCOMA: CASE REPORT – Maria Peris-Celda, MD, PhD[1], Tiffany Chen, MD[2], Kristen Rezak, MD[3], Edward Wladis, MD[4], Carlos Pinheiro-Neto, MD, PhD[2], Tyler Kenning[1]; [1]Department of Neurosurgery, Albany Medical Center, Albany, New York., [2]Division of Otolaryngology / Head and Neck Surgery, Department of Surgery, Albany Medical Center, Albany, New York., [3]Division of Plastic and Reconstructive Surgery, Department of Surgery, Albany Medical Center, Albany, New York., [4]Division of Ophthalmic Plastic Surgery, Department of Ophthalmology, Albany Medical College, Albany, New York.

P031: A PROPOSED ALGORITHM FOR THE MANAGEMENT OF LARGE THIRD VENTRICULAR CRANIOPHARYNGIOMAS – Douglas A Hardesty, MD[1], Andre Beer-Furlan, MD[2], Ali O Jamshidi, MD[2], Ricardo Carrau, MD[2], Daniel M Prevedello, MD[2]; [1]Barrow Neurological Institute, [2]Wexner Medical Center, The Ohio State University

P032: BYPASS SURGERY TO TREAT SYMPTOMATIC FUSIFORM DILATION OF THE INTERNAL CAROTID ARTERY FOLLOWING CRANIOPHARYNGIOMA RESECTION – Long Wang, MD[1],Xiang'en Shi, MD, PhD[2]; [1]Fu Xing Hospital, Capital Medical University, [2]SanBo Brain Hospital, Capital Medical University

P033: COMPARISON OF PHYSIOLOGIC GROWTH HORMONE REPLACEMENT THERAPY TO NO REPLACEMENT ON CRANIOPHARYNGIOMA RECURRENCE IN PEDIATRIC PATIENTS – Nawaf M Alotaibi, PharmD, MSc[1], Hasan Zaidi, MD[2], Nadia Noormohamed, BSc[1], David J Cote, BSc[2], Erin Crocker[2], Joanne Doucette, MS[1], Wenya Linda Bi, MD, PhD[2], Salman Alharthy, PharmD, MSc[1], Pablo V Quevedo, MD, PhD[2], Rania A Mekary, MSc, PhD[1], Timothy R Smith, MD, PhD, MPH[2]; [1]MCPHS University, Boston, USA, [2]Cushing Neurosurgery Outcomes Center, Brigham and Women's Hospital Department of Neurosurgery, Harvard Medical School, Boston, USA

P034: CRANIOPHARYNGIOMA PATHOGENESIS AND IMPLICATIONS FOR MEDICAL MANAGEMENT – Saksham Gupta, BA[1], Wenya L Bi, MD, PhD[2], Sandro Santagata, MD, PhD[3], Edward R Laws, MD[2], Ian F Dunn, MD[2]; [1]Harvard Medical School, [2]Department of Neurosurgery, Brigham and Women's Hospital, [3]Department of Pathology, Brigham and Women's Hospital

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P035: ENDOSCOPIC ENDO-NASAL ODONTOID RESECTION WITH REAL-TIME INTRAOPERATIVE IMAGE GUIDED COMPUTED TOMOGRAPHY (CT) – Harminder Singh, MD[1], Sarang Rote[2], Ajit Jada[2], Evan Bander[2], Gustavo J Almodovar-Mercado[2], Roger Hartl[2], Vijay K Anand[2], Jeffrey G Greenfield[2], Theodore H Schwartz, MD[2]; [1]Stanford University School of Medicine, [2]Weill Cornell Medical College

P036: COMPLETE OR PARTIAL EUSTACHIAN TUBE RESECTION DURING ENDOSCOPIC NASOPHARYNGECTOMY: IMPORTANCE OF ANATOMIC VARIANCE OF THE CAROTID ARTERY – Guanglong Huang, Deema Al Mutawa, Arnau Benet, Ivan H El-Sayed; UCSF

P037: ENDOSCOPIC WINDOWS FOR INCREASED VISUALIZATION IN ENDOSCOPIC SKULL BASE SURGERY – Theodore Schuman, MD, Katherine Adams, BS, Cristine Klatt-Kromwell, MD, Brian Thorp, MD, Charles Ebert, MD, Deanna Sasaki-Adams, MD, Matthew Ewend, MD, Adam Zanation, MD; University of North Carolina at Chapel Hill

P038: BILATERAL ENDOSCOPIC POSTERIOR CLINOIDECTOMIES WITH SEPARATION OF KISSING CAROTIDS - A TECHNICAL REPORT – Georgios A Zenonos, MD[1], Pradeep Setty, DO[1], Mathew Geltzeiler, MD[2], Eric W Wang, MD[2], Juan C Fernandez-Miranda, MD[1]; [1]University of Pittsburgh Department of Neurosurgery, [2]University of Pittsburgh Department of Otorhinolaryngology

P039: TRANS-ETHMOIDAL ENDOSCOPIC RESECTION OF A GIANT ORBITAL OSTEOMA: TECHNICAL CONSIDERATIONS. – Shannon O'Brien, MD[1], Daniel Nuss, MD[1], Frank Culicchia, MD[2], Jayme Trahan, MD[1], Rahul Mehta, MD[1], Justin Tenney, MD[1], Katie Melder, BS[1]; [1]LSUHSC, [2]Culicchia Neurological Clinic

P040: ENDOSCOPIC TRANSPHENOIDAL APPROACH TO THE INFRACHIASMATIC RETROINFUNDIBULAR AREA: ANATOMY, TECHNICAL CONSIDERATIONS, AND COMPLICATIONS. – Mark Calayag, MD[1], Javan Nation, MD[2], Michael Levy, MD, PhD[2], Naveen Bhandarkar, MD[1], Frank P.K. Hsu, MD, PhD[1]; [1]UC Irvine Medical Center, [2]Rady Children's Hospital

P041: THE VALUE OF CEREBROSPIANL FLUID DIVERSION IN EXTENDED TRANSNASAL ENDOSCOIPIC SURGERY – Abdulrazag M Ajlan, MD, Abdulrahman Albakr, Saad Alsaleh, MD; King Saud University

P042: EXTENDED ENDOSCOPIC ENDONASAL CLIPPING OF INTRACRANIAL ANEURYSMS: AN ANATOMICAL FEASIBILITY STUDY – Alaa Montaser, MD, Lucas Lima, MD, Matias Gomez, MD, Diego Servian, MD, Victor Leal do Vasconcelos, MD, Andre Beer Furlan, MD, Daniel Prevedello, MD, Ricardo Carrau, MD, Bradley Otto, MD; Ohio State University Wexner Medical Center

P043: DIRECT PUNCTURE EMBOLIZATION OF SINONASAL/ANTERIOR SKULL BASE TUMORS – Ashok R Jethwa, Resident, Physician, Melanie Hicks, Medical Student, Ramachandra Tummala, Attending Physician, Emiro Caicedo-Granados, Attending Physician; University of Minnesota

P044: DIRECT PUNCTURE EMBOLIZATION FOR ENDONASAL RESECTION OF JUVENILE NASOPHARYNGEAL ANGIOFIBROMA SUPPLIED BY INTERNAL CAROTID ARTERY – Timothy Deklotz, MD, Sarah K Rapoport, Amjad Anaizi, MD, Andrew Stemer, MD; Georgetown University Hospital

P045: MINIMALLY INVASIVE APPROACHES FOR ANTERIOR SKULL BASE MENINGIOMAS: SUPRAORBITAL EYEBROW, ENDOSCOPIC ENDONASAL, OR A COMBINATION OF BOTH? ANATOMICAL STUDY AND SURGICAL APPLICATION – Hamid Borghei-Razavi, MD, PhD[1], David Fernandez-Cabral, MD[1], Huy Q Truong, MD[1], Josef Chabot, DO[2], Emrah Celtikci, MD[1], Eric W Wang, MD[1], S. Tonya Stefko, MD[1], Carl Snyderman, MD, MBA[1], Paul Gardner, MD[1], Juan Fernandez-Miranda, MD[1]; [1]UPMC Center for Cranial Base Surgery, [2]Department of Neurosciences, St. Cloud Hospital, St. Cloud, Minnesota

P046: TRIGGERED EMG RESPONSES OF CRANIAL NERVE X DURING ENDOSCOPIC ENDONASAL SKULL BASE SURGERY – Rafey A Feroze, BSc[1], Ronak H Jani, BSc[1], Jeffrey R Balzer, MD[2], Parthasarathy D Thirumala, MD, MS[2]; [1]University of Pittsburgh School of Medicine, [2]Department of Neurological Surgery, University of Pittsburgh Medical Center

P047: ENDOSCOPIC ENDONASAL TRANSOCULOMOTOR TRIANGLE APPROACH TO THE PARAPEDUNCULAR SPACE - SURGICAL ANATOMY, TECHNICAL NUANCES AND CASE SERIES – Cristian Ferrareze Nunes, MD, MSc[1], Stefan Lieber, MD[1], Georgios Zenonos[2], Eric W Wang, MD[3], Carl H Snyderman, MD, MBA[3], Paul A Gardner, MD[2], Juan C Fernandez-Miranda, MD[2]; [1]University of Pittsburgh Medical Center, Department of Neurological Surgery, Pittsburgh, PA, [2]University of Pittsburgh Medical Center, Department of Neurological Surgery, [3]University of Pittsburgh Medical Center, Department of Otolaryngology—Head & Neck Surgery, Pittsburgh, PA

P048: HYPOPLASIA OF BILATERAL SPHENOID SINUSES: IMPLICATIONS IN TRANSPHENOIDAL ADENOHYPOPHYSECTOMY – Tran B Le, MD, Jennifer Villwock, MD, Roukoz Chamoun, MD, David Beahm, MD; University of Kansas School of Medicine

P049: STEPWISE TUMOR TAILORED ENDOSCOPIC NASOPHARYNGECTOMY CLASSIFICATION. – Guanglong Huang, MD, PhD, Arnau Benet, MD, Halima Tabani, MD, Xin Zhang, MD, PhD, Ivan El-Sayed, MD; UCSF

P051: EXTENDED ENDOSCOPIC MEDIAL MAXILLECTOMY AND REMOVAL OF AN INFRATEMPORAL FOSSA NEUROFIBROMA PRESENTING WITH TINNITUS AND AURAL FULLNESS – Lucas P Carlstrom, MD, PhD, Eric J Moore, MD, Kathryn M Van Abel, MD, Janalee K Stokken, MD; Mayo Clinic

Poster Sessions

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

P052: NASOPHARYNGEAL MUSCLE PATCH FOR THE MANAGEMENT OF ICA INJURY IN ENDOSCOPIC ENDONASAL SURGERY – Wei-Hsin Wang, MD[1], Stefan Lieber, MD[2], Ming-Ying Lan, MD, PhD[3], Eric W Wang, MD[2], Juan C Fernandez-Miranda, MD[2], Carl H Snyderman, MD, MBA[4], Paul A Gardner[2]; [1]Department of Neurosurgery, Taipei Veterans General Hospital, National Yang-Ming University,Taiwan, [2]Department of Neurological Surgery, University of Pittsburgh, Pennsylvania, [3]Department of Otolaryngology, Taipei Veterans General Hospital, National Yang-Ming University, Taiwan, [4]Department of Otolaryngology, University of Pittsburgh, Pennsylvania

P053: ENDOSCOPIC ENDONASAL MAXIMAL PETROSECTOMY: ANATOMICAL INVESTIGATION AND SURGICAL RELEVANCE – Hamid Borghei-Razavi, MD, PhD[1], Huy Q Truong, MD[1], David Fernandez-Cabral, MD[1], Emrah Celtikci, MD[1], Xi Cai Sun, MD, PhD[2], Eric W Wang, MD[1], Carl Snyderman, MD, MBA[1], Paul Gardner, MD[1], Juan C Fernandez-Miranda, MD[1]; [1]UPMC Center for Cranial Base Surgery, [2]Department of Otolaryngology-Head and Neck Surgery, Eye, Ear, Nose and Throat Hospital, Shanghai Medical College, Fudan University, Shanghai, China.

P054: RETROSPECTIVE REVIEW OF COMPLICATIONS RELATED TO EXTENDED ENDOSCOPIC ENDONASAL SKULL BASE SURGERY – Alaa Montaser, MD, Andre Beer Furlan, MD, Matias Gomez, MD, Lucas Lima, MD, Diego Servian, MD, Victor Leal do Vasconcelos, MD, Daniel Prevedello, MD, Ricardo Carrau, MD, Bradley Otto, MD; Ohio State University Wexner Medical Center

P055: NEUROPHYSIOLOGICAL CHARACTERISTICS OF CRANIAL NERVE XII EMG IN ENDOSCOPIC ENDONASAL APPROACH SKULL BASE SURGERY: TECHNICAL REPORT – Ronak H Jani, BSc[1], Rafey A Feroze, BSc[1], Jeffrey R Balzer, MD[2], Parthasarathy D Thirumala, MD, MS[2]; [1]University of Pittsburgh School of Medicine, [2]Department of Neurological Surgery, University of Pittsburgh Medical Center

P056: SISTEMATIC ENDOSCOPIC ENDONASAL APPROACH TO PITUITARY ADENOMAS. RECONSTRUCTION OF SKULL BASE WITH PEDICLE MUCOPERICHONDRAL FLAP VERSUS FREE ABDOMINAL FAT GRAFT FOR PATIENTS WITH INCIDENTAL RUPTURE OF SELLAR DIAPHRAGMA – Paulo H Pires de Aguiar, PhD[1], Cassiano Marchi, MD[1], Gustavo Nogueira, PhD[2], Fabio Nakasone, MD[1], Iracema Estevão[3]; [1]Santa Paula Hospital and Oswaldo Cruz Hospital, Sao Paulo Brazil, [2]Instituto Neurológico de Curitiba, Paraná, [3]Medical School São Francisco University, Bragança Paulista Brazil

P057: MICROSCOPIC VERSUS ENDOSCOPIC TRANSSPHENOIDAL SURGERY FOR PITUITARY ADENOMAS: COMPARATIVE OUTCOMES ANALYSIS DURING THE TRANSITION OF METHODS OF A SINGLE-SURGEON – Chikezie I Eseonu, MD, Karim ReFaey, MD, Oscar Garcia, MPH, Gary Wand, MD, Roberto Salvatori, MD, Alfredo Quinones-Hinojosa, MD; Johns Hopkins University

P058: ENDOSCOPIC ENDONASAL APPROACH TO THE PTERYGOPALATINE FOSSA AND LIGATION OF THE SPHENOPALATINE ARTERY IN 48 CONSECUTIVE PATIENTS WITH SEVERE EPISTAXIS. – Kristina Piastro, MD[1], Robert Scagnelli[2], Tyler Kenning, MD[3], Carlos Pinheiro-Neto[1]; [1]Division of Otolaryngology / Head and Neck Surgery, Department of Surgery, Albany Medical Center, Albany, New York., [2]Albany Medical College, Albany, NY, [3]Department of Neurosurgery, Albany Medical Center, Albany, New York.

P059: ENDOSCOPIC ENDONASAL APPROACH TO THE VENTRAL BRAINSTEM – Harminder Singh, MD[1], Walid Ibn Essayed[3], Gennaro Lapadula, MD[2], Gustavo Almodovar-Mercado[3], Vijay K Anand, MD[3], Theodore H Schwartz, MD[3]; [1]Stanford University School of Medicine, [2]Sapienza, University of Rome, Rome, Italy, [3]Weill Cornell

P060: RECURRENCE OF ANTERIOR SKULL BASE MENINGIOMA AFTER ENDOSCOPIC ENDONASAL RESECTION. RETROSPECTIVE REVIEW OF A SERIES OF 28 CASES OVER TEN YEARS. – Al Bernat[1], A Elsawy[1], Oh Khan[1], B Krischek[1], D Holliman[1], G Klironomos[1], W Kucharczyk[1], A Vescan[2], G Zadeh[1], F Gentili[1]; [1]Toronto Western Hospital, [2]Mount Sinai Hospital

P061: NASAL EXTRUSION OF INTERNAL CAROTID ARTERY COIL IN THE SETTING OF OSTEORADIONECROSIS: A CASE REPORT – Keonho A Kong, MD, Rahul Mehta, MD, FRCS, Justin Tenney, MD, Kevin E Mclaughlin, MD, DABSM, Robert G Peden, MD, Dwayne Anderson, MD, Daniel W Nuss, MD, FACS; Louisiana State University Health Sciences Center

P062: UNILATERAL ENDONASAL TRANSCRIBRIFORM APPROACH WITH SEPTAL TRANSPOSITION FOR OLFACTORY GROOVE MENINGIOMA: CAN OLFACTION BE PRESERVED? – Steven B Carr, MD, Raghuram Sampath, MD, Jacob L Freeman, MD, Jameson K Mattingly, MD, Vijay R Ramakrishnan, MD, A S Youssef, MD, PhD; University of Colorado Hospital

P063: THE IMPACT OF MULTIDISCIPLINARY SKULL BASE CONFERENCE ON PATIENT ASSESSMENT AND MANAGEMENT IN SKULL BASE SURGERY – Thomas A Babcock, MD, Ariel B Grobman, MD, Fred F Telischi, MEE, MD, FACS, Jacques J Morcos, MD, FRCS, FAANS, Simon I Angeli, MD; University of Miami Miller School of Medicine

P064: FREE MIDDLE TURBINATE MUCOSAL GRAFTS FOR RECONSTRUCTION OF SEPTAL DONOR SITE AFTER HARVESTING NASOSEPTAL FLAP IN ENDOSCOPIC ENDONASAL PITUITARY SURGERY – Ming-Ying Lan, MD, PhD[1], Wei-Hsin Wang, MD[2]; [1]Department of Otolaryngology, Taipei Veterans General Hospital, Taiwan, [2]Department of Neurosurgery, Taipei Veterans General Hospital, Taiwan

P065: SINGLE-SESSION GAMMA KNIFE STEREOTACTIC RADIOSURGERY FOR CONTRALATERAL VESTIBULAR SCHWANNOMA AND TRIGEMINAL NEURALGIA – Megan C Kaszuba, MD, Avital Perry, MD, Christopher S Graffeo, MD, Bruce E Pollock, MD, Michael J Link, MD; Mayo Clinic

Poster Sessions

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

P066: PARAGANGLIOMAS OF THE HEAD AND NECK – Badr E Mostafa, MDDU, Ahmed M Teama, Dr; Ain-Shams University

P067: SYMPATHETIC CHAIN CERVICAL SCHWANNOMAS: SURGICAL OUTCOMES IN A MODERN COHORT – Vijay Agarwal, MD, Christopher Graffeo, MD, Avital Perry, MD, Kathryn M Van Abel, MD, Michael J Link, MD; Mayo Clinic

P068: PLEXIFORM SCHWANNOMA OF THE SPINAL ACCESSORY NERVE – Megan C Kaszuba, MD, Christopher S Graffeo, MD, Avital Perry, MD, Vijay Agarwal, Caterina Giannini, MD, PhD, Michael J Link, MD; Mayo Clinic

P069: LESIONS OF THE PETROUS APEX: CLUES TO NARROWING THE DIFFERENTIAL DIAGNOSIS ON IMAGING – Gabriela de la Vega Muns, MD, Chariff Sidani, MD, Amit Pal, MD; University of Miami Miller School of Medicine

P070: PITUITARY DUPLICATION PRESENTING AS AIRWAY OBSTRUCTION: A CASE REPORT – Jonathan P Giurintano, MD, Cecil Rhodes, MD, Jennifer McLevy-Bazzanella, MD, Courtney B Shires, MD, Jerome Thompson, MD, MBA; University of Tennessee Health Science Center

P071: PERSISTENT EMBRIONAL INFUNDIBULAR RECESS (PEIR): REPORT OF TWO CASES AND LITERATURE REVIEW – Francesco Doglietto, MD, PhD[1], Francesco Belotti, MD[1], Isabella Lupi, MD[2], Mirco Cosottini, MD[3], Roberto Gasparotti, MD[4], Fausto Bogazzi, MD, PhD[2], Marco M Fontanella, MD[1]; [1]Unit of Neurosurgery, Department of Medical and Surgical Specialties, Radiological Sciences and Public Health, University of Brescia, Brescia, Italy, [2]Unit of Endocrinology, Department of Clinical and Experimental Medicine, University Hospital, Pisa, Italy, [3]Unit of Neuroradiology, Department of Translational Research and New Technologies in Medicine and Surgery, University Hospital, Pisa, Italy, [4]Unit of Neuroradiology, Department of Medical and Surgical Specialties, Radiological Sciences and Public Health, University of Brescia, Brescia, Italy

P072: IMPROVED WHITE MATTER FIBER VISUALIZATION WITH AUTOMATIC DIFFUSION TENSOR IMAGING SEEDING: CASE ILLUSTRATION WITH INTRAVENTRICULAR MENINGIOMAS – Anil K Roy, MD, Gustavo Pradilla, MD, Jason Allen, MD, Daniel L Barrow, MD; Emory University School of Medicine

P073: MULTIDISCIPLINARY APPROACH TO INFLAMMATORY PSEUDOTUMORS OF THE SKULL BASE – Xue Zhao, MD, Erin McKean, MD, MBA, Gregory J Basura, MD, PhD, Lawrence J Marentette, MD; University of Michigan

P074: DEVELOPING AN ALGORITHM FOR EARLY DIAGNOSIS AND MANAGEMENT OF MALIGNANT OTITIS EXTERNA – Katharine E Hamlett, Jonathan R Abbas, Clare E Williams, Babatunde Oremule, A Guleri, Vikas Malik; Blackpool Victoria Hospital

P075: DELAYED DEVELOPMENT OF MYCOTIC INTRA-CAVERNOUS CAROTID PSEUDOANEURYSM AFTER TREATMENT OF INVASIVE FUNGAL SINUSITIS: A CASE REPORT AND REVIEW OF LITERATURE – Zhong Zheng, MD[1], Anthony G Del Signore, PharmD, MD[2]; [1]New York Eye and Ear Infirmary of Mount Sinai, [2]Mount Sinai Beth Israel

P077: ALLERGIC FUNGAL SINUSITIS-MASQUERADE SYNDROME AND DELAY IN DIAGNOSIS – Jose G Gurrola II, MD, Justin Karlin, MD, Steve A Newman, MD; University of Virginia Health System

P078: EFFECT OF CONTINUOUS LEFT VENTRICULAR ASSIST DEVICE BLOOD FLOW IN A FREE FLAP – Perry T Mansfield, MD, FRCSC[1], Walter P Dembitsky, MD[2], Michael J Halls, BSc, MD, FRCSC, FACS[3], Michael J O'Leary, MD, FACS[1], Natalya Sarkisova, BSc[1], Hannah G Goldman[1], Lauren-Taylor Mansfield[1]; [1]Senta Clinic, San Diego CA, [2]Sharp Memorial Hospital Cardiothoracic Surgery, San Diego CA, [3]Alvarado Institute of Plastic Surgery, San Diego CA

P079: DEVELOPMENT OF A NOVEL PTERIONAL CRANIOTOMY SIMULATOR – Peter J Morone, MD[1], Brandon Root, MD[2], Robert Singer, MD[2]; [1]Vanderbilt Medical Center, Department of Neurological Surgery, [2]Dartmouth-Hitchcock Medical Center, Division of Neurological Surgery

P080: ROBOTIC TRANSNASAL ENDOSCOPIC SURGERY: A SYSTEMATIC REVIEW OF THE LITERATURE AND REPORT OF A NOVEL PROTOTYPE – Francesco Doglietto, MD, PhD[1], Andrea Carobbio, MD[2], Andrea Bolzoni Villaret, MD[2], Alberto Schreiber, MD[2], Giovanni Guida, MSc[3], Marco M Fontanella, MD[1], Riccardo Cassinis, MSc[3], Piero Nicolai, MD[2]; [1]Unit of Neurosurgery, Department of Medical and Surgical Specialties, Radiological Sciences and Public Health, University of Brescia, Brescia, Italy, [2]Unit of Otorhinolaryngology, Department of Medical and Surgical Specialties, Radiological Sciences and Public Health, University of Brescia, Brescia, Italy, [3]Department of Information Engineering, University of Brescia, Brescia, Italy

P082: HARVESTING THE MIDDLE TEMPORAL ARTERY FOR BYPASS: MICROANATOMICAL DESCRIPTION AND SURGICAL TECHNIQUE. – Roberto Rodriguez Rubio, MD, Halima Tabani, MD, Michael T Lawton, MD, Sonia Yousef, Olivia Kola, Arnau Benet, MD; UCSF

P083: ENDOSCOPIC ENDONASAL APPROACH TO INTRINSIC BRAINSTEM LESIONS: ANATOMICAL, RADIOLOGICAL, AND CLINICAL STUDY – David T Fernandes Cabral, MD, Georgios A Zenonos, MD, Maximiliano Nunez, MD, Hamid Borghei-Razavi, MD, PhD, Emrah Celtikci, MD, Pinar Celtikci, MDm, Sandip S Panesar, MD, Eric W Wang, MD, Carl H Snyderman, MD, MBA, Paul A Gardner, MD, Juan C Fernandez-Miranda, MD; University of Pittsburgh Medical Center

P085: WHY SHOULD TEMPORARY ARTERIAL CLIPPING BE USED FOR OCCLUSION DURING ANTERIOR CEREBRAL ARTERY ANEURYSM REPAIR? EVALUATION OF PROSPECTIVE FACTORS – Paulo H Pires de Aguiar, PhD[1], Apio C Martins Antunes, PhD, MSc[2], Antonio Araujo dos Santos, MD[1], Renata F Simm, MD[1], Marco A Stefani, MD, MSc, PhD[2], Iracema Estevão, BA[3], Luana A Crhristiano, BA[4]; [1]Santa Paula Hospital and Federal University of Rio Grande do Sul, [2]Federal University of Rio Grande do Sul, [3]Medical School São Francisco University, Bragança Paulista Brazil, [4]Pontifical Catholic University of Sorocaba, Sao paulo, Brazil

Poster Sessions

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P087: PARAMEDIAN FOREHEAD FLAP FOR REPAIR OF REFRACTORY HIGH-FLOW ANTERIOR SKULL BASE CSF LEAK – Jeremy N Ciporen, MD[1], Brandon Lucke-Wold, PhD[2], Haley E Gillham, MS[1], David Cua, MD[3], Jason Kim, MD[3], Paul Akins, MD, PhD[3]; [1]Oregon Health & Science University, [2]West Virginia University, [3]The Permanente Medical Group

P088: HEADS-UP DISPLAY IN COMPLEX CRANIAL SURGERY: PILOT STUDY ON SURGICAL INTEGRATION AND ACCURACY. – Justin Mascitelli, Leslie Schlachter, PA, Raj Shrivastava, MD, Joshua Bederson, MD; Mount Sinai Hospital

P089: COMPUTERIZED ASSESSMENT OF SUPERIOR SEMICIRCULAR CANAL DEHISCENCE SIZE USING ADVANCED MORPHOLOGICAL IMAGING OPERATORS – Carlito Lagman, MD, Joel S Beckett, MD, MHS, Lawrance K Chung, Timothy T Bui, BS, Seung J Lee, BS, Thien Nguyen, BS, Brittany L Voth, MPH, Bilwaj Gaonkar, PhD, Quinton Gopen, MD, Isaac Yang, MD; University of California, Los Angeles

P090: SURGICAL FLOW DIVERSION FOR COMPLEX POSTERIOR CIRCULATION ANEURYSMS – Jens Lehmberg[1], Ehab Shiban[1], Maria Wostrack[1], Sacha Prothmann[2], Meyer Bernhard[1]; [1]Neurosurgery Department, technical university of munich, [2]Division of Neuroradiology, Department of Radiology, Technical University of Munich

P091: PERMANENT USAGE OF FENESTRATED TEMPORARY ANEURYSM CLIP THROUGHOUT INTRACRANIAL VASCULAR SURGERY – Ihsan Dogan, MD, Cemil Kilinc, MD, Eyup Bayatli, MD, Onur Ozgural, MD, Umit Eroglu, MD, Melih Bozkurt, MD; Ankara University School of Medicine Department of Neurosurgery

P092: ENDOSCOPY-ASSISTED DRILLING AND EXPOSURE OF THE ENTIRE LENGTH OF THE INTERNAL AUDITORY CANAL THROUGH A PRESIGMOID RETROLABYRINTHINE APPROACH: A CADAVERIC STUDY – Thomas Muelleman, MD, Matthew Shew, MD, Sameer Alvi, MD, Kushal Shah, MD, Hinrich Staecker, MD, PhD, Roukoz Chamoun, MD, James Lin, MD; University of Kansas Medical Center

P093: ENDOSCOPIC TRANSCANAL INFRACOCHLEAR VESTIBULAR NERVE SECTION WITH HEARING PRESERVATION: A PILOT CADAVERIC STUDY – Aaron K Remenschneider, MD, MPH[1], Elliott D Kozin, MD[2], Judith Kempfle, MD[2], Daniel J Lee, MD[2]; [1]UMASS Medical Center / Massachusetts Eye and Ear Infirmary, [2]Massachusetts Eye and Ear Infirmary

P094: PORTABLE NEUROENDOSCOPY: INITIAL EXPERIENCE WITH A PORTABLE, SELF-CONTAINED ENDOSCOPY SYSTEM WITHIN THE INTRACRANIAL SPACE – Bohdan W Chopko, PhD, MD; Stanford University School of Medicine

P095: A COMPARATIVE STUDY OF INDUSTRY AND OPEN-SOURCE EFFORTS FOR 3D VISUALIZATION, PRE- AND INTRA-OPERATIVE PLANNING, AND 3D PRINTING OF SKULL BASE TUMORS: A CASE REPORT – Anthony B Costa, Kelly Nicol, Leslie Schlachter, Alfred-Marc Iloreta, Raj Shrivastava, Joshua B Bederson; Icahn School of Medicine at Mount Sinai

P096: DURAL CLOSURE IN CONFINED SPACES OF THE SKULL BASE WITH NONPENETRATING TITANIUM CLIPS – Chad A Glenn, MD, Cordell M Baker, BS, Joshua D Burks, BA, Andrew K Conner, MD, Adam D Smitherman, MD, MIchael E Sughrue, MD; University of Oklahoma Health Sciences Center

P097: RETRACTORLESS SURGERY WITH SUPINE RETROSIGMOID APPROACH – Thomas Kretschmer, Prof, Dr, MD, PhD, IFAANS, Thomas Schmidt, MD, Christian Heinen, MD; Neurosurgical Department, Evangelisches Krankenhaus-Oldenburg University

P098: ORBITOZYGOMATIC APPROACH FOR CONTRALATERAL MIDBRAIN LESIONS – Tyler G Atkins, MD[1], Scott D Wait[2]; [1]Carolinas Medical Center, [2]Carolina Neurosurgery and Spine Associates

P099: EXCLUSIVE ENDOSCOPIC TRANSCANAL TRANSPROMONTORIAL APPROACH FOR VESTIBULAR SCHWANNOMA RESECTION: A CASE SERIES – Cameron C Wick, MD, Demetri Arnaoutakis, MD, Samuel L Barnett, MD, Brandon Isaacson, MD; University of Texas Southwestern Medical Center

P101: THE ROLE OF ENDOSCOPY FOR RESECTION OF HYPOGLOSSAL SCHWANNOMAS: AN ILLUSTRATIVE CASE REPORT – Daniel R Felbaum, Kyle Mueller, MD, Ann K Jay, MD, Bruce Davidson, MD, Hung Kim, MD, Amjad N Anaizi, MD; Medstar Georgetown University Hospital

P102: TECHNICAL NUANCES OF COMBINED ENDOSCOPIC TRANS-NASAL & TRANS-FACIAL APPROACH TO PTERYGOPALATINE FOSSA: HIGHLIGHTING THE MERITS OF THE ENDOSCOPIC TRANS-FACIAL ANTERIOR MAXILLARY APPROACH TO THE INFRA-TEMPORAL FOSSA – A. Elsawy, Galerah Zadeh, Alan Vescan; University of Toronto

P103: MANAGEMENT OF LARGE (D1 AND D2) GLOMUS TUMORS – Abdullah Alotieschan, MD, FACHARTZ[1], Suresh Velagapudi, MD[2]; [1]Dr. Sulaiman AlHabib, [2]King Faisal Specialist Hospital and Research Center

P104: RARE CASE OF CEREBELLOPONTINE ANGLE GLIOEPENDYMAL CYST IN A PEDIATRIC PATIENT – Matthew Cutrer, JD, Rahul Mehta, MD, FRCS, Joshua M Sappington, MD, Frank Culicchia, MD, FACS, Moises A Arriaga, MD, MBA, FACS; LSUHSC - New Orleans

P105: SUPERIOR SEMICIRCULAR CANAL DEHISCENCE REPAIR THROUGH MIDDLE CRANIAL FOSSA CRANIOTOMY WITH 5 LAYERS RECONSTRUCTION: OUR EXPERIENCE AND SURGICAL TECHNIQUE – Fahad Alkherayf, MD, MSc, CIP, FRCSC, Shaun Kilty, MD, FRCSC, David Schramm, MD, FRCSC; University of Ottawa

Poster Sessions

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

P106: USE OF THE MIDDLE CRANIAL FOSSA APPROACH WITH EXTENDED POSTERIOR PETROSECTOMY FOR RESECTION OF LARGER VESTIBULAR SCHWANNOMAS: A COMBINED CADAVERIC-CLINICAL INVESTIGATION. – Shawn M Stevens, MD[1], David Mihal, MD[1], Rebecca Cornelius, MD[1], Mario Zuccarello, MD[2], Myles Pensak, MD[1], Ravi N Samy, MD, FACS[1]; [1]University of Cincinnati College of Medicine, [2]Mayfield Brain and Spine

P107: DIFFUSE HYPEROSTOSIS OF THE SKULL BASE – Christopher D Frisch, MD[1], Akash Patel, MD[2], Jeffrey T Vrabec, MD[1], Alex D Sweeney, MD[1]; [1]Baylor College of Medicine, [2]Baylor St. Luke's Medical Center

P108: JUGULARE FORAMEN SURGERY: IN ERA OF RADIOTHERAPY – Simple Patadia, DR, MBBS, MS, ENT, SR NEUROOTOLOGY, Amit Keshri, DR, MBBS, MS, ENT, AP NEUROOTOLOGY, Rabi Narayan Sahu, DR, MBBS, MS, Mch, Neurosurgery, Saurin Shah, DR, MBBS, MS, ENT, SR NEUROOTOLOGY, Nagendra Rawat, DR, MBBS, MS, Mch, Neurosurgery, Sanjay Behari, DR, MBBS, MS, Mch, Neurosurgery, Raj Kumar, DR, MBBS, MS, Mch, Neurosurgery; Sanjay Gandhi Post Graduate Institute of Medical Sciences

P109: HEARING SPARING RETROLABYRINTHINE PRESIGMOID APPROACH TO THE ANTERIOR CEREBELLOPONTINE REGION: EXPANDING THE LIMITS OF TRAUTMANN'S TRIANGLE – Fernando Alonso, MD, Simone E Dekker, MD, Magaret Carmody, MD, Nicholas C Bambakidis, MD; University Hospitals Case Medical Center

P111: ENDOSCOPIC TRANSNASAL COAGULATION OF ANTERIOR AND POSTERIOR ETHMOIDAL ARTERIES BEFORE OPEN RESECTION OF LARGE ANTERIOR SKULL BASE MENINGIOMAS: A NOVEL COMBINED APPROACH AND REVIEW OF 2 ILLUSTRATIVE CASES – Jayson A Sack, MD, Puya Alikhani, MD, Siviero Agazzi, MD, Harry van Loveren, MD; University of South Florida

P112: CAVERNOUS SINUS ENCEPHALOCELE: SURGEON BEWARE – Joseph R Kapurch, MD, Janalee Stokken, MD, Jonathan Morris, MD, Jamie J Van Gompel, MD; Mayo Clinic - Rochester

P113: ENDONASAL MANAGEMENT OF PEDIATRIC CONGENITAL TRANSSPHENOIDAL ENCEPHALOCELES: NUANCES OF A MODIFIED RECONSTRUCTION TECHNIQUE – Mehdi Zeinalizadeh, MD[1], Syed M Sadrehosseini, MD[1], Zohreh Habibi, MD[1], Farideh Nejat[1], Harley B Da Silva, MD[2], Harminder Singh, MD[3]; [1]Imam Khomeini Hospital, Tehran University of Medical Sciences, [2]University of Washington School of Medicine, [3]Stanford University School of Medicine

P114: EXTENDED AXILLARY FLAP: EFFECTIVE PEDICLE FLAP FOR ANTERIOR SKULL BASE RECONSTRUCTION. – Humaid I Alhumaid, skull base fellow[1], Marc A Tewfik, Assistant professor and skull base surge[2]; [1]College of medicine, Qassim university, [2]Otorhinolaryngology-Head and Neck surgery.College of medicine. McGill university

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P171: ENDOSCOPIC ENDONASAL SURGERY OF THE SKULL BASE: TRAINING AND QUALITY ASSURANCE MODEL FOR LOW VOLUME CENTERS – Bostjan Lanisnik, MD, PhD[1], Janez Ravnik, MD, PhD[2], Matic Glavan[1], Carl H Snyderman[3], Paul A Gardner[3]; [1]Department of Otolaryngology, University Medical Center Mariobor, [2]Department of Neurosurgery, University Medical Center Mariobor, [3]Center for Cranial Base Surgery, University of Pittsburgh

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P173: THE UTILITY OF IMAGE GUIDANCE IN DEVELOPING MINIMALLY INVASIVE PERIORBITAL APPROACHES TO THE SKULL BASE – Katherine E Duncan, MD, Eric W Wang, MD, Juan C Fernandez-Miranda, MD, Jenny Y Yu, MD; University of Pittsburgh Medical Center

P174: EXTRA-AXIAL CEREBELLOPONTINE CAVERNOMA INVOLVING THE CN VII/VIII COMPLEX: ONE MORE DIFFERENTIAL DIAGNOSIS. – Andrew F Alalade, FRCS, FEBNS[1], Nagina Subrati, MD, MRCS[1], Shakeel Saeed, MD, FRCS[2], Robert Bradford, MD, FRCS[1]; [1]The National Hospital for Neurology and Neurosurgery, Queen Square, London. WC1N 3BG, [2]Royal National Throat, Nose and Ear Hospital, 330 Gray's Inn Road, London WC1X 8DA

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P180: MRI IMAGING IN AN NF2 PATIENT WITH A NOVEL MRI COMPATIBLE AUDITORY BRAIN STEM IMPLANT – Matthew Shew, James Lin, Hinrich Staecker; University Of Kansas Medical Center

Albert L. Rhoton, Jr., M.D., 1932–2016

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Early Years

Albert L. Rhoton, Jr. was born in the family home, a log cabin in Parvin, Kentucky, in the hills of Appalachia on November 18, 1932. He was delivered with the assistance of a midwife for the fee of one bag of corn. There was no other healthcare available in that region of Kentucky and once, when young Al was feared to have pneumonia, his father walked 20 miles to consult a physician who prescribed castor oil, as this was before antibiotics; fortunately, he made a full recovery. The home had no electricity and water had to be fetched from a nearby spring. The Rhoton children—Al, his brother, and sister—attended a two-room school house in the hills. Dr. Rhoton's parents understood the importance of education, and his mother and father traveled to attend Berea College to complete their secondary education. His father then attended the University of Kentucky, where he obtained a Master's degree in Chemistry. During this time, Al's mother taught in the local school house to support the family financially, even though she didn't have a formal degree. When Al was 10 years old, the family moved to Akron, Ohio, where his father was able to find employment as a chemist, and they became city dwellers. It was customary at that time that children from Appalachia were held back a grade when they entered the city school district, but Mrs. Rhoton would not allow it. Al Jr. promptly went on to fail the 5th grade which he then repeated and passed; in bemused retrospect, Dr. Rhoton once surmised he was the only neurosurgeon to fail the 5th grade and then go on to graduate at the top of his medical school class. Dr. Rhoton's father was fond of telling his son, "Every day you should go to work." Al's first job was as a paper boy, and he held several other after school jobs in Akron. In 2010, Dr. Rhoton once commented on how his father's philosophy must have stuck with him, because in 40 years at the University of Florida he only took one sick day—a day in when he underwent a procedure requiring general anesthesia.

College Years

Following high school graduation, Al Rhoton, Jr. moved to Columbus, Ohio to attend Ohio State University, with the plan to get a chemistry degree, like his father. To support himself, he worked cleaning laboratories, washing dishes, and taking on an array of other menial tasks. One summer, he got a job working for The Boy's Club at a settlement house organizing activities and helping disadvantaged youth, and he found the experience transforming. He changed his major to social work, with the plan that he would dedicate his life to this type of work. During his last semester of college, before completing his degree, he took a class in physiologic psychology taught by Donald Meyer—a course that sparked a lifelong passion for studying the brain. That semester, he decided to become a neurosurgeon. He switched his major and enrolled in premed courses; classes that were significantly more difficult than offered in the social work curriculum. He flunked all his mid-terms that first semester. He realized he would have to work less and study more, which presented a significant financial burden, but with the help of friends and family he was able to buckle down, finish the prerequisites, and win acceptance to Ohio State Medical School. He also received an offer to interview at Washington University in St. Louis and hitchhiked to St. Louis, where he was offered a spot and started medical school at Wash U in 1955. It was during medical school that he met an occupational therapy student, Joyce Leah, and the two were married after a three-year courtship.

Internship and Residency

After graduating first in his class, Dr. Rhoton completed a one-year general surgery internship at Columbia Presbyterian Hospital in New York City, 1959–1960. Although this year was spent only doing general surgery rotations, he was keenly aware of the prestigious Neurologic Institute across the street, and made friends with many of the residents. He was granted an additional year in New York, during which he worked with the Institute's neurosurgeons and researchers, before returning to St. Louis to commence neurosurgical residency under the mentorship of Dr. Henry Schwartz at Barnes Hospital in 1962. He completed residency in 1965 and would later remark that he

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never saw a vestibular schwannoma resected with preservation of the facial nerve, and never saw a pituitary tumor resected with functional preservation of the normal gland. Recall, this was before the availability of hormone replacement therapy, meaning those operations often resulted in significant postoperative morbidity or even death. Although driven to study neuroanatomy since his college days, it was during his final year of residency that Dr. Rhoton was able to truly embrace that pursuit, with a mind toward making his operations safer, gentler, and more accurate.

Early Career

Fortunately for Dr. Rhoton, the Mayo Clinic was looking to improve their training program by adding a neuroanatomy laboratory rotation to the residency, and offered him a position after he completed his residency (►**Fig. 1**). The Rhotons then moved to Rochester, Minnesota with their four young children—three of whom would go on to obtain Doctor of Medicine (M.D.) degrees, with the fourth completing registered nurse training. From 1966 to 1972, Dr. Rhoton honed his surgical skills by maintaining a very busy clinical practice, predominantly treating trigeminal neuralgia and intra and extra-axial brain tumors. He also began to study and report his findings from anatomical studies of the brain and temporal bone. However, the schedule of clinic one day followed by surgery the next; five or even six days a week left precious little time for research. In parallel, Dr. Rhoton felt increasingly compelled by a desire to do "medical mission work," or serve an area without access to the high level of surgery he was seeing at Mayo, in short, he wanted to build something from scratch.

The opportunity arose in 1972 to accept the position of Chief of Neurosurgery at University of Florida in Gainesville. The small-town life of this north central Florida community appealed immensely to the Rhotons, who were also eager to leave their snow shovels behind, and Dr. Rhoton joined Frank Garcia as a two-man division within the Department of Surgery. The modest resources afforded the two neurosurgeons included two secretaries and one operating room, where they could work 3 days a week. That first year they had two applicants for residency, including Arthur Day, M.D., who not only completed training in Gainesville, but went on to become a prominent member of their staff as a cerebrovascular neurosurgeon. Those early years demanded an extraordinary effort to provide the breadth of neurosurgical care to the central Florida community, yet Dr. Rhoton never abandoned his desire to build a neuroanatomy laboratory. The division had limited funding, to say the least, and the Dean had little resources to support them. However, Dr. Rhoton was able to identify a private donor who gave $20,000 to support the laboratory. This sparked a desire to discover other donors to aid the research mission, which culminated in the Keene family donation of one million dollars.

Fig. 1 Dr. Rhoton's staff photograph at the Mayo Clinic, 1966.

Chairmanship

During his 26 years at the helm of Neurosurgery at the University of Florida, Dr. Rhoton realized incredible growth and accomplishments in the department. First of all, he moved neurosurgery from a division under general surgery to a department. By the time he handed over the reins to Dr. Friedman, Dr. Rhoton had accumulated roughly 20 million dollars in endowment funding, which helped support 11 endowed professorships in almost every subspecialty of neurosurgery. He encouraged his faculty to serve organized neurosurgery, and he proved an essential role model in that regard.

Over his career, Dr. Rhoton was a member of almost every neurosurgical and anatomical society, serving as President of The Congress of Neurological Surgeons, The Florida Neurosurgical Society, The American Association of Neurological Surgeons, The Society of Neurological Surgeons, and the North American Skull Base Society. In addition, he served other roles in all the major societies while ascending to their presidencies, and was on countless committees nationally, internationally, and at the University of Florida, serving as chairman of 48. He gave his time tirelessly to patient run advocacy groups such as the Trigeminal Neuralgia Association and the Acoustic Neuroma Association, and was visiting professor at 67 different institutions on five continents. None of this, of course, slowed his academic productivity, and Dr. Rhoton's curriculum vitae lists 508 publications. A compilation of his clinical and anatomic experience culminated in his text, "Cranial Anatomy and Surgical Approaches," which has been translated into Portuguese and Chinese.

All of this, combined with the great notoriety he brought to his department and program, further resulted in his being named honorary member of almost all international neurosurgical societies, and receiving neurosurgery's highest awards. Included in this auspicious list is the Cushing Medal from the AANS, the Olivecrona Medal from the Swedish Neurosurgical Society, the Medal of Honor from the Neurosurgical Society of America, the Jamieson Medal from the

Neurosurgical Society of Australasia, the Medal of Honor from the World Federation of Neurosurgical Societies, and the Founders Laurel Award from the CNS, to name only a few.

Even more inspiring than his leadership and academic output was Dr. Rhoton's kind and caring manner with patients facing the awesome and frightening prospect of a neurosurgical procedure. Dr. Rhoton often emphasized that the best ally in the treatment of complex neurosurgical disorders is a well-informed patient. He admonished any neurosurgeon to always close a discussion with a patient and their family with the query, "Have I answered all your questions?"

What Dr. Rhoton truly meant to all of us in the field of skull base surgery, and medicine as a whole, defies prose. Dr. Jacques Morcos, current President of the North American Skull Base Society, has done a wonderful job expressing our sense of loss in his eulogy published in this issue. Additionally, Dr. Jon Robertson, a lifelong friend and colleague, adds his special perspective; Dr. Juan Carlos Fernandez-Miranda, a former Rhoton fellow, shares insight into what it was like to study and work with Dr. Rhoton; and Dr. Jeff Sorensen provides an account of the on-going effort to catalog and preserve Dr. Rhoton's incredible body of work for generations to come.

In Memoriam to Dr. Al Rhoton: You Will Be Missed

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It is with a complete and utter sense of loss and sadness that I write to you, as the newly elected North American Skull Base Society (NASBS) President, to announce the passing of a giant figure from the world of neurosurgery, skull base surgery, neuroanatomy, and medicine in general. Albert L. Rhoton, one of the most celebrated neurosurgeons and past presidents of the NASBS, left us on February 21, 2016. It is customary, at this point in the eulogy of a man of such stature, to proceed and list a lifetime of professional accomplishments. But then Al Rhoton is no ordinary giant, even among the giants. Because of this, this eulogy will break with tradition, for this man was simply incomparable. Instead of starting with the achievements of his mind, I would like to reflect first on the indelible memories left by his heart.

"You give but little, when you give of your possessions. It is when you give of yourself that you truly give," said Khalil Gibran, the Lebanese-American literary genius. There was no more authentic and sincere giver than Al Rhoton, the greatest of all educators. With the excitement of a child with no care in the world, and the generosity of a fountain that would not stop flowing; with an innocence never seen in a man of his years, and a kindness seldom offered by a figure larger than life; with a sincerity that knew no bounds, and a gentleness that contrasted his figure; with a passion disguised as serenity, and civility mistaken for passivity; with all these and many other remarkable attributes, the "Encyclopedia Rhoton-ica" gave and gave and kept giving. He taught a lot, taught often, taught with love. He taught us all, from when we started in the field to when we retired from the field. He travelled far, he spoke to few and spoke to many. He spoke in shacks and spoke in castles. The joy was equal. No task was too onerous, no hurdle was too difficult when teaching was at stake. He never said no, he loved all, he had no temper; he had equanimity, he had resolve, he oozed integrity; he had faith, in man and in God; his brand of goodness simply dwarfed the most pious among us. Next to this man, we are all sinners, in our religious or moral lives.

It is often said, and quite correctly, that life is not fair, for the most undeserving men seem to summit and conquer mount success. Well, for once, life is fair, for the humblest of its servants broke the mold and shone like a beacon. The boy born in a shack in Parvin, Kentucky never forgot his roots, and in spite of him not seeking honors and recognitions, they found him. How could they miss him? He has served as President of the American Association of Neurological Surgeons (AANS), Congress of Neurological Surgeons (CNS), the Society of Neurological Surgeons, Florida Neurological Society, the North American Skull Base Society, the International Interdisciplinary Congress on Craniofacial and Skull Base Surgery, the International Society for Neurological Technology and Instrument Intervention, and the International Society for the Study of Microsurgical Anatomy. He has also served as Vice Chairman of the American Board of Neurological Surgeons, Chairman of the Joint Section on Cerebrovascular Surgery, Governor of the American College of Surgeons, and a member of the neurosurgery appeals panel of the Accreditation Council for Graduate Medical Education. He received an Alumni Achievement Award from the Washington University School of Medicine, the Cushing Medal of the AANS, the Medal of Honor of the World Federation of Neurosurgical Societies, and the Golden Neuron Award of the World

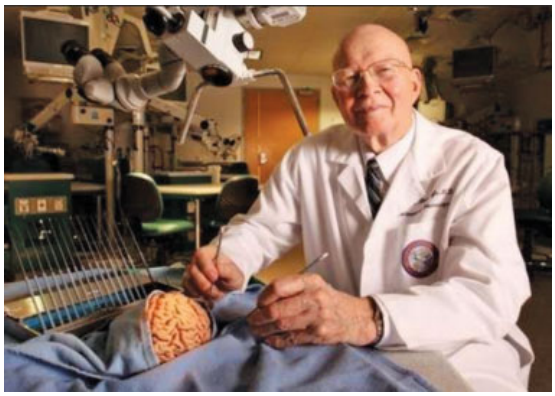

Fig. 1 Dr. Al Rhoton at the brain institute at University of Florida, Gainseville, Florida.

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Academy of Neurological Surgery. He has also received the Founders' Laurel Award and been the honored guest of the CNS. He has been the honored guest or elected to honorary membership in more than 20 neurosurgical societies throughout the world. He has served on the editorial board of more than one dozen journals and has authored more than 400 articles and 2 books. He has also trained legions of adoring neurosurgeons.

Perhaps the best way to remember the man is to never forget the remarkable and inspirational story —undoubtedly known to many of you—he liked to tell about becoming a doctor and his dedication to medicine. He used to say that if God had come to earth and had told him as a young man: "Al, if you knew, at the beginning of your life, that you had to go through 12 years for schooling, 4 years of undergraduate education, 4 years of medical school, 7 years of residency, sit through countless exams, sacrifice family and social life, and that at the end of all these harrowing years, you at last would become a neurosurgeon; but that all this studying and suffering was for the sake of saving the life of, not thousands, but only a single patient, would you go through it?" With the sincerity and tenacity of a man of vocation, Al would answer "Yes, I would absolutely do it," unequivocally. When my resident heard him tell this story, she teared. I almost did. For she and I knew, we were in the presence of a special man. She and I knew there was no other mortal who would give the same answer and mean it.

Dear Al, if heaven exists, we know you made it there and have already started feverishly rearranging and reclassifying its anatomy, to the dismay of all its angels! You may have left us, but we will never have to remember you, for remembrance implies forgetting at first. How can we forget you? Like the fabric of space-time that engulfs us, you created for us the fabric of neuroanatomy and the tools to operate on it, in that "gentle, delicate, accurate" way. Like a true messiah of sorts, you revealed hidden truths to us. Your prodigious intellect has bequeathed thousands of images and notes for posterity. The entire medical community will spend the coming years celebrating and benefiting from your achievements. The NASBS will honor you and celebrate you in our upcoming 2017 annual meeting. Your boyhood dreams have been realized multiple folds. But you have failed—if it can be called a failure—in one regard, and that is simply because of your unique humility. You thought that all you were teaching us all these years were anatomical maps and facts and techniques, a window to your mind. Little could you suspect, in your self-effacing demeanor, that your even greater contribution, for generations to come, is to have enriched our hearts too, by allowing us—unknowingly—a window of exposure into one of the greatest medical souls that have ever lived.

Jacques J. Morcos, MD, FRCS, FAANS
President, NASBS

Dr. Al Rhoton, Jr.: Friend, Mentor, and Colleague

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Albert L. Rhoton was born in the hard years of the Great Depression of the United States, in the Kentucky hills of Appalachia, to strong parents with little means. His character was shaped by the struggles of his family to survive and advance themselves through hard work and education. From these humble beginnings, Dr. Rhoton rose to become an icon in neurosurgery because of his leadership skills and tremendous contributions to neurosurgical education and research. Along his career path he remained a humble and caring individual who recognized and respected others. He was unselfish with his time to speak to those who sought his advice, and gave of himself tirelessly to share his knowledge and life experiences of an academic neurosurgical career spanning a half century.

In his 1990 American Association of Neurological Surgeons (AANS) presidential address, *Neurosurgery in the Decade of the Brain*, Dr Rhoton spoke of the miracle of neurosurgery, "I would like to reflect on the joy and excitement of being allowed to participate in the miracle we call neurosurgery. In my early years, I never imagined that life would yield such an exciting mission as being a physician or a neurosurgeon. Our work is done in response to the idea that human life is sacred, that it makes sense to spend years of one's life in study in order to be able to help others. Our training brings into harmony a knowledgeable mind, a skilled set of hands, and a well-trained eye, all guided by a caring human being. The skills we use have been described as the most delicate, the most fateful, and to the layman, the most awesome of any profession." On acquiring the skills of a well-trained neurosurgeon: "Competence and compassion need to be developed simultaneously, as the giant oak develops its root system along with its leaves and branches. Competence without compassion is worthless." As a religious experience: "The brain is the crown jewel of creation and evolution. It is a source of mystery and wonder. Mind and brain are the source of happiness, knowledge, and wisdom. The brain is not the seat of the soul, but it is through the brain and mind that we become aware of our own soul." A prayer for physicians sent to him by one of his patients: "Lord, Thou Great Physician, give skill to my hands, clear vision to my mind, kindness and sympathy to my ears. Give me singleness of purpose, strength to lift at least a part of the burden of my suffering fellow men, and a true realization of the rare privilege that is mine."

Our paths crossed through our leadership roles in organized neurosurgery, having both served as President of the AANS and North American Skull Base Society. He was a senior advisor and role model for me as I followed his large footsteps. Teaching roles in various skull base courses with Dr. Rhoton in the 1990s influenced my starting the annual North American Skull Base Society Resident Skull Base course in Memphis in 2002. He faithfully attended every course we held to give his three-dimensional (3D) neuro microanatomical lectures, teach, and inspire the faculty members and each resident that attended. The faculty of our annual courses felt privileged to work with him. It was an honor, and we each looked forward to these annual courses, for he treated us as family (►**Figs. 1–3**).

Recognizing the importance of preserving Dr. Rhoton's 3D neuro microanatomical lectures for future neurosurgical education, I began to discuss with him how this might occur in 2008. He was reluctant to work with either of the two major neurosurgical organizations because of personal and political loyalties, which I understood. The complexities of archiving the enormous volume of his neuroanatomical material in a format that could accurately present his life's work as he wished, had too many challenges: How much would it cost? Who would do the work? Would he retain ownership and have control of how his lectures would be presented?

The turning point came with the introduction of 3D televisions and their associated digital formats in 2010 that could be used to display his stereoscopic images synchronized with a recording of his voice to preserve his wonderful 3D lectures. With financial backing and the support of the leadership of the AANS, Dr. Jeff Sorenson, Dr. William Couldwell, and I began the process which led to the development of the Rhoton Collection. To move forward with this project required the acceptance on the part of Dr. Rhoton that this was the right way to preserve his wonderful legacy of neuroanatomical instruction. His desire was to have his life's

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Fig. 1 Some of the usual faculty at the many skull base dissection courses held in Memphis; from left to right: Drs. Franco DeMonte, Anil Nanda, Michael Link, Dr. Rhoton, Jon Robertson, John Golfinos, and Bill Couldwell.

work serve as a teaching platform, available to everyone worldwide at no cost. Our commitment was to achieve his wish and honor our mentor and friend.

Every enhanced lecture prepared by Dr. Sorenson for the Rhoton Collection was personally reviewed and approved by Dr. Rhoton. This required multiple visits by our team to Gainesville spanning a period of 5 years. Dr. Rhoton trusted Dr. Sorenson to be the producer and director of the Rhoton Collection. His long hours of work, technical and artistic skills, made this effort possible.

The numerous weekends that I traveled with Dr. Sorenson to Gainesville were precious times spent with Dr. Rhoton. At the end of the day working on lecture material at the Brain Institute, we would go to Dr. Rhoton's

Fig. 2 Dr. Rhoton enjoyed instructing in the lab as much as giving his 3-D lectures in the auditorium.

Fig. 3 Push up contests were often on the agenda in Memphis, which Dr. Rhoton usually won, even though he was well into his 8th decade.

favorite local restaurant, Mildred's Big City Food. There we would discuss the various stages of the Rhoton Collection, and he was always excited to tell us about new neuro microanatomical studies that his fellows were producing in his laboratory. But more importantly, we talked about each of our careers spanning three generations, our friends, and our families.

Our last visit came 2 weeks before his death. He was pale and weak, but his mind was sharp. We spent the morning at the Brain Institute reviewing a lecture on orbital anatomy he had prepared during the past year that would be ready for release at the coming 2016 AANS annual meeting. Later that evening we met for our usual dinner at Mildred's Big City Food. We had a great time. It was raining as we left the restaurant, but no one rushed to leave. Dr. Rhoton hugged each of us, and wished us safe travel home.

The measure of a man's attributes can be judged by the depth of the friendships which he has made. Albert L. Rhoton's friends were legion and their feelings ran very deep. Among the bright miles which good fortune has at times cast in my direction, I consider being counted among his friends and colleagues the brightest of all.

Prof. Rhoton: Master and Mentor

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It is with great sorrow, but profound gratitude that I write these words in remembrance of Prof. Albert L. Rhoton Jr. Using his own expression, not in my wildest dreams I could have imagined working closely with him, one of the greatest medical souls that have ever lived. I had the unique privilege of spending two extraordinary years in his laboratory, and here, a decade later, I would like to illustrate what it was like and what it meant to be his fellow.

Prof. Rhoton established his microneuroanatomy laboratory at Mayo Clinic in the late 1960s, as he would say "not to write a paper, but to improve the life of my patients." In 1974, he created his microsurgery education center at the University of Florida, with a missionary leitmotiv: "*Every Second of Every Day*," he wanted to train and teach enough surgeons in microsurgical neuroanatomy and techniques so that there would be someone having surgery during every second of every day that was being made better because of his influence (►**Fig. 1**). After 42 years with more than 100 fellows, more than 500 scientific articles, and thousands of lectures later, there is no question he has accomplished that goal: patients all over the world will continue benefiting from Prof. Rhoton's work forever.

When I started training in Prof. Rhoton's laboratory in 2005, he was a living legend, the father of microsurgical neuroanatomy, and mentor for many world-class neurosurgeons (►**Fig. 2**). I remember vividly the initial meeting in his office to discuss the goals for my fellowship, and there I felt for the first time his magic aura of love and kindness that would irradiate and comfort everyone around—like the giant oak that gives shadow and protects from the bright sun. "Other than working in the lab, you may want to visit Florida's coast and Disneyworld with your wife," he said with that smile that would illuminate your soul. We had sold everything we had back in Spain to fund our stay and work in Prof. Rhoton's laboratory looking for microsurgical training and anatomical knowledge, and we found so much more. Since then, every single second we spent with him and his family was unique and special. All fellows and families particularly enjoyed those pizza parties at Rhoton's that Mrs. Joyce Rhoton organized to celebrate every fellow graduation (►**Fig. 3**). Dr. Rhoton was a devoted family man and he tremendously enjoyed being around and playing with children (►**Fig. 4**). Joyce, his wife for 58 years, is the great woman behind the great man. Her dedication and support, always by his side, is a key aspect of Prof. Rhoton's successful biography (►**Fig. 5**).

The working philosophy in the laboratory was defined by Prof. Rhoton's description of the brain as the crown jewel of creation and his quest for beauty and perfection. I attended my first days in the laboratory observing with astonishment the exquisite dissections that the fellows were performing. I found out then that those extremely beautiful and unreal

Fig. 1 Prof. Rhoton in 1989 at the Shands Hospital of the University of Florida.

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Fig. 2 Prof. Rhoton in 2010 at the entrance of the McKnight Brain Institute of the University of Florida.

pictures from his articles and books were actually real and they were being crafted right there in front of me. The laboratory was filled with mysticism and stoicism, as we would spend countless hours, days, weeks, aiming to create an anatomical piece of work worthy of Prof. Rhoton's appreciation. At the beginning, we did not fully understand the importance of accurate and meticulous dissections, but early on Dr. Rhoton would clearly explain: "We want perfect anatomical dissections, because we want perfect surgical operations," he wanted us to create the perfect anatomical pictures that would replicate a perfect surgical approach, step by step, layer by layer. We then understood that a precisely done microdissection, where our brains would invest many hours and days studying and imprinting every single anatomical structure and their spatial relationships, is worth more than several repeated dissections done not so diligently. Even more, we realized that Prof. Rhoton was always looking to supplement his already precious collection of anatomical dissections with yet another elegant three-dimensional view of a certain anatomical region that he could use to teach the intricate beauty of microsurgical neuroanatomy to the next privileged audience, eagerly waiting to learn from him in any corner of the neurosurgical world. He would, in fact, welcome any new additions to his collection as a kid would with a new toy, with such great joy that would make every effort truly worthwhile (►**Fig. 6**).

His primary goal was not to write articles, but to train microneurosurgeons (►**Fig. 7**). However, early on his

Fig. 3 Fellow graduation party at Rhoton's in 2006. Note that Dr. Rhoton and Ms. Laura Dickinson, his personal assistant, are both wearing Japanese kimonos.

Fig. 4 Dr. Rhoton rocking two little Japanese girls with a blanket during a pizza party.

Fig. 5 Dr. and Mrs. Rhoton in 2008.

Fig. 6 Prof. Rhoton enjoying an anatomical dissection during a microneurosurgery course at the University of Florida Brain Institute.

Fig. 8 Prof. Rhoton at the Ramon y Cajal Museum (Madrid, Spain 2006).

career, he realized the wide impact his articles would have in the development of microneurosurgery. Thereafter, he would consistently work on one article after the other, redefining surgical approaches and classifying anatomical regions from a microsurgical point of view to cover the vast majority of cranial surgery and anatomy. I watched him many times working patiently over and over again on the same projects and paying close attention to every little detail from labeling pictures to editing articles written by fellows with English as a second language. The beauty and perfection of the pictures he used for his articles, were just an extension of his own beauty and perfection. His monumental work is a fundamental masterpiece of contemporary neurosurgery and we should all try to stand on his shoulders to continue his work in our own way as neurosurgery continues evolving.

His role and his influence in neurosurgery have been appropriately compared with that of Lorenzo de Medicis during the Renaissance of Arts in Florence, Italy, since both were directly responsible for an extraordinary development of their respective fields. We could also propose a comparison to Santiago Ramon Y Cajal, Spanish physician scientist and father of Neuroscience, because both employed tenacious work and creative art to develop a whole new field and their own school of artistic science (►**Fig. 8**). We could go beyond and compare Prof. Rhoton with a fictional personage such as Master Yoda, since both were masters of competence and compassion, and the most respected leaders in their respective worlds; their main difference is that Dr. Rhoton actually existed.

Fig. 7 Prof. Rhoton teaching and using his microdissectors during a microneurosurgery course at the University of Florida Brain Institute.

Dr. Rhoton would always look at the bright good side of things, always positive, encouraging us to be and do our best. He made us better by being at his side. I never heard him complaining or criticizing anyone or anything. Even in situations that were clearly not fair and would irritate anybody, his greatness was always way above and beyond. Negative feelings, complaints, aggravations, those were for the common people, definitely not for him. Once he confidently told me, as if it were a secret, his Kantian ethic maxim: "Juan, you know, it is good to behave in a way that makes everybody around want you to succeed, from the cleaning lady that visits the office daily, to your neurosurgery associates." This teaching, too, remains with me every day, as I realize how difficult it is to emulate my mentor.

Prof. Rhoton left us the way he lived: working until the end with a smile on his face—working on an article on Friday, doing his taxes on Saturday, and going to sleep, forever, on Sunday. He will always live in our minds and souls to teach us once again that competence and compassion should guide our profession, which we need to keep working hard, go to the laboratory to train ourselves and others, be gentle, safe, and accurate in the operating room, and practice love and kindness with our patients.

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PRESIDENT: Ian Witterick, MD, MSc, FRCSC

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