American Head and Neck Society
2009 Annual Meeting

During the Combined Otolaryngology Spring Meeting

MEETING PROGRAM

May 30 - 31, 2009
JW Marriott Desert Ridge
Phoenix, Arizona

The American Head & Neck Society (AHNS)
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Future Meetings of the AHNS

AHNS 2010 Annual Meeting
during the Combined Otolaryngology Society Meetings (COSM)
April 28 - May 2, 2010
(AHNS meeting dates to be determined)
Bally’s Las Vegas, Las Vegas, NV

AHNS 2010 Research Workshop on Biology, Prevention & Treatment of Head & Neck Cancer
October 28 - October 30, 2010
Hyatt Regency Crystal City
Arlington, VA

AHNS 2011 Annual Meeting
during the Combined Otolaryngology Society Meetings (COSM)
April 28 - May 1, 2011
(COSM dates, AHNS meeting dates to be determined)
Sheraton Chicago Hotel & Towers
Chicago, IL

8th International Conference on Head & Neck Cancer
July 21 - 25, 2012
Metro Toronto Convention Center
Toronto, ON, Canada

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AHNS 2009 Annual Meeting
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General Information
The American Head and Neck Society’s 2009 Annual Meeting
May 30 - 31, 2009
JW Marriott Desert Ridge
5350 E. Marriott Drive
Phoenix, AZ 8505

COSM On-site Registration Hours
Location: Grand Sonoran Foyer
Wednesday, May 27  4:00 PM – 7:00 PM
Thursday, May 28    7:00 AM – 5:00 PM
Friday, May 29      7:00 AM – 5:00 PM
Saturday, May 30    7:00 AM – 5:00 PM
Sunday, May 31      7:00 AM – 11:00 AM

COSM Exhibit Hall Hours
Location: Grand Canyon 1-8
Thursday, May 28   9:00 AM – 4:00 PM
Friday, May 29     9:00 AM – 4:00 PM
Saturday, May 30   9:00 AM – 4:00 PM
Sunday, May 31     Closed

COSM Speaker Ready Room Hours
Location: Grand Sonoran D
Wednesday, May 27  11:00 AM – 7:00 PM
Thursday, May 28   6:00 AM – 6:00 PM
Friday, May 29     6:00 AM – 6:00 PM
Saturday, May 30   6:00 AM – 5:00 PM
Sunday, May 31     6:00 AM – 1:30 PM

COSM Spouse Lounge Hours
Location: Desert Conference Suite 2
Thursday, May 28   8:00 AM – 2:00 PM
Friday, May 29     8:00 AM – 2:00 PM
Saturday, May 30   8:00 AM – 2:00 PM
Sunday, May 31     8:00 AM – 2:00 PM

AHNS Meeting Educational Objectives
The conference is designed to facilitate discussion regarding the approaches used in the diagnosis, treatment, and rehabilitation of head and neck neoplasms throughout the world.
At the conclusion of this event, this activity should enable participants to:
1. Understand the role of surgery, radiation therapy, chemoradiation, and combined modality therapy in the treatment of head and neck cancer (competence) and apply this knowledge to the care of the head and neck patient (performance).
2. Describe the effect of surgical and non-surgical therapy on functional outcomes of head and neck cancer patients (competence) and apply this knowledge to the care of the head and neck patient (performance).
3. Become familiar with the indications for and appropriate extent of surgery in thyroid cancer (competence) and apply this knowledge to the care of the head and neck patient (performance).
4. Understand and describe the challenges to professionalism in surgery (competence).
5. List the 3 most common external factors influencing surgical practice (competence) and, once aware of these factors, employ strategies to minimize or enhance the factors’ affect (performance).
6. List the 3 most common barriers to the global training of head and neck surgeons and 3 strategies to counteract them (competence).
7. Understand the importance of quality indicators in surgical practice and their application in individual practice and list 3 effects these have on patient outcomes (competence).
8. Become familiar with the role of 3rd party organizations in implementing quality standards in surgical practice and be able to describe the impact on the patient (competence).
9. Understand the indications for and limitations of endoscopic approaches to sinonasal and anterior skull base malignancy and their application to the care of the head and neck patient (competence).
10. Become familiar with emerging head and neck applications of robotic technology, list 3 indications and contraindications to the use of the robot (competence), and apply these techniques when applicable in a head and neck surgical practice (performance).

EVALUATION & CME CREDIT FORMS
Please complete the meeting evaluation form and return it to the AHNS Desk. To claim CME credits, please complete the form and also return it to the AHNS Desk. CME certificates will be mailed out after the meeting. Please allow for 4-6 weeks for processing.
About the American Head & Neck Society

History of the Society

The contributions made by the two societies forming the AHNS are significant in the history of surgery in the United States. Dr. Hayes Martin conceived the Society of Head and Neck Surgeons in 1954, a surgeon considered by many to be the “father of modern head and neck tumor surgery.” The purpose of the society was to exchange and advance the scientific knowledge relevant to the surgery of head and neck tumors (exclusive of brain surgery) with an emphasis on cancer of the head and neck. Two years later, The American Society for Head and Neck Surgery was organized with the goal to “facilitate and advance knowledge relevant to surgical treatment of diseases of the head and neck, including reconstruction and rehabilitation; promote advancement of the highest professional and ethical standards as they pertain to the practice of major head and neck surgery; and to honor those who have made major contributions in the field of head and neck surgery, or have aided in its advancement”.

The new Society remains dedicated to the common goals of its parental organizations.

Mission Statement
The purpose of this society is to promote and advance the knowledge of prevention, diagnosis, treatment and rehabilitation of neoplasms and other diseases of the head and neck, and to promote and advance the highest professional and ethical standards.

Why Join the AHNS?
The American Head and Neck Society is an organization of physicians, scientists and allied health professionals dedicated to improving the understanding of Head and Neck Cancer and the care of patients afflicted with that disease. Membership is open to a wide variety of interested individuals in several categories that differ both in terms of responsibility and level of involvement in the society.

The Benefits of AHNS Membership:
- Interaction with colleagues dedicated to promoting and advancing the knowledge of prevention, diagnosis, treatment, and rehabilitation of neoplasms and other diseases of the head and neck
- Member rates on all meeting registration fees
- The honor of being a part of our worldwide network of surgeons, physicians and health care professionals dedicated to the prevention and treatment of head and neck cancer
- Opportunities to partake in educational offerings, including those planned by the society and those co-sponsored by the society
- Opportunity to post regional meetings and courses on the AHNS “Related Meetings” web page
- Access to the AHNS member contact information in the “Members Only” section of our web site
- Monthly e-newsletter and annual paper newsletter with updates about the society and head & neck surgery
- Ability to apply for research grant awards offered yearly
- Opportunity to participate on committees and to vote at the annual business meeting

For more information about AHNS membership and to apply on-line, please visit www.ahns.info/membercentral, call +1-310-437-0559, ext. 110 or ask at the AHNS desk for additional information.

Qualifications for Active Fellowship:
Surgical Applicants must be Diplomats of the American Board of Otolaryngology, Plastic Surgery, or Surgery or OTHER EQUIVALENT CERTIFICATION BOARD. Additionally, all applicants must be Fellows of the American College of Surgeons, Fellows in the Royal College of Surgeons (FRCS) or equivalent non-surgical organization.

Qualifications for Associate Fellowship:
An applicant for Associate Fellowship must be a physician, dentist, or scientist who has special interest contributions in the field of neoplastic or traumatic diseases of the head and neck.

Qualifications for Candidate Fellowship:
The trainee currently enrolled in an approved residency program in Otolaryngology, Plastic Surgery, or General Surgery or in a Fellowship program approved by the Advanced Training Council may become a Candidate Fellow.

Qualifications for Corresponding Fellowship:
An Applicant for Corresponding Fellowship must be a physician who specializes in the treatment of head and neck cancer, who by their professional associations and publications, would appear in the judgment of Council to be qualified to treat head and neck cancer.

Corresponding Fellows must reside in a country other than the United States or Canada.
Wayne M. Koch, MD

Dr. Wayne Martin Koch earned a bachelors and masters degree in biochemistry and molecular biology at Northwestern University before completing his medical education at the University of Pittsburgh, his home town, in 1982. While a medical student, he was encouraged to pursue Otolaryngology by Eugene Myers and Jonas Johnson. Subsequently, he went on to Otolaryngology residency at Tufts and Boston Universities (combined program) studying under Drs. Stuart Strong, Charles Vaughn, Werner Chasin, Gerald Healy and Stanley Shapshay. In 1987, he went to Johns Hopkins to launch a career as a clinician scientist under the tutelage of Drs. William Richtsmeier, John Price and Michael Johns, Jr. In 1989 he joined the faculty of Johns Hopkins Department of Otolaryngology-Head and Neck Surgery where he has now served under four chairmen, Drs. Johns, Mattox, Cummings, and Minor. He is currently the director of the division of head and neck surgery.

Dr. Koch was named to the council of the American Society of Head and Neck Surgeons in 1997, later serving in the first combined council of the new American Head and Neck Society, and becoming its Secretary in 2001-2004. He has worked on initiatives for upgraded valuation of head and neck surgical codes together with the leadership of the American Academy of Otolaryngology-Head and Neck Surgery and the diligent efforts of AHNS volunteers culminating in a substantial improvement in RVWs for 23 of our most common surgical procedures in 2005.

Dr. Koch’s academic endeavors have focused on clinical applications of molecular markers for head and neck cancer, particularly focusing on the detection of p53 gene alterations and more recently hypermethylation of tumor-specific genes in surgical resection margins and saliva and serum screening samples. This work has been continuously supported by the National Institute of Dental and Craniofacial Research for over 10 years, and represents a most fruitful collaboration with Hopkins colleagues, David Sidransky, Maura Gillison, and Joseph Califano. Dr. Koch has coauthored over 110 manuscripts in peer-reviewed journals including five published in the New England Journal of Medicine.

An initiative to encourage Humanitarian outreach marks the focus of Dr. Koch’s presidential efforts this year. Together with family members, Dr. Koch has participated in short-term medical projects in Ecuador, Peru, the Dominican Republic, Bolivia and Cameroon. He plans to return to Bolivia this July for two weeks. Wayne has been married to Debbie Koch for over 28 years and they have three children, Rachel (22), Jonathan (20), and Andrew (17).

Christine G. Gourin, MD

Dr. Gourin is an Associate Professor of Otolaryngology- Head and Neck Surgery and Director of the Clinical Research Program in Head and Neck Cancer at Johns Hopkins University. A native of New York, she received her medical degree from the State University of New York- Health Science Center at Brooklyn/ Downstate Medical Center. Dr. Gourin trained in General Surgery and Otolaryngology- Head and Neck Surgery at the University of Vermont. During her surgery residency, she completed a two-year research fellowship in the Department of Surgery investigating multi-drug resistance in cancer cells and endothelial cell response to injury. Following residency training she completed a fellowship in Advanced Head and Neck Oncologic Surgery at the University of Pittsburgh.

She subsequently joined the faculty of the Medical College of Georgia in 2000 where she served as Director of the Head and Neck Tumor Board and Chief of the Division of Head and Neck Surgery. She joined the faculty of Johns Hopkins University in 2007, where she is an MPH candidate.

Dr. Gourin has authored or co-authored over 60 peer-reviewed journal articles, 18 book chapters and 2 textbooks. She is on the Editorial Board of The Laryngoscope and is a reviewer for numerous other head and neck surgery journals. She is the recipient of several research grants including an American Head and Neck Society Pilot Award grant and a Triological Society Career Development grant investigating protein profiles associated with head and neck cancer.
Charles W. Cummings, MD

Charles W. Cummings was born in Boston, Massachusetts in November of 1935. He graduated from Deerfield Academy in 1953, Dartmouth College in 1957, and the University of Virginia Medical School in 1961. He was an Intern at Dartmouth, did a year a General Surgery Residency at University of Virginia. He entered the Air Force in 1963, was discharged July 1965, and entered residency training in Otolaryngology-Head and Neck Surgery at Massachusetts Eye and Ear Infirmary, finishing the program in 1968.

He was in private practice in Boston and the clinical staff at the Harvard Medical School and Massachusetts Eye and Ear Infirmary until the end of 1975 when he moved Upstate Medical Center in Syracuse, New York as an Associate Professor in the Department of Otolaryngology-Head and Neck Surgery. Two years later, January 1, 1978, he assumed Chairmanship of the Department of Otolaryngology-Head and Neck Surgery at the University of Washington where he remained until the end of 1990. He then became Director of the Department of Otolaryngology-Head and Neck Surgery at Johns Hopkins. In 2003, Dr Cummings stepped down as Chairman and is a Distinguished Service Professor at Johns Hopkins and is still caring for patients. He now is Senior Medical Director/Vice President for Johns Hopkins Medicine International and the Interim Chairman for the Department of Dermatology.

Dr Cummings has written over 125 scientific papers and is the senior editor of the 5-volume text Otolaryngology-Head and Neck Surgery, which is in its fourth edition. He, as well, has co-authored two surgical atlases, one on laryngeal surgery and another on surgical access and reconstruction.

He served as a Director of the American Board of Otolaryngology, has served as Chairman of the Residency Review Committee and Chairman of the Advisory Council for Otolaryngology to the American College of Surgeons. He was Chief of Staff of the Johns Hopkins Hospital from 1997 to 1999 and serves on the Board of Directors of Johns Hopkins Medicine. He is a past president of the American Association for Academic Departments of Otolaryngology, American Broncho-Esophageal Association, the American Academy of Otolaryngology-Head and Neck Surgery, and the American Society for Head and Neck Surgery.

He is married to Jane Drake Cummings and has three children and six grandchildren.

Hayes Martin, MD

Hayes Martin was born in Dayton, a small town in north central Iowa. He attended the University of Iowa at Iowa Falls before being accepted to the medical school in 1913 on the same campus, finishing 4 years later in a class of 20.

World War I began in April 1917 while Hayes was in his final year of medical school. Many of his classmates at the medical school were in the Army ROTC units; however, Dr. Martin opted for the Navy, which he joined on the day America entered the war. He traveled to Europe on the USS Arkansas and was assigned to his permanent duty station at the U.S. Navy Air Station, La Trinite Sur Mer, France – a small seaside village on the southern coast of Brittany. The purpose of this base was antisubmarine warfare using blimps and kite balloons. Dr. Martin was made commanding officer of the air station for a brief period of time when the line officer in charge had become ill; it was a unique position for a medical officer in the Navy to take command during wartime.

After the war, Dr. Martin returned to the U.S and sought out an internship at the old Poly Clinic Hospital in New York City, which was temporarily made into a Veteran’s Administration hospital. Part of his internship was spent at Bellevue in the fourth surgical division, where he felt he would have the best possible training in general surgery.

The chief of the second division was John A. Hartwell, MD, the distinguished surgeon memorialized by the Fellow’s Room in the library of the New York Academy of Medicine. Dr. Hartwell suggested that Dr. Martin go to Memorial Hospital to learn about cancer.

Dr. Martin received an internship at Memorial in the summer of 1922 and stayed on as a resident until 1923. He then had two years at the second surgical service at Bellevue, where he operated to his heart’s content and got the surgical education he so strongly desired. Once he finished his residency, Dr. Martin returned to Memorial where he joined as clinical assistant surgeon on the staff.

Dr. Martin made the use of aspiration biopsy on all solid tumors popular throughout Memorial. Now, this procedure is done throughout the world. Dr. Martin co-authored the first report on the subject published in the Annals of Surgery. Numerous other articles followed, including Dr. Martin’s two most famous publications, “Cancer of the Head and Neck,” published in two issues of the Journal of the American Medical Association in 1948, and “Neck Dissection,” appearing in Cancer in 1951. These two papers were so extensively requested that the American Cancer Society made reprints by the thousands available to those who requested them as many as 20 years after publication. Dr. Martin’s bibliography encompasses more than 160 articles.

In 1934, Dr. Martin was appointed Chief of the Head and Neck Service at Memorial Hospital. It wasn’t until 1940 that surgery began to take over as the treatment of choice for the majority of cancers of the head and neck. In that year, the beginnings of improved anesthesia permitted advances in surgery. Later, during World War II, antibiotics became available and surgery began to dominate much of head and neck cancer management.

Dr. Martin wrote extensively on many subjects, most within the realm of head and neck surgery. His ideal was to be the complete head and neck surgeon and he treated a wide variety of head and neck abnormalities.

His book, Surgery of the Head and Neck Tumors, was published in 1957.

Dr. Martin retired from active practice in 1957 at the age of 65. He performed his last operation at Memorial Hospital, assisted by Dr. Elliot Strong, in October 1959, but continued to see patients in his office until he passed away in 1977.
James D. Smith, MD

James D. Smith, MD, FACS grew up on a farm in Iowa and graduated from Iowa State University with a degree in Veterinary Medicine in 1959. Two years after starting his own large animal veterinary practice he attended Medical School at the University of Iowa, graduating in 1965. After an internship at the University of Oregon Hospital and Clinics he joined the United States Public Health Service and was assigned to care for Peace Corps volunteers in Kenya. This two-year experience in a new, but developing country shaped and influenced his interests for the rest of his life.

Dr. Smith returned to the US and completed an Otolaryngology residency at the University of Iowa in 1973. He joined the Otolaryngology faculty at Oregon Health Science University (OHSU) for 24 years and is now Professor Emeritus. In 1984 he had a six month sabbatical spending one month with Dr. Robin Cotton at the Cincinnati Children’s Hospital, two months as Visiting Professor at the University of Nairobi, two months with Dr. John Evans at Great Ormond Street Children’s Hospital in London, UK and one month in the neonatal unit at OHSU. In 1995 he took a second sabbatical as a Visiting Professor at the National University of Singapore (NUS) and spent two months with Dr. Bruce Benjamin of Sydney, Australia. Dr. Alexander Schleuning, chairman of Otolaryngology and his colleagues at OHSU were generous in allowing time for these sabbaticals as well as yearly opportunities to teach at a Continuing Medical Dental Education (CMDE) conference for doctors working in mission in Africa and Asia as well as professional visits to China sponsored by Project Hope.

Dr. Smith took early retirement in 1997 to join the Otolaryngology faculty at NUS as a Visiting Professor. Over the next 2½ years he was involved with teaching medical students and residents as well as helping restructure the Singapore Otolaryngology training program. After leaving in 1999 he continued to visit the department 2-4 months a year until 2006.

Since leaving his full time position in Singapore in 1999, Dr. Smith has been active in teaching internationally with several different organizations including Medical Education International (MEI), Medical Services International (MSI), and the Pan African Academy of Christian Surgeons (PAACS) as well as personal invitations. He has had the opportunity to make 40+ visits to 18 different countries during this time.

Dr. Smith has received the Honor Award and the Distinguished Service Award from the American Academy of Otolaryngology (AAO). In 2007 he received the Steven Gray Humanitarian Award from the Society for Ear, Nose and Throat Advances in Children (SENTAC) and in 2008 the AAO Humanitarian Efforts Award. He was a member and then Chairman of the AAO Humanitarian Efforts Committee for 12 years. He is Chairman of the Advisory Council for MEI, Chairman of the Board for Com Care International and a member of the PAACS Board of Directors.

Dr. Smith’s major interests are his family, which includes his wife, two children and two grandchildren and International Medical and Otolaryngology education.
Keynote Lecturer

Gerald B. Healy, MD

Gerald B. Healy, M.D., was born in Boston, Massachusetts and received his undergraduate degree with honors from Boston College in 1963 and his M.D. degree from Boston University in 1967. Dr. Healy is currently the Gerald B. Healy Chair in Pediatric Otolaryngology at Children's Hospital Boston and Professor of Otology and Laryngology at Harvard Medical School. He is the former Surgeon-in-Chief at The Children's Hospital. Dr. Healy is a member of numerous honorary societies, including the American Academy of Otolaryngology-Head and Neck Surgery, American College of Surgeons, the Triological Society, the American Laryngological Association, the American Society of Pediatric Otolaryngology and the American Society of Head and Neck Surgery. He has served as President of the Massachusetts Chapter of the American College of Surgeons, the American Society of Pediatric Otolaryngology, the American Bronchoesophageal Association, and the Triological Society (the leading academic society in the specialty of Otolaryngology-Head and Neck Surgery). He has served as Secretary and President of the American Laryngological Association. He is a Fellow of the Royal College of Surgeons of Ireland and the Royal College of Surgeons of England. He has served as a Chairman of the Board of Regents of the American College of Surgeons and is currently the President of the American College.

In 1986, Dr. Healy was elected to the Board of Directors of the American Board of Otolaryngology and served as its Executive Vice-President until 2004. He has also served as a Director of the American Board of Emergency Medicine. Dr. Healy has served as a Trustee of the Children’s Hospital Boston.

An active scholar and lecturer, Dr. Healy publishes extensively in professional journals, books, and editorials. He has been the principal investigator of NIH funded research addressing diseases affecting infants and children and has been cited for his pioneering work with laser surgery in children. In addition, Dr. Healy is the author of several books and book chapters and/or monographs, and is extensively published in peer-reviewed journals.

Jatin P. Shah Symposium

Jatin P. Shah, MD

Professor Jatin P. Shah graduated from the Medical College of MS University in Baroda, India, and received his training in Surgical Oncology and Head and Neck Surgery at Memorial Sloan Kettering Cancer Center. He is Professor of Surgery at the Weil Medical College of Cornell University, and Chief of the Head and Neck Service, Leader of the Head and Neck Disease Management Team, and holds The Elliott W. Strong Chair in Head and Neck Oncology at Memorial Sloan-Kettering Cancer Center in New York City.

Dr Shah is a national and international leader in the field of head and neck surgery, having served as President of The New York Cancer Society, The New York Head and Neck Society, The Society of Head and Neck Surgeons, The North American Skull Base Society and the International Academy of Oral Oncology. He is Founder of The International Federation of Head and Neck Oncologic Societies, in 1986. He currently serves as Chairman of the AJCC task force on Head and Neck. He was Chairman of the Joint Council for advanced training in head and neck oncologic surgery in the USA. He was also Chairman of The 4th International Conference on Head and Neck Cancer in Toronto in 1996. He has served in varying capacities for The American Board of Surgery, and The American College of Surgeons.

Professor Shah has been the recipient of numerous awards from various parts of the world, and is the recipient of honorary fellowships from The Royal College of Surgeons of Edinburgh, London and Australia. He holds Honorary PhD, degrees from the Catholic University of Louvain, in Belgium and the University of Athens, in Greece. He is recipient of the Blokhin Gold medal, the highest Honor in Oncology in Russia. He has been elected as an honorary member of several head and neck societies in Europe, Asia, Australia, Africa and Latin America. He has been continuously listed in the “Best Doctors in America” directories for several years. He serves on the Editorial and Review Boards of 18 scientific journals and has published over 300 peer-reviewed articles, 50 book chapters and 7 books. His textbook of Head and Neck Surgery and Oncology won First Prize from The British Medical Association and The Royal Society of Medicine and was awarded the George Davey Howells Prize from the University of London, for the best published book in otolaryngology in the preceding five years.

He is a much sought after speaker who has delivered over 1000 scientific presentations including, 59 eponymous lectures and keynote addresses, and visiting professorships in the United States, Canada, United Kingdom, Scotland, Sweden, Belgium, Germany, Italy, Spain, Poland, Russia, Croatia, Turkey, Egypt, South Africa, India, China, Korea, Japan, Hong Kong, Taiwan, Singapore, Philippines, Australia, Argentina, Brazil, Chile, Peru, Ecuador, Venezuela, Panama, and Mexico.

In recognition of his outstanding contributions, and World Leadership in Head and Neck Surgery, Memorial Sloan Kettering Cancer Center, has established The “Jatin Shah Chair in Head and Neck Surgery and Oncology”, The International Federation of Head and Neck Oncologic Societies has established “The Jatin Shah Lecture”, at it’s world congresses, and the American Head and Neck Society has established the “Jatin Shah Symposium” at it’s annual meeting.
Guest Of Honor

Anna Konney, MD

Dr. Anna Konney is the Head of the Head & Neck Team in Otolaryngology (ORL) at the Komfo-Anokye Teaching Hospital (KATH) in Ghana, West Africa. She received her post fellowship training in Advanced Head & Neck Surgery and Oncology at the University of Cape Town, Groote Schuur Hospital in Cape Town, South Africa. Upon her return to KATH, Dr. Konney led a team of Ear, Nose and Throat Surgeons to perform the first combined surgery of total laryngectomy and neck dissection at the hospital.

Dr. Konney was born in the Russian Federation and is currently married with two children.

Distinguished Service Award

Keith S. Heller, MD

Keith S. Heller, M.D. was born in Brooklyn, New York, and grew up on Long Island. After receiving his undergraduate degree in Biophysics from Amherst College in Massachusetts, he returned to New York City where he graduated from the New York University School of Medicine and then completed training in General Surgery at NYU and Bellevue Hospitals. In 1978 he began a Surgical Oncology fellowship at Memorial Sloan-Kettering Cancer Center where he was exposed to Head and Neck Surgery for the first time. In an era before formal Head and Neck fellowships, he was able to spend more than one year of his fellowship training with Drs. Elliot Strong, Ronald Spiro, and Jatin Shah all of whom inspired him to pursue a career in head and neck surgery and have continued to mentor him through the years. Following his fellowship, he joined the late Dr. Joseph Attie at Long Island Jewish Medical Center where he rose to the position of Chief of Head and Neck Surgery and Clinical Professor of Surgery at the Albert Einstein College of Medicine. At Long Island Jewish, he held joint appointments in Surgery and Otolaryngology and was actively involved in the education of residents in both specialties. In 2007 he returned to NYU Medical Center to establish a new Division of Endocrine Surgery. This division now has three full time faculty members and is the largest such division in New York. Dr. Heller is Professor of Surgery at the NYU School of Medicine.

Dr. Heller is a past president of the American Head and Neck Society and has been president of both the New York Head and Neck Society and the New York Cancer Society. He had been a member of both the Society of Head and Neck Surgeons and the American Society for Head and Neck Surgery, and was one of the leaders of those societies who worked together to create the American Head and Neck Society. In 2006 he was honored by that society as its Hayes Martin Lecturer. He is also a member of the American Association of Endocrine Surgeons and the American Thyroid Association.

Dr. Heller has published extensively on head and neck cancer surgery. His current clinical research interest is the surgical treatment of diseases of the thyroid and parathyroid, an area in which he has a very large personal experience.

He was married in 1968 to his wife, Honey, who after a career as an international banker specializing in Latin America now devotes her efforts to community activism and social justice. In 1997 they received the Allard Lowenstein Award of the American Jewish Congress for their work together. They now live in Manhattan after raising their two sons on Long Island. Jared, 30, is a lawyer in New York City. Gregory, 23, is a TV producer in Sun Valley, Idaho.
Dr. Joseph A. Brennan is a Professor in the Head and Neck Division and the Division of Head and Neck Cancer Research at John Hopkins Department of Otolaryngology-Head and Neck Surgery and Director of Research at the Milton J. Dance Head and Neck Center at Greater Baltimore Medical Center. His major focus is the clinical practice of head and neck surgical oncology and the integration of basic, molecular biologic research in that practice. He is a graduate of Harvard Medical School, performed his otolaryngology-head and neck surgery residency at Johns Hopkins Hospital, and completed a fellowship in head and neck surgical oncology at Memorial Sloan-Kettering Cancer Center. His interests include tumors of the oral cavity, larynx, pharynx, thyroid, and neck, with an interest in tumors of the skull base, salivary glands, premalignant conditions of the upper aerodigestive tract, and unknown primary head and neck squamous cell carcinoma. He is actively participating in several areas of clinical investigation within the Division of Head and Neck Cancer Research, including: mitochondrial genetic alterations in cancer, epigenetic changes in aerodigestive cancers, detection of recurrent and occult cancer within blood and saliva using molecular biologic techniques, and molecular determination of risk for development of malignancy in premalignant lesions. He currently serves as principal investigator for clinical trials investigating the treatment of high risk premalignant lesions of the head and neck with Cetuximab, a novel biologic agent, and modulation of immune suppression in head and neck cancer with Cialis. Dr. Califano currently directs a laboratory focused on the molecular biologic basis of head and neck cancer. He has published over 120 peer reviewed articles related to both the clinical and basic scientific aspects of cancer, and serves on a variety of professional organizations and editorial boards.

Dr. Joseph A. Califano, MD

Dr. Joseph Califano currently directs a laboratory focused on the molecular biologic basis of head and neck cancer. He has received his medical degree at Tufts University in Boston, Massachusetts and held his postgraduate training in otolaryngology at both the University of Colorado and John Hopkins University. He currently holds several appointments including Clinical Professor of Otolaryngology at The University of Texas; Program Director for the Otolaryngology/HNS Division at the San Antonio Uniformed Services Health Education Consortium; and a Lieutenant Colonel in the United States Air Force. Dr. Brennan served with the 332nd Expeditionary Medical Group at the Air Force Theater Hospital at the Balad Air Base in Iraq from 2004 to 2005. He has received numerous awards and honors including the “The Golden Headed Cane Award,” which is given annually to the Most Outstanding Physician at Wilford Hall Medical Center as selected by his peers in January 2007 (fourteenth time award ever given at WHMC).

Dr. William J. Richtsmeier, MD, PhD

William J. Richtsmeier, M.D., Ph.D., received his BS from University of Notre Dame. He completed both a doctorate in microbiology from the Medical College of Wisconsin, and earned his medical degree from Case Western Reserve University in the same month. This educational conundrum inspired a lifelong desire to get medicine and science to show up at the same time, in the same space. After he completed an Otolaryngology residency at the University of Virginia, he began his medical career at Bassett Hospital as Otolaryngologist-in-Chief and then began his academic career at the University of Washington. He became Chief of Head and Neck Oncology and the first occupant of the John Bordley Chair in the Department of Otolaryngology-Head and Neck Surgery at Johns Hopkins University School of Medicine. For reasons known only to God, he left for Duke University Medical Center in 1992, where he was Professor and Chief of Otolaryngology-Head and Neck Surgery. Dr. Richtsmeier rejoined Bassett in 1999 as Chief of the Division of Otolaryngology-Head and Neck Surgery and subsequently was appointed director of the Bassett Healthcare Cancer Institute.
Charles Vaughan, MD
Some are born to receive a Presidential Citation. Not I. I was carefully guided, molded, and pushed to this point.

It began as far back as I can remember. Feeding the pets, and cleaning up after them was an early responsibility. Later it became my job to keep the basement and garage tidy. Still later I helped with the weekly laundry and learned to iron, and when Mother broke her arm, I learned to cook. And there was always yard work: snow to shovel, lawn to cut, weeds to pull. I was relied on to perform these tasks, and received a weekly allowance for doing them. On the few and early occasions of neglect of duty, there were no remonstrations. Only simple punishment fitting the crime: less allowance (pay). I quickly learned that it pays to be reliable.

Hand-eye coordination also were developed early. All children seem to enjoy art. Drawing, modeling, painting, etc. And most parents affect an interest in these activities, at least temporarily. Mine kept me at it to the point that I continue them to this day, with my favorite subject being people. A few months ago I completed a large group portrait of our Faculty. None offered complaints and it now hangs in the Department library. I guess it is a success.

During my medical school years I worked for room and board, first as a morgue attendant and assistant in the autopsy room. I did the eviscerations, and learned that by staying within fascia planes the task was quite easy. I could complete one in under two minutes, primarily using finger dissection. Eventually I was allowed to assist with the organ dissections, and found that here too it was best to follow normal cleavage planes. During my senior year I worked as an extern at the County Hospital for the Chronically Ill. When a surgical procedure was needed I was allowed to assist and over the year I gradually learned more and more of the techniques for tissue handling. I even grew so bold as to teach my surgeon friends MY skills with blunt dissection! What cheek!

The gestalt of surgery was first leaned in my father's factory, a large food processing facility with lots of machinery. Starting at age 14, I worked summers in the maintenance department. This was during the Great Depression when dysfunctional equipment was not replaced; the problem was discovered and fixed. The machine was taken apart, perhaps a broken lever arm was welded back together, and perhaps another part was modified to prevent future problems. I learned carpentry, plumbing, metalworking, electrical wiring, painting, and the importance of keeping a food plant (or a patient) clean and sanitary. Fixing things and keeping them that way. Just like surgery.

Traditionally, music has been vital to the training of the otolaryngologist. In Vienna, students were expected to attend opera on their nights off call. I was started at age 8 with piano lessons and about the same time I joined our (Episcopal) church's Boys Choir. Both activities continued through graduation from high school. On induction into the Army (infantry) a guitar replaced the piano, and I could sing along with it. Later, community theater groups provided opportunity to act in plays and perform in musicals- and to better understand both the performing artist and myself as a Professor and physician, “Show Business” being essential to each.

Although I regularly attended an Episcopal Church, my religious training, again thanks to my parents, was eclectic. The New Testament was preferred over the Old, in the belief that love of mankind is better than vengeance. Confucius provided sound advice on the everyday problems of loving mankind. The basic idea was, and is still is, to try to leave the world a little better than when one enters it. ... And the Hindu concept of reincarnation also appealed because I was sure to screw up even my best efforts from time to time, but eventually I would get another chance to do it right.

And I was lucky too... I was in my second year of training to become a surgeon when Stuart Strong tapped me on the shoulder, saying, “Charles, I am starting a residency training program in Otolaryngology... How would you like to be my first Resident?” Residency training in those days lasted 3 years, but mine has never stopped. I learn from him to this day. How lucky can one get? And one day, Geza Jako came up out of his basement with this thing he called a laser. I had no idea what it was, but we soon found out, and it catalyzed my career in laryngology!

And the fun of knowing, working with, and helping performing artists. (It got me the best seats in the house. Even at the Opera)... And the years I got to spend at the VA, where time with patients was adequate to discover what wonderful people they really are.

And perhaps the best of all, the great privilege of working with students, who, like your President, Wayne Koch, continue to think that the student life is wonderful and refuse to leave it.
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Maisie Shindo, MD 2007-2010
Robert A. Sofferman, MD 2007-2010
David J. Terris, MD 2007-2010
Ralph P. Tufano, MD 2007-2010

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Duane A. Sewell, MD 2007-2010
James Rocco, MD, PhD 2008-2011

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Paul L. Friedlander, MD 2007-2010

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Wayne M. Koch (Chair) 2008-2009
Dennis H. Kraus, MD (Ex Officio) 2007-2010
Gregory T. Wolf 2008-2010
Randal S. Weber, MD 2006-2009
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Eben L. Rosenthal, MD 2007-2010

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Marc D. Crottera, MD (Chair) 2007-2009
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Ellie Maghami, MD 2007-2009
William B. Armstrong, MD 2008-2010
Bruce Campbell, MD 2008-2010
Paul L. Friedlander, MD 2008-2010

Endocrine Committee
Gary L. Clayman, MD, DDS (Chair) 2007-2010
Ashok R. Shaha (Ex Officio) 2007-2010
Quan-Yang Duh, MD 2007-2010
Keith S. Heller, MD 2007-2010
Christopher R. McHenry, MD 2007-2010
Gregory L. Randolph, MD 2007-2010
Maisie Shindo, MD 2007-2010
Robert A. Sofferman, MD 2007-2010
David J. Terris, MD 2007-2010
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Fellowship and Scholarship Committee
Marilene B. Wang, MD (Chair) 2007-2010
Gerry F. Funk, MD 2003-2009
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Amy Chen, MD, MPH (Chair) 2008-2011
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Joseph A. Brennan, MD 2007-2009
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Pierre Lavertu, MD 2008-2010
William J. Richtsmeier, MD, PhD 2008-2010

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Dennis Kraus, MD (ad hoc member)
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Gady Har-El, MD (Chair) 2007-2010
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Anna Maria Pou, MD 2003-2010
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Donald T. Weed, MD 2008-2011

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Brandon G. Bentz, MD 2008-2009
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M. Boyd Gillespie, MD, MS 2008-2009
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Ashok R. Shaha, MD    1999
Jesus E. Medina, MD    2000
Ernest A. Weymuller, Jr., MD    2001
Keith S. Heller, MD    2002
Paul A. Levine, MD    2003
Jonas T. Johnson, MD    2004
Patrick J. Gullane, MD    2005
John J. Coleman, III, MD    2006
Randal S. Weber, MD    2007
Gregory T. Wolf, MD    2008
The American Society for Head and Neck Surgery
John J. Conley, MD*    1959-61
Paul H. Holinger, MD*    1961-63
Joseph H. Ogura, MD*    1963-65
John F. Daly, MD*    1965-67
W. Franklin Keim, MD*    1967-69
George A. Sisson, MD*    1969-70
John S. Lewis, MD    1970-71
Burton J. Soboroff, MD*    1971-72
Edwin W. Cocke, Jr., MD*    1972-73
Charles M. Norris, MD    1973-74
Daniel Miller, MD*    1974-75
Emanuel M. Skolnick, MD*    1975-76
George F. Reed, MD*    1976-77
John A. Kirchner, MD    1977-78
William M. Trible, MD*    1978-79
Loring W. Pratt, MD    1979-80
J. Ryan Chandler, MD    1980-81
Douglas B. Bryce, MD    1981-82
Jerome C. Goldstein, MD    1982-83
Paul H. Ward, MD    1983-84
Hugh F. Biller, MD    1984-85
Robert W. Cantrell, MD    1985-86
John M. Lore, Jr., MD*    1986-87
Charles J. Krause, MD    1987-88
Eugene N. Myers, MD    1988-89
Willard N. Fee, Jr., MD    1989-90
Helmuth Goepfert, MD    1990-91
Michael E. Johns, MD    1991-92
Bryon J. Bailey, MD    1992-93
James Y. Suen, MD    1993-94
Gary L. Schechter, MD    1994-95
Charles W. Cummings, MD    1995-96
Nicholas J. Cassisi, MD    1996-97
Dale H. Rice, MD    1997-98
The Society of Head and Neck Surgeons
Hayes Martin, MD*    1954
Hayes Martin, MD*    1955
Hayes Martin, MD*    1956
Hayes Martin, MD*    1957
Grant Ward, MD *    1958
Danely P. Slaughter, MD*    1959
Arnold J. Kremen, MD    1960
Arnold J. Kremen, MD    1961
H. Mason Morfit, MD    1962
H. Mason Morfit, MD    1963
Calvin T. Kloop, MD*    1964
Harry W. Southwick, MD*    1965
Edgar L. Frazell, MD*    1966
Oliver H. Beahrs, MD*    1967
Arthur G. James, MD    1968
William S. MacComb, MD*    1969
Ralph R. Braun, MD*    1970
Harvey W. Baker, MD*    1971
Charles C. Harrold, MD    1972
Robin Anderson, MD    1973
Alfred Ketcham, MD    1974
Richard H. Jesse, MD*    1975
Condict Moore, MD    1976
Donald P. Shedd, MD    1977
William A. Maddox, MD    1978
John C. Gaisford, MD    1979
Robert G. Chambers, M.D.*    1980
Eliot W. Strong, MD    1981
John M. Moore, MD    1982
Alvin L. Watne, MD    1983
Darrell A. Jaques, MD    1984
Alando J. Ballantyne, MD*    1985
Frank C. Marchetta, MD*    1986
William R. Nelson, MD    1987
Robert D. Harwick, MD    1988
James T. Helsper, MD    1989
M.J. Jurkiewicz, MD    1990
Jatin P. Shah, MD    1991
Oscar Guillamondegui, MD    1992
Stephen Ariyan, MD    1993
J. Edward M. Young, MD    1994
Michael B. Flynn, MD    1995
Robert M. Byers, MD    1996
John R. Saunders, Jr., MD    1997
Ronald H. Spiro, MD    1998
*Deceased
### Past Hayes Martin Lecturers

<table>
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<tr>
<td>William S. MacComb, MD</td>
<td>1972</td>
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<td>Oliver H. Beahrs, MD</td>
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<td>Arthur G. James, MD</td>
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<td>Harry W. Southwick, MD</td>
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<td>Harvey W. Baker, MD</td>
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<td>Richard H. Jesse, MD</td>
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<td>Milton Edgerton, MD</td>
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<td>John J. Conley, MD</td>
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<td>William A. Maddox, MD</td>
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<td>Alfred S. Ketcham, MD</td>
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<td>Donald P. Shed, MD</td>
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<td>M.J. Jurkiewicz, MD</td>
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<td>George A. Sisson, MD</td>
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<td>Alando J. Ballantyne, MD</td>
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<td>Ian Thomas Jackson, MD</td>
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<td>John M. Lore, MD</td>
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<td>Ronald H. Spiro, MD</td>
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<td>John G. Batsakis, MD</td>
<td>1994</td>
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<td>Helmuth Goepfert, MD</td>
<td>1995</td>
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<td>Joseph N. Attie, MD</td>
<td>1996</td>
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<tr>
<td>Blake Cady, MD</td>
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<td>Jatin P. Shah, MD</td>
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<td>Jean-Louis H. LeFebvre, MD</td>
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<td>Robert M. Byers, MD</td>
<td>2000</td>
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<td>William Wei, MD</td>
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<td>Eugene Myers, MD</td>
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<td>Christopher J. O’Brien, MD</td>
<td>2004</td>
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<td>Richard K. Reznick, MD, MEd</td>
<td>2005</td>
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<td>Keith S. Heller, MD</td>
<td>2006</td>
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<td>Jesus E. Medina, MD, FACs</td>
<td>2007</td>
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<td>Waun Ki Hong, MD</td>
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### Past John J. Conley Lecturers

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<th>Name</th>
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<tr>
<td>Edward Hughes, MD</td>
<td>2001</td>
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<tr>
<td>Rabbi David Saperstein</td>
<td>2002</td>
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<td>Jonathan D. Moreno, MD</td>
<td>2003</td>
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<td>David C. Leach, MD</td>
<td>2004</td>
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<td>James F. Battey Jr., MD</td>
<td>2005</td>
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<td>John Stone, MD, MACP</td>
<td>2006</td>
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<tr>
<td>Kenneth I. Shine, MD</td>
<td>2007</td>
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<td>Carolyn Dresler, MD</td>
<td>2008</td>
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### Distinguished Service Awards

<table>
<thead>
<tr>
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<tr>
<td>Jatin P. Shah, MD</td>
<td>1989</td>
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<td>Stephan Ariyan, MD</td>
<td>1990</td>
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<td>Ashok R. Shaha, MD</td>
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<td>Elliot W. Strong, MD</td>
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<td>John J. Coleman, III MD</td>
<td>1999</td>
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<td>David L. Larson, MD</td>
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<td>Harold J. Wanebo, MD</td>
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<td>Jonas T. Johnson, MD</td>
<td>2001</td>
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<td>Helmuth Goepfert, MD</td>
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<td>Marc D. Coltrera, MD</td>
<td>2004</td>
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<tr>
<td>Wayne Koch, MD</td>
<td>2005</td>
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<tr>
<td>John A. Ridge, MD, PhD</td>
<td>2006</td>
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<tr>
<td>Ernest A. Weymuller, Jr., MD</td>
<td>2007</td>
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<td>Helmuth Goepfert, MD</td>
<td>2008</td>
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### Special Recognition Awards

<table>
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<tr>
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<tr>
<td>Paul B. Chyetien, MD</td>
<td>1984</td>
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<td>John M. Lore, Jr., MD</td>
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<td>William S. MacComb, MD</td>
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<td>Calvin T. Klopp, MD</td>
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<td>Edgar L. Fazell, MD</td>
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<td>Harvey W. Baker, MD</td>
<td>1989</td>
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<td>Vahram Y. Bakamjian, MD</td>
<td>1991</td>
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<tr>
<td>Jean-Louis LeFebvre, MD</td>
<td>1995</td>
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</table>
Robert Maxwell Byers

Robert Maxwell Byers, M.D. was born in Union Hospital, Baltimore, Maryland on September 24, 1937. He grew up on the Eastern Shore of Maryland in the small town of Elkton. Very active in the varsity sports of baseball, basketball and track during his high school years, he continued his athletic participation at Duke University along with his pre-med studies. He entered the University of Maryland Medical School in Baltimore in 1959, where he excelled in his medical studies and received membership in AOA and the Rush Honor Medical Society. The highlight of his sophomore year was his 1961 marriage to Marcia Davis, a high school sweetheart. During his junior year, he was commissioned an Ensign in the United States Naval Reserve and later rose to the rank of Captain in 1986.

In 1963, Dr. Byers began his general surgical residency with Dr. Robert Buxton at the University Hospital in Baltimore. Five years later, as a fully trained general surgeon, he went to the Republic of Vietnam with the 1st Marine Division where he received a unit commendation medal and a combat action ribbon. On return to the United States, he spent a year at Quonset Point, Rhode Island Naval Hospital as Chief of Surgery. In 1969, he was certified by the American Board of Surgery. After discharge from the Navy in 1970, Dr. Byers and his family moved to Houston, Texas where he began a fellowship in Surgical Oncology at the University of Texas M.D. Anderson Cancer Center under the guidance of Drs. R. Lee Clark, Richard Martin, Ed White, William MacComb, Richard Jesse and Alando J. Ballantyne. This move proved to be a decisive event, as he never left. His career in Head and Neck Surgical Oncology was born, nurtured, and matured during the 31 years of his academic/clinical practice at the University of Texas M.D. Anderson Cancer Center.

During his tenure at M.D. Anderson Cancer Center he rose through the ranks from Assistant Professor in 1972 to Associate Professor in 1976 and, finally, Professor and Surgeon in 1981. In 1998, he was honored with the Distinguished Alando J. Ballantyne Chair of Head and Neck Surgery. He is the author or co-author of over 200 published papers, book chapter and monographs. He has given invited lectures all over the world. Most recently (1999), he was selected to give the Hayes Martin Memorial Lecture at the 5th International Conference on Head and Neck Cancer. He has been President of the American Radium Society and President of the Society of Head and Neck Surgeons both in 1995 – 1996. His research interests and his expertise have been focused on cancer of the oral cavity, head and neck cancer in young people and treatment of the neck involved with metastatic cancer with a particular interest in various neck dissections. Dr. Byers is a member of many prestigious societies, of which the Southern Surgical Association, the Texas Surgical Society, the American College of Surgeons and the Society of Surgical Oncologists are but a few. He is a peer reviewer for many medical journals and on the Editorial Board of three. During his 31 years at the University of Texas M.D. Anderson Cancer Center, he has participated in the surgical education of over 300 residents and fellows, many of who have gone on to become prominent members of the specialty. The youth community of Houston has benefited from his coaching expertise in baseball and basketball while he has indulged in the hobbies of hunting, travel, and collecting toy soldiers.

Alando J. Ballantyne Award

The Robert Maxwell Byers Award, in the amount of $1000, is for the best clinical or basic science research paper submitted for presentation at the annual meeting of the American Head and Society.

Alando J. Ballantyne, MD

Alando J. Ballantyne, M.D., a giving teacher, dedicated surgeon, and a devoted husband and father, is memorialized by the Alando J. Ballantyne Resident Research Pilot Grant.

This award, in the amount of $10,000, is for the best grant application by a resident.

Alando, known simply as Jay, grew up in a loving Mormon home that taught him the values of family, excellence, integrity and hard work. Jay graduated Phi Beta Kappa from the University of Arizona and was then awarded a scholarship to Columbia Medical School. During World War II, Jay served as an army captain and medical doctor and had the good fortune to meet his wife, Maria, in San Antonio. In 1947, Dr. Ballantyne became the first resident at the new M.D. Anderson Hospital in Houston. After his year-long residency, he went for further training at the Mayo Clinic in Rochester, Minnesota. He returned to the Anderson staff in 1952, where he quickly advanced from Assistant Surgeon in the Head and Neck Service to Associate Surgeon, and then from 1974 until his retirement in 1994, held the title of Surgeon and Professor of Surgery in the Department of Head and Neck Surgery as well as the title of Ashbel Smith Professor.

Dr. Ballantyne is credited as the first surgeon in the United States to pioneer modified radical neck dissection. His contributions to his subspecialty, the result of an undying curiosity and uncanny powers of observations, have been published in numerous scientific papers and book chapters. Jay lectured at local, national, and international forums and loved his travels. He held memberships in many distinguished medical and surgical societies and served as President and Hayes Martin Lecturer of the Society of Head and Neck Surgeons and President of the Texas Surgical Society.

To honor the contributions of this world-renowned surgeon, the Cynthia and George Mitchell Foundation established the Alando J. Ballantyne Distinguished Chair in Head and Neck Surgery at the University of Texas M.D. Anderson Cancer Center.

Dr. Ballantyne's contributions to the subspecialty of Head and Neck cancer surgery have been the result of an undying curiosity and uncanny powers of observation. He was the father of conservative surgery, removing the cancer while preserving the function. He had a relentless desire to eradicate his patients’ disease, yet was able to balance this fervor with a desire to maintain quality of life for all his patients.

Always an advocate of reconstruction and preservation of cosmesis as well as function, those fortunate enough to have worked with him and been taught by him are forever indebted to his wisdom, surgical expertise, and devotion to his patients. He was beloved by his patients, admired by his peers and idolized by his family.

The Alando J. Ballantyne Resident Research Pilot Grant is funded by the generous contributions of members of the Ballantyne family, including Dr. Gilchrist L. Jackson, a respected member of the American Head and Neck Society.
AHNS Awards

Christopher O’Brien Traveling Fellowship Award

Carsten E. Palme, MB BS, FRACS

Carsten E. Palme, MB BS, FRACS, of Sydney, Australia, is the first ever recipient of the recently established Chris O’Brien Traveling Fellowship. Mr. Palme was selected and approved by both the American Head and Neck Society and the Australian & New Zealand Head and Neck Society, the two societies collaborating on the fellowship created to pay honor to Chris O’Brien, MD, an Australian colleague and head and neck surgeon who was diagnosed in 2007 with a brain tumor.

Dr. Palme is an Otolaryngology Head and Neck Surgeon and Clinical Senior Lecturer in Surgery within the Department of Surgery at Westmead Hospital, University of Sydney, New South Wales, Australia. His chief clinical and research interests lie in the management of head and neck conditions including cancer, laser surgery of the upper aerodigestive tract (throat and voice box), airway reconstructive surgery, salivary gland disorders (including minimally invasive salivary gland duct endoscopy), thyroid surgery, laryngology (including voice surgery), rhinology, anterior skull base surgery including pituitary surgery and general ear, nose and throat disease.

Dr. Palme attended the University of Sydney to receive his Medical Bachelor of Surgery degree in 1993. Dr. Palme continued his education as a Fellow of the Royal Australasian College of Surgeons (FRACS) in Otolaryngology Head and Neck Surgery later worked as a Senior Clinical Fellow, Head and Neck Oncology, at the University of Toronto in Canada, July of 2002 to January of 2004. Dr. Palme then took a three month Clinical Fellowship in the Department of Otolaryngology Head and Neck Surgery at the University of Gottingen in Gottingen, Germany, in 2004.

Dr. Palme has been widely published on a range of topics within head and neck cancer and is currently a reviewer for the Otolaryngology Head & Neck Surgery (Journal of the American Academy of Otolaryngology Head & Neck Surgery).

With his awarded traveling fellowship, Dr. Palme intends to visit the University of Texas MD Anderson Cancer Center in Houston, Memorial Sloan Kettering Cancer Center in New York, and possibly Massachusetts General Hospital in Boston. During the visits Dr. Palme will observe the operating room, participate in clinics and share clinical and scientific experience with local surgeons. At each of the centers visited, Dr. Palme will deliver a lecture.

Christopher O’Brien Biography

Christopher O’Brien, MD, AM

Christopher O’Brien, A.M., graduated in medicine from the University of Sydney in 1976 and then completed his residency and surgical training at Royal Prince Alfred Hospital (RPAH). He then completed clinical fellowships in head and neck surgery and oncology in England and the United States and, in 1987, returned to Australia, where he joined the staff of RPAH as a consultant head and neck surgeon. There he contributed to the expansion of the clinical service, making it one of the largest in the country, and also established a comprehensive head and neck database. That database is the largest in Australasia and one of the largest in the world. He also established a basic research program and an international clinical fellowship program under the umbrella of the Sydney Head and Neck Cancer Institute, which he founded in 2002.

Professor O’Brien has two postgraduate degrees from the University of Sydney—a Masters of Surgery for his basic research in microvascular surgery and a Doctorate in Medicine for his work on the management of metastatic cancer in the neck.

He has authored more than 100 scientific papers and 17 book chapters and has been honored with invitations to many countries and institutions as a visiting professor and guest lecturer, including invitations to give numerous prestigious named lectures: the Hayes Martin Lecture in Washington in 2004, the Eugene Myers International Lecture in Los Angeles in 2005, the inaugural Jatin P. Shah Lecture in Prague in 2006, and the Semon Lecture in London in 2006. He was also made an Honorary Fellow of the Royal College of Surgeons of England in recognition of his contribution to the training of young British surgeons.

In 1998, Professor O’Brien founded the Australian and New Zealand Head and Neck Society, a multidisciplinary society comprising surgeons of all disciplines, radiation and medical oncologists, and allied health professionals. He was President of the Society in 2004. The Society is flourishing and will hold its 10th Annual Scientific Meeting in 2008. Professor O’Brien is also a member of the American Head and Neck Society and was invited to join the Council in 2005.

In 2003, Professor O’Brien became Director of the Sydney Cancer Centre, based at Royal Prince Alfred Hospital and the University of Sydney, while maintaining all of his clinical, teaching, and research responsibilities. He has developed a proposal to transform the Sydney Cancer Centre into a $150 million world-class comprehensive cancer center, and that project is moving forward with great momentum.

Professor O’Brien has two postgraduate degrees from the University of Sydney—a Masters of Surgery for his basic research in microvascular surgery and a Doctorate in Medicine for his work on the management of metastatic cancer in the neck.

Professor O’Brien is widely known to the people of Australia for his many appearances over the last 12 years on the award winning reality TV program RPA, and on Australia Day 2005 he was made a Member the Order of Australia (AM) for his services to medicine. He is a devoted husband and father with many interests, including running, skiing, reading and playing guitar.

Unfortunately, in November 2006, Professor O’Brien was diagnosed with a malignant brain tumor. His initial treatment has been successful, and he continues his therapy with a fully positive and confident outlook. He stepped down from all of his clinical and administrative positions at the time of his diagnosis in order to concentrate on his recovery.

Professor O’Brien is currently writing a book and continues to mentor and guide registrars and fellows in clinical research and their training.
A Special Bequest from AHNS Co-Founder, Dr. Edwin W. Cocke, Jr.

The Research and Education Foundation of the American Head and Neck Society gratefully acknowledges those who have pledged their support over a five-year period.

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The Foundation would like to pay special recognition to Jatin Shah for an extraordinary pledge commitment of $100,000 to the foundation.

**The Research and Education Foundation of the American Head and Neck Society gratefully acknowledges donors who have contributed $500 or more in gifts.**

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**The Milton J. Dance Endowment**

Dr. Cocke served as clinical professor in the department of Otolaryngology Head and Neck Surgery, University of Tennessee, Memphis for many years, working with more than 140 residents. In his honor, the department re-named its alumni meeting the Annual Ed Cocke Research Forum.

Dr. Cocke served a term as president of the American Society for Head and Neck Surgery, and later received two Presidential Citations from the society. He also served on the Board of Directors and Medical Advisory Committee for the Yul Bryner Foundation. Other memberships included the American Laryngologic Society, the Triological Society, the American Academy of Otolaryngology Head and Neck Surgery, and the Tennessee Medical Association, in which he was recognized as the Outstanding Physician of the Year in 1999.

Dr. Cocke loved music and played the baritone saxophone in the Memphis Doctor’s Band. He was an avid fly fisherman, a skeet shooting champion, and he played competitive badminton at the local, state, and national level. Dr. Cocke is survived by his son, Tripp Cocke and daughter-in-law Cathy. He was a loyal friend, colleague, and mentor to many of us who had the privilege to know him.

**In Memoriam**

**DR. EDWIN WESLEY COCKE, JR., 89,** of Memphis, TN. passed away on August 22, 2008. He was a founding member of the American Society for Head and Neck Surgery and served as its secretary and subsequently, president. Dr. Cocke was one of the first in the field of otolaryngology to receive focused training in head and neck surgery and oncology under the tutelage of Dr Hays Martin at Memorial Sloan Kettering in New York. During his career he became characterized as an innovative surgeon, compassionate physician, excellent teacher, and a warm and vibrant human being.

He is a graduate of the University of Tennessee, Memphis, College of Medicine where he also completed a residency in otolaryngology. After his fellowship, he opened his practice in Memphis in 1950, where he spent the rest of his life. His busy practice in head and neck surgery led him to become the chief consultant in the region for his sub-specialty. He became internationally known for his scientific presentations and expertise. Of particular note is his development of the maxillotomy procedure to access lesions of the skull base.
AHNS Accreditation

The American Head & Neck Society (AHNS) is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to sponsor Continuing Medical Education for physicians. The AHNS designates this activity for a maximum of 14.75 **AMA PRA Category 1 Credit(s)**™. Physicians should only claim credit commensurate with the extent of their participation in the activity.

CME WORKSHEET

This is not your CME credit form. Please use the worksheet below to track the number of CME hours you attend for each activity. Your CME credit form can be found inside your registrant bag. Fill in the number of hours you attended each activity in the chart below to track your CME credits.

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<thead>
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<th>SATURDAY, MAY 30, 2009</th>
<th>Credits Available</th>
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<tr>
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<tr>
<td>8:00 AM - 8:15 AM</td>
<td>Welcome and Introduction of Guests of Honor</td>
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<tr>
<td>8:15 AM - 9:15 AM</td>
<td>Scientific Session #1</td>
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<tr>
<td>9:15 AM - 10:00 AM</td>
<td>John J. Conley Lecture: “International Medical Education: Do We Have a Responsibility to Help?”</td>
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<td>10:00 AM - 10:20 AM</td>
<td>Morning Break with Exhibitors</td>
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<tr>
<td>10:20 AM - 11:15 AM</td>
<td>Scientific Session #2</td>
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<tr>
<td>11:15 AM - 12:00 PM</td>
<td>Keynote Lecture: “Challenges to Surgery and Our Profession”</td>
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<td>12:00 PM - 1:00 PM</td>
<td>Lunch with Exhibitors</td>
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<td>2:00 PM - 3:00 PM</td>
<td>Opportunities and Impediments to Global Education and Outreach</td>
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<td>3:20 PM - 4:20 PM</td>
<td>Quality Standards in Head and Neck Surgery: The Future Is Now</td>
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<td>4:20 PM - 5:30 PM</td>
<td>Scientific Session #4</td>
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<td>5:30 PM - 7:00 PM</td>
<td>Poster Viewing and Reception in Exhibit Hall</td>
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<td>5:30 PM - 7:00 PM</td>
<td>President’s Poster Discussion Session</td>
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<td>7:15 PM - 8:30 PM</td>
<td>AHNS President’s Reception</td>
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Total Credits Available for Saturday, May 30, 2009: 7.75

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<td>Hayes Martin Lecture: “The Legacy and Obligations of the Head and Neck Surgeon”</td>
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<tr>
<td>9:45 AM - 10:00 AM</td>
<td>AHNS Awards Ceremony</td>
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<td>Morning Break with Exhibitors</td>
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<tr>
<td>10:20 AM - 10:25 AM</td>
<td>Introduction of the AHNS President</td>
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<tr>
<td>10:25 AM - 11:00 AM</td>
<td>AHNS Presidential Address and Presidential Citations</td>
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<tr>
<td>11:00 AM - 12:00 AM</td>
<td>Jatin P. Shah Symposium on Clinical Controversies in Head and Neck Surgery</td>
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<tr>
<td>12:00 PM - 1:00 PM</td>
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<td>1:00 PM - 2:00 PM</td>
<td>Scientific Session #6</td>
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<td>Robotic Surgery: Fad, Or the Future?</td>
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<td>3:30 PM - 5:00 PM</td>
<td>Scientific Session #7</td>
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Total Credits Available for Sunday, May 31, 2009: 7

**TOTAL CREDITS** 14.75

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<table>
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<th>Presentation:</th>
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<td>(eg session name, etc)</td>
<td>(ie faculty name, company rep)</td>
<td>(eg handouts, slides, what they said, actions)</td>
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__ Patient treatment/management recommendations were not based on strongest levels of evidence available.
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Scientific Program

Saturday, May 30, 2009

Welcome and Introduction of Guests of Honor

Presenters: Wayne M. Koch, MD, Christine G. Gourin, MD, and Randal S. Weber, MD

Anna Konney, MD – President’s Guest of Honor

Carsten E. Palme, MB BS, FRACS – 2008 Christopher O’Brien Traveling Fellowship Award

8:15 AM - 9:15 AM

SCIENTIFIC SESSION #1

Moderators: Stephen Y. Lai, MD, PhD and Miriam Lango, MD

8:15 AM S001: AN IMMUNE RESPONSE IS REQUIRED FOR CISPLATIN AND RADIATION THERAPY TO CLEAR HPV+ HEAD AND NECK CANCER, John H Lee MD, Sanford Health

8:23 AM S002: OUTCOME OF A VETERAN POPULATION TREATED FOR TONSIL SQUAMOUS CELL CARCINOMA: CHANGES IN SURVIVAL OVER 25 YEARS, James Jaber MD, Jonathan Moreira BS, W. Jeffrey Canar PhD, Carol M Bier-Laning MD, Hines VA Hospital, Loyola University Medical Center

8:31 AM S003: PREDICTING RESIDUAL NECK DISEASE IN PATIENTS WITH OROPHARYNGEAL SQUAMOUS CELL CARCINOMA (OP-SCCA) TREATED WITH RADIATION THERAPY (RT): UTILITY OF P16 STATUS, David C Shonka, Jr. MD, Asal N Shoushtari MD, Paul W Read MD, James F Reibel MD, Paul A Levine MD, Mark J Jameson MD, University of Virginia

8:39 AM Discussion

8:45 AM S004: TRENDS IN UTILIZATION OF FDG PET IMAGING IN THE AMERICAN HEAD AND NECK SOCIETY, David Myssiorek MD, Benjamin Roman MD1, Marilene Wang MD2, Anna Pou MD3, F. Chris Holsinger MD4, 1NYU Med. Ctr. - Dept. of Oto. - Head & Neck Surg., 2UCLA, 3LSU Health Sciences Ctr., 4MD Anderson Cancer Ctr. - Dept. of Head & Neck Surgery

8:53 AM S005: IS PET-CT A RELIABLE RE-STAGING TOOL FOR EARLY (6 - 8 WEEKS) PREDICTION OF TREATMENT RESPONSE AFTER CHEMORADIATION FOR HEAD AND NECK CANCER?, James P Malone MD, Michael Gerberi MD, Syam Vasireddy MD, Larry Hughes PhD, Krishna Rao MD, Bruce Shevlin MD, Matthew Kuhn MD, Dean Collette MD, Joel Tennenhause MD, K. T Robbins MD, Southern Illinois University School of Medicine & St. John’s Hospital, Springfield, IL

9:01 AM S006: USE OF OPTICAL IMAGING TO PREDICT TUMOR RESPONSE TO ANTI-EGFR THERAPY, Nichole R Dean DO, Emily E Helman MS, John R Newman MD, Wen Yue Zang MS, Eben L Rosenthal MD, University of Alabama at Birmingham

9:09 AM Discussion

9:15 AM - 10:00 AM

JOHN J. CONLEY LECTURE

“International Medical Education: Do We Have a Responsibility to Help?”

Introduction by Wayne M. Koch, MD

James D. Smith, MD
Professor Emeritus, Oregon Health Sciences University, Portland, Oregon

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10:00 AM - 10:20 AM Morning Break with Exhibitors

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LILLY
SCIENTIFIC SESSION #2

Moderators: Lisa A. Orloff, MD and Brendan C. Stack, Jr., MD

10:20 AM S007: ULTRASOUND FOR LONG-TERM ASSESSMENT OF THE LATERAL NECK COMPARTMENTS IN THYROID CANCER, Mauricio A Moreno MD, Gary L Clayman MD, Garima Agarwal MD, Rolando De Luna BS, M. D. Anderson Cancer Center

10:28 AM S008: THE ROLE OF SENTINEL LYMPH NODE BIOPSY IN PAPILLARY THYROID CANCER, Sumeet M Anand MD, Michael P Hier MD, Martin J Black MD, Olga Gologan MD, Louise Rochon MD, Jacques How MD, Michael Tamilla MD, Mark Trifiro MD, Roger Tabah MD, Richard J Payne MD, Department of Otolaryngology - Head & Neck Surgery, McGill University, Montreal, Quebec, Canada

10:36 AM S009: CLINICAL UTILITY OF PET-CT IN RECURRENT THYROID CARCINOMA, Ali Razfar BS, Apostolos Christopoulos MD, Shane O Lebeau MD, Steven Hodak MD, Sally E Carty MD, Barton F Branstetter IV MD, Robert L Ferris MD PhD, University of Pittsburgh Medical Center

10:44 AM Discussion

10:50 AM S010: RECURRENT LARYNGEAL NERVE THRESHOLD POTENTIALS DO NOT PREDICT POST-OPERATIVE VOCAL CORD PARALYSIS IN THYROID SURGERY, Garret W Choby BS, Chris Hollenbeak PhD, Samuel Johnson MS, David Goldenberg MD, Penn State University Hershey Medical Center, Department of Otolaryngology

10:58 AM S011: INTRAOPERATIVE LARYNGEAL NERVE MONITORING DURING THYROIDECTOMY, Kimberly A Donnellan MD, Karen T Pitman MD, Jon D Simmons MD, William Repogle PhD, Ron Cannon MD, University of Mississippi

11:06 AM Discussion

11:15 AM - 12:00 PM KEYNOTE LECTURE

“Challenges to Surgery and Our Profession”

Introductions by Wayne M. Koch, MD and Christine G. Gourin, MD

Gerald B. Healy, MD
Otolaryngologist-in-Chief, Children’s Hospital of Boston; Professor and Gerald B. Healy Chair in Otolaryngology, Harvard Medical School; and Immediate Past President, The American College of Surgeons

AHNS acknowledges an unrestricted education grant from FANCONI ANEMIA RESEARCH FUND

12:00 PM - 1:00 PM Lunch with Exhibitors

SCIENTIFIC SESSION #3

Moderators: Brandon G. Bentz, MD and Cherie-Ann O. Nathan, MD

1:00 PM S012: CLINICAL CORRELATION OF CIRCULATING TUMOR CELLS IN HEAD AND NECK CANCER PATIENTS, Kris R Jatana MD, Jeffrey J Chalmers PhD, Elisabeth White BA, Priya Balasubramanian BS, Liyang Yang PhD, David E Schuller MD, Amrit Agrawal MD, Enver Ozer MD, Theodoros N Teknos MD, Jas C Lang PhD, The Ohio State University and Arthur G. James Cancer Hospital

1:08 PM S013: IRX-2 IMMUNOTHERAPY REGIMEN AND SURVIVAL IN SQUAMOUS CELL HEAD AND NECK CANCER (HNSCC), Scott M Freeman MD, John W Hadden MD, Gregory T Wolf MD, Willard E Fee Jr. MD, Robert W Dolan MD, Michael J Kaplan MD, Jeffrey S Moyer MD, IRX Therapeutics, University of Michigan, Stanford University Medical Center, Lahey Clinic Medical Center

1:16 PM S014: INHIBITORY EFFECTS OF DIETARY GLUCOSYLCERAMIDE ON SQUAMOUS CELL CARCINOMA OF THE HEAD AND NECK IN NOD/SCID MICE, Kazunori Fujiwara, Hiroya Kitano, Tshirou Okazaki, Department of Otolaryngology, Head and Neck Surgery Faculty of Medicine Tottori University

1:24 PM Discussion

1:30 PM S015: ADVERSE EVENTS ASSOCIATED WITH CONCURRENT CHEMORADIATION IN PATIENTS WITH HEAD AND NECK CANCER, Daniel J Givens BS, Lucy H Karnell PhD, Anjali K Gupta MD, Gerald H Clamon MD, Nitin A Pagedar MD, Douglas J Van Daële MD, Gerry F Funk MD, University of Iowa College of Medicine

1:38 PM S016: INHIBITION OF SMAD3 EXPRESSION IN RADIATION-INDUCED FIBROSIS USING A NOVEL METHOD FOR TOPICAL TRANSCUTANEOUS GENE THERAPY, Judy W Lee MD, Richard A Zoumalan MD, Phuong Nguyen MD, John P Tutela MD, Pierre B Saadéh MD, New York University Department of Otolaryngology and Institute of Plastic Reconstructive Surgery


1:54 PM Discussion
### Opportunities and Impediments to Global Education and Outreach

**Panel Moderator: Patrick J. Gullane, MD**

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<tr>
<th>Time</th>
<th>Session</th>
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<tr>
<td>2:00 PM</td>
<td>Introduction</td>
<td>Patrick J. Gullane, MD</td>
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<td>2:05 PM</td>
<td>Personal Experience and Needs in the Outreach</td>
<td>James L. Netterville, MD</td>
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<tr>
<td>2:20 PM</td>
<td>Training and Care On-Site in Under-Serviced Locations: Limitations and Challenges</td>
<td>Kofi Boahene, MD</td>
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<td>2:35 PM</td>
<td>A Formula to Provide Global Education: A Unique Approach</td>
<td>Jatin P. Shah, MD</td>
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<td>2:50 PM</td>
<td>Discussion</td>
<td>All Panelists</td>
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This Panel will discuss the challenges, rewards and limitations in treating patients in a resource poor setting. The identification of the needs in the outreach will be presented and the limitations and challenges in implementing training and care in this type of setting will be highlighted. A recent Global Tour by a multi-disciplinary Team is attempting to establish a formula to educate and standardize therapy.

At the conclusion of this session, participants will be able to:
- Define a formula to provide global education in healthcare in a resource poor setting (competence);
- Develop effective advocacy skills and increase awareness of global health issues among healthcare trainees (competence);
- Understand the rewards and limitations of providing outreach education in impacting education, training and care (competence);
- Apply this newfound knowledge to teaching opportunities in underprivileged areas. (performance).

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### Quality Standards in Head and Neck Surgery: The Future is Now

**Panel Moderator: Amy Chen, MD**

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<tr>
<th>Time</th>
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<tr>
<td>3:20 PM</td>
<td>Introduction</td>
<td>Amy Chen, MD</td>
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<tr>
<td>3:25 PM</td>
<td>Evidence in Head and Neck Surgery: Challenges, Opportunities and Risks</td>
<td>Jonas T. Johnson, MD</td>
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<td>3:40 PM</td>
<td>The MD Anderson Approach to Quality Head and Neck Surgery Care</td>
<td>Randal S. Weber, MD</td>
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<tr>
<td>3:55 PM</td>
<td>Value-based Healthcare from Current State to Future</td>
<td>Frank G. Opelka, MD</td>
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<td>4:10 PM</td>
<td>Discussion</td>
<td>All Panelists</td>
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Quality standards are increasingly finding their way into every aspect of medicine, with the increasing pressure by external forces to implement quality measures into clinical practice. This panel will discuss methods of incorporating quality measures in head and neck surgery and challenges faced.

At the conclusion of this session, participants will be able to:
- List 3 ways to document quality improvement in their practice/ institution (competence);
- Apply these techniques to relevant case-based situations (performance).

*AHNS acknowledges an unrestricted education grant from Gyrus ACMI*
### Scientific Session #4

**Sat., May 30, 2009, 4:20 PM - 5:30 PM**

**GRAND SONORAN E**

**Moderators:** Brian B. Burkey, MD and Karen T. Pitman, MD

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<tr>
<td>4:20 PM</td>
<td>S018: N2 DISEASE IN HNSCC PATIENTS TREATED WITH CHEMORADIOTherapy: IS THERE A ROLE FOR POST-TREATMENT NECK DISSECTION?</td>
<td>Allis H Cho MD, Gloria Caldito PhD, Adam Masters BS, Andrew Nida BS, Fred Ampil MD, Amol Takalkar MD, Cherie-Ann Nathan MD, LSU Health Sciences Center – Shreveport</td>
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<td>4:28 PM</td>
<td>S019: RADIOLOGIC COMPLETE RESPONSE IN POST-CHEMORADIOThERAPY NECK DISSECTION SPECIMENS IS ASSOCIATED WITH PATHOLOGIC COMPLETE RESPONSE</td>
<td>Alexander Langerman MD, Colleen Plein BA, Everett E Vokes MD, Joseph K Salama MD, Elizabeth A Blair MD, Kerstin M Stenson MD, University of Chicago</td>
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<td>4:36 PM</td>
<td>S020: THE ROLE OF VASCULAR ENDOTHELIAL GROWTH FACTOR ON RADIOTherapy RESPONSE IN HEAD AND NECK CANCER</td>
<td>Özlem E Tulunay-Ugur MD, Jian-Hui Ye PhD, Chen-Yang Fan MD, Paul M Spring MD, Emre Vural MD, University of Arkansas for Medical Sciences Department of Otolaryngology Head and Neck Surgery, John L. McClellan Memorial Veterans Hospital</td>
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<td>4:50 PM</td>
<td>S021: THE FACTORS IN PREDICTION OF POSTOPERATIVE PULMONARY COMPLICATION AFTER SUPRACRICOID PARTIAL LARYNGECTOMY(SCPL)</td>
<td>Min-Sik Kim MD, Young-Hoon Joo MD, Dong-II Sun MD, Kwang-Jae Cho MD, Jung-Hae Cho MD, The Catholic University of Korea</td>
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<td>4:58 PM</td>
<td>S022: IMPROVED SURVIVAL OF ADVANCED LARYNGEAL CANCER IS ASSOCIATED WITH TREATMENT AT HIGH VOLUME TEACHING FACILITIES</td>
<td>Amy Y Chen MD, Alex Pavluck MPH, Elizabeth M Ward PhD, American Cancer Society, Emory University</td>
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<td>5:06 PM</td>
<td>S023: OFFICE-BASED TRACHEOESOPHAGEAL PUNCTURE WITH TRANSNASAL ESOPHAGOSCOPY IN TOTAL LARYNGECTOMY PATIENTS WITH OR WITHOUT FREE-FLAP RECONSTRUCTION</td>
<td>Brad Lebert MD, Amy C Hessel, Jan S Lewin PhD, Melda Kunduk PhD, F Christopher Holsinger MD, Andrew J McWhorter MD, The University of Texas MD Anderson Cancer Center, Houston; the LSUHSC-Otolaryngology H &amp; N Surgery, New Orleans, LA; Our Lady of the Lake Regional Medical Center-Voice Center, Baton Rouge, LA</td>
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<td>5:14 PM</td>
<td>S024: COMPLICATIONS IMPACTING POST-LARYNGECTOMY VOICE RESTORATION: PRIMARY VERSUS SALVAGE SURGERY</td>
<td>Heather M Starmer MS, Stacey Ishman MD, Christine Gourin MD, Wayne Koch MD, Ralph Tufano MD, Kimberly Webster MS, Paul Flint MD, Jeremy Richmon MD, Johns Hopkins University</td>
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<tr>
<td>5:30 PM - 6:15 PM</td>
<td>Fellowship Information Session</td>
<td>Presenters: Carol R. Bradford, MD and Jay O. Boyle, MD</td>
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<td>S020: THE ROLE OF VASCULAR ENDOTHELIAL GROWTH FACTOR ON RADIOTherapy RESPONSE IN HEAD AND NECK CANCER</td>
<td>Özlem E Tulunay-Ugur MD, Jian-Hui Ye PhD, Chen-Yang Fan MD, Paul M Spring MD, Emre Vural MD, University of Arkansas for Medical Sciences Department of Otolaryngology Head and Neck Surgery, John L. McClellan Memorial Veterans Hospital</td>
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<td>5:30 PM - 7:00 PM</td>
<td>President's Poster Discussion Session</td>
<td>GRAND SONORAN FOYER</td>
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<td>5:30 PM</td>
<td>CLINICAL - OUTCOMES/IMAGING</td>
<td>Poster Discussant: Snehal Patel, MD</td>
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<td>P045: 18F-FLUOROMISONIDAZOLE POSITRON EMISSION TOMOGRAPHY AS AN INDICATOR OF HYPOXIA FOR PREDICTING THERAPY RESPONSE TO NEOADJUVANT CHEMOTHERAPY IN HEAD-AND-NECK SQUAMOUS CELL CARCINOMA</td>
<td>Masahiro Kikuchi MD, Shogo Shinohora MD, Yasushi Naito MD, Keizo Fujiwara MD, Shin-ya Hori MD, Yosuke Tona MD, Hiroshi Yamazaki MD, Yu Usami MD, Tomohiko Yamane MD, Michio Senda MD, Department of Otolaryngology Kobe City Medical Center General Hospital, Institute of Biomedical Research and Innovation</td>
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<td>P046: EVALUATION OF HYPOXIC STATE IN HEAD AND NECK SQUAMOUS CELL CARCINOMA BY FMISO-PET</td>
<td>Shogo Shinohora MD, Masahiro Kikuchi MD, Yasushi Naito MD, Michio Senda MD, Tomohiko Yamane MD, Yosuke Tona MD, Keizo Fujiwara MD, Shin-ya Hori MD, Hiroshi Yamazaki MD, Kobe City Medical Center General Hospital, Institute of Biomedical Research and Innovation</td>
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<td>P081: INCREASED LOCO-REGIONAL FAILURES USING INTENSITY-MODULATED RADIATION THERAPY (IMRT) IN THE POSTOPERATIVE SETTING.</td>
<td>Aruna Turaka MD, Tianyu Li PhD, Navesh K Sharma, DO, Linna Li MD, Nico Nicolaou MD, Ranee Mehra MD, Barbara Burtness MD, Roger B Cohen MD, Miriam N Lango MD, Eric M Horwitz MD, John A Ridge MD, Steven Feigenberg MD, Fox Chase Cancer Center</td>
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<td>P072: MEASURING CORRELATION BETWEEN QUALITY OF LIFE QUESTIONNAIRES</td>
<td>Hisham M Mehanna BMedSc (Hons) MB ChB (Hons), Paul C Nankivell BA, BMBCh, Christopher C McConkey, MSc; Institute of Head and Neck Studies and Education (InHANSE), University Hospital Coventry and Warwick, Coventry, United Kingdom; Clinical Trials Unit, Warwick University, Coventry, United Kingdom</td>
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<td>5:45 PM</td>
<td>CLINICAL - GENERAL</td>
<td>Poster Discussant: David Goldenberg, MD</td>
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<td>P106: LEVEL SIX NECK DISSECTION FOR THYROID CANCER – IS ITS MORBIDITY JUSTIFIED?</td>
<td>Anurag Jain, Hisham M. Mehanna; Institute of Head &amp; Neck Studies &amp; Education, University Hospital, Coventry, United Kingdom</td>
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P041: TIMING OF GASTROSTOMY TUBE PLACEMENT IN HEAD AND NECK CANCER PATIENTS DOES NOT AFFECT POST-TREATMENT DEVELOPMENT OF ESOPHAGEAL STRicture REQUIRING DILATION - Amalia R. Steinberg, MD, Thomas S. Higgins, MD, Michelle Morrison, MD, Jennifer Lee, BS, Jonathan Mark, BS, Jeffrey T. Wadsworth, MD; Eastern Virginia Medical School

P070: THE INFLUENCE OF TIMING AND PREVIOUS RADIATION ON COMPLICATIONS AND SPEECH OUTCOMES WITH TRACHEOESOPHAGEAL PUNCTURES - Mark E. Zafereo, MD, Randal S. Weber, MD, Kate A. Hutcheson, MS, Denise Barringer, MS, Brandon L. Christianson, BS, Diana B. Roberts, PhD, Jan S. Lewin, BA; MD Anderson Cancer Center

6:00 PM - 6:15 PM BASIC SCIENCE - GENERAL Poster Discussant: Cherie-Ann O. Nathan, MD

P006: PRO-TUMORIGENIC AUTOCRINE ROLE OF VASCULAR ENDOTHELIAL GROWTH FACTOR IN HEAD AND NECK SQUAMOUS CELL CARCINOMA - Sun M. Ahn, BS, Seungwon Kim, MD; University of Pittsburgh School of Medicine

P009: OVEREXPRESSION OF MIR-21 IN ORAL SQUAMOUS CELL CARCINOMA AND ITS CORRELATION WITH TGF-BETA SIGNALING - Pawadee Lohavanichbutr, MD, John Houck, BS, David R. Doody, MS, Wenhong Fan, PhD, Eduardo Mendez, MD, Neal Futran, MD, Melissa P. Upton, MD, Stephen M. Schwartz, PhD, Chu Chen, PhD; Fred Hutchinson Cancer Research Center

P008: ABERRANT DNA METHYLATION OF ZNF FAMILY NUCLEIC ACID BINDING PROTEIN GENES ON CHROMOSOME 19 IN OROPHARYNGEAL SQUAMOUS CELL CARCINOMA - Thomas J. Belbin, PhD, Leslie R. Adrien, MSc, Richard V. Smith, MD, Thomas M. Harris, PhD, Roberto Lleras, BS, Nicolas F. Schlecht, PhD, Geoffrey Childs, PhD, Michael B. Prystowsky, MD; Albert Einstein College of Medicine/Montefiore Medical Center

P012: COMBINATION OF LOW DOSES OF SORAFENIB AND CISPLATIN SIGNIFICANTLY ENHANCE THE THERAPEUTIC EFFICACY OF RADIATION THERAPY - Bhavna Kumar, MS, Theodoros N. Teknos, MD, Pawan Kumar, PhD; Department of Otolaryngology - Head and Neck Surgery, James Cancer Hospital and Solove Research Institute, The Ohio State University Comprehensive Cancer Center, Columbus, OH

6:15 PM - 6:30 PM BASIC SCIENCE – IMMUNOLOGY Poster Discussant: Robert L. Ferris, MD, PhD

P005: EARLY DETECTION USING IMMUNE/INFLAMMATORY BIOMARKERS TO DIFFERENTIATE LOW AND HIGH STAGE SQUAMOUS CELL CARCINOMA OF THE HEAD AND NECK - Steve C. Lee, MD, Michalis Karamousiz, MD, William E. Gooding, MS, Athanassios Argiris, MD, Robert L. Ferris, MD; University of Pittsburgh Medical Center

P013: ADENOSINE-MEDIATED IMMUNE SUPPRESSION BY CD39+ REGULATORY T CELLS IN PATIENTS WITH HEAD AND NECK CANCER - Magis Mandapathil, MD, Malgorzata Czystowska, PhD, Marta Szajnik, MD, Stephan Lang, MD, Edwin K. Jackson, PhD, Elieser Gorelik, MD, Jonas T. Johnson, MD, Theresa L. Whiteside, PhD; Departments of Pathology and Pharmacology, University of Pittsburgh Cancer Institute, Pittsburgh, PA, USA, University of Duisburg-Essen, Department of Otorhinolaryngology, Essen, Germany, Department of Otorhinolaryngology, UPMC, Pittsburgh, PA

P023: THE TLR4 FORMULATED GVAX “TEGVAX” IMPROVES THE ANTITUMOR RESPONSE IN VIVO. - Meghan Davis, MS, David Vasquez, MD, Young J. Kim, MD; Johns Hopkins Medical Institution

P003: ANTI-EMMPRIN MONOCLONAL ANTIBODY: A NOVEL AGENT FOR TARGETED THERAPY IN HEAD AND NECK CANCER - Nichole R. Dean, DO, Emily E. Helman, MS, J. R. Newman, MD, Wenyue Zang, MS, Eben L. Rosenthal, MD; Department of Surgery, Division of Otolaryngology – Head and Neck Surgery University of Alabama at Birmingham, Birmingham, Alabama

AHNS acknowledges our Gold Level Donor for their support of this session

STRYKER
SCIENTIFIC SESSION #5

Moderators: David Goldenberg, MD and Marilene B. Wang, MD

8:00 AM  S025: MICROSCOPIC CUT-THROUGH IN ORAL CARCINOMA: IS IT A USEFUL PROGNOSTICATOR? Rajan S Patel MD, David P Goldstein MD, Jennifer Guillemaud MD, Dale Brown MD, Ralph W Gilbert MD, Patrick J Guilane MD, Jonathan Irish MD, Kevin M Higgins MD, Danny J Enepekides MD, Sunnybrook Health Sciences Centre, Princess Margaret Hospital, and University of Toronto

8:08 AM  S026: CHRONIC CIGARETTE SMOKE EXTRACT INDUCES APOPTOTIC DYSFUNCTION AND MITOCHONDRIAL MUTATIONS IN MINIMALLY TRANSFORMED ORAL KERATINOCYTES, Steven S Chang MD, Joseph Califano MD, Johns Hopkins Medical Institutions

8:16 AM  S027: DISCOVERY OF NOVEL MOLECULAR EFFECTS OF ERLOTINIB TREATMENT ON ORAL CAVITY SQUAMOUS CELL CARCINOMA AND IN THE NORMAL MUCOSA, Mukesh K Nyati PhD, Ahsan Aarif PhD, D B Chepeha, T N Teknos, C R Bradford, M E Prince, G T Wolf, T S Lawrence, A Eisbruch, C Tsien, Radiation Oncology, University of Michigan

8:24 AM  Discussion

8:30 AM  S028: ENDOSCOPIC RESECTION OF SINONASAL CANCERS: ONCOLOGIC OUTCOMES, Ehab Y Hanna MD, Franco DeMonte MD, Michael Kupferman MD, MD Anderson Cancer Center

8:38 AM  S029: ENDOSCOPIC TRANSNASAL RESECTION OF ANTERIOR CRANIAL BASE TUMORS: THE RESULTS OF THE TRANSCRIBRIFORM APPROACH, Amol M Bhatki MD, Ricky Madhok MD, Carl H Snyderman MD, Amin B Kassam MD, Daniel Prevedello MD, Paul Gardner, University of Pittsburgh, School of Medicine

8:46 AM  S030: TELEHEALTH SUPPORT FOR SYMPTOM MANAGEMENT DURING TREATMENT IN HEAD AND NECK CANCER PATIENTS, Mark Pfeifer MD, Jeffrey Bumpous MD, Barbara Head PhD, Jamie Studts PhD, Jennifer Gregg PhD, Cynthia Keeney RN, Liz Wilson RN, University of Louisville School of Medicine, James Graham Brown Cancer Center

8:54 AM  Discussion

9:00 AM - 9:45 AM  HAYES MARTIN LECTURE

“The Legacy and Obligations of the Head and Neck Surgeon”

Introduction by Wayne M. Koch, MD

Charles W. Cummings, MD
Executive Medical Director, John Hopkins International; Distinguished Service Professor and Chair Emeritus, Department of Otolaryngology – Head & Neck Surgery, Johns Hopkins University

AHNS acknowledges an unrestricted education grant from STRYKER

9:45 AM - 10:00 AM  AHNS AWARDS CEREMONY

Presented by Jay O. Boyle, MD and Marilene B. Wang, MD

• AHNS Alando J. Ballantyne Resident Research Pilot Grant
• AHNS Pilot Research Grant
• AHNS/AAO-HNS Young Investigator Awards
• AHNS/AAO-HNS Surgeon Scientist Career Development Award
• Robert Maxwell Byers Award
• Best Resident Basic Science Research Paper
• Best Resident Clinical Paper
• Best Prevention and Early Detection Papers

10:00 AM - 10:20 AM  Morning Break with Exhibitors

AHNS acknowledges our Silver Level Donors for their support of the breaks

10:20 AM - 10:25 AM  Introduction of the AHNS President

Introduction by John A. Ridge, MD, PhD, AHNS President-Elect
AHNS Presidential Address
“Going Global: AHNS Reaches Out”

Wayne M. Koch, MD, Professor
Department of Otolaryngology – Head and Neck Surgery;
Director, Division of Head and Neck Surgery, Johns Hopkins University

Distinguished Service Award
- Keith S. Heller, MD

Presidential Citations
- Joseph A. Brennan, MD
- Joseph A. Califano, MD
- Anna M. Pou, MD
- William J. Richtsmeier, MD, PhD
- Charles Vaughan, MD

Jatin P. Shah Symposium on
Clinical Controversies in Head and Neck Surgery
“Endoscopic Resection versus Open Craniofacial Resection for Skull Base Malignancy”

Panel Moderator: Dennis H. Kraus, MD

11:00 AM - 12:00 AM

Open Craniofacial Resection: The Standard of Care
Paul A. Levine, MD

Endoscopic Craniofacial Resection. Indications and Contraindications
Carl H. Snyderman, MD

Current Limitations and Future Directions of Endoscopic Approaches
Ehab Y. Hanna, MD

Case Presentations
Dennis H. Kraus, MD

The author presentations will focus on indications and limitations of both endoscopic and open craniofacial resection. The panel will address the controversies surrounding each of these approaches and potential applications in patient with sinonasal/skull base malignancies.

At the conclusion of this session, participants will be able to:
- Describe indications and contraindications for open craniofacial surgery (competence);
- Understand potential robotic applications for skull base surgery (competence);
- Compare endoscopic versus open craniofacial resection in terms of outcomes and complications (competence).

12:00 PM - 1:00 PM

Lunch on Own
OR
AHNS Business Meeting for Members

1:00 PM - 2:00 PM

SCIENTIFIC SESSION #6

Moderators: Jeffrey Scott Magnuson, MD and Marita Teng, MD

1:00 PM
S031: THE UTILITY OF TRANSORAL RESECTION OF BASE OF TONGUE SQUAMOUS CELL CARCINOMA,
Douglas K Henstrom MD, Eric J Moore MD, Kerry D Olsen MD, Jan L Kasperbauer, Mayo Clinic

S032: TRANSORAL LASER MICROSURGERY FOR ADVANCED STAGE ORPHARYNGEAL CANCER, Bruce H Haughey MD, Michael Hinni MD, John Salassa MD, Grant David MD, Lewis James MD, Murli Krishna MD, Milov Simon MD, Rich Jason MD, Washington University in St Louis, Mayo Clinic Scottsdale, Mayo Clinic Jacksonville

S033: OROPHARYNGEAL CANCER TREATED WITH TRANSORAL LASER MICROsURGERY ALONE, Michael L Hinni MD, David G Grant MD, John R Salassa MD, Richard E Hayden MD, John D Casler MD, Mayo Clinic Phoenix, Mayo Clinic Jacksonville

1:16 PM
Discussion

1:30 PM
S034: SURGICAL MANAGEMENT OF OROPHARYNGEAL CANCER IN THE AGE OF ROBOTIC SURGERY,
Nichole R Dean DO, J S Magnuson MD, John P Kostrzewa MD, Virginia L Jones BS, Lisa Clemons RN, Willaim P Carroll MD, Eben L Rosenthal MD, University of Alabama at Birmingham

S035: TRANSORAL ROBOTIC SURGERY (TORS) FOR OROPHARYNGEAL SQUAMOUS CELL CARCINOMA: ONCOLOGIC AND FUNCTIONAL RESULTS, Gregory S Weinstein MD, Bert W O’Malley, Jr MD, Marc A Cohen MD, Harry Quon MD, The University of Pennsylvania

1:46 PM
S036: TRANSORAL ROBOTIC-ASSISTED SUPRAGLOTTIC LARYNGECTOMY, Eran E Alon MD, Jan L Kasperbauer MD, Kerry D Olsen MD, Eric J Moore MD, Mayo Clinic, Rochester, MN

1:54 PM
Discussion
2:00 PM - 3:10 PM  Robotic Surgery: Fad, or the Future?  GRAND SONORAN E

Panel Moderator: Richard V. Smith, MD

2:00 PM  Introduction and Overview  Richard V. Smith, MD
2:05 PM  Head and Neck Reconstruction Using TORS  Eric M. Genden, MD
2:15 PM  Robotic Surgery of the Thyroid and Central Neck  Simon K. Wright, MD
2:25 PM  The Limitations of TORS  Bert W. O'Malley, Jr., MD
2:35 PM  Transoral Robotic Laryngectomy  Richard V. Smith, MD
2:45 PM  Case Presentations and Discussion  Richard V. Smith, MD

This panel will review recent advances in the application of robotic surgery in the head and neck. These will include robotic neck surgery, transoral resection and reconstruction, and the discussion of the limitations of the current robotic technology.

At the conclusion of this session, participants will be able to:
- List 3 benefits of employing robotic surgery for the primary treatment of head and neck cancers and thyroid disease (competence);
- List 3 limitations of transoral robotic surgery and apply these to relevant case-based questions (competence);
- Identify 2 benefits of transoral robotic assisted reconstruction of mucosal defects and how they affect patient outcomes (competence).

AHNS acknowledges an unrestricted education grant from OMNIGUIDE, INC.

3:10 PM - 3:30 PM  Afternoon Break  GRAND SONORAN FOYER

AHNS acknowledges our Silver Level Donors for their support of the breaks  LILLY

3:30 PM - 5:00 PM  SCIENTIFIC SESSION #7  GRAND SONORAN E

Moderators: Claudio R. Cernea, MD and Keith S. Heller, MD

3:30 PM  S037: PROPHYLACTIC CENTRAL NECK DISSECTION DOES NOT OFFER ADVANTAGE IN NO PAPILLARY THYROID CARCINOMA, Sergio Zuniga MD, Alvaro Sanabria PhD, Luiz P Kowalski (Sponsor) PhD, Universidad de La Sabana, Bogota. Clínica Las Americas, Medellín, Instituto Nacional de Cancerología, Bogota

3:38 PM  S038: CENTRAL NECK DISSECTION IN MANAGEMENT OF PAPILLARY THYROID CANCER WITH MACROSCOPIC LYMPH NODE METASTASIS, Michael A Rosenbaum MD, Christopher R McHenry MD, MetroHealth Medical Center, CWRU School of Medicine, Cleveland, OH

3:46 PM  S039: IMPORTANCE OF PRIMARY TUMOR HISTOLOGY, SIZE AND FOCALITY OF PAPILLARY THYROID CARCINOMA ON THE PRESENCE OF MALIGNANT LYMPH NODES IDENTIFIED WITH CENTRAL NECK DISSECTION, Kelli D Salter MD, Peter E Andersen MD, James I Cohen MD, Kathryn G Schuff MD, Mary H Samuels MD, Linda B Lester MD, Maisie L Shindo MD, David Sauer MD, Neil D Gross MD, Oregon Health and Science University Multidisciplinary Thyroid and Parathyroid Program

3:54 PM  Discussion

4:00 PM  S040: SRC INHIBITORS INDUCE APOPTOSIS IN PAPILLARY THYROID CARCINOMA CELLS, Ying C Henderson PhD, Mitchell J Frederick PhD, Gary L Clayman MD, University of Texas MD Anderson Cancer Center, Houston, Texas

4:08 PM  S041: RECURRENT LARYNGEAL NERVE: A PLEXUS RATHER THAN A NERVE? Claudio R Cernea MD, Flavio C Hojaij MD, Dorival De Carlucci Jr. MD, Renato Gotoda MD, Caio Plopper MD, Felipe Vanderlei MD, Lenine G Brandão MD, University of Sao Paulo Medical School and Federal University of Sao Paulo - Sao Paulo, Brazil

4:16 PM  S042: SURGEON PERFORMED ULTRASOUND-GUIDED THYROID BIOPSY: A COMPARISON OF TECHNIQUE WITH RESPECT TO ADEQUACY OF CYTOLOGICAL MATERIAL, Haytham H Alabbas MD, Jennifer John-Kalarickal MD, Tareq Islam MD, Paul Freidlander MD, Javad Wani PhD, Emad Kandil MD, Tulane University Medical Center, New Orleans, LA

4:24 PM  Discussion

4:30 PM  S043: FINAL INTRAOPERATIVE PTH PREDICTS OUTCOME FOLLOWING PARATHYROIDECTOMY, Keith S. Heller MD, NYU Langone Medical Center

4:38 PM  S044: MINIMALLY INVASIVE PARATHYROIDECTOMY: USE OF INTRAOPERATIVE PTH ASSAYS AFTER 2 PREOPERATIVE LOCALIZATION STUDIES, Nicholas J Smith MD, Jeffrey S Magnuson MD, David M Vidrine MD, Brian Kulbersh MD, Glenn E Peters MD, University of Alabama-Birmingham; Birmingham, AL

4:46 PM  S045: IS INTRAOPERATIVE PARATHYROID HORMONE ASSAY IN PATIENTS WITH PRIMARY HYPERPARATHYROIDISM AND DOUBLE ADENOMA IMPORTANT? Haytham H Alabbas MD, Emad Kandil MD, Tareq Islam MD, Ralph P Tufano MD, Tulane University Medical Center, New Orleans, LA & Johns Hopkins School of Medicine, Baltimore, MD

4:54 PM  Discussion

Meeting Adjourns

American Head and Neck Society 2009 Annual Meeting
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Faculty, Presenter & Leadership Disclosures

The following AHNS faculty, presenters and leadership do not have any relevant financial relationships or significant commercial interests associated with their participation at the AHNS 2009 Annual Meeting. If name is not listed below, please refer to the bottom of this page.

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Oral Papers

S001
AN IMMUNE RESPONSE IS REQUIRED FOR CISPLATIN AND RADIATION THERAPY TO CLEAR HPV+ HEAD AND NECK CANCER, John H Lee MD, Sanford Health
HPV is currently the most identifiable cause of head and neck squamous cell cancer (HNSCC). Intriguingly, although these tumors present at an advanced stage multiple studies have shown that they can be more curable compared to HPV- HNSCC. To better understand why these more advanced tumors are curable, we examined the response to treatment of HPV positive cancer with radiation and cisplatin. We have created a syngeneic mouse model of HPV+ and HPV- HNSCC by transforming mouse primary tonsil epithelial cells with either HPV oncogenes or a non-antigenic RNAi strategy that affects similar oncogenic pathways. Using these transformed cells we examined the effect of radiation on HPV+ and HPV- tumors in immune competent and immune incompetent mice. In addition to the mouse cells we also examined responses in human cancer cell lines. The results from our in vitro clonogenic survival assays demonstrate that HPV + cells are more resistant to radiation and cisplatin therapy compared to their HPV-counterparts. This result was consistent for human cancer cell lines, HPV transformed primary tonsil keratinocytes and HPV transformed mouse primary tonsil keratinocytes. Surprisingly the reverse sensitivity was observed in HPV positive tumors after radiation and cisplatin therapy in vivo. HPV tumors were much more sensitive in vivo and at 20 gray of radiation HPV+ tumors were eradicated compared to the HPV-counterpart that showed persistent growth. In the same manner, cisplatin therapy in vivo was able to result in a cure of HPV+ tumor but not HPV- tumors. To understand whether an immune response could explain this enhanced eradication, we repeated the same studies in syngeneic mice lacking an ability to mount a cytolytic T-cell response. In these immune incompetent mice neither radiation nor cisplatin resulted in a cure. Adoptive transfer of wild-type immune cells into the immune incompetent mice restored immune clearance during cisplatin treatment. Our results prove that HPV positive tumors are not more curable based on an increased epithelial sensitivity to cisplatin or radiation therapy, but rather that these therapies induce a tumor clearing immune response to this antigenic cancer. The implications from these results may lead to novel therapies that enhance tumor eradication for HPV+ cancers.

S002
OUTCOME OF A VETERAN POPULATION TREATED FOR TONSIL SQUAMOUS CELL CARCINOMA: CHANGES IN SURVIVAL OVER 25 YEARS, James Jaber MD, Jonathan Moreira BS, W. Jeffrey Canar PhD, Carol M Bier-Laning MD, Hines VA Hospital, Loyola University Medical Center
Treatment of tonsil squamous cell carcinoma (SCCa) has increasingly shifted towards primary concurrent chemoradiotherapy. There is evidence in laryngeal SCCa that survival after primary nonsurgical treatment may be inferior compared to primary surgery. We were interested in finding out the survival after treatment for tonsil SCCa in the relatively heterogeneous and somewhat unique veteran population. Objectives: (1) to determine the recurrence and survival outcome in veterans treated for tonsil SCCa based on treatment date cohort (prior to 1997 vs. 1997 or later), type of treatment (surgical vs. nonsurgical) and stage of disease (early vs. late); (2) to determine the recurrence and survival differences in veterans treated for tonsil SCCa based on smoking status as a surrogate for HPV status. Methods: Patients treated between 1981 and 2006 for tonsil SCCa at our tertiary care Veterans Administration hospital were included. Data was collected from the medical record. Survival analysis was performed by constructing survival curves for disease free survival (DFS), disease specific survival (DSS) and overall survival (OS). Outcome analysis was performed using logistic regression. In addition, a comparison of recurrence, DFS and OS between smokers and nonsmokers was performed and analyzed using Student’s t-test. Results: 141 patients had complete data and were included in the study. Significant findings included better DFS in the >1997 cohort (61 patients/43%) (p=0.02) likely due to the use of 3D conformal radiation therapy planning and treatment starting in 1997. There was also significantly better DSS and OS in the group whose treatment included surgery (82 patients/58%) (p<0.001 and p=0.005 respectively). Nonsmokers (13 patients/9%) had significantly better DFS (p<0.001) and OS (p=0.001). Conclusions: These data suggest (1) that improvements in radiation therapy planning have been associated with better disease control; (2) that a treatment plan that includes surgery leads to improved survival; (3) that nonsmokers who are diagnosed with tonsil SCCa appear to have better survival compared to smokers with tonsil SCCa.

S003
PREDICTING RESIDUAL NECK DISEASE IN PATIENTS WITH OROPHARYNGEAL SQUAMOUS CELL CARCINOMA (OP-SCCA) TREATED WITH RADIATION THERAPY (RT); UTILITY OF P16 STATUS, David C Shonka, Jr. MD, Asal N Shoushtari MD, Paul W Read MD, James F Reibel MD, Paul A Levine MD, Mark J Jameson MD, University of Virginia
Objective: Identify factors that predict complete response of cervical nodal disease to RT in patients with OP-SCCA. Design: Retrospective chart review and histologic analysis. Setting: Tertiary referral center. Patients: Eighty patients with OP-SCCA treated from January 1, 2002 through June 1, 2008. Intervention: Definitive RT ± chemotherapy ± post-treatment neck dissection (ND). Main Outcome Measure: SCCa in specimen of dissected necks; recurrence in undissected necks. Results: A tissue microarray was prepared using specimens from 80 patients with initial OP-SCCA treated primarily with XRT ± chemotherapy. Of these, 52 (65.0%) were strongly and diffusely positive for p16 expression by immunohistochemistry, suggesting HPV positivity, p16+ and p16- patients had similarly sized primary tumors on presentation, but p16- patients had more advanced neck disease (N2-N3 69.2% vs. 53.6% in p16- patients) and more contralateral nodal disease (25.0% vs. 3.6% in p16- patients). 44 patients (55.0%) underwent planned post-treatment neck dissection (ND; 53 necks). Necks with p16+ tumors were significantly more likely to have no viable tumor in the ND specimen (81.1% vs. 50.0% for p16- patients; p=0.021), p16+ tumors with residual neck disease after RT where characterized by higher initial nodal stage, extracapsular spread on pre-treatment imaging, and poor response on post-treatment imaging. p16- necks exhibited high rates of residual disease even at earlier N-stages (40.0% of N1). 36 patients (45.0%) were observed post-XRT without ND (initial ND or complete clinical response). Of these, only 1 patient developed neck disease within the follow-up period (avg 25.2 mos); this patient’s tumor was p16-. Conclusions: In conjunction with other clinical parameters, p16 status can help predict the need for post-RT ND in patients with OP-SCCA. Whereas close observation may be warranted in selected patients with p16+ tumors, patients with p16- tumors are at much higher risk for residual neck disease, even when initial nodal disease is much less advanced.

S004
CT-PET scanning has been used in the management of head and neck cancer for a little more than a decade. Despite widespread agreement on its value, medical practitioners who manage head and neck cancer lack established guidelines on its implementation in practice, and differences remain regarding its use. Here, we present data from a survey sent to members of the American Head and Neck Society (AHNS), including surgeons, radiation oncologists, and medical oncologists. This survey sought to harness the consensus on the use of CT-PET scanning for staging and surveillance of stage III and IV cancers. Of 246 responders, 35% ordered pre-treatment CT-PET scans 100% of the time, while more than half of responders ordered one between ¼ and ¾ of the time. 12% did not order pre-treatment scans on any patients. Post-treatment, 37% of responders ordered CT-PET scans 100% of the time, whereas only 8% never ordered post-treatment scans. 58% indicated they ordered post-treatment scans at 12 weeks compared to between 10% and 15% who ordered one at other specified times. 68% of responders used CT-PET scans in surveillance, with 48% ordering one every 6 months. Compared to other modalities, surveillance with CT-PET was preferred over CT or MRI (67% vs 26% and 5% respectively). CT-PET scans changed surveillance management. Using a sample question about a
T2N2 tonsil cancer, when lesions were found on surveillance scans, most practitioners ordered imaging-guided fine needle aspiration biopsies. Taken together, these results confirm that CT-PET scanning is an established modality in the armamentarium of medical practitioners who manage head and neck cancer. Furthermore, they suggest a growing consensus amongst practitioners that CT-PET scans should be regularly utilized in post-treatment assessment of response at 12 weeks, and for surveillance every six months.

**S005**

**IS PET-CT A RELIABLE RE-STAGING TOOL FOR EARLY (6 - 8 WEEKS) PREDICTION OF TREATMENT RESPONSE AFTER CHEMORADIATION FOR HEAD AND NECK CANCER?** James P. Malone MD, Michael Gerberi MD, Syam Vasisetty MD, Larry Hughes PhD, Krishna Rao MD, Bruce Shevlin MD, Matthew Kuhn MD, Dean Collette MD, Joel Tennenhous MD, K. T Robbins MD, Southern Illinois University School of Medicine & St. John’s Hospital, Springfield, IL

**Objective:** To assess the role of positron emission tomography–computed tomography (PET-CT) in predicting early (6 - 8 weeks) treatment response at the primary site and neck after chemoradiation for advanced stage squamous cell carcinoma of the head and neck (SCCHN). **Methods:** Thirty-one patients with advanced-stage SCCHN were treated with concomitant intra-arterial (IA) chemotherapy and radiation therapy. Physical examination (PE), contrast-enhanced neck CT and PET-CT were performed 6 - 8 weeks after completion of therapy to assess response. Patients with findings on PE, CT or PET-CT concerning for persistent disease underwent appropriate surgical intervention for pathologic assessment of disease status. Patients with a complete clinical response (cCR) were observed with routine follow-up PE for disease recurrence, and no evidence of disease at least 6 months after the completion of the PET-CT scan was considered as confirmation of cCR. Sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) were calculated for the primary site and the neck.

**Results:** Median time from completion of treatment to PET-CT was 41 days. The median follow-up was 23.8 months. PET-CT for assessment of tumor response at the primary site had sensitivity, specificity, positive predictive value and negative predictive value of 87%, 56%, 41% and 92% respectively. In patients with clinically positive cervical lymph node metastases prior to treatment, sensitivity, specificity, positive predictive value and negative predictive value of post-treatment PET-CT were 66%, >94%, >66%, and 94% respectively. The specificity and negative predictive value for patients with no evidence of cervical lymph node metastases prior to treatment were 92% and >92% respectively.

**Conclusion:** Early (6 - 8 weeks) post-treatment PET-CT scan is highly accurate at predicting treatment response in the cervical lymph nodes after IA chemoradiation. A negative PET-CT at the primary site is also highly accurate for predicting disease response, but a significant number of false positive findings are noted. These findings suggest that patients with a cCR based on PE and imaging studies including PET-CT after completion of IA chemoradiation do not require surgical intervention.

**S006**

**USE OF OPTICAL IMAGING TO PREDICT TUMOR RESPONSE TO ANTI-EGFR THERAPY.** Nichole R Dean DO, Emily E Helmam MS, John R Newman MD, Wenyue Zang MS, Eben L Rosenthal MD, University of Alabama at Birmingham

**Objective:** There are currently no laboratory tests to determine whether patients will respond to treatment with anti-epidermal growth factor receptor (anti-EGFR) antibody. Full course therapy is delivered at a high cost (approximately $18,000 for six weeks) with a single agent response rate of less than 15%. The purpose of this study is to assess whether optical imaging of antibody processing within the tumor in vivo or in vitro can predict response to anti-EGFR therapy.

**Study Design:** Immunoprecipitation using a mouse anti-EGFR monoclonal antibody, cetuximab and cell lines were imaged at 0, 4, 24 and 48 hours to determine if antibody internalization pattern could be used to predict tumor cell response. **Results:** In vivo, SCC-1 (P=0.0001), SCC-5 (P=0.001), and SCC-22A (P=0.001) tumors responded well to anti-EGFR treatment, while FaDu tumors (P=0.007) had a moderate response compared to untreated controls. CAL27 tumors were resistant to treatment with cetuximab (P=0.90). Fluorescence intensity within the tumor did not correlate with tumor response to therapy, however when cells were evaluated for fluorescence internalization pattern after addition of the cetuximab:Cy5.5 bioconjugate, a clear pattern predicting response could be seen. CAL27, which responded poorly to cetuximab therapy had the highest level of internalization (P=0.014). Failure to completely internalize the fluoroscently labeled antibody resulted in a favorable response to anti-EGFR therapy. **Conclusion:** Fluorescence imaging with the bioconjugate cetuximab:Cy5.5 in vitro may aid in determining which patients are most likely to benefit from anti-EGFR therapy.

**S007**

**ULTRASOUND FOR LONG-TERM ASSESSMENT OF THE LATERAL NECK COMPARTMENTS IN THYROID CANCER.** Mauricio A Moreno MD, Gary L Clayman MD, Garima Agarwal MD, Rolando De Luna BS, M. D. Anderson Cancer Center

**Background:** In thyroid cancer the lateral neck is usually dissected only in the presence of an abnormality in the preoperative ultrasound (US). Despite this widespread practice, there is very limited data evaluating the effectiveness of US to predict long-term locoregional disease-free outcomes. **Methods:** Retrospective chart review of 317 consecutive patients primarily treated for well-differentiated papillary thyroid cancer at tertiary referral center between 1996 and 2003. US findings for the central and lateral compartments were documented independently. Demographics, staging, surgical technique, pathology findings, adjuvant treatment and outcomes were retrieved. **Results:** There were 129 males and 188 females with a median age of 46.9 years (range 18 to 84). The median follow-up time was 66.8 months. Papillary carcinoma was found in 88.3% while multicentric disease was found in 144 patients. There were 136 patients with a T1 lesion, 63 with T2, 73 with T3, 45 with T4; 71.3% of the patients underwent radiiodine adjunctive therapy. Preoperative US demonstrated no lymphadenopathies in the central compartment in 236 patients (74.5%), but definitive pathology showed nodal disease in 14.4% of them. The lateral neck was negative by US in 197 patients. Five of these patients (2.6%) developed a recurrence in the lateral compartment during the surveillance period, with an average time for recurrence of 15.9 months (5.8 to 16.3). In contrast, 14 of the 120 patients (11.7%) with suspicious or positive findings in the US occurred in the lateral neck. The average time for recurrence for this group was 16.4 months (11.3 to 55.2). In patients with neck recurrence, unilateral level IV failure was the most frequent form of presentation (73.3%). Overall, the 10-year locoregional disease free survival was 97.4% for patients with a negative US vs. 81.8% for the positive US (p<0.0001). A normal US of the lateral compartments had a negative predictive value of 97.4% for long-term recurrence in the lateral compartment. Multifocal disease and advanced T stage (T3/T4) were also associated with higher locoregional failure (p=0.012 and p=0.033 respectively). During the surveillance period, routine US identified 76% of the patients who developed a neck recurrence. **Conclusions:** Preoperative US the lateral neck is an excellent predictor of long-term regional disease status in well-differentiated thyroid cancer. This data supports a conservative approach for the lateral compartments of the neck in patients with normal sonographic findings.

**S008**

**THE ROLE OF SENTINEL LYMPH NODE BIOPSY IN PAPILLARY THYROID CANCER.** Sunmeet M Anand MD, Michael P Hier MD, Martin J Black MD, Olga Golorgan MD, Louise Rochon MD, Jacques How MD, Michael Tamila MD, Mark Trifiro MD, Roger Tabah MD, Richard J Payne MD, Department of Otolaryngology - Head & Neck Surgery, McGill University, Montreal, Quebec, Canada

The management of occult central compartment (CC) metastasis in papillary thyroid carcinoma (PTC) is yet controversial. A routine adoption of CC dissection is not currently standard management, partly given the risks of recurrent laryngeal nerve injury and hypoparathyroidism.
**Oral Papers**

**Objective:** To establish if sentinel lymph node (SLN) biopsy (SLNB) can accurately predict CC metastasis in PTC. **Methods:** In this ongoing retrospective clinical trial, peritumoral injection of methylene blue has been performed in 42 patients to date suspicious for PTC. **Results:** Overall, there is agreement of SLN findings and final pathology in 39 of 42 cases (93%). True PTN has been found in 25 patients (60%). Among PTC cases, SLN’s have been identified in 21 patients (84%); of these, 28% were positive on final analysis. Notably 12% of PTC’s had metastasis to the SLN and non-SLN CC and 16% had metastasis only to the SLN. No cases have had metastasis to the CC without a positive SLN. **Conclusion:** SLNB is an accurate and non-invasive means of identifying CC SLN’s in PTC. This technique may allow thyroid surgeons to select out patients needing formal CC neck dissection, avoiding an increased risk of complications in those patients with a negative SLNB.

**S009**

**Clinical Utility of PET-CT in Recurrent Thyroid Carcinoma.** Ali Razfar BS, Apostolos Christopoulos MD, Shane O Lebeau MD, Steven Haddock MD, Sally E Carly MD, Barton F Branstetter IV MD, Robert L Perrin MD PhD, University of Pittsburgh Medical Center Background: To determine the efficacy of combined positron emission tomography and computed tomography (PET-CT) for identifying recurrence in advanced thyroid cancer, and to examine its role in patient management. **Methods:** Retrospective review at a tertiary care referral academic center, of 123 patients (77 females, 46 males, mean age 45 years) with previously treated, thyroglobulin (Tg) positive thyroid carcinoma. A total of 265 PET-CT scans (mean 2.2 scans per patient) were reviewed and correlated with clinicopathologic information (mean follow-up = 3.1 years). Impact of PET-CT findings on treatment plan was evaluated. **Results:** Of 114 patients undergoing radio-iodine scans, 81.6% had negative scans before undergoing PET-CT. There were 73 patients (59.3%) with positive findings on PET-CT; 69 were true positive. There were 50 patients (40.7%) with negative findings on PET-CT; 35 were true negative and 15 were false negative. PET-CT demonstrated a sensitivity of 82.1%, specificity of 89.7%, positive predictive value of 94.5%, and negative predictive value of 70.0%. There was a significant difference in Tg levels in patients with positive and negative PET-CT findings (188.0 ng/mL vs 20.8 ng/mL, p=0.028). Overall, distant metastases were detected in 27 patients (22.0%) using PET-CT. There was an alteration of treatment plan in 46.3% of patients as a result of added PET-CT information; 48 patients (39.0%) underwent additional surgery. **Conclusions:** PET-CT is usually applied in thyroid cancer patients with elevated Tg but no iodine-avid tumor, and has high diagnostic accuracy for identifying local, regional, and distant metastases. Additional information from PET-CT scanning frequently guides the management of recurrent thyroid carcinoma.

**S010**

**Recurrent Laryngeal Nerve Threshold Potentials Do Not Predict Post-operative Vocal Cord Paralysis in Thyroid Surgery.** Garret W Choby BS, Chris Hellenbeak PhD, Samuel Johnson MS, David Goldenberg MD, Penn State University Hershey Medical Center, Department of Otolaryngology Background: Iatrogenic injury to the recurrent laryngeal nerve (RLN) is one of the most severe complications of thyroid surgery. Intraoperative neuromonitoring (IONM) has gained acceptance as an adjuvant method to verify the functional integrity of the RLN after anatomic identification. The goal of this study was to determine if the minimum threshold stimulation current of the RLN measured during IONM can be used to accurately predict post-operative vocal cord function. **Methods and Patients:** 80 patients with 111 at-risk nerves underwent thyroid surgery by one surgical team at Penn State University College of Medicine in this retrospective study. IONM was used in all cases. RLN threshold measurements were taken before and after resection to determine the minimum current needed to stimulate the RLN. Risk of paresis was modeled using logistic regression and risk was quantified using adjusted odds ratios. **Results:** The average minimum current required for stimulation of the RLN prior to resection was 0.50 mA. The average RLN minimum threshold level following resection was 0.47 mA. The average difference in pre and post-resection RLN threshold current is -0.31 mA. The pre-resection RLN threshold level (p=0.42), the post-resection RLN threshold level (p=0.49), and the difference in the pre and post-resection RLN threshold level (p=0.74) all did not have a statistically significant effect upon risk for paresis. No other covariates had a significant association with paresis. **Conclusions:** The pre and post-resection RLN thresholds, as well as the difference between them, were not significant predictors of post-operative vocal cord paralysis. Thus, IONM of the RLN can be a useful instrument for surgeons to verify the functional integrity of the RLN and guide surgeons in difficult anatomical cases. Minimum thresholds of the RLN, however, does not reliably predict post-operative outcomes as defined as VC paralysis.

**S011**

**Intraoperative Laryngeal Nerve Monitoring During Thyroidectomy.** Kimberly A Donnellan MD, Karen T Pitman MD, Jon D Simmons MD, William Repogle PhD, Ron Cannon MD, University of Mississippi **Objective:** To address factors which predispose recurrent laryngeal nerves (RLN) to damage during thyroidectomy and develop a system to predict outcomes of nerve integrity at the completion of the case. **Study Design:** Prospective cohort outcomes study. **Methods:** 201 consecutive patients treated for thyroid abnormalities either by thyroid lobectomy or total thyroidectomy were enrolled. Demographics, management, and outcomes data were recorded prospectively. Pre and post-operative vocal cord function were assessed in each patient by fiberoptic laryngoscopy. Normal versus impaired vocal cord function were compared using an independent t-test with respect to: post operative vocal quality, length of the RLN dissection during the case, total number of stimulations provided during the case via the Xomed endotracheal tube NIM monitor, and maximal amount of stimulation in mAMPS needed to stimulate the nerve at the completion of the case with the NIM monitor (using 0.25, 0.5, and 1.0 mAMPS). **Results:** 79.6% of post-operative patients with normal vocal cord function had a normal vocal quality. However, 14.3% of post-operative patients had a normal vocal quality with a confirmed nerve paralysis (p < .01). Length of nerve dissected during the case did not correlate with post-operative vocal cord function for the right RLN (p=0.8) but there was a correlation for the left RLN (p=0.03). Total number of stimulations administered throughout the case was not statistically significant with respect to vocal cord function (p >0.08). In general, when the RLN responded to intra-operative stimulation at lower mAMPS, there was a statistically higher chance of having normal post-operative vocal cord function. **Conclusion:** We have found no articles addressing the Xomed endotracheal tube NIM monitoring device’s ability to predict outcomes following thyroidectomy. Normal post-operative vocal quality after thyroidectomy does not always ensure normal vocal cord function. In general, if the nerve responded to a lower intensity stimulation at the end of the case, it was statistically more likely to predict normal post-operative RLN function.

**S012**

**Clinical Correlation of Circulating Tumor Cells in Head and Neck Cancer Patients.** Kris R Jatanan MD, Jeffrey J Chalmers PhD, Elisabeth White BA, Priya Balasubraman BS, Liyang Yang PhD, David E Schuller MD, Enver Ozer MD, Theodoros N Teknos MD, Jas C Lang PhD, The Ohio State University and Arthur G. James Cancer Hospital **Objective:** 1) To present a successful negative depletion method for the isolation of circulating tumor cells (CTCs) in blood of head and neck cancer patients. 2) To determine correlation between the presence of CTCs and clinical outcome in head and neck cancer patients. **Methods:** A negative depletion process to isolate and quantify circulating tumor cells from the blood of head and neck cancer patients, using immunomagnetic separation was developed and validated. To date, this technique was performed on over 40 blood samples taken from patients at the time of surgery. Immunostaining for cytokeratin was performed to determine the number of CTCs extracted from each patient’s blood sample. In addition, RNA was extracted from the CTCs, and PCR was used to investigate EGFR expression. Correlation was made between the of number of CTCs, tumor stage, nodal status, EGFR status, and clinical outcome. **Results:** All CTCs were found to be positive for EGFR. Our data suggests that patients with more than 10 circulating tumor cells per mL of blood had evidence of lymphatic and/or distant metastasis. For the initial 22 patients, a trend toward improved survival was shown in those patients with less than 10 CTCs per mL of blood (mean follow-up
in day 1 and were fed a diet containing 300mg/kg glucosylceramide respectively, for two months. An analysis of scale (VAS) of 100 mm. A VAS score of >50 mm defined a high LI group and ≤ 50 a low LI group. Patients were followed for overall survival (OS). Patients were compared to selected site-matched controls from the RTOG trial radiation only arm (JS Cooper. NEJM 350:197, 2004). Results: The OS for all IRX-2 treated patients at 12 and 24 months of follow up was 92.6% and 76.3% compared to RTOG controls of 78.2% and 52.0%, respectively. The high LI group (n=11) had 100% and 90.9% survival and the low LI group (n=14) had 85.7% and 68.2% survival, respectively. Conclusions: In this small non-randomized study there appeared to be a survival trend in the IRX-2 treated patients which may correlate with the degree of lymphocytic infiltrate, e.g., the high LI group having the best OS trend. A large randomized study which carefully analyzes tumor sampling methods for LI as a response to IRX-2 immunotherapy is needed to confirm these results.

**S015**

**ADVERSE EVENTS ASSOCIATED WITH CONCURRENT CHEMORADIATION IN PATIENTS WITH HEAD AND NECK CANCER.** Daniel J Givens BS, Lucy H Karnaell PhD, Anjali K Gupta MD, Gerald H clamon MD, Nitin A Pagedar MD, Douglas J Van Daelle MD, Gerry F Funk MD, University of Iowa College of Medicine

Introduction: This study assessed acute and late toxicities and health-related quality of life (HRQOL) outcomes in patients whose head and neck cancer was treated primarily with concurrent chemoradiation therapy (CRT) using intensity-modulated radiation therapy (IMRT).

Methods: Patients diagnosed between February 1, 2000, and March 1, 2007, were eligible if they received CRT with IMRT and participated in the longitudinal Outcomes Assessment Project. During this time period, 2 different radiation planning systems were used: the “first generation” NOMOS PEACOCK, then the current Phillips Pinnacle 3. HRQOL data delivery system to locally inhibit gene expression with small interfering RNA (siRNA) against Smad3, we attempted to mitigate the effects of irradiation on murine skin before (prevention) or after (salvage) high-dose radiation. Methods: Using an isolated skin irradiation model, the dorsal skin of C57/BL6 wild-type mice was irradiated (45Gy). Just prior to irradiation (prevention), Smad3 and nonsense siRNA were applied to two separate dorsal skin areas and then reapplied weekly. Skin was harvested (weekly for 4 weeks). In a separate group (salvage), 4 weeks after irradiation, mice were treated in two separate areas with Smad3 and nonsense siRNA and skin was harvested 1 week later. Smad3 expression was assessed using immunohistochemistry and RT-PCR analysis. Lung, liver, spleen homogenates were evaluated for off-target Smad3 suppression. Radiation-induced fibrosis was measured quantitatively via tensiometry. Young’s modulus, a measure of cutaneous rigidity inversely related to elasticity, was determined (control=normal skin). Results: Prevention group: skin treated with topical Smad3 siRNA demonstrated effective Smad3 inhibition at 1 week (immunohistochemistry/western) and persistent suppression through week 4. Similarly, the salvage group had effective Smad3 silencing. No off-target Smad3 suppression was identified. Tensiometry in both groups demonstrated decreased tension in Smad3 siRNA treated skin,
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with Young’s modulus=8.8MPa (prevention), 9.3MPa (salvage; non-irradiated normal=7.78MPa) compared to untreated and nonsense siRNA treated skin (16.5MPa). **Conclusions:** This study demonstrates that Smad3 expression can be effectively silenced in vivo using a novel topical delivery system. Moreover, cutaneous Smad3 inhibition mitigated radiation-induced changes in tissue elasticity restoring a near normal phenotype in both prevention and salvage groups.

**S017**


**Objective:** To compare outcomes of reirradiation with and without salvage surgery for mucosal squamous cell carcinoma of the head and neck. **Design:** Retrospective chart review. **Setting:** Academic, tertiary referral hospital. **Patients:** Between January 1992 and August 2007, 95 patients with known distant metastases undergone reirradiation, 75 with curative intent and 20 palliative. **Intervention:** Reirradiation with salvage surgery (n=50) and without (n=45). **Main Outcome Measures:** Actuarial survival, major disease morbidity and toxicity by Radiation Therapy Oncology Group criteria, tracheostomy and enterogastrostomy tube dependence. Variables include: treatment intent, tumor characteristics, disease-free interval, surgery, free flap reconstruction between radiotherapies, radiotherapy dose and chemotherapy. **Results:** After a mean follow up of 8.6 years (minimum 15 months), mean overall survival was 16.8 months with 2- and 5-year survival rates being 16.8% and 4.2%, respectively. Patients who underwent salvage surgery prior to reirradiation survived longer (19.7 months) than who underwent reirradiation alone (13.4 months, p=0.05). Reirradiation dose of >58 Gy was also associated with longer survival (20.9 vs. 26.6 months, p=0.0001). Patients who had salvage surgery followed by reirradiation had a higher rate of grade 3 or 4 toxicities (42% vs. 23.2%, p=0.04) and were less likely to have a tracheostomy at death (45% vs. 62.5%, p=0.06). Patients having free flap reconstruction (n=39) had a trend toward a lower rate of grade 3 or 4 toxicities (26.3% vs. 44%, p=0.08) following reirradiation than those without vascularised non-irradiated tissue in the reirradiation field. **Conclusion:** Reirradiation is associated with poor outcomes and salvage surgery can marginally improve survival. Introduction of vascularised non-irradiated tissue prior to reirradiation may slightly reduce toxicity of reirradiation.

**S018**

N2 DISEASE IN HNSCC PATIENTS TREATED WITH CHEMORADIOThERAPy: IS THERE A ROLE FOR POST-TREATMENT NEck DISSECTION?, Aijia H Cho MD, Gloria Caldito PhD, Adam Masters BS, Andrew Nida BS, Fred Ampil MD, Amol Takalkar MD, Cherie-Ann Nathan MD, LSU Health Sciences Center – Shreveport

**Objectives:** To determine predictive factors for persistent neck disease in HNSCC patients with N2 disease. Specific predictors addressed were: 1) nodal necrosis and/or size >and/or= 3 cm, 2) if negative PET >and/or= 8 weeks after therapy indicates complete response in the neck. **Study Design:** Retrospective. **Methods:** 60 patients with HNSCC and N2 disease treated with chemoradiotherapy between 2002 and 2006 were evaluated for persistent/recurrent neck disease. Tumor characteristics that were statistically analyzed were primary site, nodal size (< or >and/or= 3 cm), presence of nodal necrosis, and type of N2 disease (N2a, N2b, or N2c) based on pathology. Nodal necrosis was based on hypodensity >and/or= 1/3 of node. 48 patients were evaluated with PET scans at >and/or= 2 months after chemoradiotherapy. Serial PET scans were obtained ranging from 2 to 48 months. Clinical examination, CT, PET, and/or neck dissection specimens were used to evaluate recurrence. **Results:** Majority of patients had oropharyngeal tumors (67.8%), nodes >and/or= 3 cm (78.3%), positive necrosis (73.3%), and N2c disease (51.7%). Multivariate analysis determined that these risk factors were not significant predictors for recurrent/persistent nodal disease or overall survival. Comparison of PET with nodal recurrence demonstrated sensitivity of 81.8%, specificity of 97.3%, NPV of 94.7%, and PPV of 90.0%. **Conclusions:** Nodal size >and/or= 3 cm and necrosis were not associated with nodal recurrence after chemoradiotherapy. Negative PET can reliably identify complete response in the neck. Therefore, post-treatment neck dissections may not be indicated in N2 disease with a negative PET, even with node necrosis and nodes >and/or= 3 cm in size.

**S019**

RADIOLOGIC COMPLETE RESPONSE IN POST-CHEMORADIATION NECK DISSECTION SPECIMENS IS ASSOCIATED WITH PATHOLOGIC COMPLETE RESPONSE, Alexander Landerman MD, Colleen Plein BA, Everett E Vokes MD, Joseph K Salama MD, Elizabeth A Blair MD, Kerstin M Stenson MD, University of Chicago

The necessity and extent of neck dissection following chemoradiation is controversial. Therefore, we reviewed patients who underwent planned post-chemoradiation hemi-neck dissections between 1999 and 2002 to compare preoperative computed tomography (CT) findings with pathologic findings in the surgical specimen. Patients were treated with induction carboplatin/paclitaxel followed by 5 cycles of hydroxyurea/5-FU/paclitaxel and radiation to a total dose of 72 to 75 Gy. After completing CRT, patients were restaged clinically and radiographically with a CT of the head and neck, and patients with pre-treatment N2 or greater neck disease or residual post-treatment disease underwent selective neck dissection. Extent of dissection was dictated by primary site and extent of pre-chemoradiation neck disease rather than post-chemoradiation neck staging. Involvement of nodal levels was then compared on post-chemoradiation CT and pathology specimens. 49 patients underwent 61 planned post-chemoradiation hemi-neck dissections of 209 neck levels. Pre-chemoradiation neck stage was N2a in 2 (4%), N2b in 23 (47%), N2c in 10 (20%), and N3 in 14 (29%). Radiologic complete response in the neck was achieved in 38/49 patients (80%). In the 10 patients with radiographic residual disease, a total of 14 involved neck levels with residual disease were identified on CT. Five (50%) of these ten patients were found to have residual tumor on pathologic analysis. Tumor was contained only to those levels found positive on CT, being present in 7 (50%) of the 14 positive levels. Pathologic positivity was not related to pre-chemoradiation N stage (p=0.24). These findings suggest neck levels with residual disease on post chemoradiation CT imaging require removal. Furthermore, neck levels without disease on CT are unlikely to harbor cancer, lending further support to the concept of basing post-chemoradiation neck dissection on post-chemoradiation neck staging and performing superselective neck dissections for residual disease.

**S020**

THE ROLE OF VASCULAR ENDOTHELIAL GROWTH FACTOR ON RADIOTHERAPY RESPONSE IN HEAD AND NECK CANCER, Ozlem E Tulunay-Ugur MD, Jian-Hui Ye PhD, Chen-Yang Fan MD, Alexander Langerman MD, Paul M Spring MD, Emre Vural MD, University of Arkansas for Medical Sciences Department of Otolaryngology Head and Neck Surgery, John L. McClellan Memorial Veterans Hospital

**Objective:** Despite the development of new treatment protocols, head and neck cancer remains a significant public health problem, with minute improvement in survival rates. Angiogenesis has been shown to play an important role in tumor progression, as well as response to chemoradiotherapy. The role of angiogenic factors is still being evaluated in head and neck cancer. In this preliminary study we aimed to investigate the role of Vascular Endothelial Growth Factor (VEGF) on tumor response following radiotherapy, in a head and neck cancer model. **Methods:** 7 mice were injected with 2 million UMSCC1 cells in both thighs. Three weeks after the injection of tumor cells, 40 µl of VEGF (4 µg) was injected into the center of the tumor mass at left side; and 0.1% BSA diluted with saline was injected into the tumor at right side, as control. Five days after the VEGF injection, the mice received 1.8 G ionized radiation for three days. Four of the seven mice were sacrificed one week after the last radiation treatment. The remaining three mice were sacrificed one month post-radiotherapy. **Results:** One mouse died on the third day of radiotherapy. For the remaining 6 mice, the mean volume of the tumor on the VEGF treatment site was 1.98, compared to 0.85 on the control side (p<0.05). The tumor weight on the VEGF site was 0.90 gr, compared to 0.47 gr on the control side, which was statistically significant as well (p<0.05). Similarly, histopathological analyses were performed and the mean microvascular density (MVD) was 6.85 and the mitotic index (MI) 40.67 on the VEGF site. On the control side the mean MVD was 7.58 and MI 18.0. While the MVD was not statistically
significant, the MI was highly significant (p<0.05). It should be noted that the tumors on the VEGF site continued to grow. **Conclusions:** The results of this study suggest that head and neck cancer cells may continue their growth during radiation treatment in the presence of an appropriate angiogenic stimulus. Therefore, antiangiogenic treatments may be used in conjunction with radiation for better local control.

**S021**

**THE FACTORS IN PREDICTION OF POSTOPERATIVE PULMONARY COMPLICATION AFTER SUPRACRICOID PARTIAL LARYNGECTOMY(SCLP),** Min-Sik Kim MD, Young-Hoon Joo MD, Dong-II Sun MD, Kwang-Jae Cho MD, Jung-Hae Cho MD, The Catholic University of Korea

**Objectives/Hypothesis:** To find out the risk factors related to postoperative pulmonary complications in patients undergoing supraccricoid partial laryngectomy (SCPL). **Study Design:** Retrospective analysis. **Methods:** The study included 111 subjects with SCPL. We evaluated the relationship between postoperative pulmonary complications and the perioperative risk factors such as age, gender, chronic lung disease, smoking status, tumor site, tumor stage, preoperative irradiation, extent of surgery, reconstruction method, and pulmonary function test. **Results:** Thirty six (32.4%) of the 111 patient developed postoperative pulmonary complications. **Conclusion:** In the multivariate analysis, significant association with postoperative pulmonary complications was identified with age (odds ratio = 3.8 [95% CI, 1.2-11.7] for 60 to 69 years, odds ratio = 7.1 [95% CI, 1.3-37.6] for 70 to 79 years) and cricohyoidopexy (odds ratio = 0.008) and an ipsilateral arytenoidectomy (p=0.034) were associated with postoperative pulmonary complications. Among the pulmonary function test, FEV1/FVC (p=0.043) was significantly correlated with postoperative pulmonary complications. In the multivariate analysis, significant association with postoperative pulmonary complications was identified with age (odds ratio = 3.8 [95% CI, 1.2-11.7] for 60 to 69 years, odds ratio = 7.1 [95% CI, 1.3-37.6] for 70 to 79 years) and cricohyoidopexy (odds ratio = 4.4 [95% CI, 1.1-18.1]).

**S022**

**IMPROVED SURVIVAL OF ADVANCED LARYNGEAL CANCER IS ASSOCIATED WITH TREATMENT AT HIGH VOLUME TEACHING FACILITIES,** Amy Y Chen MD, Alex Pavluck MPH, Elizabeth M Ward PhD, American Cancer Society, Emory University **Objective:** Due to the multidisciplinary nature of advanced laryngeal cancer treatment, we hypothesized that treatment at high volume teaching/ research facilities is associated with improved one year survival. **Methods:** 37,119 cases of advanced laryngeal cancer (Stage III and IV) were treated at Commission on Cancer (CoC) facilities from 1996-2004 and reported to the National Cancer Database (NCDB). After exclusions, 32,399 (87.3%) cases were available for analysis. Clinical staging, treatment, and demographic variables were collected. The CoC stratifies facilities into teaching/ research facilities, community cancer facilities, and community hospitals. Volume was dichotomized as high or low based on the median value of average number of laryngeal cancer cases reported per year by facility type. Multivariate proportional hazards regression modeling was used. **Results:** 13,831 (42.7%) cases were Stage III. Treatment included total laryngectomy (29.4%), chemoradiation (29.6%), radiation alone (26.5%) and subtotal laryngectomy (4.7%). Most patients (41.5%) were treated at high volume teaching/ research centers (average 25 cases/ year). Among all patients, 20.6% died within the first year. In multivariate models controlling for stage, age, insurance, and other covariates, the hazard ratios for death were significantly higher for all facility and volume types compared to high volume teaching/ research centers. **Conclusion:** Receiving treatment at high volume teaching/ research facilities is associated with improved survival. Our results suggest that substantial regionalization of care for advanced stage laryngeal cancer may have already occurred since most patients were treated at high volume teaching/ research facilities. Future studies should investigate factors associated with treatment at high volume teaching/ research facilities, such as quality of care, processes of care, and referral patterns.

**S023**

**OFFICE-BASED TRACHEOESOPHAGEAL PUNCTURE WITH TRANSNASAL ESOPHAGOSCOPY IN TOTAL LARYNGECTOMY PATIENTS WITH OR WITHOUT FREE-FLAP RECONSTRUCTION,** Brad Lebert MD, Amy C Hessell, Jan S Lewin PhD, Melda Kunduk PhD, F Christopher Holsinger MD, Andrew J McWhorter MD, The University of Texas MD Anderson Cancer Center, Houston; the LSUHSC- Otolaryngology H &N Surgery, New Orleans, LA; Our Lady of the Lake Regional Medical Center-Voice Center, Baton Rouge, LA **Background:** Voice restoration after total laryngectomy has been a daunting task that has plagued surgeons and patients since Billroth’s procedure in 1873. Despite the simple concept, establishing successful tracheoesophageal speech remains a challenge especially after radiation or chemoradiation. Postma et al. described an office-based approach using TEP with TNE (TNE-TEP). We review our experience of more than 40 patients, with a particular focus on patients who have undergone reconstruction with regional or free flap. **Methods:** The objective of the study was to describe the operative technique and to analyze patient selection criteria, complications, and speech outcomes for patients following TNE-TEP performed in the clinic. Retrospective chart review of patients who underwent the TNE TEP procedure from January 2004 to December 2008. The patients’ charts were reviewed by both medical and speech doctorates to answer clinical questions regarding the ease, efficiency, and complications of the procedure; as well as evaluating speech outcomes. **Results:** All of the patients were reviewed in this study; 34 males and 8 females. Most patients had primary closure after total laryngectomy, but seventeen patients (40%) had undergone laryngopharyngeal reconstruction with either microvascular free-tissue transfer or regional flap. Prior to the procedure, we used systematically used the modified barium swallow to determine the relationship between the esophageal flap anastomosis and the relationship of the tracheostoma to precisely determine TEP placement. Of the 42 patients reviewed, only a single procedure was unsuccessful in the clinic and required operative placement under general anesthesia. After achieving topical anaesthesia of the nasal cavity, neopharynx, and esophagus, the length of the procedure ranged from 7 to 35 minutes. Complications, such as bleeding, stomatitis, or mediastinitis, were not encountered. Of the patients reviewed, all patients acquired successful tracheoesophageal speech. **Conclusion:** This study demonstrates that in-office TNE assisted TEP placement can successfully be performed, including patients that have had flaps for reconstruction, safely, inexpensively and with equivalent speech outcomes.

**S024**

**COMPLICATIONS IMPACTING POST-LARYNGECTOMY VOICE RESTORATION: PRIMARY VERSUS SALVAGE SURGERY,** Heather M Sturmer MS, Stacey Lahman MD, Christine Gourin MD, Wayne Koch MD, Ralph Tufano MD, Kimberly Webster MS, Paul Flint MD, Jeremy Richmond MD, Johns Hopkins University **Introduction:** Chemoradiation (CRT) has become an acceptable alternative to total laryngectomy (TL) in the management of advanced laryngeal cancer but is associated with increased toxicity over radiation therapy (RT) or surgery with postoperative RT. These toxicities have long term effects on wound healing and tissue compliance, with an increased incidence of postoperative complications when salvage TL is required. **Objectives:** To assess the impact of primary treatment modality on tracheoesophageal voice prosthesis (TEP) complications. **Methods:** A retrospective single institution cohort study of patients who underwent TL and TEP between 1996-2008. Patients were divided into 3 subgroups according to primary treatment modality; surgery (N=32), RT (N=19), and CRT (N=14). Outcomes measured included number of weeks before leakage through the TEP, number of times with leakage around the TEP, TEP dislodgement, and size changes after 6 months post-op. **Results:** There were 65 patients who met study criteria. Average age at time of surgery was 58.4 years. Of the patients who underwent primary surgery, 95% completed post-operative radiation and 20% chemotherapy. Statistically significant differences were found between primary surgery and CRT in the measures of dislodgement (p=0.001) and size changes (p=0.008). There was a trend towards shorter prosthesis duration in the CRT group, however this did not reach statistical significance (p=0.09). **Conclusion:** Voice prosthesis complications are more frequently
Microscopic Cut-Through in Oral Carcinoma: Is It a Useful Prognosticator?

Background and Objective: The prognostic implication and requirement for adjuvant therapy in patients with microscopic cut-through of oral carcinoma, documented by intra-operative frozen pathological section margin assessment, that is revised to a negative margin at surgery completion (ultimate margin) is unclear. This study aims to evaluate the impact of oral carcinoma cut-through on cancer control. Methods: A retrospective study was undertaken using the following inclusion criteria: oral squamous cell carcinoma, no previous head and neck carcinoma, no previous treatment, no distant metastases, treated with definitive surgery, and availability of pathology report. In total, 485 eligible patients (median age 62.9 years; 239 stage I/II; and 142 had post-operative adjuvant therapy) with a median follow-up of 48 months were identified. Two study groups were identified: group 1 - negative frozen section margin and negative ultimate margin; and group 2 - positive frozen section margin and negative ultimate margin. The primary outcome measures were local control (LC) and disease-specific survival (DSS) rates. Results: In the univariate analysis using the Kaplan-Meier method and univariate comparisons made with the log rank test, the Cox proportional hazard model was used to identify independent factors predictive of LC and DSS. Results: The 5-year LC and DSS for the whole cohort were 81% and 76%, respectively. Microscopic carcinoma cut-through demonstrated a non-significant trend to poorer LC (group 1, 82% vs. group 2, 76%; p = 0.14), and a statistically significant adverse impact on DSS (group 1, 78% vs group 2 54%; p = 0.003). The only clinicopathological variable that predicted poorer cancer control on multivariate analysis was extracapsular spread (p < 0.005). Conclusion: microscopic cut-through of oral carcinoma prognosticates poor cancer control, and these patients may benefit from adjuvant therapy.

S026

Chronic Cigarette Smoke Extract Induces Apoptotic Dysfunction and Mitochondrial Mutations in Minimally Transformed Oral Keratinocytes

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Objectives: Cigarette smoke demonstrates a carcinogenic effect through chronic exposure, not acute exposures. However, current cell line models study only the acute effects of cigarette smoke. Using a cell line model, we compared the effects of acute versus chronic cigarette-smoke-extract (CSE) on mitochondria in minimally-transformed oral keratinocytes (OKF6). Mitochondria have a central role in the signal transduction and coordination of apoptosis and impaired apoptosis is a central characteristic of neoplastic and malignant transformation. OKF6 cells were treated with varying concentrations of CSE for 6-months. Cells were analyzed monthly by flow cytometry for mitochondrial membrane-potential (MMP), cytochrome-c release, caspase-3 activation and viability after CSE-exposure. At each time point the same assays were performed after 24hrs of valinomycin (MMP depolarizing agent, an early event in apoptosis) or staurosporine (a non-specific protein kinase inhibitor) treatment. In addition, the mitochondrial-DNA of chronically CSE-treated cells was sequenced to determine if chronic treatment induced mitochondrial genomic alterations. After 6-months of CSE treatment, the cell line became increasingly resistant to CSE-mediated valinomycin induced cell death. In addition, chronic CSE-treatment caused chronic depolarization of MMP, cytochrome c release, and caspase activation. Interestingly, cells grown in the presence of the only CSE vapor also exhibited the same resistance and chronic baseline apoptotic activation. Mitochondrial DNA sequencing found that chronic CSE treated cells had more amino acid changing mitochondrial mutations (and total mutations) than acutely treated cells and that the number of mutations was dependent on the length of CSE exposure.

CSE treatment of normal cells can induce apoptotic dysfunction as well as mitochondrial mutations. These findings suggest that chronic tobacco exposure induce carcinogenesis via induction of apoptosis resistance and mitochondrial mutation in addition to previously known genotoxic effects. Chronic models of tobacco exposure on upper aerodigestive epithelia may be more insightful than models of acute exposure in studying head and neck carcinogenesis.

S027

Discovery of Novel Molecular Effects of Erlotinib Treatment on Oral Cavity Squamous Cell Carcinoma and in the Normal Mucosa

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Objective: EGFR is overexpressed in a majority of head and neck carcinomas, and its inhibition has been shown to improve tumor control and survival. However, not all patients respond to treatment with EGFR inhibitors, and pretreatment EGFR levels have not been shown to predict tumor response. We hypothesized, based on our preclinical studies, that treatment-induced changes in downstream signaling molecules could have predictive value, especially EGFR degradation, which is associated with radiosensitization and cytotoxicity. In addition, little is known about normal tissue effects. Therefore, we conducted a pilot study to see if we could detect downstream effects such as those we know to be important from our preclinical studies, and to assess differences between normal and tumor tissue responses to erlotinib treatment. Methods and Materials: Patients with primary OSCCC requiring surgical resection, had normal mucosa and tumor biopsies prior to a test course of erlotinib. Patients then received one week of erlotinib 150 mg qd with the last dose given 8-12 hours prior to surgery. Repeat tumor and normal mucosal biopsies were then obtained at the time of surgical resection to evaluate the effect of the EGFR inhibitor on both the tumor and the normal mucosa. Changes in known preclinical markers of EGFR activity (such as phospho and total EGFR, ERK1/2, AKT, STAT3 etc.) were measured by immunoblotting assays. In addition, changes in distribution of these possible biomarkers were also analyzed by immunohistochemical analysis. Results: We have enrolled 12 pts; 7 pts with paired tumor and normal mucosa biopsies. Tumor specimens showed over-expression of EGFR compared to the normal mucosa (p=0.005). Erlotinib treatment led to marked inhibition of both pEGFR and EGFR protein (p=0.004, p=0.007, respectively) in tumor biopsies. In contrast, we found heterogeneity in EGFR inhibition in the normal mucosa following erlotinib. (p=0.1 (pEGFR), and p=0.07 (EGFR). We noted dramatic reduced levels of pSrc and pSTAT3 following erlotinib in tumors compared to untreated matched tumor samples. In addition, levels of p27 were enhanced. Conclusion: Erlotinib caused a marked reduction in EGFR protein levels, consistent with our preclinical studies. As EGFR degradation correlates with response in preclinical studies, our data support a prospective trial to test if EGFR degradation is an early biomarker for response. In addition, these findings suggest that the differential effects of erlotinib on tumor and normal mucosa may permit the selection of patients most likely to realize a therapeutic index with erlotinib, especially when combined with radiation and chemotherapy.

S028

Endoscopic Resection of Sinonasal Cancers: Oncologic Outcomes

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Background: Endoscopic resection of sinonasal cancers has gained increasing popularity in recent years. However oncologic outcomes have not been systematically reported in large series of patients with adequate follow-up. Objective: To evaluate the oncologic outcomes of patients with sinonasal cancer treated with endoscopic or endoscopic-assisted surgery. Patients and Methods: 117 consecutive patients with biopsy proven malignancy of the sinonasal region and were treated with purely endoscopic or endoscopic-assisted surgical resection were reviewed for demographics, histopathology, treatment details, and outcome. Results: There were 55 females and 62 males. The mean age was 53 years. Of the 117 patients, 40% were previously untreated, 48% had persistent disease after partial resection prior to presentation, and 12% had recurrent disease. The tumor epicenter was in the
nearly 50% of patients treated for SCC of the base of tongue during our initial year using the DaVinci Robotic system. Methods: Retrospective Review of all patients treated for SCC of the base of tongue from 1996–2004. Outcome rates were estimated using the Kaplan-Meier method. Additional review of all patients treated with surgical resection of base of tongue tumors during our initial year using the DaVinci Robotic system. Results: Twenty patients were treated with transoral resection of base of tongue SCC from 1996–2004. Twenty percent received surgical treatment only, 60% received surgery and radiation, and 20% received surgery and chemoradiation. Pathologic T stage was 1–40%, 2–40%, 3-5%, 4-15% at the time of surgery. Mean hospital stay was 4.7 days. Ten patients required a trach at the time of surgery and all were successfully decannulated (median trach time is 5.5 days). Nine patients required temporary feeding tube placement (median 11 days). Nine patients received a peg tube during course of treatment, and 7 were removed (median 181 days). Swallow function was normal for 80% of the patients at last follow-up. The mean follow-up was 3.3 years. There were 3 local recurrences, no regional recurrences, and 2 distant metastases. Overall survival was 93% and disease-free survival was 95% at 2 years. The DaVinci Robotic system could respect 10% of HPV positive SCC tumors in 2007. All patients had at least 1 year follow up. In hospital stay ranged from 2-10 days with an average of 4.8 days. Six patients required a tracheostomy (range 3-50 days). Six patients required feeding tubes at the time of surgery (range 2-14 days). There has been 1 local recurrence, 2 regional recurrences and no deaths. Conclusions: Transoral resection of the base of tongue for SCC can be a safe and effective treatment for overall control of disease while maintaining organ function. New robotic surgery allows for access to tumors previously not accessible for transoral surgical removal. Our initial use of this method of resection has shown very favorable short-term outcomes in functionality and disease control.

S032

TRANSONAL LASER MICROSURGERY FOR ADVANCED STAGE ORPHARYNGEAL CANCER. Bruce H Haughey MD, Michael Hinni MD, John Salassa MD, Grant David MD, Lewis James MD, Muri Krishna MD, Milov Simon MD, Kenneth C Wong MD, Michelle Fowble MA, Mayo Clinic Scottsdale, Mayo Clinic Jacksonville

Objectives: Investigate the long-term survival, functional outcomes and prognostic factors for patients with advanced stage OP cancer treated with TLM +/- adjuvant therapy. Study Design: Multicenter, prospective from data gathered in 3 tertiary referral institutions. Methods: Patients were 1), registered in a database before treatment 2), previously untreated 3), managed with TLM +/- adjuvant therapy for stage III or IV (OP) cancer from 1996 to 2006 and 4), followed up for a minimum of 2 years, mean 48 months. Results: One hundred ninety two patients met criteria for analysis. Survival at 3 years was 72% for the whole cohort. Survival was significantly worse in patients with HPV positive tumors (p=0.008). Five-year survival was significantly better for patients with HPV negative tumors than HPV positive tumors (p=0.02). Conclusions: Survival is predictable for patients with advanced stage OP cancer treated with transoral laser microsurgery. Subgroup analysis shows HPV negative patients have a better survival benefit than HPV positive patients. Studies are ongoing to determine the best method of adjuvant therapy and the role of HPV in determining survival.
inclusion criteria: 100(52%) had tongue base malignancy and 88(48%) tonsil malignancy. Mean hospital stay was 4.43 days. Overall AJCC stages were: II 23% and IV 77%. T-stage were T1-2: 67%; T3-4: 33%. One hundred eighty one patients underwent neck dissection including 29 bilateral neck dissection, 113(59%) received adjuvant radiotherapy (RT) and 31(16%) patients, adjuvant chemoradiotherapy. Overall survival (OS) at 2 and 5 years was 88% and 76.9%, respectively. Disease-specific survival (DSS) at 2 and 5 years was 93% and 83.5%, respectively. Twenty five patients (13%) recurred: local (7), regional (7), distant (8), locoregional+distant (1), regional+distant (2). Of 121 (63%) patients analyzed for HPV status 105 (86.7%) were HPV positive, with improved disease specific survival at 5 years versus HPV negative patients (91.7% vs. 66.5 %). Disease-specific survival at 5 years for T1-T2 and T3-T4 groups were 88.6% and 72.6% (N.S.) respectively but overall survival was 83.2% and 63.9 which was statistically significant. Fifteen patients (7%) had major surgical complications. Long term G tube dependency was 3.4%, and the majority of G-tubes were placed during adjuvant treatment rather than post-operatively, based on analysis at one center. The mean Functional Outcome Swallowing Scale score was 1.11 (normal oral intake, with occasional difficulty) for the 192 patients.

Conclusions: In advanced OP cancer, a large, mature prospective multicenter study validates TLM +/- adjuvant therapy as a highly effective strategy for survival, loco regional control (91.1%), short hospital stay and high oral swallowing rates. HPV positivity improves survival.

S033

OROPHARYNGEAL CANCER TREATED WITH TRANSORAL LASER MICROSURGERY ALONE. Michael L Hinni MD, David G Grant MD, John R Salassa MD, Richard E Hayden MD, John D Casler MD, Mayo Clinic Phoenix, Mayo Clinic Jacksonville

Background: The role of endoscopic assisted microsurgery for oropharyngeal cancer is controversial. Critics point to the effectiveness of primary radiotherapy or concurrent chemoradiotherapy (CRT) and question the use of surgery with adjuvant radiotherapy as either double treatment or no more than an extended biopsy. Proponents of Transoral Laser Microsurgery point to accurate staging of the primary tumor, short duration of treatment and low morbidity with excellent functional outcomes.

Objectives: To demonstrate the role of Transoral Laser Microsurgery in the treatment of oropharyngeal cancer.

Design and Setting: A two centre retrospective case series analysis. Patients: Fifty-three patients with previously untreated select T1-T4, N0 or N1 squamous cell carcinoma of the oropharynx. T stage: T1: 21 (40%); T2, 18 (34%); T3, 11 (21%) and T4, 3 (6%). N stage was N0 in 37 (70%) and N1 16 (30%). Primary tumour site: tonsil 23 (43%), tongue base 19 (36%) and pharyngeal wall 8 (15%) and soft palate 3 (6%).

Interventions: Transoral Laser Microsurgery in 53 patients with neck dissection in 32 patients (60%).

Outcomes: Mean follow-up period 37 months. Two patients suffered local recurrence and 3 patients suffered neck recurrences. Three patients developed second primary tumours. Three year overall survival for all patients was 89%. Three year locoregional control rates were 88%. Eight patients (15%) required a temporary tracheotomy. No patient was feed tube or tracheotomy tube dependent at last follow-up. The average hospital stay was 3 days. No patient suffered a postoperative haemorrhage or major complication.

Conclusion: Transoral laser microsurgery alone with or without neck dissection is an effective approach for select T1-T4, N0 or N1 oropharyngeal cancers. Low levels of morbidity, short treatment duration and excellent disease control make it an attractive therapeutic strategy. The treatment option of endoscopic assisted laser microsurgery should be discussed by the multi-disciplinary team for patients presenting with tumours suitable for this approach.

S034


Objective: To determine feasibility of robotic assisted salvage surgery for oropharyngeal cancer. Study Design: Retrospective case controlled study.

Methods: A retrospective review of patients who underwent surgical resection for T1 and T2 oropharyngeal cancer between 2001 and 2008 was conducted. Patients were classified into three groups: 1) robotic assisted surgery (DaVinci Robot, Intuitive Surgical) for primary neoplasms (n=15), 2) robotic assisted surgery for recurrent disease (n=7) and 3) open resection for recurrent disease (n=14). There was no difference in T stage of disease between all three groups. Data regarding tumor subsite within the oropharynx, stage, and prior treatment were evaluated as well as margin status, nodal disease, length of hospital stay, diet, and tracheotomy tube dependence.

Results: The average length of stay in the open salvage group was longer (8.2 days) than for robotic salvage (5.0 days, P=0.14) and significantly longer than robotic primary resection (1.5 days, P<0.001). There were no differences in post-operative diet between robotic assisted primary disease and robotic salvage surgery groups. However, a greater proportion of patients with open salvage procedures were PEG tube dependent 6 months following treatment (42.9%) when compared to robotic salvage resection (0%, P=0.06). A higher proportion of patients who underwent open salvage procedures also remained tracheotomy tube dependent after 6 months (7.1%) in comparison to robotic salvage (0%) or robotic primary patients (0%, P=0.48).

No complications were reported in the robotic salvage group. Two patients who underwent primary robotic assisted surgery developed postoperative bleeding from the resection site and one patient developed a wound dehiscence. Three patients (6%) required a temporary tracheotomy. No patient had a minimum of 18 months follow-up were included in the analyses, margins status, local recurrence, overall survival, disease-free survival, disease-specific survival, and swallowing function. Mean follow up time was 25 months (18-41 months).

Conclusions: Of the 58 patients with OP SCC, 81.0% (47) were AJCC stage III or IV. There no intraoperative or postoperative mortalities. Margins of resection were negative in 91.4% (53) and close in 8.6% (5). Local recurrence, neck recurrence, and distant recurrence at last follow up were present in 1.7% (1), 1.7% (1), and 6.9% (4) respectively. At 1- and 2-year points for at-risk patients, overall survival was 94.8% (55/58) and 80.5% (33/41), respectively. Disease-specific survival for 1 and 2-years was 98.2% (55/56) and 91.7% (33/36), respectively. Using Kaplan Meier survival analysis, we found no statistical differences in patient survival regardless of the postoperative adjuvant regimen (surgery alone, surgery plus radiation, surgery plus chemoradiation). Pathologic staging allowed 17 of 47 patients (36%) with Stage III and IV OP SCCA to avoid the addition of chemotherapy to the treatment regimen. Of 55 patients at-risk without enteral tube prior to treatment, 50 (90.9%) were swallow air with removal of PEG after treatment.

Conclusions: This multimodality treatment regimen, which includes primary treatment with TORS, offers good disease control and survival, as well as functional outcomes, in a population where 81% of had advance staged oropharyngeal carcinoma. These results are comparable with other available treatment options. Pathologic staging allowed for de-intensification of postoperative therapy by avoiding the addition of chemotherapy in 36% of patients. Further study of treatment regimens utilizing TORS at the primary treatment are indicated.

S035

TRANSORAL ROBOTIC SURGERY (TORS) FOR OROPHARYNGEAL SQUAMOUS CELL CARCINOMA: ONCOLOGIC AND FUNCTIONAL RESULTS. Gregory S Weinstein MD, Bert W O’Malley, Jr MD, Marc A Cohen MD, Harry Quon MD, The University of Pennsylvania

Introduction: Our group has shown the safety and efficacy of Transoral Robotic Surgery (TORS) in preclinical studies, animal models, and humans. We investigated oncologic and functional outcomes in patients undergoing TORS with minimum of 18 month follow up for oropharyngeal carcinoma. Methods: Retrospective analysis was conducted of a previously completed prospective trial evaluating outcomes of TORS for OP SCC. Between 2005 and 2007, 58 patients had a minimum of 18 months follow-up were included in the analyses, margins status, local recurrence, overall survival, disease-free survival, disease-specific survival, and swallowing function. Mean follow up time was 25 months (18-41 months).

Results: Of the 58 patients with OP SCC, 81.0% (47) were AJCC stage III or IV. There no intraoperative or postoperative mortalities. Margins of resection were negative in 91.4% (53) and close in 8.6% (5). Local recurrence, neck recurrence, and distant recurrence at last follow up were present in 1.7% (1), 1.7% (1), and 6.9% (4) respectively. At 1- and 2-year points for at-risk patients, overall survival was 94.8% (55/58) and 80.5% (33/41), respectively. Disease-specific survival for 1 and 2-years was 98.2% (55/56) and 91.7% (33/36), respectively. Using Kaplan Meier survival analysis, we found no statistical differences in patient survival regardless of the postoperative adjuvant regimen (surgery alone, surgery plus radiation, surgery plus chemoradiation). Pathologic staging allowed 17 of 47 patients (36%) with Stage III and IV OP SCCA to avoid the addition of chemotherapy to the treatment regimen. Of 55 patients at-risk without enteral tube prior to treatment, 50 (90.9%) were swallow air with removal of PEG after treatment.

Conclusions: This multimodality treatment regimen, which includes primary treatment with TORS, offers good disease control and survival, as well as functional outcomes, in a population where 81% of had advance staged oropharyngeal carcinoma. These results are comparable with other available treatment options. Pathologic staging allowed for de-intensification of postoperative therapy by avoiding the addition of chemotherapy in 36% of patients. Further study of treatment regimens utilizing TORS at the primary treatment are indicated.
performed seven transoral robotic assisted laryngectomies. There were 4 males and 3 females in our cohort with an average age of 61. In all the cases we were able to achieve adequate exposure with the Feyh-Kastenbauer oral retractor (Gyrus ACM, Bartlett, TN). The da Vinci Surgical Robot (Intuitive Surgical, Inc. Sunnyvale, Ca) was used to resect the tumors with adherence to transoral oncologic principles and utilization of intra-operative frozen section pathology to obtain adequate negative margins. We were able to resect all the tumors in this manner. Six patients underwent neck dissection at the time of the transoral procedure. There was one intraoperative complication with a burn injury to the anterior cervical skin. Four patients underwent primary tracheostomy tube placement three of which were decannulated without difficulty. 2 patients required long-term gastrostomy tubes while receiving adjuvant radiation therapy. **Conclusions:** Our experience with transoral robotic assisted supraglottic laryngectomies has been successful. It allowed excellent exposure and visualization in carefully selected patients. The procedure enabled appropriate oncologic resection of the tumor in a shorter amount of time compared to other transoral modalities or open approach. The ability to resect the tumor and allow for secondary healing of the oncologic site enabled the patients to return to appropriate function of the pharynx and larynx in the majority of cases. Further follow up is still needed to assess the oncologic results and to solidify the technique in the armamentarium of the head and neck surgeon.

**S037**
**PROPHYLACTIC CENTRAL NECK DISSECTION DOES NOT OFFER ADVANTAGE IN NO PAPILLARY THYROID CARCINOMA.** Sergio Zuniga MD, Alvaro Sanabria PhD, Luiz P Kowalski (Sponsor) PhD, Universidad de La Sabana, Bogota. Clinica Las Americas, Medellin. Instituto Nacional de Cancerologia, Bogota
**Introduction:** Treatment of thyroid carcinoma is essentially surgical. The American Thyroid Association Guidelines Taskforce advice to make central neck dissection (CND) for papillary thyroid carcinoma based in results of studies suggesting an improvement in the disease free survival. **Aim:** To assess results of prophylactic CND for patients with papillary thyroid carcinoma preoperatively staged as N0 on disease free survival and to explore factors associated with the decision of making CND. **Material and Methods:** This is an historical cohort study. Medical charts of patients with diagnosis of thyroid carcinoma treated at the National Cancer Institute in Bogota, Colombia, were reviewed. We included patients with a histological diagnosis of papillary thyroid cancer, no previous treatment, no recurrent tumor, no distant metastasis and clinically staged as N0. Variables were demographic, clinical, therapeutic, pathologic and prognostic related (neck recurrence) information. A logistic regression analysis was used to assess statistical independence and Cox regression analysis was used to assess the independent effect neck dissection on recurrence. **Results:** 266 patients were included. Mean follow-up time was 6.9 Â± 4.3 years. Prophylactic CND was made in 136 (51.3%). Of patients with CND, 112 (82.3%) had metastatic lymph nodes. Neck recurrence occurred in 45 patients (16.9%). 26 (20%) in patients without CND and 19 (13.9%) in patients submitted to CND (p=0.19). Overall 5-year neck actuarial disease free survival was 98.2% (95% CI 90.3-93.1) in CND group vs. 85.6% (95% CI 77.8-90.6) in no CND group, p=0.72. In the multivariate analysis, we found that macroscopic extra thyroid extension (OR 2.12 (95% CI 1.19-3.79) and multifocality (OR 3.96 (95% CI 2.08-7.53) were independent statistically significant variables associated. In multivariate analysis adjusting with confounding variables, CND didn’t show any significant effect on disease free survival. **Conclusion:** Observational studies that compare prophylactic CND and no dissection could be subject of bias, because patients submitted to CND, could have most risk factors for recurrence than the patients without dissection. In our study it was clear that extrathyroid extension and multifocality, were more frequent in patients who underwent CND. Our results showed a high frequency of micrometastasis in the dissection group, but we couldn’t detect any prognostic effect of central neck dissection on neck recurrence.

**S038**
**CENTRAL NECK DISSECTION IN MANAGEMENT OF PAPILLARY THYROID CANCER WITH MACROSCOPIC LYMPH NODE METASTASIS.** Michael A Rosenbaum MD, Christopher R McHenry MD, MetroHealth Medical Center, CWRU School of Medicine, Cleveland, OH
**Background:** The rationale for prophylactic central neck dissection (CND) in patients with papillary thyroid cancer (PTC) is based on two assumptions that: (1) there is a high rate of metastases and regional recurrence in the central neck and (2) reoperation for recurrence in the central neck is problematic. However, the benefit of prophylactic CND without macroscopic lymph node metastases is controversial. **Methods:** A retrospective longitudinal study was completed in all patients who underwent total thyroidectomy, with or without CND, for PTC at our institution between 1990 and 2008. The purpose of the study was to determine the rate of metastases in the central neck and examine the morbidity and rate of recurrence in patients treated with or without CND. **Results:** One hundred thirty-six patients were treated for PTC, 26 of whom were excluded from this analysis because their initial resection was performed at another institution. Of the 110 patients who underwent initial surgical therapy, CND was performed in 19 (17%) patients, 15 with and 4 without enlarged nodes at the time of surgery. A mean of 1â±5 lymph nodes were removed and lymph node metastases were identified in 15 (79%) patients. One patient developed a recurrence in the lateral neck at 15 months follow-up. Ninety-one patients had no abnormal lymph nodes and did not undergo CND and 20% of who developed a recurrence (P=0.44) in the central neck at 14 months and 11 years follow-up. All three recurrences were nonpalpable lymph nodes detected by ultrasound and treated using ultrasound-guidance. Permanent recurrent laryngeal nerve occurred in no patients who underwent CND and in 1 (1%) patient without a CND. Transient hypocalcemia occurred in 16 (84%) who underwent CND compared to 54 (59%) patients without a CND (P=0.06). Permanent hypoparathyroidism occurred in one patient who did not undergo a CND. **Conclusion:** Recurrence of PTC in the central neck is uncommon and hypocalcemia is higher following total thyroidectomy and selective CND for gross lymph node metastasis, indicating that routine CND may provide little benefit. Ultrasound helps facilitate reoperation in the central neck.
contralateral neck without ipsilateral positive LN. No malignant LN were identified in the CNC of FVPTC patients. LN metastasis in the ipsilateral CNC directly correlated with both multifocality of tumor (r2 = 0.93) and tumor size (r2 = 0.89). Bilateral CNC nodal metastasis directly correlated with multifocality of tumor (r2 = 0.92) but was independent of tumor size (r2 = 0.56). **Conclusions:** Malignant LN nodes are likely to occur with high frequency in patients with conventional PTC but not FVPTC. The risk of metastasis correlated with size and multifocality of primary tumor. Primary tumor multifocality significantly increased the risk of the CNC metastasis to the contralateral neck compartment independent of tumor size. Further studies are warranted to determine if bilateral CND is warranted in PTC patients with multifocal disease and to determine the role of CND in FVPTC patients.

**S040**  
**SRC INHIBITORS INDUCE APOPTOSIS IN PAPILLARY THYROID CARCINOMA CELLS.** Ying C Henderson PhD, Mitchell J Frederick PhD, Gary L Clayman MD. University of Texas MD Anderson Cancer Center, Houston, Texas

**Purpose:** Papillary thyroid carcinoma (PTC) is the most common type of malignancy of the thyroid gland. Although most PTC patients do well, a small proportion of these patients develop recurrences associated with a significant risk of disease specific morbidity and mortality. The majority of PTCs contain either BRAF mutations or RET/PTC rearrangements, thus providing obvious targets for biological therapy. Our previous studies suggest BRAF mutated and RET/PTC rearranged cancers reflect divergent sensitivities to targeted therapies directed towards mitogen-activated protein kinase (MAPK) (MEK1 or MEK1/2) inhibition. We therefore investigated whether activation of other kinases (independent of MEK1/2) were mediating reactivation of ERK1/2 (downstream targets of MEK1/2) and promoting survival in the PTCs carrying RET/PTC1 rearrangement (since these were insensitive to MEK1/2 inhibition).

**Experimental Design:** Inhibitors to PI3 kinase (LY294002), PKC (Go6983 and Ro-32-0432), and Src (PP2 and SU6656) were tested alone or in combination with a MEK inhibitor (CI-1040) in PTC cells with RET/PTC1 rearrangement (TPC-1). The expression of p-ERK1/2 and PARP cleavage was detected by Western blots and cell proliferation was monitored by growth curves. **Results:** Both PI3 kinase and PKC inhibitors did not inhibit the phosphorylation or extend the dephosphorylation of ERK1/2 in combination with a MEK inhibitor. Although Src inhibitors did not extend the dephosphorylation of ERK1/2 in combination with a MEK inhibitor, Src inhibitors alone were able to induce PARP cleavage (an indication of apoptosis) and suppressed cell proliferation in TPC-1 cells. The concentration needed for 50% growth inhibition (GI50) by PP2 was 0.3 uM. Src inhibitors were ineffective in BRAF-mutated PTC cells, in keeping with the lack of Src activation in these cells. **Conclusions:** In RET/PTC1 rearranged PTCs, Src inhibition alone effectively inhibits cell proliferation and induce apoptosis. Src signal transduction pathways are a potential therapeutic strategy in aggressive variants of papillary thyroid carcinoma patients driven by the RET/PTC1 rearrangement.

**S041**  
**RECURRENT LARYNGEAL NERVE: A PLEXUS RATHER THAN A NERVE?** Claudio R Cernea MD, Flavio C Hojaji MD, Dorival De Carducci Jr. MD, Renato Gotoeda MD, Caio Plopper MD, Felipe Vanderlei MD, Claudio R Cernea MD, Flavio C Hojaij MD, Dorival De Carlucci Jr. MD, Tina Theith MD, Tareq Islam MD, Paul Freidlander MD, Javaid Wani PhD, Emad Kandil MD, Tulane University Medical Center, New Orleans, LA

**Background:** The recurrent nerve (RN) is the main motor nerve of the larynx. Due to its intimate anatomic relationship with the thyroid gland, the thorough knowledge of the possible anatomic variations of this nerve is very important for the Head and Neck Surgeon. Extra- laryngeal branching (ELB) of the RN is one of these variations. The reported frequency of ELBRN varies from 25% to 63%. **Objective:** To evaluate the incidence of ELB of the RN among patients submitted to thyroidectomy, in a consecutive case series. **Design of the Study:** Single-institution cohort study. **Patients and Method:** From March 1983 to September 2008, 2,677 patients were submitted to thyroidectomy. One-thousand, six-hundred and thirty-eight cases had information about at least one RN. Most cases (1,081) underwent bilateral operations. During the last 7 years, intra-operative laryngeal nerve monitoring was performed in selected cases, using the Xomed NIM System. **Results:** Information concerning two-thousand, one-hundred and fifty-four nerves was obtained. 1,390 RNs had ELB (62%). Among the 447 patients in whom nerve monitoring was employed, usually the anterior branches exhibited more relevant electrophysiological activity. **Conclusions:** ELB was found in 62% of the RN in this series. In recent cases, with nerve monitoring, electrophysiological activity was demonstrated in the branches, particularly the anteriorly situated ones. Therefore, recognition of this rather frequent anatomic configuration and meticulous preservation of all branches is of paramount importance to decrease postoperative morbidity.

**S042**  
**SURGEON PERFORMED ULTRASOUND-GUIDED THYROID BIOPSY: A COMPARISON OF TECHNIQUE WITH RESPECT TO ADEQUACY OF CYTOLOGICAL MATERIAL.** Haytham H Alabbas MD, Jennifer John-Kalaricak MD, Tina Theith MD, Tareq Islam MD, Paul Freidlander MD, Javaid Wani PhD, Emad Kandil MD, Tulane University Medical Center, New Orleans, LA

**Background:** Ultrasound-guided fine-needle aspiration (FNA) sampling of the thyroid represents a standard diagnostic procedure in the evaluation of thyroid nodules. The biopsy specimen is usually acquired using two different techniques after localization. In the first technique, short axis is used with observation only of the tip of the needle whilst in the nodule. In the second technique a biopsy needle guides using the long axis to observe the entire needle. Either technique is usually used according to the operator’s preference. We performed a retrospective review to compare these two techniques with regard to specimen adequacy. **Methods:** We performed sonography-guided FNA in 56 solid thyroid nodules between May 2008- Dec 2008. The biopsy specimen was acquired using the two different methods after localization by one single operator (the surgeon). The type of technique was correlated with diagnostic accuracy. **Results:** 37 out of 56 nodules were biopsied using long axis technique. The rates of inadequate material for long axis and short axis were significantly different as 8.1% and 52.6%, respectively (p <0.01). **Conclusions:** This is the first study to compare long and short axes techniques with regard to specimen adequacy. Long axis technique decreased the rate of inadequate material and provides more accurate cytologic evaluation. We consider long axis technique using a biopsy needle guide easier and superior to traditional short axis technique.

**S043**  
**FINAL INTRAOPERATIVE PTH PREDICTS OUTCOME FOLLOWING PARATHYROIDECTOMY.** Keith S Heller MD, NYU Langone Medical Center

**Introduction:** Limited parathyroid exploration (MIP) guided by preoperative imaging and intraoperative PTH (IOPTH) is an accepted alternative to bilateral exploration for the treatment of primary hyperparathyroidism (PHPT). However, additional enlarged, hypercellular parathyroid glands are present in some patients in whom IOPTH fails to normal after excision of a single adenoma. At least 15% of patients are eucalcemic with elevated PTH (PPTH) after parathyroidectomy. In these patients, a higher risk of recurrent hyperparathyroidism has been found. This study was undertaken to determine if final IOPTH (FIOPTH) predicts those patients at risk for recurrence after parathyroidectomy.

**Methods:** The records of all 173 patients who underwent successful, initial parathyroidectomy for non-familial PHPT in 2007 and 2008 by one surgeon were reviewed. IOPTH was measured prior to incision (baseline), at excision of the abnormal gland, at 5, 10, 15 and 20 minutes after excision and at various additional times as needed. 71% underwent MIP. Calcium (Ca) and PTH were measured during the first month after surgery and in 74% after 4 months or more. Patients were divided into 5 groups depending on IOPTH: Group 1 - IOPTH < 10, Group 2 - IOPTH 10-19, Group 3 - IOPTH 20-29, Group 4 - IOPTH 30-39, Group 5 - IOPTH 40 or more. **Results:** 84% of patients had a single adenoma, 10% double adenomas and 6% 3 or more abnormal glands. In all patients IOPTH decreased at least 50% and in all but 2 patients the final IOPTH was less than 65. The distribution of cases among Groups 1 through 5 was 14%, 36%, 26%, 12%, and 13% respectively. The FIOPTH/baseline IOPTH in each group was 7%, 11%, 15%, 24%, and 26% respectively. There was no significant difference in the preoperative Ca among the groups. Average preoperative PTH was lower in groups 1 and 2 than in groups 3, 4 and 5. All 24 patients in group 1 had normal Ca and PTH at last evaluation. In Group 2, 3 of 62 patients had PPTH at last evaluation.
evaluation (Ca > 9.5 in 1). In Group 3, 6 of 45 had PPTH (Ca > 9.5 in 3). In Group 4, 2 of 20 had PPTH (Ca > 9.5 in 1). In Group 5, 9/20 had PPTH (Ca > 9.5 in 6). 1 patient in Group 4 and 3 in Group 5 have recurrent HPT, 1 of whom has had successful reoperation where hyperplasia of all remaining glands was identified. Conclusion: Patients whose FIOPTH is more than 40 pg/ml are at higher risk of having persistent hyperparathyroidism and should be followed closely and indefinitely following parathyroidectomy.

S044
MINIMALLY INVASIVE PARATHYROIDECTOMY: USE OF INTRAOPERATIVE PTH ASSAYS AFTER 2 PREOPERATIVE LOCALIZATION STUDIES, Nicholas J Smith MD, Jeffrey S Magnuson MD, David M Vidrine MD, Brian Kulbersh MD, Glenn E Peters MD, University of Alabama-Birmingham; Birmingham, AL

Objectives: Minimally invasive parathyroidectomy has become an acceptable therapeutic option in treating primary hyperparathyroidism (HPT). Preoperative MIBI scanning, high resolution ultrasound (US) with color doppler flow, and intraoperative parathyroid hormone (PTH) monitoring have refined this technique. The purpose of this article is to review minimally invasive parathyroidectomy in patients undergoing initial surgical management of primary hyperparathyroidism with preoperative, localizing MIBI and concordant US to determine if intraoperative parathyroid hormone assays are necessary in these cases. Methods: The medical records of 544 consecutive patients over a 7-year period undergoing surgery for hyperparathyroidism were retrospectively reviewed. After excluding revision surgeries, secondary and tertiary HPT, unavailable intraoperative PTH data, concomitant thyroid disease requiring thyroidectomy, and patients without preoperative MIBI or US, 332 (61%) patients were included in the study. MIBI and US studies that localized hyperfunctioning parathyroid tissue to the same side of the neck were defined as concordant. Successful excision of hyperfunctioning parathyroid tissue was defined as a decrease of 50% or more from the baseline intraoperative PTH level at 20 minutes postexcision. Results: The mean decrease in parathyroid hormone level was 85%. Of the 332 patients with primary hyperparathyroidism included in the study, 159 (48%) patients had localizing, concordant MIBI with US. The mean age of the patients with double parathyroid adenomas was 58 +/- 14 years and 26 patients (55.3%) were female. The preoperative PTH 129.3 +/- 56.9 and preoperative calcium was 11.0 +/- 0.6. In all patients, intraoperative PTH levels dropped by 79.7 +/- 11.4 from baseline after removal of both abnormal parathyroid glands, which was comparable to 78.8 +/- 10.7 in single adenoma patients (p=0.36)(Figure1). The mean postoperative PTH at 6 months was 46.5 +/- 26.3 and the cure rate was 97.9%.

Conclusion: The drop in IOPTH levels and maintenance of normocalcemia postoperatively confirm previous reports that double adenomas do exist and are not simply missed cases of four-gland hyperplasia. With the help of IOPTH, cure rate will be improved in patients with double parathyroid adenomas disease.
Apoptosis is a genetically programmed form of cell death and caspases are the central components of this process. In this study, using a Tissue Microarray (TMA) comprising 229 cases of oral squamous cell carcinoma (OSCC), we have analyzed the immuno-expression of caspases-2, 3, 6, 7, 8, 9 and 10. The results were quantitatively analyzed using an automated imaging system (ACIS III) which detects levels of hue, saturation and luminosity, converting this signal into a numerical density measurement that ranges from 0 to 256. Analysis of the association between caspase expression and the demographic and clinicopathological characteristics of the patients were performed by the Mann-Whitney test. One hundred and six patients presented tumor recurrence while 123 did not. Vascular embolization occurred in 141 cases, lymph node metastasis were present in 112 cases and 152 patients presented advanced stage of disease (stages III/IV). Overall survival probabilities were calculated based on the Kaplan-Meier method. Our results showed that high expression of caspases-3, -9 and -10 was associated with absence of vascular embolization (p=0.0060, p=0.0562 and p=0.0325, respectively). Low expression of caspases-2 was also associated with presence of lymph node metastasis (p=0.0147) and with advanced stages of disease (p=0.0263). High expression of caspase-6 was associated with advanced stages of disease (p=0.0035) and high expression of caspase-7 was associated with recurrence (p=0.0048). However, overall survival rates were not statistically different in patients who presented high or low expression of these markers. Our results showed the involvement of caspase family proteins in OSCC tumorigenesis and suggest that the expression of caspase-3 might be used as a predictor of lymph node metastasis and caspase-7 as a predictor of loco-regional recurrence in oral squamous cell carcinoma. Supported by FAPESP 98/14335-2 and 07/50608-4.

Detection of aberrant methylation in serum of head and neck cancer patients - Raja Sawhney, MD; Kang Mei Chen, MD; Maria J. Worsham, PhD; Henry Ford Health System

Objective: Evaluate serum as a primary source for detecting aberrant methylation in HNSCC patients.

Study Design: Retrospective. Methods: Previous study of 28 patients with known HNSCCa found 50% had hypermethylation of the primary tumor and 38% hypermethylation of their serum when evaluated for 3 genes (CHFR, RARB and APC). In this study, serum samples were drawn from a new cohort of eighteen patients who were diagnosed with HNSCCa via surgical biopsy between 2003 and 2006. The cohort includes primary tumors from all four major stages of diagnosis and the most common major head and neck sub-sites. The serum was drawn within 10 days of the biopsy. Using methylation specific PCR (MSP), these serum samples were again evaluated for anomalous methylation of the CHFR, RARB and APC genes.

Results: One patient’s serum was found to be non-reactive to the controls or for any of the three genes and was therefore excluded from the remainder of the study. Overall 17 of 17 (100%) patients were found to have hypermethylation of one of these 3 genes. CHFR was found to be hypermethylated in 11/17 (65%) patients. Hypermethylation of CHFR in stage I lesions was in 2 of 3 pts. Stage II 7/1 of 1, stage III - 3 of 4 and stage IV - 5 of 9. Epigenetic alteration of the CHFR gene was detected in 4 of 6 oral cavity lesions, 3 of 5 oropharyngeal, and 4 of 6 laryngeal tumors. APC was found to have an overall hypermethylation rate of 10/17 (59%). Stage I hypermethylation of APC was 2 of 3, stage II - 0 of 1, stage III - 2 of 4 and stage IV - 6 of 9. In regards to tumor primary, APC was altered in the oral cavity - 4 out of 6, oropharyngeal - 2 of 5, and laryngeal - 4 of 6. RARB was found to be methylated in 10/17 (59%). Hypermethylation of stage I tumors was found in 4 of 4 patients, stage II - 0 of 1, stage III - 2 of 4, and stage IV - 6 of 9. Hypermethylation occurred in 4 of 6 oral lesions, 3 of 5 oropharyngeal, and 3 of 6 laryngeal.

Conclusions: We found that hypermethylation rate of 100% (17/17) is much higher than our previous rate of 36% (10/28). This is significant given that previous studies have put the overall hypermethylation rate of SCCa to be only about 50%. This study again supports the role of epigenetic modification of the CHFR, RARB and APC in head and neck carcinoma. These genes seem to be strong early candidates for one day being markers that can be followed in head and neck cancer patients regardless of stage or primary site.

Anti-EMMPRIN monoclonal antibody: a novel agent for targeted therapy in head and neck cancer - Nichole R. Dean, DO; Emily E. Helman, MS; J. R. Newman, MD; Wenye Zang, MS; Eben L. Rosenthal, MD; Department of Surgery, Division of Otolaryngology – Head and Neck Surgery University of Alabama at Birmingham, Birmingham, Alabama

Objective: To determine if anti-EMMPRIN monoclonal antibody (mAb) inhibits tumor growth alone or when combined with radiation and chemotherapy.

Study Design: Murine model of head and neck squamous cell carcinoma (HNSCC) xenografts.

Methods: SCID mice were injected with SCC-1 tumor cells (3x10^6) and divided into eight treatment groups: control, anti-EMMPRIN (5F6) antibody alone (200ug iP), radiation (2Gy), cisplatin (3mg/kg), or any combination of the three(n=10 per group). Therapy was administered biweekly for three weeks. To determine the mechanism for anti-EMMPRIN therapy, xenograft samples were analyzed for proliferation (Ki67) and apoptosis (TUNEL). Expression of EMMPRIN induced cytokines IL-1 beta, IL-6, IL-8, and VEGF were assessed by ELISA.

Results: At the end of three weeks, tumors for all treatment groups were less than control (P=0.05).

Mean tumor surface area was smaller for cisplatin and 5F6 treatment groups when compared to cisplatin alone (P=0.0111). Similarly, radiation and anti-EMMPRIN mAb in combination resulted in smaller tumors than radiation alone (P=0.0171). Triple therapy with cisplatin, radiation, and anti-EMMPRIN antibody yielded the smallest tumors (P<0.0001). 5F6 treated tumors had a significant reduction in proliferation (P=0.007) and TUNEL analysis demonstrated a larger number of cells undergoing apoptosis in the anti-EMMPRIN antibody group (18%) compared to control (5%, P=0.087). Treatment with 5F6 resulted in decreased expression of IL1-beta (P=0.0079), IL-6 (P=0.007), IL-8 (P=0.1481), and VEGF (P=0.0538) compared to control.

Conclusion: This data suggests anti-EMMPRIN monoclonal antibody sensitizes head and neck cancer xenografts to both chemotherapy and radiation in vivo. Anti-EMMPRIN antibody may be a novel agent for targeted therapy in HNSCC.

Genetic profiling of salivary gland adenoid cystic carcinoma cell lines - Janyaporn Phuchareon, PhD; Yoshihito Ohta, MD; Jonathan M. Woo, MSc; David W. Eisele, MD; Osamu Tetsu, MD; Head and Neck Cancer Research Laboratory, Department of Otolaryngology-Head and Neck Surgery, University of California, San Francisco

Adenoid cystic carcinoma (ACC) is the most common neoplasm in the salivary glands. ACC grows slowly and regional lymph node metastasis is rare. Therefore, most patients survive more than 5 years after surgery and post-operative radiation therapy. Nevertheless, the survival rate at 10 years suddenly drops to 40% due to multiple recurrences and distant metastasis. The best survival results are so far with combined surgery and radiation therapy. However, ACC often occurs in difficult anatomic areas and it is hard to obtain clear margins for the radiation field. In addition, conventional chemotherapy has a poorly defined role with ACC.

We apparently need effective therapy for the population. Up to date several ACC cell lines including ACC2, ACC3, ACCM, ACCS, ACCNS, CAC2 and SACC83 have been established in individual laboratories. These cultured cells are used as a model for ACC to find diagnostic biomarkers and to develop a new therapy for the population. In spite of their widely use in academic research, accurate authentication of the ACC cells is not yet reported and it is questionable if these cells can be used as an appropriate model for ACC. We recently performed DNA fingerprint analysis of these cells through short tandem repeat (STR) examination to confirm that these cell lines were in fact ACC cells. Our STR analysis demonstrates that our ACC2, ACC3, and ACCM cells are actually the cervical adencarcinoma cell line HeLa, and our ACCS is considered as the urinary bladder transitional cell carcinoma T24/EJ-1/ECV304 cells. Because we were unable to amplify any polymorphic STR
markers with our ACCNS cells, we determined species identification of the cells. Our data demonstrated that our ACCNS were originated from mouse cells. In this presentation, we will discuss current questionable use of misidentified and cross-contaminated ACC cell cultures and the spurious results produced with those cells.

**P005 (COSM poster #128)**

**EARLY DETECTION USING IMMUNE/INFLAMMATORY BIOMARKERS TO DIFFERENTIATE LOW AND HIGH STAGE SQUAMOUS CELL CARCINOMA OF THE HEAD AND NECK - Steve C. Lee, MD, Michalis Karamousiz, MD, William E. Gooding, MD, SAthanasissi Aiogris, MD, Robert L. Ferris, MD; University of Pittsburgh Medical Center**

SCCHN is highly curable when diagnosed early but nodal metastasis reduces survival by half and requires more aggressive multimodality treatment. Currently, preoperative staging of the neck can over or underestimate disease when compared pathologic staging. An effective, low morbidty method of differentiating pathologically N0 patients would be helpful in determining most appropriate management. In this study, we performed multiplexed biomarker analysis of serum from 106 stage pT1/2N0 patients and 188 advanced stage N positive SCCHN patients. Serum biomarkers were sought to distinguish pN0 versus pN+ patients. Wilcoxon two tailed analysis and Goemans? Q test were used to mine the dataset and determined that eotaxin, leptin and MCP1 were found at significantly different levels between the two groups (p<0.05). Subset analyses are ongoing to correlate these biomarkers to the 10% of pT1/2N0 patients who are destined to recur.

**P006 (COSM poster #129)**

**PRO-TUMORIGENIC AUTOCRINE ROLE OF VASCULAR ENDOTHELIAL GROWTH FACTOR IN HEAD AND NECK SQUAMOUS CELL CARCINOMA - Sun M. Ahn, BS, Seungwon Kim, MD; University of Pittsburgh School of Medicine**

**Purpose:** Despite advances in diagnosis and treatment of head and neck squamous cell carcinoma (HNSCC), overall survival has remained largely unchanged for the past three decades and the discovery of novel targeted therapies is critical. Tumor angiogenesis is crucial in promoting growth and dissemination of solid tumors, and vascular endothelial growth factor (VEGF) is a potent stimulator of angiogenesis. VEGF expression is upregulated in many solid tumors, including HNSCC, and in turn binds VEGF receptors on endothelial cells to promote tumor angiogenesis. However, there is growing evidence that suggests tumor cells themselves express VEGF receptors that can be activated by autocrine VEGF signaling. The present study was undertaken to evaluate the expression of VEGF receptors and the autocrine role of VEGF in progression and metastasis of HNSCC.

**Experimental Design:** Six HNSCC cell lines were evaluated for expression of VEGF receptors, namely VEGFR-1, VEGFR-2, VEGFR-3, Neuropilin (NRP)-1, and NRP-2, by reverse-transcriptase-polymerase chain reaction (RT-PCR). In addition, autocrine function of VEGF was evaluated in two representative VEGF-secreting, highly metastatic cell lines (PCI-15B and UM-22B) using small-interfering RNA (siRNA) against VEGF. The effects on proliferation, migration, and invasion were assessed.

**Results:** All six HNSCC cell lines expressed VEGFR-2, VEGFR-3, NRP-1, and NRP-2 mRNA, and half of the cell lines expressed VEGFR-1 mRNA. Transfection with VEGF siRNA showed a significant reduction in endogenous VEGF production compared to control. Blockade of VEGF expression by VEGF siRNA transfection significantly increased cell proliferation, decreased migration, and decreased invasion compared to control in both representative cell lines. **Conclusions:** The results support the possible VEGF autocrine role in HNSCC. The data suggests endogenous VEGF may modulate cell proliferation and promote cellular migration and invasion. However, further work is warranted to identify the specific receptors and signaling pathways involved in the autocrine role of VEGF. Nevertheless, VEGF could represent a useful therapeutic target for HNSCC that has the potential to accomplish dual inhibitory effect on tumor progression by suppressing both angiogenesis and tumor cell function.

**P007 (COSM poster #130)**

**EFFECTS OF MICROVESICLE (MV)-ASSOCIATED TGF-BETA1 ON IMMUNE CELL ACTIVITY IN PATIENTS WITH HEAD AND NECK SQUAMOUS CELL CARCINOMA (HNSCC) - Miroslaw J. Szczepanski, MD, Malgorzata Czyzowska, PhD, Marta E. Szajnik, MD, Michael Boyadiadzes, MD, Theresa L. Whiteside, PhD; University of Pittsburgh Cancer Institute, Pittsburgh, PA**

**Background:** HNSCC escape from the host control by inducing suppression of immune responses. This suppression is mediated by various mechanisms, including inhibitory cytokines such as TGF-beta1 and a release by the tumor of immunoinhibitory microvesicles (MV). These and other mechanisms might contribute to tumor progression. In this study, we first evaluated the expression of TGF-beta1 in HNSCC cell lines and then in MV isolated from tumor cell supernatants. The objective was to investigate the effects of MV-associated TGF-beta1 on immune cell activity.

**Methods:** Microvesicles were isolated by exclusion chromatography and ultracentrifugation from supernatants of HNSCC cell lines (PCI-13 and PCI-30). Immunofluorescence and Western blot assays were used to detect TGF-beta1 in cell lines or their culture supernatants, respectively. The phenotype of NK-92 or tumor cells was evaluated by multi-parameter flow cytometry. Levels of TGF-beta1 in supernatants were measured by LUMINEX. Chromosome release assays were performed using the K562 cells as targets and NK-92 cells as effectors before and after incubation of NK cells with MV (50-200ug/1x106 cells).

**Results:** TGF-beta1 expression was detected in the cells of both PCI cell lines. TGF-beta1 was not detectable in supernatants of PCI-13 and PCI-30 even after acidification. However, MV isolated from these supernatants were positive for TGF-beta1 in Western blots. These MV inhibited NK cell activity (p<0.05) and decreased NKGD2 as well as IFN-gamma expression (p<0.05) in NK-92 cells. These effects were partially abrogated (p<0.05) upon the addition of TGF-beta1 specific blocking Ab. **Conclusion:** TGF-beta1 is expressed in HNSCC cell lines, and it can suppress NK cell activity via MV, produced and released by the tumor. By this mechanism membrane-associated TGF-beta1 can be delivered by MV to distant immune cells and facilitate tumor escape from the host immune system.

**P008 (COSM poster #131)**

**ABERRANT DNA METHYLATION OF ZNF FAMILY NUCLEAR ACID BINDING PROTEIN GENES ON CHROMOSOME 19 IN OROPHARYNGEAL SQUAMOUS CELL CARCINOMA - Thomas J. Belbin, PhD, Leslie R. Adrien, MSc, Richard V. Smith, MD, Thomas M. Harris, PhD, Roberto Lleras, BS, Nicolas F. Schlecht, PhD, Geoffrey Childs, PhD, Michael B. Prystowsky, MD; Albert Einstein College of Medicine/Montefiore Medical Center**

Methylation-induced transcriptional silencing of tumor suppressor genes is a common phenomenon in human cancer. Here we report a whole-genome analysis of DNA methylation profiles in genomic DNA from 29 fresh, frozen oropharyngeal squamous cell carcinoma (OPSCC) tissues and 12 adjacent normal mucosa samples using the Illumina HumanMethylation27 BeadChip. From a survey of 27,578 CpG loci spanning more than 14,000 genes, we identified 382 CpG loci in which measurements of DNA methylation were higher in the primary tumors than in the normal mucosal samples. A survey of these loci by chromosomal location revealed an abnormally high number of differentially methylated loci on chromosome 19 (n=47). Chromosome 19 also showed one of the highest percentages of differentially methylated CpG loci in our analysis (2.5%) relative to the total number of CpG loci measured for that chromosome on the beadchip (1,905 CpG loci). More than half of the differentially methylated CpG loci identified on chromosome 19 (n=27) were located within a 6.5 Mb region spanning chromosomal positions 57083062 (19q13.33) to 63643484 (19q13.43). Strikingly, 42 of the identified loci on chromosome 19 (89%) were associated with ZNF family nucleic acid binding protein genes. This study reports for the first time the aberrant DNA methylation of ZNF family genes in OPSCC. The aberrant methylation and potential transcriptional silencing of these genes represent a new avenue of exploration for pathways affected in this disease.
OVERRAPATHWAY FOR TRANSCRIPTIONAL REGULATION OF E-CADHERIN IN HNSCC. This newly developed pathway for transcriptional regulation of E-cadherin in HNSCC has important implications for targeted chemoprevention and therapy.

microRNA-21 (miR-21) has been reported to be overexpressed in several cancers, but few studies have examined its expression in oral squamous cell carcinomas (OSCC). We determined miR-21 expression in 49 newly diagnosed primary OSCC and in normal oral tissue from 15 controls using qRT-PCR and determined the difference in mean Ct value using a two-sample t-test. To assess the relationship of miR-21 with miR-21 target genes as predicted by Targetscan 4.2 database, we calculated Pearson correlation coefficients and p-values between miR-21 expression and the expression of each probe set corresponding to the target genes as assessed by Affymetrix human U133 plus 2.0 arrays. To identify the molecular networks in OSCC that may be under the regulation of miR-21, genes with expression levels that were correlated with miR-21 expression (p<0.1) were further analyzed using Ingenuity Pathway Analysis (IPA) 7.0 software. We found a significant difference in miR-21 expression between cases and controls; the respective mean Ct adjusted to endogenous control was -4.49 and -1.81, (p<0.0001). There were 20 genes with expression levels significantly correlated with that of miR-21 (r=0.46 to 0.72, p-values 1.13 x 10^-4 to 7.1 x 10^-11). Five of the top six correlated genes (ASPN (r=0.72), TGFBI (r=0.60), SMAD7 (r=0.59), MAP3K7IP3 (r=0.59), TIMP3 (r=0.54)) were shown to be related to TGF-beta based on IPA. Although TGF-beta is not a predicted target gene for miR-21 based on sequence analysis, we found a positive correlation between TGF-beta and miR-21 expression (r= 0.61, p-value 1.11 x 10^-7). Our results suggest that miR-21 overexpression may be related to the development of OSCC by influencing TGF-beta signaling and merit further investigation.

Aberrant expression and functional significance of BORIS splice variants in HNSCC - Chad A. Glazer, MD; Sheetal Bhan, PhD; Elena Pugacheva, PhD; Dmitry Loukinov, PhD; Victor Lobanenko, PhD; Joseph Caliano, MD,1 Department of Otolaryngology-Head and Neck Surgery, Johns Hopkins Medical Institutions, Baltimore, MD, 21231; 2Laboratory of Immunopathology, Institute of Allergy and Infectious Diseases, NIH, Rockville, MD

Objective: BORIS is a new member of the cancer-testis antigen family and a paralogue of a candidate tumor suppressor gene CTCF. Unlike CTCF, BORIS is normally strictly repressed in normal somatic cells; however, abnormal activation of BORIS in cancer is implicated in deregulated site-specific epigenetic reprogramming. Recent evidence demonstrates that alternative splicing is responsible for expression of over 20 BORIS mRNA isoforms, each with potentially different functional implications. So far, too little is known about expression and function of BORIS in HNSCC. Therefore, we examine here, for the first time, both the quantitative expression of BORIS splice variants and possible role of aberrant activation of this gene in HNSCC.

Methods: 8 primer/probe combinations were developed to amplify specific BORIS splice variants. Differential expression of these variants in 38 primary HNSCC and 7 normal tissues was confirmed using real-time RT-PCR. Transient transfections were performed with a pBIG BORIS construct in 2 normal upper aerodigestive cell lines (OKF6-Tert-1 and NOK-SI). In addition, we transfected stable clones expressing BORIS or empty vector with doxycycline. Anchorage dependent (AD) and independent (AI) growth studies were performed using CCK-8 (Dojindo) cell proliferation and soft agar growth assays respectively. Finally, we evaluated downstream targets of BORIS after BORIS transient transfection using RT-PCR.

Results: We found significantly overexpression of BORIS splice variants in 5 of 8 primer/probe combinations, p < 0.05, and a trend toward significance in 1 other primer group in 38 tumors compared to 7 normal tissues. Attention was then directed to determine whether BORIS provided a selective growth advantage over normal upper aerodigestive cells. Transient transfection of pBIG-BORIS into OKF6-Tert-1 and NOK-SI cells showed significantly increased AD growth at day 3. Anchorage independent growth assays were then performed in NIH-3T3 cells stably expressing BORIS and showed significant colony formation 262 +/- 18.7 in the BORIS clone vs. 13.3 +/- 2.4 in the empty vector clone. We then showed that BORIS transient transfection in oral keratinocytes induces expression of MAGE-A family members known to be downstream of BORIS by real-time RT-PCR.

Conclusions: Epigenetic changes have been implicated in the pathogenesis of solid tumors, including HNSCC. BORIS is known to regulate gene expression and promote tumorigenesis by altering methylation patterns. In this study, we have shown that BORIS and its splice variants are overexpressed in HNSCC primary tumors and that full-length BORIS confers a selective growth advantage in normal human oral keratinocyte cell lines.

Combination of low doses of sorafenib and cisplatin significantly enhance the therapeutic efficacy of radiation therapy - Bhavna Kumar, MS, Theodoros N. Teknos, MD, Pawan Kumar, PhD; Department of Otolaryngology - Head and Neck Surgery, James Cancer Hospital and Solove Research Institute, The Ohio State University Comprehensive Cancer Center, Columbus, OH

Objective: Sorafenib and cisplatin are currently being used in the management of recurrent head and neck squamous cell carcinoma (HNSCC). We hypothesized that a combination of low doses of sorafenib and cisplatin would be more effective than monotherapy in reducing tumor burden and increasing survival. We compared the antitumor activity of low-dose sorafenib and cisplatin alone and in combination in HNSCC cell lines.

Methods: The cell lines were treated with different concentrations of sorafenib and cisplatin alone and in combination, and the effect on cell viability was determined using cell proliferation and colony formation assays. The combination index (CI) was calculated using the Chou-Talalay method. The antitumor activity of low-dose sorafenib and cisplatin was also evaluated in vivo using a xenograft model of human HNSCC.

Results: The combination of low-dose sorafenib and cisplatin was more effective in reducing tumor burden and increasing survival than monotherapy in HNSCC cell lines. The combination index was below 1, indicating a synergistic effect. In vivo, the combination significantly reduced tumor growth compared to monotherapy.

Conclusions: Low-dose sorafenib and cisplatin combination therapy has the potential to be an effective treatment for HNSCC.
Bcl-2 expression is directly associated with tumor progression and metastasis. In addition, Bcl-2 modulates radio-resistance by activating the Raf-MEK-ERK signaling cascade. Therefore, we hypothesize that targeting of Raf kinase in advanced HNSCC with sorafenib could reverse the resistant phenotype in tumor cells and tumor-associated endothelial cells thereby enhancing the therapeutic efficacy and decreasing the adverse effects of chemoradiation treatment. Human microvascular endothelial cells (EC) exposed to low doses of sorafenib (1 μM), cisplatin (0.5 μM) or radiation (10 Gy) showed 27%, 13% and 22% cell growth arrest respectively. However, EC treated with the combination of sorafenib (1 μM), cisplatin (0.5 μM) and radiation (10 Gy) together showed significantly higher growth suppression (81%) as compared to treatment with the respective agents alone. This combination treatment was equally effective in inhibiting the growth of HNSCC cell lines (OSCC-3, UM-SSC-1 and UM-SSC-5). Combination treatment also significantly inhibited endothelial cell tube formation on Matrigel and tumor cell invasion. Taken together, our results suggest a potentially novel strategy to use low doses of sorafenib along with cisplatin to overcome the resistance in tumor cells and EC lining the tumor blood vessels, thereby enhancing the effectiveness of the radiation therapy. We are currently validating these in vitro results in our in vivo SCID mouse model.

**P013 (COSM poster #136)**

**ADENOSINE-MEDIATED IMMUNE SUPPRESSION BY CD39+ REGULATORY T CELLS IN PATIENTS WITH HEAD AND NECK CANCER** - Maqsoo Amanpatri, MD, Malgorzata Czyszewska, PhD, Martha Sajek, MD, Stephan Lang, MD, Edelin K. Jackson, PhD, Elieser Gorelik, MD, Jonas T. Johnson, MD, Theresa L. Whiteside, PhD, Departments of Pathology and Pharmacology, University of Pittsburgh Cancer Institute, Pittsburgh, PA, USA, University of Duisburg-Essen, Department of Otorhinolaryngology, Essen, Germany, Department of Otolaryngology, UpMC, Pittsburgh, PA

**Objective:** Regulatory T cells (Treg) play a key role in maintaining self tolerance. In cancer, they attenuate antitumor responses in cancer patients by inhibiting functions of tumor-specific effector T cells. The ectonucleotidases CD39 and CD73 expressed in Treg convert ATP into adenosine which binds to the A2a receptors on effector T cells, suppressing their function. In this study, the involvement of the adenosinergic pathway in the functional activity of Treg in head and neck cancer (HNC) patients was evaluated.

**Methods:** Expression of CD39 on CD4+ as well as CD4+Foxp3+ T-cells, isolated from PBMC of controls (NC; n=15) and HNC patients (n=33) was evaluated by multiparameter flow cytometry. Suppression mediated by sorted CD4+CD39+ cells was assessed in CFSE-based assays with OKT3/anti-CD28 Ab-stimulated autologous CD4+CD25neg responder cells. ATP hydrolysis was measured using the luciferase-based ATP detection assay. Adenosine present in cell supernatants was analyzed by mass spectrometry.

**Results:** The frequency of CD4+CD39+cells (11% +/- 5 vs. 8% +/- 4; p < 0.05) and on CD4+Foxp3+CD39+ Treg (86% +/- 15 vs. 75% +/- 14; p < 0.05) was higher in the peripheral blood of HNC patients vs. NC. Sorted CD4+CD25high cells from HNC patients hydrolyzed exogenous ATP at a higher rate (p<0.05) and produced higher amounts of adenosine (p<0.05) than Treg of NC. ARL67156, an ectonucleotidase inhibitor, decreased the suppression of proliferating responder cells mediated by CD4+CD39+ cells (82% +/- 9 vs. 22% +/- 1; p < 0.02). ZM241385, a highly selective A2A receptor antagonist, reduced the suppressive effects of CD4+CD39+ cells from 82% +/- 9 to 20% +/- 4 (p<0.05).

**Conclusion:** The increased frequency of CD4+CD39+ cells and their elevated enzymatic activity in the peripheral blood of HNC patients contribute to adenosine-mediated suppression of effector T cells via A2a receptor signaling. The extent of adenosine-mediated immune suppression correlates with the disease stage in HNC patients with active disease.

**P014 (COSM poster #137)**

**CHEMOPREVENTIVE EFFECTS OF POLYUNSATURATED FATTY ACIDS OMEGA-3 IN THE CARCINOGENESIS PROCESS OF THE UPPER AERODIGESTIVE TRACT INDUCED BY 4-NITROQUINOILINE-1-OXIDE IN MICE** - Ricardo R. Gama, MD, Allan Giovannini, PhD, Daniele Sakamoto, MSc, Carolina Tallini, MD, Denise Feninman, MD, André L Vettore, PhD, André L. Carvalho, PhD; Graduate Program on Oncology FMUSP, Faculdade Evangélica do Paraná, Barretos Cancer Hospital, Brazil

**Introduction:** Oral cancer is one of the leading causes of cancer in Brazil. Squamous cell carcinoma (SCC) is the most common neoplasm located in the upper aerodigestive tract. It is caused mainly by tobacco and alcohol consumption and the molecular alteration is the mucosa are generally multifocal (field cancerization). Pre-neoplastic lesions like leukoplaikia and erythroplakia can develop to carcinoma in situ or invasive carcinoma and there aren’t well known effective chemopreventive agents (CA) to interrupt the carcinogenesis process. It is beyond doubt the importance in advancing in new chemopreventive strategies at experimental area. The chemical 4-NQO has been shown to induce oral cavity and esophageal SCC in mice and this model has been used to test cancer chemopreventive agents. In this study, the chemopreventive effects of polyunsaturated fatty acids omega-3, given during the posinitiation phase of upper aerodigestive carcinogenesis (initiated with 4-NQO) were investigated in Rockefeller mice.

**Method:** Six to nine-week-old male Rockefeller mice were used for this study. Oral carcinogenesis was induced by administering 4-NQO (100 micrograms in drinking water) for 8 weeks. Polyunsaturated fatty acids omega-3 were given as chemopreventive agents for 24 weeks in the diet after carcinogenesis (group I) and effects were compared to the group that just received 4-NQO without chemoprevention (group II). Starting one week after the cessation of 4-NQO exposure, animals were fed with 10% of PUFAS in the basal diet for 24 weeks. There was another group that received chemopreventive agent alone (group III). Each group contained 5 to 20 animals.

**Results:** all groups I and II developed SCC and/or carcinoma in situ of oral cavity and/or the esophagus. There was no difference in pathology analyses between the two groups. Animals of group III did not develop any type of carcinogenesis. **Conclusion:** PUFAS omega-3 did not interfere in the carcinogenesis process therefore showed no benefit as chemopreventive agent in the development of SCC of the upper aerodigestive tract induced by 4-NQO.
S100A4 as a molecular marker of aggressiveness in head and neck squamous cells carcinoma - EP Ambrosi, MS, MAC Domingues, PhD, SD Silva, PhD, AL Carvalho, FA Soares, LP Kowalski, SR Rogatto; Faculty of Medicine, UNESP, Botucatu, São Paulo, Brazil and Fundação Antonio Prudente, AC Camargo Hospital, São Paulo, SP, Brazil

Carcinomas of the head and neck represent the sixth most frequent cancer worldwide and 90% to 95% are squamous cell carcinomas (SCC). Previously, using comparative genomic hybridization, we reported the association between 1q21 amplification and poor outcome in head and neck SCC patients. S100A4 gene (mapped at 1q21) is a member of small calcium-binding protein family involved in cancer progression. S100A4 overexpression has been associated with reduced cellular adhesion, angiogenesis stimulation, presence of dendritic cells, and poor clinical outcome. In the present study, we compared the genomic imbalances (gains and/or amplifications) with transcript and protein expression levels in HNSCC samples. In addition, S100A4, E-cadherin, and VEGF protein levels were evaluated by immunohistochemistry in 116 oral SCC in a tissue microarray. High-level of amplification (4 to >10 signals in more than 25% of cells) was detected in 44% of cases by FISH. S100A4 overexpression was detected in a subset of cases (23% of the cases) but no significant statistical associations were identified between mRNA expression level and clinical parameters. However, S100A4 protein expression was significantly correlated with histological grade (intensity: P=0.024; extension: P=0.029), advanced clinical stage (P=0.040), invasive front (P=0.026), and inversely correlated with the presence of intratumoral dendritic cells, E-cadherin protein expression (intensity: P=0.055; extension: P=0.055), and VEGF expression (intensity: P=0.017; extension: P=0.018). In these samples, tumor invasive front was correlated with E-cadherin down-expression (P=0.051) and was able to predict the survival probability (log-rank test, P=0.0354). Taken together, these results showed molecular alterations in proteins that are potentially involved in the aggressive HNSCC phenotype and provide a potential basis for a better understanding of the tumor progression.

Expression profile of ErbB family receptors and fatty acid synthase (FASN) in aggressive head and neck squamous cell carcinoma - S.D. Silva, PhD, I.W. Cunha, PhD, I.N. Nishimoto, PhD, F.R. Younes, PhD, F.A. Soares, PhD, LP Kowalski, PhD, E. Graner, PhD; School of Dentistry of Piracicaba, State University of Campinas (UNICAMP), Piracicaba, São Paulo, Brazil and A.C. Camargo Hospital São Paulo, São Paulo, Brazil

Background: Overexpression of ErbB family receptors are common in squamous cell carcinomas (SCC) and this is significantly correlated with tumor progression and metastasis. Fatty acid synthase (FASN), the key lipogenic enzyme responsible for the endogenous synthesis of fatty acids, has been shown to be one of the genes regulated by ErbB2 member. This study was performed to examine the expression patterns of ErbB receptors family and FASN by immunohistochemistry in aggressive primary human head and neck SCC (HNSCC). Methods: We studied 33 patients treated in a single institution with an aggressive primary HNSCC whose patients had metastasis to the lungs during the follow-up. Clinical and treatment data were obtained from the medical records and histopathological features revised. Immunohistochemistry reactions for EGFR, ErbB2, ErbB3, ErbB4 and FASN were performed in a tissue microarray (TMA) containing representative tumor areas spotted in duplicate. The immunohistochemical data was correlated with clinicopathological characteristics of these patients. Results: The positive expression rates of EGFR, ErbB2, ErbB3 and ErbB4 in HNSCC were 79.29%, 31.03%, 12.9% and 54.84, respectively. A strong positive correlation among ErbB family receptors were found in aggressive HNSCC (EGFR-ErbB2 P=0.008, EGFR-ErbB4 P=0.018, ErbB2-ErbB3 P=0.001, ErbB2-ErbB4 P=0.006, ErbB3-ErbB4 P=0.012). FASN was significantly associated with ErbB2 (P=0.024). Microscopic characteristic such as lymphatic permeation were correlated with ErbB3 (P=0.033) and histological grade (P=0.050), ErbB1 and ErbB3 were positive and negatively correlated with smoking habit (P=0.011 and P=0.027), ErbB2 was inversely associated with alcohol consumption and clinical stage (P=0.014 and P=0.031). Conclusion: A combination of EGFR, ErbB2, ErbB3 and ErbB4 expression profile may be better progression indicator than any family member alone. ErbB2 is the preferred co-expression partner among the ErbB family members and these results suggests that ErbB2 regulates FASN expression in aggressive HNSCC.

Nasopharyngeal carcinoma: Analysis of the immunexpression of galectin-3 and matrix proteins - MAC Dominguez, PhD, J.V. Tagliarini, V. Nakajima, E. Castilho, N. Hernandez, S.D. Silva, PhD, LP Kowalski, PhD, S.R. Rogatto, PhD; Faculty of Medicine, UNESP, Botucatu, São Paulo, Brazil and Fundação Antonio Prudente, AC Camargo Hospital, São Paulo, SP, Brazil

The most common malignant nasopharyngeal neoplasia is Nasopharyngeal Carcinoma (NPC), which presents optic and electronica microscopy evidence of squamous differentiation. NPC shows a distinct geographic and racial distribution and multifactorial etiology: the constant association of Epstein-Barr virus (EBV) with NPC, independent of ethnic group, indicates the importance of this virus as an oncogene. Analyze the distribution of matrix proteins (fibronectin, laminin, and collagen IV) in 30 paraffin blocks with an anatomicopathological diagnosis of NPC and evaluate galectin-3 expression. Slides and paraffin blocks were selected from Pathology Department of the Botucatu Faculty of Medicine, São Paulo State University, Brazil and reclassified according to the WHO classification (2005). Investigation regarding matrix proteins and galectin-3 was performed by immunohistochemical reaction. The results showed that the mean patient age was 47.6 years-old with predominance of men. In relation to morphological subtypes, undifferentiated non-keratinized squamous cell carcinoma (NKSsC) showed the greatest frequency (79%). This subtype presents 100% association with EBV. To the best of our knowledge, the observations concerning the distribution of matrix proteins in the neoplasia are reported for the first time: laminin expression, which in normal nasopharynx is restricted to the vessel walls and the epithelium basal layer, was increased, together with the matrix in neoplastic cells in 72% of cases, suggesting that it has an important role in the pathogenicity of tumor cell multiplication and dissemination. Fibronectin was in 39% of cases, with increased distribution in tumor cells. Galectin-3 was observed in 63% of cases, all these in relation to the undifferentiated NKSSC subtype. These findings suggest that this protein could have an important role in the pathogenicity of this subtype, related to mechanisms induced by the viral genome of EBV. In six cases, laminin and galectin-3 present positive immunoeexpression correlation, suggesting that combined mechanisms could be involved in the progression of the undifferentiated NKSSC subtype. In nine cases, positive correlation was observed between all three proteins, one case of squamous cell carcinoma and the remaining two cases of undifferentiated NKSC. These results showed that in NPC pathogenicity, principally in undifferentiated NKSSC subtype, the matrix proteins play an important role in carcinogenesis and tumor progression.

Factors affecting IL-8 gene regulation in oral cancer - Brendan Pierce, BA, Beverly Wuertz, BS, Frank Ondrey, MD; University of Minnesota Medical School

Introduction: It is established NF kappa B dependent cytokines significantly contribute to the inflammatory milieu which accompanies oral cancer progression. Multiple studies demonstrate NF kappa B dependent cytokines, such as IL-8, increase during squamous carcinogenesis and are secreted by both tumor and immune cells into the local environment and can be measured in saliva. It has been demonstrated in some systems, PPAR gamma pathway activation will antagonize NF kappa B pathway activation. This in turn could downregulate pro-inflammatory cytokine secretion. In the present study we hypothesized the PPAR gamma activator, pioglitazone, might downregulate IL-8 gene expression in head and neck cancer cells. Pioglitazone has recently been used in a successful study of clinical oral leukoplasia. Methods: Oral squamous carcinoma cell lines and immortalized oral keratinocytes were transfected with a proximal IL-8 promoter/luciferase reporter gene and treated with increasing concentrations of pioglitazone from 1-20uM for 24 hours. At the conclusion of the incubation cells were harvested and luciferase assays were performed on nine replicates per data point. As a positive control,
cells were also treated with SB203580, a preclinical MAP kinase inhibitor which should downregulate IL-8 expression. Additional experiments evaluated IL-8 secretion by ELISA. **Results:** In a series of experiments SB203580, but not pioglitazone, significantly downregulated IL-8 functional activity in 3/3 cell lines (p<0.05), as judged by luciferase reporter gene activity. Additionally, decreased IL-8 secretion after 24 hours was observed in SB203580 treated cells, but not pioglitazone treated cells (p<0.05). **Conclusions:** We conclude MAP kinase inhibition, but not PPAR gamma activation (via pioglitazone at 1-20uM) can decrease IL-8 gene activation and secretion in oral cancer cells. Further, pioglitazone does not affect oral cancer associated MAP kinase induced cytokine activation. Successful clinical oral leukoplakia reductions in response to pioglitazone treatment must be attributable to something other than MAPK or IL-8 inhibition.

**P020 (COSM poster #143)**

**SIGNALLING PATHWAYS IN ADENOID CYSTIC CANCERS: IMPLICATIONS FOR TREATMENT.** - Anjali K. Gupta, MD, Werner W. Wilke, PhD, Kellie L. Bodeker, BS, John M Buatti, MD, Henry T. Hoffman, MD, Robert A. Robinson, MD; University of Iowa

**Introduction:** Adenoid cystic cancers (ACC) in the head and neck are rare yet present a clinical dilemma. Although 5 year survivals are excellent, their propensity for late recurrences make 5 year survivals in the order of only 40%. Most of these cancers are initially treated with surgery followed by radiation. When recurrences happen, treatment options are limited. **Methods:** We obtained paraffinized sections from 9 archived ACC’s. These were stained with antibodies for EGFR, Akt, and MAPK in order to molecularly characterize these tumors. We also obtained an ACC cell line called ACC3 which was also characterized. We used various inhibitors of EGFR, Akt and MAPK in order to see if we could slow the growth of the cells. **Results:** Seven of the 9 samples had strong expression of phosphorylated (P) Akt and 5/9 had P-MAPK. None of them had EGFR expression. In the ACC3 cell line, similar data was found in that there was P-Akt and P-MAPK but no EGFR expression. ACC3 cells did have growth inhibition when treated with inhibitors of Akt and MAPK but not when treated with inhibitors of EGFR. **Conclusion:** Currently inhibitors of EGFR are in wide clinical use. These will likely be ineffective as ACC’s. Inhibitors further downstream that effect the Akt and/or the MAPK signaling pathways should be tried.

**P021 (COSM poster #144)**

**IDENTIFICATION OF DNA DAMAGE RESPONSE PATHWAYS AS A FUNCTIONAL TARGET OF TAP63 IN HNSCC.** - David Jung, MD, Edmund S. Mroz, PhD, Richard A. Michael, MD, James W. Rocco, MD; Dept of Otology and Laryngology, Massachusetts Eye and Ear Infirmary, Dept of Surgery, Div of Surgical Oncology, and MGH Cancer Center, Massachusetts General Hospital, Boston, MA

**Objective:** To identify signaling pathways downstream of TAp63 that may serve as therapeutic targets in HNSCC. **Methods:** Inducible TAp63 cell lines were generated in the well-characterized JHU-011 and 029 HNSCC cell lines using the TREAT system from Invitrogen. After initial characterization, the JHU-029 cell line was interrogated further using microarray analysis and GSEA to search for gene sets regulated by TAp63. Microarray analysis was performed using the Affymetrix Human Genome U133 Plus 2.0 Array on triplicate samples after induction of TAp63 to generate a total of six samples for analysis. GSEA was performed using the publically available desktop application from the Broad Institute (http://www.broad.mit.edu/gsea/software_index.html). The data set had 54,675 native features (probes). To eliminate multiple probes and avoid inflating enrichment scores, each probe set in the array expression data set was collapsed into one of 20,606 HUGO gene symbols. Gene set size filters (min =15, max =500) resulted in filtering out 445 of 1892 gene sets from the MSigDB v2.5 of curated genes. The remaining 1447 gene sets were used in the analysis. Due to the sample size, the analysis was performed by permutation of the gene set 1000 times. **Results:** 826 out of the 1447 gene sets were upregulated after TAp63 induction in JHU-029 cells. 26 gene sets were significant at a False Discovery Rate (FDR) <5%. Among the gene sets that were consistently enriched after TAp63 expression were those associated with DNA damage. This included multiple gene sets associated with the response to cytotoxic drug therapy, including cisplatin, bleomycin and alkylating agents, as well as gene sets associated with exposure to ultraviolet radiation. **Conclusion:** Critical to the relevance of this study, we and others have shown that treatment with cisplatin leads to loss of Dnlp63, and we have further demonstrated that Dnlp63 directly represses transcription of TAp63. Use of GSEA allowed us to correlate the modest but coordinated changes in gene expression found in our system with similar changes found in the global DNA damage response following exposure to chemotherapeutic agents. These results are consistent with a critical role for TAp63 in the response to cytotoxic therapy and underscore the importance of the p63 pathway in therapeutic response to HNSCC treatment.

**P022 (COSM poster #145)**

**TISSUE FACTOR PATHWAY INHIBITOR INHIBITS VENOUS THROMBUS FORMATION IN RATS.** - Waleed Ezzat, MD, John Dahl, PhD, Howard Krein, MD, Ryan N. Heffelfinger, MD; Thomas Jefferson University Hospital

**Objectives:** Free flap reconstruction has become a mainstay of therapy after resections for head and neck cancer. With current techniques free flap failure is typically low, however failure rates have been reported as high as 10%. Most failures occur within the first few days postoperatively and tend to involve the venous anastomoses. We evaluated the efficacy of recombinant human Tissue Factor Pathway Inhibitor (rTFPI), an anticoagulant that directly inhibits the extrinsic coagulation pathway, using a rat model of microvenous thrombosis. **Study Design:** A prospective cohort controlled study using an in vivo rat model of microvenous failure. **Methods:** Sprague-Dawley rats were assigned to either rTFPI or saline groups. We performed a venous tuck procedure in the common femoral vein. Prior to closure, the anastomosis was irrigated with either rTFPI (20ug/mL) or normal saline. Survival of the anastomosis was measured via clinical assessment at regular postoperative intervals. After a postoperative period of 48 hours, sites were intraoperatively assessed and the vessels harvested. Appropriate statistical analyses (Chi square and power analysis) were then performed. **Results:** There was a significant increase in vessel patency in rats treated topically with rTFPI compared to controls receiving saline. There was no increase in bleeding complications in the treated group versus controls. **Conclusions:** Our data suggests that the use of topical rTFPI increases venous anastomotic patentity rates in vivo. The topical means of administration is attractive, as there seems to be a low percentage of systemic complications, as is often seen with anticoagulation therapies. Future studies will investigate the potential efficacy in patients undergoing microvascular free tissue transfer.

**P023 (COSM poster #146)**

**THE TLR4 FORMULATED GVAX “TEGVAX” IMPROVES THE ANTITUMOR RESPONSE IN VIVO.** - Meghan Davis, MS, David Vasquez, MD, Young J. Kim, MD; Johns Hopkins Medical Institution Both the adaptive immune system as well as the innate immune system may need to be targeted to achieve clinical success in immunotherapy. TLR4 signaling is one molecular pathway to elicit an antitumor response. We hypothesized that the clinically safe GVAX vaccine formulated with the TLR4 agonist will render an improved antitumor response in vivo. Both intratumoral and systemic treatment showed efficacy in improving an antitumor response in vivo in three different murine models. Furthermore, the efficacy of TEGVAX was not present when the experiment was performed in MyD88 -/- mouse, demonstrating that the effect is dependant on the integrity of TLR4 signaling pathway. **Conclusion:** In the CT26 murine model in Balb/c mice, 40% of the mice achieved no outgrowth of the injected tumor. When rechallenged with CT26 cells, these mice proved to be immunized. ELISPOT assay and in vivo CFSE assays showed increased number of AH1-specific lymphocytes in mice immunized with TEGVAX. Our results support the relevance of controlled TLR4 activation as a clear way to improve tumor vaccination.

**P024 (COSM poster #147)**

**IDENTIFICATION OF POTENTIAL HNSCC BIOMARKERS USING A COMPREHENSIVE LITERATURE REVIEW.** - Sunny Khichi, BS, Mark Merkley, BS, Paul M. Weinberger, MD, Carey Tuckfield, PhD, Lana Jackson, MD, William S. Dynan, PhD; Medical College of Georgia and University Hospital

**Background:** Head and neck squamous cell carcinoma (HNSCC) accounts for roughly 5% of newly diagnosed cancers in adult patients.
Despite numerous advances in surgical technique, multi-modality therapy and detection, survival rates have failed to substantially improve over the last three decades. Known prognostic factors for HNSCC include anatomic subsite of origin, patient ethnicity, and association with high-risk HPV. It is likely that these epidemiological identities are driven at the molecular level, and as such can be detected by proteomic-based technologies. Biomarkers that are indicative of these changes would have clinical utility in predicting response to treatment, recurrence, and overall prognosis. Furthermore, it is conceivable that detection of biomarkers from easily accessible biologic fluids such as serum or saliva would facilitate early detection of small lesions, thus improving outcomes.

**Objective:** We sought to identify proteins over- or under-expressed in HNSCC that have been discovered by proteomic-based technologies, and to determine concordances between studies. **Methods:** We performed a Medline search using the following query terms: proteomic, proteomics, head and neck cancer, HNSCC, OSCC, and oral cancer. Inclusion criteria were proteomics-based comparisons of normal tissue or normal cultured cells to head and neck squamous cell carcinoma tissue. Serum- or saliva-only based studies were excluded. We tabulated and compared protein identifications and direction of expression change. Literature searches for further validation in HNSCC were performed for proteins appearing in multiple studies. **Results:** We identified 37 unique studies that compared normal and HNSCC tissue. From these studies, 439 unique proteins were identified. Only 85/439 (20%) of the proteins were identified in two or more studies, with the majority of those (54/65%) identified in only two studies. The most commonly identified protein was the small heat shock protein HSPB1 (Hsp27), identified in 11/37 studies. Problematically, of the 85 proteins identified in multiple studies, the direction of expression for several was inconsistent. **Conclusion:** These results indicate that HNSCC is a heterogeneous disease that may not be easily classified. The lack of concurrence between the included studies may reflect the heterogeneity of the disease, differences in sample collection, and/or study design. The detection of validated biomarkers in multiple studies provides a beginning for further clinical validation. Validating experimentally-discovered biomarkers will improve the course of treatment for HNSCC by enabling less invasive detection and more effective tumor-specific treatment opportunities.

**P025 (COSM poster #148)**

**EYELASH TRICHOMEGALY SECONDARY TO PANITUMUMAB THERAPY** - Luc G. Morris, MD, Howard Hochster, MD, Mark D. DeLacure, MD; New York University Cancer Institute

**Introduction:** Skin toxicity is the most common side effect of anti-EGFRT monoclonal antibodies, including cetuximab and panitumumab, which are agents currently investigated in head and neck cancer trials. Several cases of mild eyelash lengthening have been reported with cetuximab. We report a case of severe eyelash overgrowth in a patient receiving panitumumab therapy.

**Case Report:** A 78 year old woman was referred to our cancer center with metastatic colorectal cancer. The patient had been treated with multiple courses of adjuvant chemotherapy, most recently cetuximab for four months, with progressive disease and no skin rash. She was then treated with panitumumab for one year, with improvement noted on tumor markers and radiographic imaging. Approximately three months into therapy, she developed significant lengthening and overgrowth of her eyelashes, requiring frequent trimming.

**Discussion:** We report a dramatic case of eyelash trichomegaly, the first such case secondary to therapy with panitumumab. Mild eyelash growth is an uncommon toxicity to molecular targeted therapy against EGFR. This has been described for erlotinib (Tarceva), a tyrosine kinase inhibitor, as well as cetuximab, a monoclonal antibody. Interestingly, this patient had no dermatologic reaction to cetuximab. Skin rash – generally a papulopustular eruption – is the most common toxicity experienced with these targeted therapies. These toxicities are believed to be attributable to inflammation and abnormalities in keratinocyte differentiation resulting from EGFR inhibition. Head and neck oncologists should be aware of the complete spectrum of dermatologic reactions to these agents.

**P026 (COSM poster #149)**

**THYROID CANCER OUTCOMES IN FILIPINO PATIENTS** - Lukas H. Kus, MSc, Spiro Eski, MD, Manish Shah, MD, Paul G. Watfish, MD, Jeremy L. Freeman, MD; Queen’s University, Kingston, Ontario, Canada; University of Toronto, Toronto, Ontario, Canada

**Objective:** Patients of Filipino origin have a high incidence of thyroid cancer. The aim of this study was to determine whether the outcomes of Filipino thyroid cancer patients vary from those of non-Filipino patients.

**Design and Setting:** Patients treated for thyroid cancer from 1984-2003 at Mount Sinai Hospital, a high-volume tertiary referral centre in Toronto, Canada, were identified from the thyroid cancer database maintained by one of the senior authors (P.G.W.). A retrospective chart review was performed on 499 patients (36 Filipino, 463 non-Filipino) who had a minimum follow-up time of 5 years and a minimum tumour size of 1cm. Data on relevant patient, tumour, and treatment factors were collected along with patient outcomes. **Main Outcome Measures:** Recurrence, death from disease, and time-to-recurrence. **Results:** The Filipino patient group was similar to the non-Filipino group with respect to sex, age, radiation history, family history, mean follow-up time, tumour size, pathology, multifocality, stage of disease, type of surgery, use of post-operative radioactive iodine (RAI), and use of external beam radiotherapy (EBRT). Filipinos experienced a recurrence rate of 25% compared with 9.5% for non-Filipinos, a difference which was significant on univariate analysis (Odds ratio 3.2; 95% CI 1.23-7.49; p=0.004). On multivariate analysis, when controlled for sex, age, group, radiation history, family history, tumour size and pathology, stage of disease, RAI, EBRT, and type of surgery, the increased risk of recurrence persisted for Filipinos (OR 6.99; 95% CI 2.31-21.07; p<0.0001). Similar results were obtained when patients with anaplastic, medullary, and insular carcinomas were excluded. Filipinos experienced a higher rate of death from disease (5.6%) than non-Filipinos (1.9%) but this difference was not significant (p=0.155). Kaplan-Meier analysis showed no significant difference between Filipinos and non-Filipinos with respect to time-to-recurrence (52.6 vs. 53.1 months; p=0.90). **Conclusions:** The results of this study suggest that Filipino patients are at a significantly higher risk for thyroid cancer recurrence compared with non-Filipino patients. There is, however, no significant difference in time-to-recurrence or rate of death from disease. These findings justify a more aggressive initial management and a more intensive follow-up regimen for Filipino patients.

**P027 (COSM poster #150)**

**THE COMMUNICATING PERFORATOR IN THE RADIAL FOREARM** - Chady Sader, MD, Mark Taylor, MD, Robert Hart, MD, Jonathon R. Trites, MD; Dalhousie University

**Objective:** To assess the venous anatomical patterns of the radial forearm flap, paying particular interest to the deep to superficial communicating perforator. **Methods:** 50 consecutive radial forearm free flaps were prospectively assessed between 2006 and 2009. Details regarding all radial forearm free flaps harvested by three microvasular trained Head & Neck surgeons were entered into a prospective database. Clinical photography was also used. **Results:** The majority of cases were males, and the left non-dominant forearm was most commonly used. All cases were used for Head and neck reconstruction. There was a cephalic vein present in all cases, and 2 vena-comitantes were present in all cases. The communicating perforator was present in 49/50 (98%) cases. **Conclusion:** In contrast to previous reports, we found the communicating deep to superficial communicating vein to be present in the vast majority of radial forearms. This has clinical implications, particularly with respect to the reliability of a single venous anastomosis.
a Head and Neck defect underwent stellate ganglion block using 0.5 ml's containing a mixture of 50:50 0.5% bupivacaine and 1% lidocaine. The stellate ganglion block was performed under direct vision, prior to the microvascular anastomosis. No other agents were used to prevent spasm. Intraoperative assessment of flow through the internal and external carotid systems was measured pre and post stellate ganglion block. The sonographer was blinded to the injection. Clinical correlation was made of the incidence of vasospasm, after the anastomosis was complete. Results: No evidence of vasospasm was detected in any of the microvascular anastomoses performed. These are correlated with the flows in the internal and external carotid arteries. Conclusion: We advocate the use of a stellate ganglion block in microvascular reconstruction of the Head & Neck.

**P029 (COSM poster #152)**

**PAPILLARY SQUAMOUS CELL CARCINOMA: A CONTEMPORARY CLINICOPATHOLOGIC SERIES** - Jonathan O. Russell, BS, Aaron P. Hoschar, MD, Joseph Scharpf, MD; Case Western Reserve University School of Medicine, The Cleveland Clinic Foundation

**Background:** Papillary Squamous Cell Carcinoma (PSCC) represents an uncommon squamous cell carcinoma variant of the upper aerodigestive tract. A paucity of studies and the lack of a universal pathologic definition contribute to the limited knowledge regarding prognosis and management. The subsite from which the neoplasm arises has been suggested to have prognostic value. **Methods:** 45 patients with PSCC of the upper aerodigestive tract were identified from the electronic records of the Cleveland Clinic Head and Neck Institute. This single-institution retrospective series review spanned patients presenting from 1997 until 2008. Microscopic slides for 39 patients were re-evaluated by a head and neck pathologist. All lesions demonstrated varying combinations of filiform to broad-based papillae. A chart review identified patient demographics, risk factors, primary subsite, treatment modalities, failure pattern, and survival statistics. Kaplan Meier methods were used to determine time to recurrence and overall survival. Logistic regression was used to estimate odds of recurrence, and the chi-square test was used to determine association between tumor location and primary treatment. Results: 14 women and 31 men aged 44 to 82 years at diagnosis (median = 67.0) with median follow up of 31 months were analyzed by subsite. 23 had lesions localized to the oral cavity / oropharynx (OC), 17 to the laryngopharynx (LP), and 5 to the sinonasal tract (SN). The majority of patients had known SCC risk factors including alcohol (60%, n = 27) or tobacco (78%, n = 35). 3 patients had a history of recurrent papillomatisis (7%). 40% (n = 2) of patients with SN neoplasms had a history of inverted papillomas. 18% (n = 3) of LP lesions were primarily treated by surgery alone, compared to 60% (n = 3) of SN and 57% (n = 13) of OC lesions. 33% (n = 15) of patients had recurrences following completion of primary treatment: 80% (n = 4) of SN and 41% (n = 7) of LP tumors recurred, opposed to a recurrence rate of 17% (n = 4) among OC malignancies. Discussion: This study presents one of the largest series of PSCC to date. Differences in management strategies and recurrence rates were apparent by subsite. A commonly accepted definition of PSCC will allow for improved consistency in future studies.

**P030 (COSM poster #153)**

**THE IMPACT OF COMPLIANCE ON CLINICAL OUTCOMES IN HEAD AND NECK SQUAMOUS CELL CARCINOMA** - Cristina Cabrera, MD, Yelizaveta Shnayder, MD, Kevin Sykes, MPH, Terance T. Tsue, MD, Douglas A. Girod, MD; University of Kansas Medical Center

**Objective:** To evaluate the impact of demographic characteristics on patient compliance. To determine whether loss to follow up status impacts clinical outcomes. **Methods:** A retrospective review was performed on head and neck cancer (HNSCC) patients treated at a tertiary care academic institution. Of the 185 charts reviewed, 165 patients met inclusion criteria, such as a diagnosis of (HNSCA) made between March 2003 and December 2006, cancer therapy provided at the study institution, and completion of at least one follow up visit at the institution. Patient characteristics, tumor characteristics, clinical follow-up, and geographic data were collected. Outcome measures were defined as overall survival, disease-free survival, and recurrence. Compliance with follow up was defined as completing recommended treatment as well as keeping all follow-up appointments after treatment. Results: Charts were tracked for a mean period of 34 months, with an end point of either 12/31/08 or death. The average length of compliant follow up was 28.2 months. Eighty-eight patients (53%) were lost to follow up at least once during the study, for a mean duration of 18 months. Compliance with follow up did not relate statistically to age, gender, race, tumor site, stage, or diagnosis of depression. There was also no significant relationship between compliance and tumor stage, treatment type, or alcohol use. Tobacco quit rate was positively associated with compliance (p=0.02). Distance from the treatment center and census income level were not found to be related to follow up compliance. Compliance with follow up did not significantly affect overall survival, disease-free survival, and recurrence. **Conclusions:** Despite an interesting relationship between tobacco quit rates and compliance of follow up, demographic characteristics did not significantly predict which patients were lost to follow up. Furthermore, outcomes measures were not affected by patient compliance.

**P031 (COSM poster #154)**

**MOVING TOWARD STANDARDIZATION: RELATING NATIONAL PRACTICE PATTERNS TO EVIDENCE BASED TREATMENTS FOR DYSPHAGIA IN HEAD AND NECK CANCER PATIENTS** - Gintas P. Krisicinas, MPH, Susan Langmore, PhD, Keri Vasquez-Miloro, MS; Boston University Medical Center

**Purpose:** There is little if any standardized treatment for dysphagia in HNC patients. Appropriate intervention time, type, and intensity are poorly understood and vary between clinicians and institutions. To move toward an objective standard of care, national usual practice patterns were surveyed and compared to published evidence of treatment efficacy. **Method:** A national survey aimed at SLPs who treat HNC patients was sent via the ASHA SID 13 listerv. 143 responses were recorded and analyzed for treatment patterns and institutional policy. A systematic review of more than 100 articles yielded only 9 publications with adequate measurable outcomes. **Results:** In our survey, only 23.7% of institutions proactively referred HNC patients for swallowing therapy. Compensatory maneuvers are most common (85.9%) during XRT, stretching is most common (35%) as a preventative intervention post XRT, and compensatory maneuvers (83.5%) coupled with swallow exercises (91.4%) are most common in treating dysphagia post XRT. Most clinicians recommended 10-20 minutes of treatment time per day, 7 days per week. The literature suggests proactive (pre- and during XRT) swallowing exercises help prevent dysphagia, and non-swallowing exercise (Shaker and ROM) are effective at treating dysphagia. Postural maneuvers only prevent aspiration. No data exists on duration or intensity of treatment protocols. **Conclusions:** One or more RCTs are needed to establish the efficacy of multiple interventions at various times and locations before definitive treatment. SLPs in HNC centers need a robust evidence base to guide clinical practice. Contrary to usual practice patterns, current available evidence suggests early intervention may be effective and that non-swallow exercises have more efficacy than swallowing maneuvers.

**P032 (COSM poster #155)**

**TEMPORAL BONE CARCINOMA - TREATMENT PATTERNS AND SURVIVAL** - Richard K. Gunel, MD, Nathan Schularick, BA, Erika A. Woodson, MD, Lucy H. Karnell, PhD, Marlan R. Hansen, MD; University of Iowa

**Introduction:** Carcinomas of the external auditory canal and temporal bone are rare clinical entities. Temporal bone malignancies portend high rates of morbidity and mortality and require aggressive surgical management, often with adjuvant radiotherapy. Due to the rarity of the disease, appropriate treatment, staging, and survival data have been relatively limited. The objective of this study was to evaluate patient and disease characteristics, treatment patterns, and survival rates for patients with temporal bone carcinoma. **Methods:** Charts were reviewed from 1977-2007 for patients with temporal bone malignancies. Patient demographic data, tumor-specific characteristics, and survival data were collected. All patients were prospectively staged according to the modified Pittsburgh staging system for temporal bone carcinoma. **Results:** Of the 72 patients who met inclusion criteria, 63.0% were male and the average age was 68.4 years old. There were 48 squamous cell carcinomas (SCC, 66.6%), 11 basal cell carcinomas (BCC, 15.3%), 4 adenocarcinomas (5.6%), 3 adenoid cystic (ACC,
Objective: Ozan B.
ANALYSIS OF MANOFLUOROGRAPHIC AND FUNCTIONAL P034 (COSM poster #157)
contrast, only 1 out of 64 (1.6%) patient turned out to be a false positive. series had a diagnostic gain by the application of these techniques. By and metachronous tumors (1). Overall, 11 out of 64 (17%) patients of this (2 cases). NBI has also a role in detection of early recurrences (6 cases) in the pre- and intraoperative setting (upstaging of 2 tumors), and NBI±HDTV is useful in better defining tumor extension and 91%, respectively. Accuracy was 82%, 82%, and 71%, respectively. Sensitivity of flexible NBI, HDTV NBI, and HDTV received histopatologic confirmation ranging from invasive carcinoma to videofluoroscopy confirmed normal swallowing coordination and showed significant postoperative decrease in the mean cricopharyngeal(CP)-resting pressures(CPR) from 16.31 to 9.64, CP-peak-clearing pressures(CPC) from 41.66 to 27.19, CP-midbolus pressures(CP-mid) from 32.44 19.59, intrabolus pressure gradient across the CP-region(IB-Gra) from 22.34 to 16.62 mmHg, (p<0.05). The mean preoperative IB-Gra and postoperative CP-nadir were significantly greater(p<0.05) and mean preoperative CP-nadir tendon to be significantly greater in the large compared to the small diverticula group(p<0.05). The postoperative changes in CP-mid and IB-Gra tended to be significantly greater in the large compared to the small diverticula group(p=0.059). Conclusions: Subjective (FOSS) and objective (pouch depth, CPR, CPC, CP-mid, and IB-Gra) changes in patients occurred after TED. We suggest high CP-mid and IB-Gra as reliable objective indicators for patients who might benefit from TED and as appropriate parameters for follow-up after surgery. There was no manofluorographic evidence of abnormal swallowing coordination in this small series. We believe that anatomic hypopharyngeal wall weakness plays the major role in the pathogenesis of ZD. However, continued research on larger patient population is required to enhance our understanding of predictors of successful treatment and pathogenesis of ZD.

Objective: NBI is a novel endoscopic technique in which a filtered 415 nm wavelength light enhances mucosal vasculature and better identifies superficial neoplasms thanks to their neangiogenetic pattern. NBI accuracy is implemented by combining it with a HDTV camera giving 1080 lines of resolution. Aim of this paper is to prospectively evaluate the diagnostic gain of NBI±HDTV in the evaluation of HNSCC of patients previously treated by radiotherapy (RT) or chemoradiotherapy (CH-RT). Methods: 434 patients affected by HNSCC or previously treated for them were prospectively evaluated by NBI and white light (WL) endoscopy a HDTV between 2007 and 2008. Between them, we evaluated 64 (15%) patients previously treated by RT or CHT-RT. Patients were submitted to flexible WL and NBI videendoscopy of the upper aero-digestive tract. Surgical candidates underwent intraoperative WL and NBI endoscopy by rigid telescopes coupled to HDTV. Tumor resection was performed taking into account NBI information to evaluate the specific pattern of the base of the tumor, its vascularity, specificity, positive and negative predictive values, and accuracy of NBI±HDTV and of HDTV WL endoscopy were subsequently calculated. Results: 12 out of 64 patients (19%) showed adjunctive preoperative NBI videendoscopic findings when compared to WL videendoscopy. All of them were confirmed by intraoperative HDTV NBI, while only 6 (50%) were evident during HDTV WL endoscopy. 11 out of 12 (92%) lesions received histopathologic confirmation ranging from invasive carcinoma to intraepithelial neoplasia. Sensitivity of flexible NBI, HDTV NBI, and HDTV WL was 98.8%, 98.2%, and 100%, respectively. Specificity was 98%, 99%, and 100%, respectively. Positive predictive value was 91%, 91%, and 100%, respectively. Negative predictive value was 100%, 100%, and 91%, respectively. Accuracy was 82%, 82%, and 71%, respectively. Conclusions: NBI±HDTV is useful in better defining tumor extension in the pre- and intraoperative setting (upstaging of 2 tumors), and evaluation of incomplete response to RT before planned neck dissection (2 cases). NBI has also a role in detection of early recurrences (6 cases) and metachronous tumors (1). Overall, 11 out of 64 (17%) patients of this series had a diagnostic gain by the application of these techniques. By contrast, only 1 out of 64 (1.6%) patient turned out to be a false positive.

ANALYSIS OF MANOFLUOROGRAPHIC AND FUNCTIONAL OUTCOMES AFTER TRANSORAL ENDOSCOPIC DIVERVICULOSTOMY FOR ZENKER’S DIVERVICULUM - Ozan B. Ozgunay MD, John R. Salassa, MD; Mayo Clinic Florida Objective: To investigate the clinical and manofluorographic outcomes after transoral endoscopic diverticulostomy(TED). Patients and Methods: Retrospective chart review of patients undergoing TED for dysphagia due to Zenker’s diverticulum(ZD) between 1997-2007 was undertaken to determine clinical and manofluorographic findings before and 6-month after surgery. Results: Thirty-two patients who had sufficient clinical and manofluorographic data were included. Two groups were established according to the depth of ZD: Small(<20mm) and large(>20mm) diverticula groups. There was a significant postoperative decrease in 7Functional Outcome Swallowing Scale?(FOSS) from 2.34 to 0.34(p<0.05). Videofluoroscopy demonstrated normal swallowing coordination and significant decrease in the depth of pouches after surgery from 28.56 to 4.5 mm(p<0.05). Manometry confirmed normal swallowing coordination and showed significant postoperative decrease in the mean cricopharyngeal(CP)-resting pressures(CPR) from 16.31 to 9.64, CP-peak-clearing pressures(CPC) from 41.66 to 27.19, CP-midbolus pressures(CP-mid) from 32.44 19.59, intrabolus pressure gradient across the CP-region(IB-Gra) from 22.34 to 16.62 mmHg, (p<0.05). The mean preoperative IB-Gra and postoperative CP-nadir were significantly greater(p<0.05) and mean preoperative CP-nadir tendon to be significantly greater in the large compared to the small diverticula group(p<0.05). The postoperative changes in CP-mid and IB-Gra tended to be significantly greater in the large compared to the small diverticula group(p=0.059). Conclusions: Subjective (FOSS) and objective (pouch depth, CPR, CPC, CP-mid, and IB-Gra) changes in patients occurred after TED. We suggest high CP-mid and IB-Gra as reliable objective indicators for patients who might benefit from TED and as appropriate parameters for follow-up after surgery. There was no manofluorographic evidence of abnormal swallowing coordination in this small series. We believe that anatomic hypopharyngeal wall weakness plays the major role in the pathogenesis of ZD. However, continued research on larger patient population is required to enhance our understanding of predictors of successful treatment and pathogenesis of ZD.

A THREE LAYER CLOSURE TECHNIQUE DIMINISHES FISTULA RATES IN PREVIOUSLY CHEMORADIATED TOTAL LARYNGECTOMY PATIENTS - Joshua B. Surowitz MD, Rupali N. Shah, MD, Adam M. Zanation, MD, Mark C. Weissler, MD, Carol C. Shores, MD; University of North Carolina - Chapel Hill Objective: To determine the incidence of postoperative pharyngocutaneous fistula formation following salvage total laryngectomy (TL) compared with primary total laryngectomy at our institution where a three layer neophrayngeal closure technique is routinely used. Design: Retrospective case control study. Setting: tertiary care referral center specializing in head and neck cancer. Patients: Ninety-two patients who underwent either primary or salvage TL for laryngeal squamous cell carcinoma by one of two attending surgeons within the last ten years at our institution were identified. All patients in this group underwent primary closure of the neophaynx without flap reconstruction. The patients were stratified into three groups: primary TL (55 patients), radiotherapy (RT) followed by salvage TL (25 patients), and chemoradiotherapy (CRT) followed by salvage TL (12 patients). A retrospective chart review was undertaken to determine tumor staging, treatment received, and as appropriate parameters for follow-up after surgery. There was no manofluorographic evidence of abnormal swallowing coordination in this small series. We believe that anatomic hypopharyngeal wall weakness plays the major role in the pathogenesis of ZD. However, continued research on larger patient population is required to enhance our understanding of predictors of successful treatment and pathogenesis of ZD.

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of hospitalization. 

**Conclusion:** Our data shows that with three layer closure of the neopharynx, fistulas in our patient population occur at similar rates in primary TL, post RT-salvage TL, and post CRT-salvage TL patients. Using this technique, our postoperative fistula rates are lower than previously reported while postoperative stricture rates remain low, resulting in decreased morbidity and length of hospitalization. Increased fistula rates in patients with flap reconstruction following TL may be due to lack of multilayered closure in these cases, or the inherently greater extent of local disease in this sub-population of patients.

**P036 (COSM poster #159)**

**MRSA CAUSING PHARYGO-CUTANEOUS FISTULA FOLLOWING SALVAGE LARYNGECTOMY** - A.A. Orabi, MSsc, A. Manganaris, PhD, R. Simo, JP Jeannon; Department of Otorhinolaryngology Head and Neck Surgery Guy’s and St Thomas’ Hospital NHS Foundation Trust, London, United Kingdom

**Aims:** We have reviewed our experience in patients who have developed pharyngocutaneous fistulas (PCF) following salvage laryngectomy (SL) in which Methicillin Resistant Staphylococcus Aureus (MRSA) has been identified as a causative factor and discussed difficulties in management and surgical outcomes. 

**Methods:** Prospective data collection of 15 patients who underwent SL for recurrent SCC of the larynx and pharynx over the past 7 years at the tertiary referral cancer centre for South East London Head and Neck Cancer Network (SELCN). Follow up was 1-5 years.

**Results:** All pharyngo-laryngomees were MRSA-ve. All SL uncomplicated with PCF were MRSA -ve. 80% of those complicated with PCF (33%) acquired MRSA infection during hospital admission for SL. Mean Performance status was 0. SL was performed 6-51 months after primary radiotherapy/chemoradiation. MRSA infection was contracted in all 5 patients who developed PCF 1-15 days (median: 8 days) after preoperative hospital admission. Except for one patient, PCF was diagnosed either after proved MRSA infection or between the last-ve and first +ve isolation. PCF repair was performed 3-5 weeks after SL in 3 patients. MRSA infection was not fully eradicated in 3 patients. The length of relevant hospital admission was 4-18 weeks (median: 8 weeks). In all patients, MRSA was positive at stoma site in addition to other sites. In all patients, fistula closure was obtained. One patient remained PEG dependent. Median time to resumption of oral feeding was 6.5 weeks in the other 4 patients. Concomitant morbidities included wound sepsis, chest infection and carotid blow out. 

**Conclusion:** MRSA infection can be devastating. Patients who underwent SL following radiotherapy failure are at a higher risk of acquiring MRSA. A multidisciplinary approach is essential for effective management. Successful closure of the PCF can be obtained with conservative measures or further surgery. This is the first study to identify MRSA as a causative agent in pharyngocutaneous fistula following salvage laryngectomy. Implementation of MRSA eradication protocol is recommended in every patient undergoing salvage laryngectomy.

**P037 (COSM poster #160)**

**LYMPHATIC MAPPING AND SENTINEL LYMPH NODE BIOPSY FOR ORAL SQUAMOUS CELL CARCINOMA: A PILOT STUDY.** - Curtis E. Gregorie, MD, Anne Rader, MD, R. Bryan Bell, MD; Legacy Emanuel Hospital and Health Center, Oregon Health & Science University

**Purpose:** We hypothesize that sentinel lymph node biopsy (SNB) can improve the management of oral squamous cell carcinoma (OSCC) patients by more accurate identification of nodal basins at risk for metastasis and more accurate staging of the lymphatics than that of standard cervical lymphadenectomy alone. To test this hypothesis, a pilot study was designed to evaluate and standardize the technique of lymphoscintigraphy for sentinel node mapping, sentinel node biopsy, and pathologic processing of the sentinel node(s) in a series of patients with clinically node-negative (cN0) OSCC.

**Design:** Prospective case series. 

**Methods:** Between October 2007 and December 2008 12 patients with T1 or T2 cN0 OSCC who met the criteria for inclusion in the IRB-approved study underwent 1) preoperative peritumoral injection of technetium Tc 99m sulfur colloid followed by dynamic lymphoscintigraphy, 2) resection of the primary tumor, 3) gamma probe guided sentinel lymph node biopsy, and 4) selective neck dissection with removal of level I, II, III, and IV nodes. Serial sectioning with frozen section analysis, routine H&E histopathology, and immunohistochemical analysis for cytokeratin was used to evaluate the sentinel lymph nodes.

**Results:** At least one SLN was successfully identified and examined in 11 of the 12 patients (92 percent) by both lymphoscintigraphy and by intraoperative hand held gamma probe. A SLN was not identified in one patient due to inaccurate placement of radiocolloid. Two of the patients had a SLN that harbored metastatic disease that was identified on frozen section and H&E stain, one of which was found in an unexpected nodal basin, thus altering the extent of selective neck dissection. One additional patient had a SLN that was positive for micro metastasis based on immunohistochemistry and serial sectioning. Selective neck dissection yielded additional metastatic lymph nodes in 1 of the patients with positive SNB, but none of the SLN negative necks were found to have lymph node metastasis. The negative predictive value of SNB in this study cohort was 100 percent.

**Conclusion:** Lymphoscintigraphy and sentinel lymphadenectomy may be a useful adjunct to selective neck dissection for staging and managing oral cancer patients.
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clinicodemographic factors, treatment plans, and outcomes. A total of 209 cases were identified between January 1993 and December 2003. Of these, 90 included radiation as part of the complete treatment plan. The cohort had a mean age of 56, 71% of which were males. Ninety percent of patients were smokers while 71% were documented as alcohol users. Tumor site distribution was mainly within the oral cavity (35.6%), larynx (33.3%), and oropharynx (16.7%). The median dose of adjuvant radiation delivered was 6000 Gy. Patients who received their complete treatment package within 100 days from surgery exhibited significantly improved recurrence-free survival, with a hazards ratio of 3.409 (95% C.I., 1.580 - 7.352), p=0.0009. Overall survival was similarly better with a hazards ratio of 2.336 (95% C.I., 0.989 - 5.518), p=0.0460. In conclusion, patients treated with surgery and postoperative radiation who completed therapy within 100 days of surgery enjoyed improved local control of disease and survival, thus validating the 100 day paradigm.

P040 (COSM poster #163)
ACCESS TO HEAD NECK CANCER CARE AFTER A NATURAL DISASTER: A POST-HURRICANE KATRINA SURVEY. - Bridget C. Loenh, MD; Anna Pou, MD, Dan W. Nuss, MD, Justin Tenny, MD, Aranqha C Kakade, MSc, Rohan R. Walvekar, MD; Department of Otolaryngology and Head Neck Surgery, LSU Health Sciences Center, New Orleans, LA

Objective: To study the factors influencing patient’s perception of access to cancer care after a major natural disaster. Study Design: Cross sectional survey. Methods: 209 patients with squamous cell carcinoma of the head and neck treated within three years of the hurricane Katrina who presented to a tertiary care cancer center were identified. Eighty-nine patients completed the survey and were further analyzed. In addition, clinical, demographic, and socioeconomic data was recorded. The Chi-square test was used for categorical comparisons. Results: Perception of access to medical care was not influenced by clinical parameters such as time of presentation after the event of the hurricane, site of primary tumor, clinical stage, type of treatment, patterns of recurrence, or by socio-economic factors such as type of insurance, level of education, availability of transportation, and living facilities (p>NS). The time to the appointment for cancer evaluation was influenced by where the patients lived; within or outside city limits (p<0.03). The patients who had further distances to travel to our facility saw more physicians prior to their referral (p<0.05). The patients who felt the lack of access to cancer care also had difficulty receiving their treatment (p<0.004) and would have sought medical treatment earlier if they had better access to cancer care (p<0.001). Conclusion: Patients who perceive lack of access to cancer care are likely to be those who have difficulty receiving treatment, live further away from the referral center, and received their care from multiple physicians prior to their referral as opposed to primarily seeking cancer care at a tertiary cancer center; irrespective of clinical and socioeconomic parameters. Future efforts should be directed at developing outreach programs to provide easier access to cancer evaluations in a post-disaster environment.

P041 (COSM poster #164)
TIMING OF GASTROSTOMY TUBE PLACEMENT IN HEAD AND NECK CANCER PATIENTS DOES NOT AFFECT POST-TREATMENT DEVELOPMENT OF ESOPHAGEAL STRICURE REQUIRING DILATION - Amalia R. Steinberg, MD; Thomas S. Higgins, MD, Michelle Morrison, MD, Jennifer Lee, BS, Jonathan Mark, BS, Jeffrey T. Wadsworth, MD; Eastern Virginia Medical School

Objective: It has been debated that maintaining total oral nutrition during treatment prevents esophageal stricture requiring dilation (ESRD) in patients with mucosal squamous cell carcinoma of the head and neck (MSCCHN). This study compared the rate of ESRD in patients receiving prophylactic gastrostomy tube prior to radiotherapy or chemoradiation with those who only received a feeding tube if their condition necessitated it. Secondary aims of the study were to determine if feeding tube management affected development of complete esophageal stenosis requiring retrograde dilation (RD); as well as the affect of other risk factors on development of ESRD. Design: Retrospective case series. Setting: Academic head and neck practice at a tertiary care medical center. Patients: A convenience sample of 505 patients in the Norfolk General Hospital Cancer Registry diagnosed with MSCCHN of any stage between January 1, 2000 and August 31, 2006 treated by the Eastern Virginia Medical School Department of Otolaryngology. The prophylactic feeding tube group included 308 patients, the rest of the cohort received gastrostomy only as required. Main Outcome Measures: Development of ESRD or RD. Demographics, tumor characteristics and treatment modalities were analyzed for significant risk factors for ESRD. Tumor sites were categorized by risk for stricture: low (oral cavity and nasal cavity/pharynx) or high (oropharnx, hypopharynx, larynx, cervical esophagus and unknown primary). Results: ESRD developed in 59 patients; including 13 who required RD. Between the prophylactic and required-only groups there was no difference in ESRD (OR 1.27, 95% CI 0.73-2.19, P=0.40) or RD (OR 0.30, 95% CI 0.073-1.23, P=0.095). Using multivariate logistical regression, the only significant risk factors for ESRD were age=50 (OR 3.57, 95% CI 1.24-10.25, P=0.018), tumor in a high risk site (OR 2.89, 95% CI 1.09-7.66, P=0.033), and treatment with chemotherapy (OR 5.07, 95% CI 1.97-13.05, P=0.001). Conclusions: Gastrostomy tube management does not affect development of ESRD after treatment for MSCCHN. Risk factors for ESRD are age greater=50, tumor in a high risk site and chemotherapy.

P042 (COSM poster #165)
IDIOPATHIC AND REFLUX RELATED SUBGLOTTIC STENOSIS: WHERE ARE WE GOING? - Jan L. Kasperbauer, MD, Eran E. Alon, MD, Eric S. Edell, Eric J. Moore, MD; Mayo Clinic, Mayo College of Medicine

Objective: Evaluate outcomes of patients treated for dyspnea secondary to idiopathic and reflux related subglottic stenosis. Methods: Retrospective medical record review of patients from February 2000 - January 2008 that underwent intervention for subglottic airway stenosis. Results: 131 patients ages 16 to 88 years (mean 46.68 years) (17 male and 114 female) were treated for subglottic airway obstruction. The stenosis was idiopathic or reflux related in 66 (54%) and all were female. Eighty-eight (67%) of the patients had pretreatment maximum voluntary ventilation (MVV) recorded with a mean value of 52.16 (47.33 % Predicted). Sixteen patients with idiopathic or reflux related stenosis were managed by nd-YAG laser therapy and rigid bronchoscopic dilation. One-hundred thirty-one patients were treated with CO2 laser division of scar or dilation with Kenalog injection and Mitomycin C application. A select group underwent laryngotracheal resection or resection. Time to reinsertion in the idiopathic or reflux group varied widely. The average number of treatments per patient was 2.8 with symptom control from 1 month to 4 years. Inhaled steroids, reflux management, and bacitrin were integrated into the medical regimen of these patients. Conclusions: Subglottic stenosis remains a challenging clinical entity. Pulmonary function testing with MVV can be helpful in predicting those patients that will benefit from treatment. Idiopathic subglottic stenosis has a better outcome. Endoscopic treatment of idiopathic subglottic stenosis with CO2 laser, Kenalog, and Mitomycin C treatment improves length of symptom control compared to nd-YAG laser therapy with rigid dilation alone. The optimal medical regimen and a clear etiology remain to be elucidated.

P043 (COSM poster #166)
NON-SINOSAL NEUROENDOCRINE CARCINOMA OF THE HEAD NECK - CASE SERIES AND REVIEW OF LITERATURE - Duncan F. Hanby, MD, Andrew McWhorter, MD, Dan W. Nuss, MD, Rohan R. Walvekar, MD; Department of Otolaryngology Head Neck Surgery, Louisiana State University Health Sciences Center, New Orleans, LA

Objective: To describe four patients with non-sinosal neuroendocrine carcinoma (NSNEC) of the head and neck and present a systematic review of literature. Study Design: Retrospective chart review Methods: Four patients with pathologically proven NSNEC of the head neck who presented to our institution were identified. Relevant demographic, clinicopathological, and radiological data was recorded. A web-based search was conducted to identify relevant scientific literature on “neuroendocrine carcinoma (NEC) of the head and neck” and a systematic review of literature is presented. Results: Three male and one female patient aged 49 to 66 years presented to our service with NEC of the supraglottis (2/4), thymus (1/4), and parotid gland (1/4). Diagnosis was confirmed with immunohistochemical staining such as Ki-67, synaptophysin, chromogranin, and also with octreotide scanning. The first case, a T4bN0M0 large cell NEC of the thymus with tracheal invasion received conservative airway management and emergent...
radiotherapy. The second case, a moderately differentiated NEC of the supraglottis was managed with a laser supraglottic laryngectomy followed by adjuvant radiotherapy. The third case, a laryngeal NEC was treated with chemoradiotherapy. The fourth case, involving the parotid gland required a radical parotidectomy followed by adjuvant chemoradiotherapy. 

Conclusions: NSNEC of the head and neck are extreme rare tumors with variability in clinical presentation that present challenges in diagnosis and treatment planning. Consideration of the histological subtype and staining characteristics of the individual tumor, accurate diagnosis, and classification of the tumor is vital in order to tailor therapeutic intervention.

**P044 (COSM poster #167)**

**NBI SYSTEM IS USEFUL FOR THE DETECTION OF SUPERFICIAL HYPOPHARYNGEAL CANCER**

- Kenji Okami, MD, Akioh Sakai, MD, Ryoussei Sugimoto, MD, Masahiro Iida, MD; Department of Otolaryngology, Tokai University

**Purpose:** The key to improve the prognosis of cancer is an early detection of the primary lesion. The screening of the high risk patients is important for early detection of head and neck cancer. The purpose of this study is to investigate the usefulness of the narrow band imaging (NBI) system for the screening of the esophageal cancer patients for hypopharyngeal cancer.

**Method:** Narrow Band Imaging (NBI) system, which is an optical technique with narrow-band filters emphasizing the microvascular proliferation pattern of early mucosal lesion. About 180 patients with esophageal cancer patients underwent screening videoescopy for hypopharyngeal cancer with NBI system. The hypopharyngeal cancers which can be detected with the conventional flexible fibroscopy were excluded. 

**Results:** We diagnosed 11 superficial cancers by NBI system which can not be detected by the conventional flexible fibroscopy. The size of the lesions was from 5 mm to 20 mm. The early mucosal lesions were resected by transoral microscopic surgery or endoscopic mucosal resection. 

**Conclusion:** The NBI system will be a strong tool for the early detection of hypopharyngeal cancers. The advantage and disadvantage of this technique are discussed.

**P045 (COSM poster #168)**

**18F-FUOROMISONIDAZOLE POSITRON EMISSION TOMOGRAPHY AS AN INDICATOR OF HYPOXIA FOR PREDICTING THERAPY RESPONSE TO NEOADJUVANT CHEMOTHERAPY IN HEAD-AND-NECK SQUAMOUS CELL CARCINOMA**

- Masahiro Kikuchi, MD, Shogo Shinohara, MD, Yasushi Naito, MD, Michio Senda, MD, Tomohiko Yamane, MD, Yosuke Tona, MD, Hiroshi Yamazaki, MD, Yu Usami, MD, Michio Senda, MD; Department of Otolaryngology Kobe City Medical Center General Hospital, Institute of Biomedical Research and Innovation

**Objective:** Positron emission tomography (PET) with 18F-fluoromisonidazole (FMISO) is a non-invasive method for imaging tumor hypoxia. This study analyzed whether FMISO-PET could predict tumor response to neoadjuvant chemotherapy (NAC) and whether tumor hypoxia could be improved by NAC. 

**Materials and Methods:**

Fourteen lesions (7 primary sites and 7 metastatic cervical lymph nodes) in 7 patients with untreated head and neck squamous cell carcinoma were registered for the present study. All patients were treated with one cycle of NAC. FMISO-PET/CT, FDG-PET/CT and MRI were performed in all patients just before NAC and 2–3 weeks after finishing NAC. FMISO-PET/CT consisted of a dynamic (0-60min) and a 20-min static scan starting at 150min post injection. FMISO-uptake was quantified by calculating standardized uptake value (SUV) and tumor-muscle-ratio (TMR) at 50-60min and 150-170min. NAC response was evaluated according to the change of longest diameter in each tumor, and the fourteen tumors were classified into two groups. Responder group (CR or PR) consisted of 6 tumors and non-responder group (SD or PD) consisted of 8 tumors. 

(1) Between those two groups, a comparison was made in the following parameters of the pre-NAC scan; FMISO-SUVmean(50min), FMISO-SUV-mean(150min), FMISO-TMR(50min), FMISO-TMR(150min), and FDG-SUVmax.

(2) Change of the parameters between pre- and post-NAC scans was analyzed for the whole 14 lesions. 

**Results:**

(1) Non-responders tended to present higher pre-NAC uptake of FMISO than responders. A significant difference was observed only for FMISO-SUVmean(50min) (1.31±0.46 vs. 1.86±0.35; responder vs. non-responders, p=0.04).

(2) The uptake of FMISO and FDG was decreased after NAC. For FMISO-TMR(150min) and FDG-SUVmax, a significant decrease was observed (1.34±0.33 vs. 1.17±0.29, p=0.03 and 14.5±7.1 vs. 9.3±6.8, p=0.003) respectively after the NAC. 

**Conclusions:**

(1) Our results indicate that response of NAC may be predicted only on the basis of FMISO-PET, using the parameter of FMISO-SUV-mean(50min). Although the number of subjects is small, the present results suggest that FMISO-SUV-mean(50min) might also be a useful parameter for predicting therapy response to chemotherapy. 

(2) Since FMISO-TMR(150min) was improved after NAC was completed, hypoxic state of tumors, in general, is considered to have been improved to some degree. There was no statistical difference, however, between the change in the hypoxic indicators and the morphological change.

**P046 (COSM poster #169)**

**EVALUATION OF HYPOXIC STATE IN HEAD AND NECK SQUAMOUS CELL CARCINOMA BY FMISO-PET**

- Shogo Shinohara, MD, Masahiro Kikuchi, MD, Yasushi Naito, MD, Michio Senda, MD, Tomohiko Yamane, MD, Yosuke Tona, MD, Keizo Fujiiwara, MD, Shinya Hori, MD, Hiroshi Yamazaki, MD; Kobe City Medical Center General Hospital, Institute of Biomedical Research and Innovation

**Objective:** Experimental and clinical evidence suggest that hypoxia in solid tumors reduce their sensitivity to radiation or chemotherapeutic agents. The causes of hypoxia are multifactorial and include factors related to oxygen delivery. Hypoxia is also related to glucose consumption because some factors induced by hypoxia increase the expression of glycolytic enzymes and proteins. The aim of this study is examining the relationship among hypoxia, blood perfusion and glucose consumption in primary and metastatic tumors of head and neck squamous cell carcinoma (HNSCC) by PET with FMISO (18F-fluoromisonidazole) and FDG. FMISO-PET is known as a non-invasive approach to detecting hypoxia in tumor using PET. 

**Methods:**

Eighteen lesions (9 primary sites and 9 metastatic lymph nodes) in a total of 10 patients with untreated HNSCC were registered for the present study. The patients underwent PET/CT scans with FDG and FMISO within 1 week. Tumor glucose metabolism was measured by SUV of FDG. In FMISO-PET/CT scans, a dynamic measurement was carried out for 80 minutes to obtain kinetics of FMISO, followed by a static scan starting at 150 minutes post injection. The early-phase time-activity curve (TAC) was considered to reflect tumor perfusion, and the late phase radioactivity reflects tumor hypoxia. We defined two indexes for perfusion and hypoxia of tumor using the FMISO data. Perfusion index (PI) was defined as the washout rate in the early stage of TAC, i.e., decay-corrected activity decrease from 1.5min to 25min divided by the activity at 1.5min. Hypoxia index (HI) was defined as the tumor/muscle activity at 150min scan. 

**Results:** The FMISO scans provided information on local perfusion and hypoxia of both the primary lesions and the metastatic lymph nodes. Interestingly, some cases showed quite different FMISO kinetics between the primary lesion and the lymph node. SUs of FDG at primary lesions (16.32±6.60) showed a tendency to be higher than those at lymph nodes (10.80±7.52) (P=0.076), while PIs or HIs did not show any difference between primary lesions and lymph nodes (Pl: 0.429±0.28 v.s. 0.387±0.26; HI: 1.35±0.29 v.s. 1.20±0.35). The relationships among FDG uptake, HI and PI were evaluated using Pearson-r correlation coefficient. A significant inverse correlation existed between Pl and HI (P=0.020) while no significant correlation was found between FDG and PI or between FDG and HI. 

**Conclusions:**

Blood perfusion was shown to be related to hypoxia, and FDG was of limited use for predicting hypoxia of the tumor. The diversity of responses to chemotherapy and radiotherapy in HNSCCs may be related to the diversity of the hypoxic state of HNSCCs.

**P047 (COSM poster #170)**

**FEASIBILITY OF MULTISPECTRAL IMAGING TO AUGMENT ASSESSMENT OF SKIN CANCER MARGINS - PRELIMINARY RESULTS**

- Vanda Stepanek, MD, Ann M. Gillenwater, MD; MD Anderson Cancer Center, Rice University

**Objective:** To evaluate the feasibility of multispectral imaging for delineation of the extent of skin cancers in a surgical setting. 

**Methods:** Patients who were undergoing resection of aggressive skin cancers were examined in the operating room just prior to the surgery. Using white light examination, the surgeon marked the tumor margins. Then, the lesions were imaged using a multispectral digital microscope (MDM) instrument
and the perceived margins were remarked. The MDM is capable of obtaining fluorescence and reflectance images at several different wavelengths. Resected specimens were processed either for frozen or for permanent staining, or for a combination of both. Delineated margins were compared to histopathology results, using histopathology as the gold standard. Different optical features in basal cell carcinoma (BCC) vs. squamous carcinoma (SCC), and in BCC nodular type vs. infiltrative BCC, were compared qualitatively and quantitatively. Results: Overall, 655 in vivo images from 19 skin lesions in 17 patients were acquired. Histopathology evaluation showed 8 BCCs (5 nodular and 3 infiltrative), 9 squamous cell carcinomas, and 2 melanomas. Images of five cases were excluded from further analysis because of poor image quality, lack of correlating pathologic data, absence of residual tumor, etc. Optimal wavelengths for distinguishing cancerous tissue from surrounding non-cancerous skin were 350 nm, 380 nm, 405 nm, and 450 nm. Margins established using MDM were within 3 mm of histopathology margins in 11 out of 14 cases. Conclusions: Multispectral imaging has a potential for use to facilitate delineation of surgical margins during resection of nonmelanoma skin cancers. Further studies are indicated to determine the best wavelengths for each pathologic type of skin cancer, and to determine sensitivity and specificity for margin delineation.

P048 (COSM poster #171)
EFFECTS OF UPSTAGING WITH PET SCAN ON SURVIVAL IN HEAD AND NECK SQUAMOUS CELL CARCINOMA - Greg E. Davis, MD, Stephanie Misono, MD, Joseph Rajendran, MD, Bevan Yueh, MD; University of Washington, University of Minnesota

Background: The objective of this study was to examine whether stage migration occurs with the utilization of PET (Positron Emission Tomography) scan data in the staging of head and neck squamous cell carcinoma and if this leads to the appearance of increased stage-specific survival despite stable overall survival. Previous studies have shown that stage migration can occur when a new imaging modality is incorporated, leading to stage-specific survival improvement without a change in overall survival. Methods: Retrospective cohort study. Subjects were patients identified through the University of Washington (UW) and Seattle Puget Sound Veterans Affairs Medical Center (VAMC) cancer registries with incident squamous cell carcinomas of the head and neck between 2000 and 2003. The AJCC 6th edition criteria were used for TNM staging for each patient using physical examination and imaging findings with and without results from PET scans. Five-year survival data was taken from UW and VAMC medical records as well as the Social Security Death Index. Results: The inclusion of PET study information led to upstaging of 5 of 65 patients (8%, p=0.03), of whom 2 migrated from Stage II to Stage IV, and 3 migrated from Stage III to Stage IV. These changes resulted in unchanged survival in Stage I, decreased stage-specific survival in Stages II and III, and increased stage-specific survival in Stage IV, though these changes were not statistically significant. Overall 5-year survival did not change. Conclusions: Though stage migration was noted with the inclusion of PET scan information among patients with head and neck squamous cell carcinoma, stage-specific survival was not significantly changed. Thus, in this population of patients with head and neck squamous cell carcinoma, the addition of PET study information did not lead to the Will Rogers’ phenomenon.

P049 (COSM poster #172)
PREOPERATIVE PARATHYROID NEEDLE LOCALIZATION: A NOVEL TECHNIQUE IN REOPERATIVE SETTINGS - Ryan D. Winters, MD, Paul L. Freidlander, MD, Haytham H. Alabbas, MD, Barry Blank, MD, Brian Rodgers, MD, Anthony Tufaro, MD, Emad Kandil, MD; Tulane University Medical Center, New Orleans, LA & Johns Hopkins School of Medicine, Baltimore, MD

Introduction: Reoperative parathyroid surgery can be a challenging scenario, and numerous preoperative techniques have been employed to facilitate a more focused surgical exploration. We describe a novel, reproducible, minimally invasive and highly successful method of parathyroid localization in the reoperative setting with a negative sestamibi scans. Methods: Retrospective case series of 8 patients who underwent parathyroidectomy utilizing CT or ultrasound-guided wire localization of the parathyroid. Accurate placement was confirmed with histological examination of fine-needle aspiration and immunocytochemistry on parathyroid hormone (PTH) washout. The guide wire was left in situ and the patient was then taken directly to the operating room. Curative resection was established by intraoperative PTH levels monitoring with excision of the adenoma using the guide of the needle localization. Results: All 8 parathyroidectomy patients were successfully treated, and 5 patients were discharged the day of surgery. The precise localization was helpful in avoiding the need for sternotomy for removal of an ectopic parathyroid adenoma in one patient (Figure1). Conclusion: Placement of a localization wire via preoperative high-resolution ultrasound or CT scan can greatly expedite parathyroid surgery, allowing identification of the parathyroid via a minimally invasive approach. This novel approach provides a path to avoid extensive dissection in reoperative settings where sestamibi scans are inconclusive.

P050 (COSM poster #173)
AIRWAY MANAGEMENT FOR MICROLARYNGEAL SURGERY: THE IMPACT OF DISTAL JET VENTILATION - Michael Barakate, Eric Mauer, Greg Wotherspoon, Thomas Havas; The Prince of Wales Private Hospital and The University of New South Wales, Prince of Wales and Sydney Children’s Hospitals, Sydney, Australia

Objective: The aims of this study were to report a new system for distal jet ventilation developed at the Prince of Wales Hospital (POWH, Sydney, Australia) and to determine whether this improves results for microlaryngeal and laryngeal surgery. Methods: The POWH distal jet ventilation system consists of two components, the Jocket tube and companion ventilator. From June 2002 through March 2008 inclusive, this was used in 332 patients with ages ranging from 10 to 89 years. The procedural outcomes were reviewed to determine the efficacy of this new system and benefits for both the anaesthetist and surgeon were identified. Results: Anaesthetic benefits included the facility for airways pressure and end tidal carbon dioxide monitoring incorporated into the tube via dedicated channels. The venturi jet was produced via a covered tip to prevent trauma to the tracheal mucosa. In addition, the companion ventilator visually displayed the inspiratory pressure with a manually adjustable pressure alarm, thus alerting to outlet obstruction. Surgical benefits included excellent access from a tube only 4mm in diameter at the larynx. The tube was constructed of Teflon which resisted compression and was laser safe and non-flammable. An apparent reduction in surgical time and improvement in surgical operating conditions were observed. The use of the POWH system was safe in all patients. The delivery of anaesthesia was straightforward and the complication rate was negligible. Conclusion: The Jocket tube allowed safe airway management and excellent surgical access. This system was successfully used in 332 patients undergoing microlaryngeal and laser laryngeal surgery.

P051 (COSM poster #174)
MANAGEMENT OF THE THYROID GLAND DURING LARYNGECTOMY - Joseph A. Paydarfar, MD, Louise Davies, MD; Dartmouth Hitchcock Medical Center, Dartmouth Medical School, White River Junction, VA

Objectives: A hemi or total thyroidectomy is routinely performed during laryngectomy at many institutions. The rationale for this added procedure is to treat any potential spread of carcinoma to the thyroid gland either by direct or metastatic extension. However, hemi or total thyroidectomy increases surgical morbidity and subjects most patients to lifelong thyroid hormone replacement. The objectives of this study are to investigate the incidence of thyroid gland involvement in advance laryngeal cancer as well as determine patterns of spread to the gland, identify risk factors for gland involvement, and present outcomes of those patients with gland involvement. Study Design: Retrospective review. Setting: Tertiary academic medical center. Patients: Patients undergoing laryngectomy from 1991-2007 as primary or salvage treatment for squamous cell carcinoma of the larynx, hypopharynx, or base of tongue. Main Outcome Measures: Incidence of thyroidectomy during total laryngectomy, type of thyroidectomy (hemi vs total), incidence of gland involvement, route of spread, positive predictors of
Spread, and survival. Results: 123 patients fit inclusion criteria. From these, 75 (61%) underwent thyroidectomy; 70 hemithyroidectomy and 5 total thyroidectomy. 49/75 (66%) patients had no prior radiation or chemoradiation treatment. The thyroid gland was involved in 5/75 (7%) of patients, 4/5 by direct extension and 1/5 by metastasis. Primary tumor distribution was hypopharynx (3/5), transglottic (1/5), and glottic (1/5). All tumors were T4. Predictors of tumor extension to the thyroid included thyroid cartilage invasion (19% PPV), TVC parasitosis (8% PPV), and extra-laryngeal spread (21% PPV). Overall 5 year survival was 40%.

Conclusions: There is a low incidence of thyroid gland involvement in laryngeal cancer. Most cases of gland involvement are by direct extension. Consideration for thyroidectomy during laryngectomy should be given for advanced stage tumors with significant paraglottic, extralaryngeal or subglottic extension.

P052 (COSM poster #175)
MAJOR ANASTOMOTIC DEHISCENCE AFTER CRICO-TRACHEAL RESECTION AND ANASTOMOSIS: RISK FACTORS, MANAGEMENT, AND OUTCOMES - Cesare Piazza, MD; Giorgio Peretti, MD; Piero Nicolai, MD; Department of Otolaryngology - Head and Neck Surgery, University of Brescia, Italy
Crico-tracheal resection and anastomosis (CTRA) is applied both to benign and selected neoplastic stenoses of the crico-tracheal junction. Aim of this paper is to describe risk factors, management, and outcomes of major anastomotic dehiscence (MAD). Between '96 and '08, 107 patients received CTRA for inflammatory (73) or neoplastic (34) airway stenoses. A retrospective charts review identified 10 (9%) patients who developed a MAD: 6 treated for post-intubation stenosis, 2 for thyroid cancer infiltrating the airway, 1 for recurrrent SCC lymph node metastasis involving the trachea and oesophagus, and 1 for cricoid chondrosarcoma. Extent of resection was considered the main predisposing factor in 3 patients (airway resection ranging from 5 to 5.5 cm). In 1 patient, an epileptic crisis during the 1st POD caused MAD, while intense emesis was encountered in 3. Concomitant thyroidectomy with central compartment neck dissection in 3, tracheo-oesophageal fistula closure in 2, and preoperative RT in 2 were thought to be responsible for MAD in the others. 3 patients had an association of 2 or more predisposing factors. Univariate analysis taking into account different variables showed statistically significant association between MAD and length of resection equal or superior to 5 cm (q=0.007), preoperative RT (p=0.02), and intense postoperative emesis (p=0.007). MAD was managed by total laryngectomy with forearm free flap for oesophageal closure in 1 case and permanent tracheostomy in another 1 (both with neoplastic stenoses after RT failure). The other patients (80%) achieved a patent airway after redo-CTRA in 6, endoluminal Dumon prosthesis and Montgomery T-tube insertion for 1 month in 1 each. Decannulation rates for patients with MAD and for the overall series were therefore 80% and 98%, respectively. Besides length of airway resection exceeding 5 cm, other factors predispose to MAD. Preoperative RT should be considered a contraindication to CTRA for neoplastic stenoses. Moreover, postoperative management of these patients must include an aggressive anti-emetic therapy.

P053 (COSM poster #176)
ENDOSCOPIC TREATMENT OF CIS-T2 GLOTTIC CANCER WITH CO2 LASER: 3-YEAR SURVIVAL ANALYSIS - Matthew H. Rigby, MD; S. Mark Taylor, MD; Dalhousie University
Squamous cell carcinoma of the glottis is the second most common head and neck cancer. Patients diagnosed with glottic cancers staged Cis-T2 have the benefit of a relatively good prognosis. Observed rates of 5-year determinate survival for these patients have been 95% and higher. There are now two main treatment methods for early staged cancer of the glottis: radiation therapy, and endoscopic resection with CO2 laser. We are presenting an analysis of our clinical experience with the CO2 laser. Outcomes from a cohort of 66 patients with glottic cancer staged Cis-T2 (12 Cis, 33 T1, 21 T2) who underwent endoscopic resection using CO2 laser between January 2002 and November 2007 were studied retrospectively. The mean follow up of the cohort was 27 months (range 0-70 months). Using a Kaplan-Meier survival analysis the local control was 89% (SE 5.7%), and the disease free survival for our cohort at 36 months was 82% (SE 6.3%). Overall survival at 36 months for the cohort was 93% (SE 5.9%). At the time of the study, one patient had died of laryngeal cancer, two patients had died of other causes, and one patient had been lost to follow up.

P054 (COSM poster #177)
SURGICAL MANAGEMENT OF DYSPHAGIA AND AIRWAY OBSTRUCTION IN PATIENTS WITH PROMINENT VENTRAL CERVICAL OSTEOPHYTES - Matthew L. Carlson, MD; David J. Archibald, MD; Darlene E. Graner, MS; Jan L. Kasperbauer, MD; Department of Otolaryngology-Head and Neck Surgery, Mayo Clinic School of Medicine, Rochester, MN
Background: Large projecting cervical osteophytes are associated with senile degenerative skeletal disease, posttraumatic osteoarthritis, as well as diffuse idiopathic skeletal hyperostosis (DISH). The vast majority of patients with cervical osteophytes are asymptomatic. However, in a small subset, this condition may lead to upper aerodigestive compromise manifesting as dysphagia and/or airway obstruction. Conservative medical therapy is often sufficient, but patients with intractable disease may require surgical intervention, including tracheostomy, feeding tube placement, or osteophytectomy.

Design: A retrospective chart review was performed on all patients who presented to a tertiary referral center over a decade (1998-2008) with complaints of dysphagia and/or respiratory compromise and required osteophytectomy for treatment of recalcitrant symptoms. Data were collected with respect to age, gender, presenting symptoms, evaluation, treatment, and outcomes. Results: A total of ten patients met criteria. Six patients were diagnosed with DISH, two with trauma-associated osteoarthritis, and two with senile degenerative vertebral disease. The mean age was 63 years and included eight males and two females. The most common cervical level involved was C4-C5 (90%), followed by C3-C4 (80%), and C5-C6 (70%). All patients had symptoms of dysphagia; two had simultaneous airway complaints. All patients underwent an anterolateral approach for osteophytectomy, one of which required concurrent tracheostomy. Following surgery, 100% of patients noted significant improvement in their dysphagia and respiratory complaints. Nine of ten patients returned to an unrestricted diet and only one required postoperative abstinence from bulky foods; both patients with additional airway complaints were successfully decannulated after surgery without further airway compromise. Conclusion: In a small percentage of patients, degenerative conditions and DISH may lead to osteophyte-associated dysphagia and/or airway complaints. Surgical decompression through osteophytectomy is an effective and relatively safe option and should be considered for patients who fail conservative medical management.

P055 (COSM poster #178)
ANALYSIS OF CLINICO-PATHOLOGIC STAGE IN SUPRACRICOID LARYNGECTOMY PATIENTS: NEED FOR ADJUVANT THERAPY IN CLINICALLY UNDERSTAGED CASES - Min-Sik Kim, MD; Kwang-Jae Cho, MD; Dong-II Sun, MD; Young-Hoon Joo, MD; Jun-Uk Park, MD; The Catholic University of Korea
Objectives: To evaluate the impact of preoperative T-understaging on the clinical outcome of supracricoid partial laryngectomy (SCPL).
Methods: The medical records of ninety-two patients with a previously untreated endolaryngeal squamous cell carcinoma of the larynx who underwent SCPL from 1994 to 2006 were evaluated. Clinical and pathologic stages were compared and the causes of preoperative understaging were determined. Local recurrence and overall survival according to the accuracy of preoperative T-staging were examined.

Results: Fifteen out of the 92 patients (16.3%) enrolled were found to be understaged in preoperative T-stage due to a failure to identify thyroid cartilage invasion. The LR rate was higher and the overall survival (71.4%) were preoperatively understaged in T-stage due to a failure to detect thyroid cartilage invasion. The LR rate was higher and the overall survival rate was lower in patients who were understaged preoperatively as compared with those who were staged accurately (p=0.006 and p=0.001, respectively). Conclusions: Understaging in preoperative
T-stage is closely related to the local recurrence and survival of SCPL patients, and thyroid cartilage invasion was identified as the main cause of understaging and local recurrence. The authors suggest that SCPL should be conducted after a thorough preoperative evaluation in locally advanced laryngeal cancer, particularly in case thyroid cartilage invasion was suspected. In addition, adjunct treatment including radiation therapy also should be considered in case thyroid cartilage invasion was determined pathologically after SCPL.

**P056 (COSM poster #179)**

**LEVEL V INVOLVEMENT IN PATIENTS WITH EARLY T-STAGE, NODE-POSITIVE OROPHARYNGEAL CARCINOMA** - Kativa M. Pattani, MD; Joseph Califano, MD, Giuseppe Sanguineti, MD; Johns Hopkins Medical Institutions

**Purpose/Objective(s):** To assess the risk of level V nodal involvement for early T-stage and node positive oropharyngeal squamous cell carcinoma (SCC). **Study Design:** Retrospective chart review.

**Materials/Methods:** A retrospective analysis was performed on 120 patients with oropharyngeal cancers and clinically positive neck disease who had undergone a neck dissection with curative intent from January 1998 to December 2007. The inclusion criteria were as follows: 1. tumors were cT1 or cT2 3. neck nodes that were clinically palpable or detectable on imaging at presentation 4. no previous/synchronous tumors 5. discharge of at least 3 contiguous neck nodal levels 6. ND surgery performed at JHH 7. neck specimen processed by surgical levels in the standard manner. Clinical data including imaging studies and patient characteristics were collected along with the pathological data. The incidence of involvement of nodal levels was determined. Analysis was performed using a Fisher's exact test to determine the association between involved nodal levels.

**Results:** A total of 120 neck dissections were performed in this cohort of patients with oropharyngeal cancer. Levels II, III, and IV revealed the highest rates of nodal involvement; 82.5%, 40.8%, and 20.0% respectively. The prevalence of level V lymph nodes was 4.2% (5/120). Pathological involvement of level V was observed only in the presence of the involvement of multiple other nodal level, and there were no isolated incidences of level V involvement. **Conclusions:** In our study of 120 oropharyngeal cancer treated with a neck dissection for a cN+ neck, the rate of level V metastasis was extremely rare at 4.2%. Additionally, we noted that involvement of multiple levels was significantly associated with metastasis to level V. The results of this study suggest that level V lymph nodes may be preserved in the surgical management of oropharyngeal cancer patients with cN+ neck that does not involve multiple levels.

**P057 (COSM poster #180)**

**PREOPERATIVE EMBOLIZATION IN CAROTID BODY TUMOR SURGERY - IS IT REQUIRED?** - Daniel M. Zeitler, MD, Joelle Glick, BA, Gady Har-El, MD; New York University Medical Center, NY, NY, USA; Lenox Hill Hospital, NY, NY, USA

**Objective:** To compare the estimated blood loss (EBL) in patients undergoing surgical excision of carotid body tumors (CBT) after preoperative superselective angiography with embolization with the EBL in patients undergoing excision of CBT without embolization. **Design:** Retrospective chart review of a consecutive case series. **Setting:** Single surgeon's practice within an academic tertiary care medical center. **Patients:** Twenty-five patients underwent surgical resection of CBT between 1989-2007. During the years 1989-1996, ten consecutive patients had preoperative embolization of the CBT, while the subsequent 15 patients (1996-2007) had no preoperative embolization. **Main Outcome Measures:** Demographic data including age, sex, and tumor size was collected prospectively. EBL was obtained from intraoperative anesthesia records and operative notes dictated at the time of surgery. Tumor size was based on preoperative radiographic measurements by a senior radiologist and the surgeon. **Results:** In the 10 patients with preoperative embolization, the mean age was 41 years (range 22-72 years) and the mean tumor size was 4.8 cm (range 2.9-8.3 cm). The mean EBL was 305 mL (range 50-1000 mL) with two patients having EBL > 400 mL. In the 15 patients without embolization, the mean age was 43.7 years (range 20-75 years) and the mean tumor size was 4.4 cm (range 2.8-7.5 cm). The mean EBL was 286 mL (range 40-900 mL) with two patients having EBL > 400 mL. There were no significant differences between the two groups with regard to age, tumor size, or EBL. **Conclusion:** Superselective angiography with embolization of CBT prior to surgical excision does not lead to a significant reduction in intraoperative blood loss when compared to patients without preoperative embolization.

**P058 (COSM poster #181)**

**A NEW MODIFICATION OF NECK DISSECTION: COMPLETE REMOVAL OF LYMPH NODE GROUPS IN LEVEL IB WITH SUBMANDIBULAR GLAND PRESERVATION** - Ohad Ronen, Thomas K. Robbins, Muthuswamy Dhiwaker, James Malone, Krishna Rao; Simmons Cooper Cancer Institute at SIU, Division of Otolaryngology-Head and Neck Surgery

**Background:** It is common belief that the submandibular gland should be removed during neck dissection in order to effectively clear the lymph nodes in level IB. Recognizing the theoretical benefit of submandibular gland preservation for reducing xerostomia, we hypothesized that all lymph nodes could be removed without routinely sacrificing the gland. **Objective:** To determine whether all lymph nodes in Level IB could be removed without excising the submandibular gland in patients with upper aerodigestive tract carcinoma undergoing neck dissection. **Patients and Methods:** Forty-seven consecutive neck dissections (48 patients) were performed, all for oral cavity cancer. The patients were consented to have the lymph nodes in level IB removed by a defined procedure that included 3 maneuvers: initially, an en bloc excision of the 4 lymph node groups located within level IB (pre and postglanular, pre and postvascular); second, removal of the submandibular gland itself; and third, inspection and removal of any nodal or fibroareolar tissue remaining in the submandibular bed. **Results:** In all 47 neck dissections, following the submandibular gland preservation portion of the procedure, pathological examination revealed complete removal of all lymph node groups in Level IB. The submandibular gland itself was confirmed not to contain any subcapsular or intraparenchymal nodes and the submandibular bed did not contain any residual lymph nodes. Furthermore, despite positive lymph node disease in Level IB in 3/14 specimens, the submandibular gland itself was not involved by tumor. **Conclusion:** Complete removal of the lymph node groups in Level IB is technically feasible without sacrificing the submandibular gland.

**P059 (COSM poster #182)**

**WHEN TO ADDRESS LEVEL I IN NECK DISSECTIONS?** - Enver Ozer, MD, Ugur Karapinar, MD, Cherie Ryoo, MD, Amit Agrawal, MD, David E. Schuller, MD; The Ohio State University

**Objective:** To investigate the involvement of the level I (submandibular and submental) neck region in the head and neck carcinoma and compare the impact of the primary tumor sites like the oral cavity (OC), oropharynx (OP), hypopharynx (HP) and laryngeal (Lx) on the level I lymph node metastasis. Thus, to contribute to the evolution of the future more functional, submandibular content preserving neck dissections. **Design:** Retrospective study of the case series. **Setting:** The Ohio State University Comprehensive Cancer Center- James Cancer Hospital and Solove Research Institute. **Patients:** Two hundred and thirty six patients who underwent neck dissections in the last 3 years. Major primary site was OC (39%, n=93) followed by OP (32%, n=75), Lx and HP (23%, n=54) and carcinoma of unknown primary (CUP) (7%, n=16). **Results:** The level I was involved in 28 of 236 (12%) patients. The other levels were also positive in all but 3 (11%) level I involved patients. The major primary site with the level I lymph node metastasis was OC (22%) followed by CUP (13%), OP (5%), Lx (4%) and HP (0%). Lx primary site was involving the level I only if there was multiple other adverse prognostic factors like N3 neck, extracapsular spread, invasion of all the removed lymph nodes or all the levels and invasion of the submandibular gland. Invasion of the submandibular gland was observed in 4 (14%) patients with level I involvement otherwise the gland was not involved in the absence of the level I lymph node involvement. Most of the gland involvements (75%) were from the floor of the mouth primary site. **Conclusions:** Although the submandibular content is resected as part of the radical and modified radical neck dissections, Level I sparing selective neck dissections could be a safe and effective surgical neck management technique in appropriately selected OP, Lx.

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**Poster Papers**

- Gady Har-El, MD; New York University Medical Center, NY, NY, USA; SURGERY - IS IT REQUIRED?
- Ohad Ronen, Thomas K. Robbins, Muthuswamy Dhiwaker, James Malone, Krishna Rao; Simmons Cooper Cancer Institute at SIU, Division of Otolaryngology-Head and Neck Surgery
- Enver Ozer, MD, Ugur Karapinar, MD, Cherie Ryoo, MD, Amit Agrawal, MD, David E. Schuller, MD; The Ohio State University
and HP patients.

**P060 (COSM poster #183)**

**CAROTID BLOWOUT IN PATIENTS WITH HEAD AND NECK CANCER: REVIEWING CONTEMPORARY EVALUATION AND MANAGEMENT** - Rosser Powitzky, MD, Nilesh R. Vasan, MD, Greg A. Kremp, MD, Jesus E. Medina, MD; University of Oklahoma Health Sciences Center

**Objective/Hypothesis:** This study reviews the presentation, diagnosis, treatment, and prognosis of patients with head and neck cancer that developed carotid blowout syndrome (CBS). **Study Design:** A case series is reported, and a retrospective review of the English literature is presented. **Methods:** All published studies documenting patients with head and neck cancer (HNC) that developed subsequent CBS within the last 15 years were included for review. All HNC patients diagnosed with CBS within the last 15 years at our tertiary cancer hospital were also reviewed. **Results:** Eight patients with HNC developed CBS at our institution, and 104 HNC patients with CBS were presented in fourteen studies. The most common primary tumor sites in patients with CBS include the nasopharynx (25%), hypopharynx (25%), and larynx (21%). A majority of patients with CBS have a history of nodal metastasis (68%), radiation therapy (85%), and neck dissection (57%). In addition, CBS commonly follows certain complications of HNC including pharyngocutaneous fistulas (42%) and soft tissue necrosis in the neck (43%). Although almost half of all cases of CBS will present with a sentinel bleed, a significant portion of patients will have little warning and present with a life-threatening hemorrhage requiring emergent intervention. CBS presents about 4.2 months after the initial diagnosis of cancer, and it occurs at or proximal to the carotid bifurcation in most cases. Over 90% of initial and recurrent cases of CBS are treated with endovascular embolization or stents; rarely is ligation required. Stent placement (42%) has a higher risk of CBS recurrence than embolization therapy (33%). Strokes will occur in one out of ten patients and are the most common cause of death next to tumor progression. The mortality of patients with CBS is high (60%), but 25% of patients have survived without evidence of disease or neurological sequelae (avg. follow-up 18 months). **Conclusion:** CBS is uncommon and can be rapidly fatal without prompt diagnosis and intervention. Occasionally sentinel bleeds or carotid exposure will necessitate intervention; however, head and neck cancer patients with fistulas, soft tissue breakdown in the neck, and a history of nodal disease and radiation therapy should also raise suspicion for CBS. We present a management algorithm for CBS.

**P061 (COSM poster #184)**

**EDUCATIONAL IMPACT OF AN ORAL CAVITY CANCER NOMOGRAM FOR CLINICAL DECISION-MAKING** - Neil D. Gross, MD, Samuel J. Wang, MD; Oregon Health and Science University

**Background:** Nomograms have been developed and validated as user-friendly predictive tools to assist in postoperative decision-making for the treatment of various solid tumors including oral cavity squamous cell carcinoma (OCSCC). In this study, we tested the impact of the use of a nomogram for deciding adjuvant treatment after surgery for OCSCC. **Methods:** Standardized clinical and pathologic factors of 10 patients treated surgically for OCSCC were presented to Otolaryngology faculty and medical trainees at an academic medical center. For each patient, participants were asked to choose the most appropriate adjuvant treatment: none, radiation, chemoradiation or another. After a brief presentation about the OCSCC nomogram, the participants were given the same 10 patient cases in random order each with an individualized estimate of 5-year locoregional recurrence free survival generated using the nomogram. Participants were then asked again to decide adjuvant treatment. The impact of the nomogram was compared descriptively and analyzed using the paired-samples t-test. **Results:** There were twenty-four participants including: 4 fellowship-trained head and neck surgeons, 4 non fellowship-trained Otolaryngology faculty, 13 residents and fellows, and 3 medical students and physician extenders. For the entire group of participants, 38% (87/229) of responses were different after introduction of the nomogram suggesting that information from the nomogram impacted clinical decision-making. There was a stepwise, statistically significant increase in the percentage of responses modified by use of the nomogram proportional to head and neck surgical oncology experience: head and neck surgeons (22%) versus other Otolaryngology faculty and residents (38%, P=0.047) and medical students and physician extenders (57%, P=0.017). Important, there was greater uniformity of responses after introduction of the nomogram. **Conclusions:** The use of a nomogram can impact clinical decision-making regarding adjuvant treatment after surgery for OCSCC even among experienced head and neck surgeons. The utility of a nomogram may be best appreciated by less experienced clinicians and trainees, and may have value as an educational aid.

**P062 (COSM poster #185)**

**ORAL CANCER PATIENT PAIN AND MORBIDITY MODULATED BY PRE-OPERATIVE RESTING ARTERIAL PRESSURE** - Stanley Yung C. Liu, BS, Dave K. Lam, PhD, Brian L. Schmidt, MD; University of California, San Francisco

**Objective:** This study assessed the relationship between resting systolic blood pressure (SBP) and pain and mortality in oral cancer patients. The most important concerns of oral cancer patients are survival and pain. An association between hypertension and increased risk of mortality from renal cell carcinoma has been suggested. There is also recent evidence of an inverse relationship between resting arterial blood pressure and pain sensitivity in disease-free, normotensive individuals. **Design:** Retrospective cohort study. Setting: Single surgeon experience in an academic center. Patients: Twenty-five consecutive oral cancer patients who responded to the validated UCSF Oral Cancer Pain Questionnaire since 2006 were included. Outcome measures: SBP, heart rate, and pain ratings were assessed during the pre-operative visit. Age, gender, TNM, tumor site, cardiovascular disease history, and current anti-hypertensive or analgesic medication use were recorded. Univariate and multivariate linear regression analysis were performed to explore the association between resting blood pressure and pain and mortality. **Results:** There were no differences in age, cardiovascular disease history, anti-hypertensive or analgesic medication use, SBP, or heart rate in the 25 patient (17 men, 8 women) cohort studied. Univariate linear regression analysis revealed a significant negative association between age and spontaneous cancer pain in women (RR=−12.4, p=0.02, 95%CI=−22, −3). Multivariate analysis including age, SBP, anti-hypertensive medication use, and interactions between age and SBP (to rule out confounding effects) demonstrated age (RR=−7.0, p=0.017, 95%CI=−11.5, −2.3) and SBP (RR=−2.7, p=0.056, 95%CI=−5.5, 1.3) were significantly inversely associated with spontaneous pain in women. However, SBP significantly increased mortality nearly two-fold (OR=1.74, p=0.04, 95%CI=1.03, 2.92), in both genders, independent of age in a multivariate logistic model. **Conclusions:** This is the first study to demonstrate a significant association between resting SBP and both pain and mortality from oral cancer, along with gender-specific, qualitative differences in pain. Further investigations into the modulatory effects of arterial blood pressure on pain sensitivity and mortality may improve patient quality of life and survival for oral cancer patients.

**P063 (COSM poster #186)**

**AMELOBLASTIC CARCINOMA OF THE MANDIBLE: REPORT OF 2 CASES** - Sara B. Immelman, MD, Luc G. Morris, MD, Zoya Kurago, PhD, Joan Phelan, MD, Mark DeLacure, MD, Beverly Y. Wang, MD; New York University School of Medicine and College of Dentistry

**Introduction:** Ameloblastic carcinoma is a rare odontogenic malignancy, defined as a tumor with features of ameloblastoma as well as cystologic atypia. It must be differentiated from malignant ameloblastoma, a histologically benign tumor with metastases. The clinical course of ameloblastic carcinoma is typically aggressive with extensive local destruction, lymph node involvement, and metastasis to various sites, thus dictating a more aggressive surgical approach. We report two cases of ameloblastic carcinoma of the mandible. **Methods:** The medical records, clinical photographs and manifestations, radiographic imaging, and pathologic slides of two cases of ameloblastic carcinoma were reviewed. The extant world literature on this rare tumor was systematically reviewed. **Results:** Patient one was an 89 year old woman who presented with a one year history of progressive facial asymmetry and a bleeding mandibular mass. Needle aspiration was consistent with undifferentiated carcinoma. A segmental mandibulectomy was performed, with final pathology revealing ameloblastic carcinoma. Patient two was a 56 year old female who presented with jaw pain and swelling. An incisional biopsy was...
consistent with ameloblastic carcinoma. A marginal mandibulectomy was performed, followed by postoperative radiotherapy. In both cases, tumors were microscopically composed of ameloblastic epithelium with peripheral palisading and frequent mitotic figures. Perineural invasion was present in the first case. The world literature includes 39 published reports since 1927 of mandibular ameloblastic carcinoma, usually arising in the mandible and usually in male patients, ranging in age from 4-90. Radiographic findings are similar to ameloblastomas, except for the presence of focal radiopacities, likely reflecting dystrophic calcifications. 5 year disease-specific survival is estimated at 69%. Discussion: Ameloblastic carcinoma is a rare odontogenic malignancy that exhibits both cytologic

P064 (COSM poster #187)
AIRWAY MANAGEMENT PRIOR TO CHEMORADIATION - Alexander Langerman, MD, Riddhi M. Patel, BA, Ezra E.W. Cohen, MD, Elizabeth A. Blair, MD, Kerstin M. Stenson, MD; University of Chicago
Patients with upper aerodigestive tract tumors can develop airway compromise both prior to and after the initiation of chemoradiation. Tracheotomy is the classic method for securing a safe airway in patients with obstruction, but tumor debulking may also be employed to decrease the obstruction and improve the airway. We reviewed 109 patients with T3 or T4 tumors of the base of tongue (BOT) larynx, or hypopharynx treated with chemoradiation at our institution from 1995-2007. Forty-two patients (39%) presented with symptoms of airway obstruction (stridor or increasing shortness of breath) or laryngoscopic evidence of a compromised airway. Twenty-eight (67%) of the 42 underwent tracheotomy, and 31 (26%) had tumor debulking. Four (14%) of the 28 patients with tracheotomy experienced minor complications. Two (18%) of the 11 debulked patients required tracheotomy during chemoradiation for definitive airway management. Of the 3 patients presenting with signs of airway compromise but no pre-treatment airway intervention, 1 required an urgent tracheotomy during chemoradiation. Sixty-seven (61%) of the 109 patients did not have evidence of airway compromise. Of these 67 patients, only 3 (4%) required tracheotomy (1 after panendoscopy and 2 during treatment). Larynx tumors were more likely to have airway intervention than BOT or hypopharynx tumors (34% vs. 14%, respectively, p=0.01). T3 tumors were more often successfully debulked than T4 tumors (14% vs. 5%, respectively, p=0.08), however, overall rates of airway intervention were similar for T3 and T4 tumors (30% vs. 41%, p=0.26). Tracheotomy or tumor debulking did not increase the incidence of pulmonary metastasis (p=0.45) or affect response to chemoradiation (p=0.98) compared to patients without these interventions. Whereas tracheotomy is a safe and appropriate treatment for airway management in patients with signs or symptoms of airway compromise it should be reserved for patients where other options such as tumor debulking are not a feasible alternative. Debulked patients should be monitored closely for recurrence of airway compromise during treatment. An algorithm for airway management prior to chemoradiation is discussed.

P065 (COSM poster #188)
ONCOLOGIC OUTCOME OF SQUAMOUS CELL CARCINOMA OF TONSIL - K.A. Pathak, MD, Adel El Guibat, MD, R.W. Nason, MD, P.D. Kerr, MD, N.R. Viallet, MD, D.S. Sutherland, MD, Hajaij Al Hajaij, MD; Cancer Care Manitoba and University of Manitoba, Winnipeg (Canada)
Introduction: Squamous cell carcinoma (SCC) of tonsil is one of the commonest oropharyngeal cancers. This study assesses their oncologic outcome and evaluates the influence of various prognostic factors.

Methods: 287 consecutive patients with tonsillar SCC were identified as a population based cohort at Manitoba Cancer registry. 251 patients were treated with radical intent with a median follow up of 56 months. Outcome of these patients in terms of overall, disease specific (DSS) and disease free survival (DFS) was calculated by Kaplan Meir method and inter group comparisons were made by log rank test. Independent influence of primary treatment modality, age, gender, grade, T & N stage, margin status and dose of radiation on DSS and DFS was evaluated by Cox Proportional Hazard model. Results: Tonsillar SCC was seen more frequently in males (72.5%) and 78.4% of patients used significant quantity of tobacco and/or alcohol. T1 disease was seen in 18.4%, T2-42.5%, T3-19.9% and T4 in 18.8%. Only 26.8% patients were clinically node negative at presentation. 14.6 % received chemo-radiation, 56.1% had radiation alone, 2.4% were treated with only surgery and the rest had combination of surgery and radiation/chemo-radiation. During the course of follow up 24% developed recurrent disease and 15.7% had persistent disease. Only 16.7% of these failures could be salvaged. At the time of last assessment, 31.1% patients had died of disease, 12.6% due to second primary, 11.9% were dead because of other causes and 44.4% were alive and disease free, The DFS were 74.9% (2 yrs) and 66.9% (5 yrs) and DSS were 84.1% (2 yrs) and 76.8% (5 yrs). On multivariate analysis, T stage (p=0.001) and N stage (p=0.009) had significant independent influence on DSS. DFS was also independently influenced by T stage (p=0.001) and cumulative dose of radiation (p=0.027) but not by the age, grade of differentiation, treatment modality employed or status of surgical margins. Discussion: T and N stage are the most important prognostic factors influencing the outcome of patients with SCC of Tonsil. Cumulative dose of radiation independently influences the disease free survival but not disease specific survival.

P066 (COSM poster #189)
EXPRESSION OF HPV E6 AND E7 ONCOGENES IN OROPHARYNGEAL SQUAMOUS CELL CARCINOMA - Jacob Smith, MD, Semyon Rubinchik, PhD, Boyd Gillespie, MD, Natalie Sutkowski, PhD; Medical University of South Carolina, Otolaryngology and Microbiology and Immunology Departments
Introduction: It is currently estimated that 40-80% of oropharyngeal squamous cell carcinomas (OSCC) are associated with human papillomavirus (HPV) infection. Identification of tumor HPV status is imperative, as HPV+ and HPV- OSCC differ both in treatment outcomes and overall survival. The large discrepancy in the reported HPV incidence reflects the variable sensitivity of the techniques used to detect the virus, as well as the lack of agreed to standards. Our primary aim was to develop a real-time quantitative PCR assay for reliably identifying HPV status in oropharyngeal tumors. Methods: Frozen tissue samples were obtained from the MUSC Tissue Bank. DNA and RNA were extracted and each was tested for HPV16 E6 and E7 transcripts by real-time qPCR. GAPDH was run in separate reactions for each sample as an internal control. Additionally, genomic DNA was tested for presence of L1 capsid gene using semi-quantitative PCR followed by gel electrophoresis. Results: Overall, there was good correlation between detection of E6 and E7 genes, both as RNA and DNA. A range of DNA and RNA copies spanning 8 orders of magnitude was seen in all of the oropharyngeal tumors, while no or very little HPV was detected in oral cavity tumors and benign tonsil samples. Eight of the oropharyngeal samples (29.6%) had 1 or more copies of HPV16 DNA per cell, which correlated with presence of 10,000 or more E6 and/or E7 cDNA copies per reaction. L1 capsid gene was detected in 18 samples (66.7%), and the yields of the L1 PCR product roughly correlated with the qPCR results. Conclusion: Real-time quantitative PCR is a highly sensitive and effective method of determining the extent of HPV16 presence in OSCC. We feel that detection of HPV16 E6/E7 genomic DNA at levels greater than 1 copy per cell (correlated with 10,000 or more cDNA copies per reaction) supports HPV positive status.

P067 (COSM poster #190)
ORAL CANCER PROGRESSION PROGRESSION - Candice Black, DO, Michael Baker, MD, Joseph Pavlidis, MD; Dartmouth Hitchcock Medical Center
Screening oral mucosal biopsies (OMB) are often small, poorly oriented and inflamed which impedes diagnostic accuracy and reproducibility. Three tiered systems of dysplasia classification (low,mod,severe) have been criticized for subjectivity and failure to predict disease progression. The clinical relevance of the term “atypia” is poorly understood. Recently a cocktail of monoclonal antibodies targeted against proteins DNA topoisomerase 2-alpha and alpha/juvenile monoclonal protein 2 (T2M2), markers of aberrant S-phase dysfunction, have been used with success as a diagnostic adjunct in uterine cervix. We have tested this in OMB to help distinguish true pre-neoplasia from its mimickers. 1. Validation of T2M2 in archival cases of mild (n=10), moderate (n=8), severe (n=8) dysplasia in OMB (scored 0= negative, 1= up to t1/3 mucosal thickness, 2= up to t2/3, 3= t2/3 to full thickness). 2. Seven OMB from 6 patients with eventual proven progression to oral squamous carcinoma were selected. 5 control cases with similar diagnoses were selected, all with >3 years benign follow-up.
T2M2 showed a significant pattern of expression (p=0.0152) versus the insignificant result by HE alone. In addition, T2M2 had high sensitivity (0.857) and specificity (1) for true disease versus control. The positive predictive value (1) and negative predictive value (0.833) show that T2M2 is predictive of true disease, versus the control group, whereas HE alone was non-predictive (PPV=0.54). **Conclusion:** The addition of T2M2 immuno to routine screening oral biopsies increases the predictive value of the diagnosis and provides more clarity to the clinically poorly understood atypia category.

**P068 (COSM poster #191)**

**SYNCHRONOUS THYROID AND PARATHYROID CARCINOMA** - Fawaz Makki, MD, Hosam Armoodi, MD, Robert D. Hart, MD, Mark Taylor, MD, Martin Bullock, MD, Jonathan B. Trutes, MD, Dalhousie University

Parathyroid carcinoma (PC) is among the least common of human malignant neoplasms, representing only 0.005% of cancers. Even among patients presenting with primary hyperparathyroidism, this disease accounts for less than 1%. Clinical presentation is generally predicated by the degree of hypercalcemia, and in this regard, PC is very similar to benign parathyroid adenomas. An important exception is the presence of a palpable neck mass in the majority of cases. The association of hyperplastic parathyroid tissue with primary thyroid disease is not uncommon. Indeed, the relationship between parathyroid hyperplasia and medullary thyroid carcinoma is well established in the context of multiple endocrine neoplasia syndromes. However, the coexistence of PC with non-medullary thyroid carcinoma is extremely rare, only 5 cases having been reported to date in the world literature. We present the case of a 48 year old woman who developed extensive symptoms and clinical findings related to chronic severe hypercalcemia in the context of a palpable paratracheal mass. We demonstrate her biochemical profile, histopathology and imaging of several Brown tumors, sestamibi scan, skeletal survey and bone scan following en bloc resection of her parathyroid tumour and ipsilateral thyroid lobe. The operative findings and post-operative management, including “bone hunger,” are also discussed. Lastly, we discuss the challenges which these tumors present to pathologists, both diagnostically and prognostically. The coincident finding of multifocal papillary thyroid carcinoma with PC represents the first case reported in North America with these synchronous neoplasms.

**P069 (COSM poster #192)**

**POSITIVE IMMUNOSTAINING OF THYROID TRANSCRIPTION FACTOR-1 IN PRIMARY NASOPHARYNGEAL PAPILLARY ADENOCARCINOMA: REPORT OF 3 CASES** - Cheng-Ping Wang, MD, Yao-Ling Hu, RN, Pei-Jen Lou, MD, Yih-Leong Chang, MD, University of Washington, Department of Otolaryngology, National Taiwan University Hospital and National Taiwan University College of Medicine, Taipei, Taiwan

**Objectives:** To evaluate immunohistochemical study with thyroid transcription factor-1 (TTF-1) antibody in differential diagnosis between nasopharyngeal metastasis from thyroid papillary adenocarcinoma and primary nasopharyngeal papillary adenocarcinoma, which is very rare and microscopically indistinguishable to the former. **Materials and Methods:** Immunohistochemical stains with TTF-1 and thyroglobulin antibodies were performed in the pathological specimens of three papillary adenocarcinomas primarily originating from the nasopharynx, which were confirmed by clinical examinations. **Results:** All three tumors were non-immunoreactive to thyroglobulin, but all showed strong nuclear staining for TTF-1. **Conclusion:** Immunohistochemical staining with thyroglobulin may be a useful marker to distinguish between thyroid papillary carcinoma and primary nasopharyngeal papillary adenocarcinoma. Primary papillary adenocarcinoma is also immunoreactive to TTF-1, which can not be used for differential diagnosis from thyroid papillary cancer.

**P070 (COSM poster #193)**

**THE INFLUENCE OF TIMING AND PREVIOUS RADIATION ON COMPLICATIONS AND SPEECH OUTCOMES WITH TRACHEOESOPHAGEAL PUNCTURES** - Mark E. Zafereo, MD, Randal S. Weber, MD, Kate A. Hutcheson, MS, Denise Barringer, MS, Brandon L. Christianison, BS, Diana B. Roberts, PhD, Jan S. Lewin, BA, MD Anderson Cancer Center

**Objective:** To determine the effect of radiotherapy and timing of tracheoesophageal puncture (TEP) on postoperative complications and TE speech outcomes. **Methods:** The medical records of 119 patients with primary (78 patients) or secondary (41 patients) TEP between 2003 and 2007 were retrospectively reviewed. Seventy-one (59.7%) patients had preoperative radiation, 38 (31.9%) had postoperative radiation, and 10 (8.4%) did not have radiation. Complications were classified as major (pharyngocutaneous fistula, enlarged TEP, pneumonia, and aspirated prosthesis) or minor (reduced prosthetic life, pharyngoesophageal spasm, partial TE tract closure/misalignment, lymphedema, granulation, pharyngeal narrowing, and superior TE tract migration). **Results:** Major complications occurred in 11% of patients, minor in 40%, and 35% of patients experienced both major and minor complications; 14% did not have complications. There were no statistically significant differences in frequency or severity of complications based on timing of TEP (p=0.218). However, 29.5% (23/78) of patients with primary TEP compared with 43.9% (18/41) with secondary TEP experienced both major and minor complications (p = 0.116). There was no significant difference in frequency or severity of complications based on receipt of radiotherapy (p=0.094), type of radiotherapy (p=0.485), or timing of radiotherapy (p=0.176). However, patients who had postoperative radiation were significantly more likely to have an enlarged TEP (p=0.011) and stricture (p=0.043) compared to patients with a history of preoperative radiotherapy or no radiation. Eighty percent (95/119) of patients achieved fluent TE speech. The prosthesis was removed in 9 (7.6%) patients because of complications. There were no significant differences in final mode of communication (p=0.363) or final level of TE speech fluency (p=0.458) based on timing of TEP. Non-irradiated patients were significantly more likely to use their TEP for primary communication compared with irradiated patients (100% versus 72%, respectively, p=0.043).

**Conclusions:** While most TE speakers experience complications, the majority are minor and do not prevent successful TE speech outcomes. We observed few significant differences in complications and TE speech outcomes based on radiation treatment or timing of TEP. TEP should be performed by expert multidisciplinary teams that include head and neck surgeons and speech pathologists in centers equipped to manage complex complications.

**P071 (COSM poster #194)**

**PATIENT SATISFACTION WITH PHOTODYNAMIC THERAPY FOR BOWEN’S DISEASE: DEVELOPMENT OF AN OUTCOME SCALE** - Amanda G. Hu, MD, Corey Moore, MD, Gillian Mount, BS, Kevin Jordan, PhD, Edward Yu, MD, Olga Vujovic, MD, James Gilchrist, MD, Mark Taylor, PhD, University of Western Ontario

**Objective:** Photodynamic therapy (PDT) is a novel option for treating Bowen’s Disease (BD) in the head and neck. Since no single treatment option has been shown to be superior for treating BD, choice of therapy is influenced by patient preference. However, no measure of patient satisfaction subsequent to PDT for BD has been published. This study designed a measure to assess patient satisfaction with PDT for BD. **Design:** Focus groups and a mail-out questionnaire. **Setting:** Tertiary care academic teaching hospital. **Patients:** Fifty-six adults treated with PDT for BD at the London Regional Cancer Program were included. **Interventions:** A newly developed 37-item patient satisfaction questionnaire. **Main Outcome Measures:** Scores on a patient satisfaction questionnaire addressing side-effects of treatment, logistics of treatment, interactions with medical personnel, self-perceived effectiveness and personal and social consequences of PDT. **Results:** A vast majority (>90%) of those surveyed indicated a very favorable impression of the effectiveness of PDT for BD. Of those surveyed, the majority (93%) indicated that side effects of treatment were perceived to be of mild severity with continuity of problems noted. The most significant side effects reported were burning (21%) and crusting/scabbing (14%) and that side-effect were
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generally predictable. Respondents also indicated that interactions with medical staff were highly supportive (90%) and information provided was clear (97%). General logistics of treatment and overall time demands associated with PDT were judged by only 7% of respondents to be problematic. The most substantial limitations associated with PDT were reported to occur in relation to social limitations (26%), self-consciousness 28%), and concerns about skin appearance (30%) in the immediate post-treatment period. Respondent reliability in response to questions was excellent. Conclusions: A validated patient satisfaction questionnaire on PDT for BD has been created. Overall, PDT resulted in a high degree of patient satisfaction for those diagnosed with BD. Despite treatment-related side-effects, PDT is also perceived to be an effective method of treatment for BD. Based on these data, PDT has been supported as a viable method of treatment for head and neck sites in those diagnosed with BD.

P072 [COSM poster #195] MEASURING CORRELATION BETWEEN QUALITY OF LIFE QUESTIONNAIRES - Hisham M. Mehanna BMedSc (Hons) MB ChB (Hons), Paul C. Nankivell BA, MBBSch, Christopher C. McConkey, MSc; Institute of Head and Neck Studies and Education (iHANSE), University Hospital Coventry and Warwick, Coventry, United Kingdom; Clinical Trials Unit, Warwick University, Coventry, United Kingdom

Objectives: It is difficult to compare the findings of functional/quality of life (QOL) instruments with one another as no studies have yet correlated the findings of commonly used instruments. Our aim was to determine the extent of correlation between functional and QOL domains, namely speech, swallowing, pain, saliva/dry mouth and global quality of life in 3 regularly used instruments. This would indicate whether these instruments were measuring the same aspects of each domain, and hence results could be compared. Methods: 80 patients completed 3 instruments in a randomised order, controlling for bias due to habituation, or fatigue. The instruments were: EORTC C35 (European Organisation for Research and Treatment of Cancer), FACT HN35 (Functional Assessment of Cancer Therapy), and UW (University of Washington quality of life questionnaire v4). The domains were correlated with each other using a Spearman rank correlation coefficient test. Results: For the swallowing domain, EORTC is moderately to highly correlated with FACT and UW (0.62 and 0.82 respectively). There is also a moderate correlation between FACT and UW, (0.69). For the saliva/dry mouth domain however, correlation is much weaker with EORTC correlation to FACT and UW only 0.38. Results for the other domains will be presented. Conclusions: There is variation in correlation between the different domains of the three instruments analysed in this study. This suggests that the instruments are sometimes measuring different aspects of the same domains and therefore the results may be presented in a biased or reliably compared. This should be taken into consideration when choosing which instrument to use and assessing outcomes results using these measures.

P073 [COSM poster #196] EFFECT OF PRETREATMENT BMI ON FEEDING TUBE USE AND DEPENDENCE IN HEAD AND NECK CANCER PATIENTS UNDERGOING CHEMORADIATION - Daniel E. Cannon, BS, Sunitha Sukumaran, MD, Nicholas Choong, MD, Stuart Wong, MD, Becky L. Massey, MD; Medical College of Wisconsin

Objectives: To determine whether head and neck cancer patients pre-treatment BMIs influence whether they receive a feeding tube during the course of treatment and whether they remain dependent on the feeding tube. Study Design: Retrospective chart review. Methods: We reviewed the medical records of patients with primary squamous cell carcinomas of the head and neck diagnosed from January 2004 to June 2008 who were treated with concurrent chemoradiation. Results: 81 patients were included. The number of patients with BMI <20, 11; 20-<25, 29; 25-<30, 22; and >30, 19. Of patients with BMI <20, 63.6% received a feeding tube (OR 4.90, p=0.051) and 36.3% were using a tube at their last follow-up (OR 4.86, p=0.105). Patients with BMI 20-<25, 62.1% received a feeding tube (OR 4.58, p=0.019) and 37.9% were using a tube at last follow-up (OR 5.19, p=0.005). Patients with BMI 25-<30, 54.5% received a feeding tube (OR 3.36, p=0.072) and 31.8% were using a tube at last follow-up (OR 3.97, p=0.116). Patients with BMI >30 (reference group), 26.3% received a feeding tube and 10.5% were using a tube at last follow-up. Conclusions: Head and neck cancer patients with lower pre-treatment BMIs are more likely to receive a feeding tube during the course of concurrent chemoradiation and more likely to be dependent on the feeding tube long-term.

P074 [COSM poster #197] EMPLOYMENT OF PATIENTS FOLLOWING TREATMENT OF ADVANCED HEAD AND NECK CANCER - Raiyan H. Chowdhury, MD, Sheehan Chowdhury, BS, Jeffery Harris, MD, Hadi Seikaly, MD; University of Alberta

Background: The treatment of advanced head and neck cancer has evolved significantly over the last 20 years. The advent of new surgical techniques and organ preservation protocols have led to increased locoregional control while improving the patients functional outcomes and quality of life. Another measure of wellbeing is the employment status of the individual yet there is a paucity of literature on the subject. Objective: To evaluate the post treatment employment of patients with advanced head and neck cancer. Methods: We retrospectively contacted all patients undergoing major head and neck cancer resection and reconstruction surgery at the University of Alberta from January 2005 to December 2007. Patients were questioned regarding their duration and type of employment and the degree to which they felt they could meet their duties. Results: A total of 232 patients were contacted and reviewed. 23% had died of their disease. 55% of patients that were alive were employed full-time and performing their duties adequately. 92% of the employed patients returned to work within the first year. 84% return to the pretreatment occupation. 21% of laryngectomy patients returned to any form of employment. The type of employment ranged from CEO of a major corporation to manual laborer. Conclusions: Return to meaningful and successful employment continues to be an arduous task for head and neck cancer patients especially after undergoing a laryngectomy.

P075 [COSM poster #198] IMPACT OF WOUND HEALING COMPLICATIONS ON QUALITY OF LIFE AFTER LARYNGECTOMY - Ara A. Chalian, MD, Sean P. Clarke, PhD, Sarah H. Kagan, PhD; University of Pennsylvania, University of Toronto

Objective: To report differences in trends in quality of life (QOL) by wound healing complications in patients after laryngectomy for squamous cell cancer. Design: Prospective, descriptive clinical observation. Patients: A total of 48 patients were enrolled pre-operatively and completed clinical and QOL assessments then and at approximately 1, 2, 3, 4, 8, and 12 weeks and then again at 16 to 20 weeks and 24 weeks or later. Intervention: Patients were assessed at each time point for post-operative complications including clinical features of poor wound healing and wound complications (e.g. seroma, hematoma, dehiscence, fistula). Patients also completed FACT-HN at each visit. Main Outcome Measures: Wound complications were assessed by presence or absence of a complication. Presence of a complication was qualified by extent using an ordinal system. FACT-HN is a well-accepted QOL instrument with four general function subscales and 10 items that address concerns specific to head and neck cancer. It uses Likert-type measurement. Results: Of 48 patients, 20 had a complication and 9 had more than one complication. The most common complication was fistula (n=12), followed by cellulitis (n=10) and abscess (n=8). Patient who had complications did not differ significantly in general QOL over time. Mean responses to concerns of “unhappy with how face and neck look” and “pain in mouth, throat or neck” were clinically and significantly different for patients who had complications. Patients who had any complication had more pain pre- and 1 month post-operatively than those who did not. Additionally, patients who had complications were much less unhappy with how their face and neck looked pre-operatively than were those who did not have a complication. Conclusions: Impact of wound healing complications on QOL for patients who have had laryngectomy is relatively unexplored. Concerns such as pain may have predictive value for clinical management while impact on appearance may influence supportive care and screening for depression, anxiety, and social isolation. Our results suggest the need for and direction in further investigation.

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CERVICAL SPINE OSTEOMYELITIS FOLLOWING TREATMENT FOR HEAD AND NECK CANCER - John W. Werning, MD, Jeremiah Alt, MD, William M. Mendenhall, MD, Robert J. Amur, MD, Matthew H. Steele, MD, R. Patrick Jacob, MD; University of Florida

Objectives: Characterize the clinical and radiographic manifestations of cervical osteomyelitis and its management. Study Design: Retrospective case series Methods: Review of medical records and radiographic images of three patients who were treated for cervical spine osteomyelitis after surgery and radiation therapy for head and neck cancer. The type and severity of symptoms were assessed to characterize the clinical picture of patients who may be at risk for osteomyelitis. Patient outcomes were evaluated in relation to the type and extent of surgery, the dose of radiotherapy delivered to the cervical spine region, and the treatment that was administered. Results: All of the patients presented with progressive worsening neck pain and prevertebral soft tissue necrosis. Computed tomography and magnetic resonance imaging showed evidence of osteomyelitis and overlying soft tissue injury that corresponded to the patient’s clinical picture. One patient required emergent cervical spine stabilization and subsequent free flap reconstruction of the prevertebral soft tissues in combination with intravenous antibiotic therapy. The other two patients were treated nonsurgically with long-term intravenous antibiotic therapy. Improvements in symptomatology and radiographic findings were achieved in each case. Conclusions: The possibility of cervical spine osteomyelitis should be considered when severe neck pain and prevertebral soft tissue necrosis coexist in patients who have been treated for head and neck cancer. Immediate consultation with neurosurgical and infectious disease specialists is essential to optimize chances for a favorable clinical outcome.

QUALITY OF LIFE AFTER ENDOSCOPIC RESECTION OF SCCA OF THE HEAD AND NECK - Mark C. Domanski, MD, Joseph F. Goodman, MD, Nader Sadeghi, MD; The George Washington University

Objectives: To quantify the quality of life (QOL) of patients with head and neck squamous cell carcinoma (HNSCCA) treated by endoscopic surgical resection compared with those patients treated primarily by radiation or chemoradiation therapy. Introduction: Voice, swallowing, taste, dentition, pain, and recovery period are affected by treatment of HNSCCA. The last two decades has seen an increase in the use of radiation or chemoradiation as primary therapy. The impetus for this has been organ preservation and avoiding the morbidity of surgical resection. However, the morbidity of radiation or chemoradiation can be significant and organ preservation is not the same as preservation of function. New developments in endoscopic resection of HNSCCA and minimization of morbidity of open surgical approaches. The oncological outcomes between primary endoscopic resection vs. radiation based therapy are believed to be equivalent. Less is known about the difference between the QOL of patients treated via these different modalities. Methods: After institutional review board approval, patients at the George Washington University treated for HNSCCA with intent to cure were asked to participate in the study. Patients completed the EORTC QLQ30, EORTC HN35 and SF-36 QOL questionnaires. Results were correlated with tumor stage, modality of treatment, complications, and oncoprognostic results. The modality of treatment was determined by current oncological practice and patient preference. Results: Sixteen patients treated primarily by endoscopic resection were compared with patients treated by primary radiation or chemoradiation therapy. The quality of life of patients undergoing endoscopic resection was not grossly impacted by adjuvant radiation therapy. However, the quality of life of patients treated primarily by radiation or chemoradiation was poorer on multiple measures than those who underwent endoscopic resection. Conclusion: Patients diagnosed with HNSCCA can be offered either primary surgical or radiation based treatment as having equivalent oncological outcomes. This study suggests that endoscopic resection of HNSCCA irrespective of the need for postoperative radiation can provide superior QOL outcomes compared to primary radiation or chemoradiation therapy.

QUALITY OF LIFE AFTER TONGUE BASE RESECTION AND RECONSTRUCTION BY RADIAL FOREARM FREE FLAP - Nabil Rizk, MD, Jeffery Harris, MD, David Williams, MD, Hadi Seikaly, MD; University of Alberta, Canada

Background: Head and neck oncologists are often confronted with the difficult challenge of balancing cancer cure with the preservation of function, cosmesis, and quality of life when deciding the patient’s best treatment protocol. This task is especially difficult for cancer of the base of tongue as this organ is intimately involved with the complex functions of respiration, deglutition and speech production. Treatment of advanced stage cancers of the base of tongue generally requires a combination of surgery, radiation and chemotherapy. The two widely accepted treatment regimes include: 1) primary surgery and reconstruction followed by radiation and chemotherapy, and 2) organ preservation with primary concurrent chemo-radiation followed by surgery for salvage. The literature seems to offer little consensus as to which treatment regimen affords the best quality of life. Purpose: to evaluate the quality of life of patients treated with primary surgery and reconstruction for advanced base of tongue cancer. Material and Methods: The study was approved by the Health research Ethics Board. 16 patients were identified in the period 2001 - 2004. All patients had been followed for at least 2 years postoperatively. The University of Washington Quality of Life questionnaire (QOL) was administered to all the patients. Results: The age ranged was between 80-48 years. Swallowing and chewing were the most important issues in all patients. The overall health related QOL in these patients were very good in 60% good and in 15% and fair in 30%. The overall quality of life scores were: outstanding level 14 %, good level 43%, fair level 43%. Patients had very good level of chewing, swallowing, and speech. Functionally, all patients had pain control in the form of mid which not needing medications. Activity
and recreations were found in very good level. **Conclusion:** Surgical resection and reconstruction can provide a good QOL for patients with advanced carcinoma at tongue base.

**P080 (COSM poster #203)**

**DOSIMETRIC PREDICTORS FOR LONG-TERM DYSPHAGIA FOLLOWING OROPHARYNGEAL IMRT**

- David L. Schwartz, MD, Katherine Hutchens, MS, Denise Barring, MS, Susan L. Tucker, PhD, Lei Dong, PhD, Jan S. Lewin; UT MD Anderson Cancer Center

**Purpose:** To investigate swallowing function in oropharyngeal cancer patients treated with IMRT, and to identify novel dose-limiting criteria predictive for post-radiotherapy dysphagia. **Methods:** Thirty-one patients with stage IV oropharyngeal squamous cell carcinoma enrolled on a phase II trial testing induction chemotherapy followed by IMRT +/- chemotherapy were retrospectively evaluated by modified barium swallow at baseline, and then 6, 12, and 24 months after radiation. Candidate dysphagia-associated organs-at-risk (OARs) were retrospectively contoured in the patients’ treatment plans; these OARs were not assigned cost functions for IMRT planning. Twenty-one (68%) patients had disease of the base of tongue, and 10 (32%) had tonsillar disease. T stage distribution was T1 (12), T2 (10), T3 (4), T4 (2), and TX (3), while N stage distribution was N2 (24), N3 (5), and NX (2). Median age was 52.8 years (Range: 42-78). Thirteen (42%) received concurrent chemotherapy during IMRT. Thirteen (42%) were former or active smokers. Mean dose to glottic larynx for the cohort was limited to 18 Gy (range: 6-39 Gy) by matching IMRT to conventional low neck fields with larynx blocking. **Results:** Swallowing function, as determined by oropharyngeal swallow efficiency, declined at 6 months and remained depressed relative to baseline at 2 years. Dysphagia-associated dose-volume constraints of V30 < 65% for anterior oral cavity and V55 < 80% for high superior pharyngeal constrictors were identified by univariate and multivariate analyses. Aspiration and feeding tube dependence were uncommon; one and two cases, respectively, were seen at 24 months. **Conclusions:** In the context of glottic laryngeal shielding, we describe candidate oral cavity and superior pharyngeal constrictor OARs and dose-volume constraints associated with preserved long term swallowing function, suitable for prospective validation. These findings are relevant to the design of dose modification trials focused on HPV-associated oropharyngeal disease and/or adaptive radiotherapy. Strict protection of the glottic larynx via beam-split IMRT techniques promises to make chronic aspiration an uncommon outcome.

**P081 (COSM poster #204)**

**INCREASED LOCO-REGIONAL FAILURES USING INTENSITY-MODULATED RADIATION THERAPY (IMRT) IN THE POSTOPERATIVE SETTING.**

- Aruna Turaka, MD, Tianyu Li, PhD, Navehs K. Sharma, DO, Linna Li, MD, Nicos Nicolaidou, MD, Ranee Mehra, MD, Barbara Burtness, MD, Roger B. Cohen, MD, Miriam N. Lango, MD, Eric M. Horwitz, MD, John A. Ridge, MD, Steven Feigenberg, MD; Fox Chase Cancer Center

**Objective:** To determine the pattern of failure in patients treated with IMRT. **Methods:** Between May 2001 and June 2008, 176 patients with head and neck cancer were treated with IMRT at Fox Chase Cancer Center. Among these, 95 (54%) were squamous cell carcinoma (nasopharynx 8%, oropharynx 47%, hypopharynx 2%, larynx 6%, oral cavity 25% and paranal sinus 10%) and treated with curative intent. In patients treated with definitive radiation, the high-risk PTV (PTV1) was prescribed to 70 Gy and the low risk PTV (PTV2) to 56 Gy. In the postoperative (PORT) setting, PTV1 was prescribed to 60-66 Gy and PTV2 to 54 Gy. Patient tumor and treatment related factors, including T stage, N stage, history of smoking, type of treatment, addition of chemotherapy and RT duration were analyzed for patterns of failures. Local failures were defined as the persistence of disease or recurrence within PTV1, marginal failures as recurrences occurring at the region of a high-dose fall off, and regional failures as nodal recurrence within PTV2 or contralateral neck. **Results:** The median follow up was 20 months (range: 1 ? 117). The median age was 60 years (range: 28-88), 80% were smokers, and 80% were either stage III or IV. PORT was given to 29% of patients (24% RT alone and 5% concurrent chemoradiation), while 71% were treated with definitive radiation (19% RT alone and 52% concurrent chemoradiation). Cisplatin-based chemotherapy was given to the majority of patients. The five year local and loco-regional failure rates were 9% and 16%, respectively. Failures occurred in 14 patients: 8 local (6 true local and 3 marginal), 3 regional, 1 loco-regional and 2 distant. Two of 3 regional recurrences failed in the contralateral uninvolved neck. On univariate analysis, the only predictor of local failure was the type of treatment (p=0.06) with a locoregional control rate of 95% in patients treated with definitive RT versus 80% with PORT. Five of the 8 local failures, and all of the marginal failures were observed following PORT. **Conclusions:** IMRT in the postoperative setting should be used with caution due to a higher local failure rate. Efforts should be made to develop standards to delineate target volumes in the postoperative setting.

**P082 (COSM poster #205)**

**USE OF CHIMERIC SUBCAPSULAR ARTERY SYSTEM FREE FLAPS FOR SOFT TISSUE RECONSTRUCTION OF THE ORAL CAVITY AND OROPHARYNX: ADVANTAGES AND DONOR SITE MORBIDITY.**

- T. Jouffroy, MD, A. Girod, MD, J. Rodriguez, MD; Institut Curie

**Background:** Reconstruction of extensive soft tissue defects of the oral cavity and oropharynx usually comprises a single free flap. The authors tested the use of chimeric subcapsular artery system free flaps to improve the functional and anatomical results of reconstruction and also evaluated donor site morbidity. **Method:** Eight patients were retrospectively reviewed. Operative morbidity and aesthetic and functional results were described. Donor site morbidity was evaluated by the Disabilities of the Arm, Shoulder and Hand (DASH) questionnaire and physiotherapy assessment. **Results:** Five latissimus dorsi and serratus anterior free flaps, one latissimus dorsi and parascapular free flap, one serratus anterior and parascapular free flap, and one latissimus dorsi, parascapular and serratus anterior free flap were used. No flap failures were observed in this series. Functional and aesthetic results were acceptable (one patient required partial tube feeding with intelligible speech). Donor site sequelae were minor. **Conclusion:** Chimeric subcapsular artery system free flaps improve the anatomical and functional results of reconstruction of extensive soft tissue defects of the oral cavity and/or oropharynx with limited donor site morbidity.

**P083 (COSM poster #206)**

**MICROVASCULAR FREE TISSUE TRANSFER TO THE HEAD AND NECK IN THE OBESE PATIENT**

- Eran E. Alon, MD, Eric J. Moore, MD; Mayo Clinic, Rochester, MN

**Aim:** To report on our experience with microvascular free tissue transfer to the head and neck in the obese patient, and to discuss the challenges in choosing appropriate donor sites, harvest and reconstruction. **Methods:** Retrospective chart review from September 2005 to December 2008 of all patients undergoing microvascular free tissue transfer to the head and neck with a BMI > 30. **Results:** 129 charts were reviewed of all patients undergoing free tissue transfer in our department. Sixteen patients had a preoperative BMI > 35. There were 9 males and 7 females with an average age of 63 years. We performed 7 radial forearm fasciocutaneous tissue transfers, 3 fibular osteocutaneous tissue transfers, 3 anterolateral thigh fasciocutaneous tissue transfers, 2 scapular-parascapular osteocutaneous tissue transfers, and one radial forearm osteocutaneous tissue transfer. One patient required revision of the arterial anastomosis with salvage of the free tissue, and only one patient experienced partial soft tissue loss of the free tissue transfer due to poor perfurators. Both of these patients had a BMI > 35. We review associated co-morbidities, postoperative complications as well as site morbidities in free tissue harvest and reconstruction in this patient population. **Conclusions:** The obese patient poses obvious challenges in head and neck microvascular free tissue transfer reconstruction when choosing appropriate donor sites and with associated co- morbidities. However, with careful evaluation and donor site selection the overall reconstructive outcome is not, significantly, different from the general reconstructive population.

**P084 (COSM poster #207)**

**“Y-SHAPED” MODIFICATION OF A STERNOCLEIDOMASTOID MUSCLE ROTATIONAL FLAP IN THE REPAIR OF PAROTIDECTOMY DEFECTS**

- Ajay K. Chauhan, DO, Alexis M. Mandli, MS, Seanna J. Kalil, MS, Andrew J. Lerrick, MD; Rush University Medical Center, Chicago, Illinois; Alexian Brothers Medical Center, Elk Grove Village, Illinois

**Autologous tissue and allogenic grafts have been utilized to correct the surgical defect following parotidectomy. However, the reconstruction process is often characterized by technical difficulties and donor site morbidity.** **Objective:** To report on our experience with microvascular free tissue transfer to the head and neck in the obese patient, and to discuss the challenges in choosing appropriate donor sites, harvest and reconstruction. **Methods:** Retrospective chart review from September 2005 to December 2008 of all patients undergoing microvascular free tissue transfer to the head and neck with a BMI > 30. **Results:** 129 charts were reviewed of all patients undergoing free tissue transfer in our department. Sixteen patients had a preoperative BMI > 35. There were 9 males and 7 females with an average age of 63 years. We performed 7 radial forearm fasciocutaneous tissue transfers, 3 fibular osteocutaneous tissue transfers, 3 anterolateral thigh fasciocutaneous tissue transfers, 2 scapular-parascapular osteocutaneous tissue transfers, and one radial forearm osteocutaneous tissue transfer. One patient required revision of the arterial anastomosis with salvage of the free tissue, and only one patient experienced partial soft tissue loss of the free tissue transfer due to poor perfurators. Both of these patients had a BMI > 35. We review associated co-morbidities, postoperative complications as well as site morbidities in free tissue harvest and reconstruction in this patient population. **Conclusions:** The obese patient poses obvious challenges in head and neck microvascular free tissue transfer reconstruction when choosing appropriate donor sites and with associated co- morbidities. However, with careful evaluation and donor site selection the overall reconstructive outcome is not, significantly, different from the general reconstructive population.
Post-operative pain management is a crucial yet frequently neglected aspect of surgical care. We sought to evaluate the effectiveness of using implantable analgesic catheters in patients undergoing head and neck microvascular reconstruction. Our results suggest that the use of implantable analgesic catheters has been highly popularized by other surgical subspecialties however its application in head and neck microvascular reconstruction has not been adequately assessed. **Objective:** To determine the benefit of using a temporary implantable local analgesic catheter pump into the free tissue transfer and skin graft donor sites for those patients undergoing major head and neck surgical procedures. **Methods:** A prospective study of a series of patients undergoing microvascular free tissue transfer for major head and neck surgical defects who had an implantable analgesic catheter inserted into their donor site(s) compared to those who did not perform. **Results:** All patients’ pain severity was assessed using a visual analog scale as well as documenting the dose, type, and frequency of analgesics used during the immediate post-operative period. Additionally, the size and type of free tissue harvested, the size and site of the defect, ischemia time, and patients’ comorbid conditions were recorded. **Conclusion:** Our results suggest that the use of an implantable analgesic catheter into the donor site could potentially offer improved pain control in the acute post-operative setting. To our knowledge, this is the first study in the head and neck microvascular literature that addresses this critical issue.

**P085 (COSM poster #208)**

**SCAPULAR TIP FREE FLAP FOR PALATOMAXILLARY RECONSTRUCTION: A MORPHOLOGICAL COMPARISON** - Nitin A. Paqader, MD; Harley Chan, PhD; Jeffrey H. Siewersden, PhD; Ralph W. Gilbert, MD; University of Iowa; Ontario Cancer Institute; Princess Margaret Hospital

Palatomaxillary defects pose a challenge for reconstructive surgeons. Traditionally, maxillary obturators have been used to restore oral function, but speech, swallowing, and quality of life outcomes may be poor for patients with large palate defects treated with obturator prostheses. Since 2002, we have used the scapular tip free flap, based on the angular branch of the thoracodorsal artery, for selected patients. Palatomaxillary defects often involve the maxilla, much like a fan, that spans the entire post-parotidectomy defect. The donor site deficit is minimal if the posterior maxillomandibular attachment of the muscle is left intact and the skin flap is trimmed to compensate for expansion of the skin caused by the bulk of the original tumor.

**P086 (COSM poster #209)**

**UTILITY OF ANALGESIC CATHETERS FOR POST OPERATIVE PAIN MANAGEMENT IN MICROVASCULAR FREE TISSUE TRANSFER FOR HEAD AND NECK PATIENTS** - Nadia Mohyuddin, MD; Joshua Hornig, MD; Medical University of South Carolina

**Background:** Post-operative pain management is a crucial yet frequently undertreated symptom during the recovery period from major surgical procedures. The use of implantable analgesic catheters has been highly popularized by other surgical subspecialties however its application in head and neck microvascular reconstruction has not been adequately assessed. **Objective:** To determine the benefit of using a temporary implantable local analgesic catheter pump into the free tissue transfer and skin graft donor sites for those patients undergoing major head and neck surgical procedures. **Methods:** A prospective study of a series of patients undergoing microvascular free tissue transfer for major head and neck surgical defects who had an implantable analgesic catheter inserted into their donor site(s) compared to those who did not perform. **Results:** All patients’ pain severity was assessed using a visual analog scale as well as documenting the dose, type, and frequency of analgesics used during the immediate post-operative period. Additionally, the size and type of free tissue harvested, the size and site of the defect, ischemia time, and patients’ comorbid conditions were recorded. **Conclusion:** Our results suggest that the use of an implantable analgesic catheter into the donor site could potentially offer improved pain control in the acute post-operative setting. To our knowledge, this is the first study in the head and neck microvascular literature that addresses this critical issue.
Poster Papers

Tracheoesophageal puncture (TEP) is one option for voice restoration after total laryngectomy. TEP is a surgical procedure that is not commonly performed as a true puncture. We describe use of the percutaneous tracheotomy set with rigid cervical esophagoscopy as well as flexible fiberoptic esophagoscopy to place the TEP device as a true puncture. Our institution prefers secondary TEP for several reasons. It allows for delayed maturation of the stoma, avoids crusting and other healing problems. This consideration is especially relevant in view of the increasing number of total laryngectomies performed after chemoradiation. This technique, using direct visualization of the puncture, likely decreases complications with TEP. A video demonstration of the entire procedure will be viewable by accessing the University of Iowa Department of Otolaryngology Head and Neck Protocols webpage. (www.healthcare.uiowa.edu/otolaryngology/protocols/)

P089 (COSM poster #212)

ARE DRAINS NECESSARY IN PAROTID SURGERY? - Clark G. Bartlett, MD; Chris Drover, MD, S. Mark Taylor, Jonathan R. Trites, MD; Dalhousie Department of Otolaryngology and Head and Neck Surgery

Background: Gelfoam can potentially decrease drainage volume and time to drain removal in parotid surgery. However, there has not been a documented comparison using gelfoam alone versus drain insertion in superficial parotidectomies. Objectives: This study aims to develop an alternative to surgical drainage in cases of superficial parotidectomy. Materials/Methods: A treatment protocol for superficial parotidectomy was designed: twenty consecutive patients undergoing superficial parotidectomy with the gelfoam treatment between May 2004 and May 2005 were compared to twenty consecutive superficial parotidectomies using conventional treatment prior to May 2004. Postoperative measures assessed were length of hospital stay and complications such as: rates of facial nerve function, hematoma, seroma, and wound infection. A cost analysis was also performed to compare this technique versus conventional drain insertion. Results: The mean length of hospital stay for the non-drain group was 1 day. For the drain group the mean length of stay was 2.9 days. A two-sample T-test was applied and showed a statistically significant difference between the two groups (p = 0.0001 via a paired T test) in mean length of hospital stay. The non-drain group had ten complications. There were 7 cases of facial nerve weakness House Brackman grade 2 and one case of a delayed sialocele. The drain group had ten complications. There were 7 cases of facial nerve weakness House Brackman grade 2. There was also one case of House Brackman grade 3 facial weakness. The drain group also had one case of delayed sialocele and one case of wound infection. A Fisher exact test was applied to detect a statistical difference between the drainage and non-drain group for post-operative complications. It showed a statistically significant difference between the two groups with a p value of 0.0431. A cost analysis showed a total savings of 53,533 dollars between the two groups. Conclusions: In superficial parotidectomy, the use of gelfoam and postoperative application of a pressure dressing can be used as an alternative for surgical drainage. This technique is a cost effective way to decrease the length of hospital stay with no increased risk of complications.

P090 (COSM poster #213)

POLYMORPHOUS LOW GRADE ADENOCARCINOMA: THE UNIVERSITY OF PITTSBURGH EXPERIENCE - Raja R. Seethala, MD; Jonas T. Johnson, MD, Leon Barnes, MD, Eugene N. Myers, MD; University of Pittsburgh Medical Center

Background: To reappraise the clinical and histologic parameters associated with a more aggressive outcome in polymorphic low grade adenocarcinoma (PLGA), a low grade salivary gland tumor, we report our institutional experience. Methods: In 24 PLGA (1973-2005), both primary and recurrent were retrieved and assessed for various clinicopathologic parameters and correlated with patient outcome. Results: Only four PLGA were not initially diagnosed as such. However eight non-PLGA cases (thus excluded) were incorrectly diagnosed as PLGA. The majority (14/24) of tumors were palatal. Recurrent tumors had a significantly higher mitotic rate (2.7 per 10 high power fields) as compared to primary tumors (1.2 mitoses per high power fields, p = 0.046) and 3/7 recurrences showed progression to an “intermediate grade” histology. No patient died of tumor. Median disease free survival (DFS) was 12.8 years. Four of 24 patients (16.7%) had regional lymph node metastases, three with base of tongue tumors. One PLGA metastasized to the subcutaneous tissue of the face, orbit and lungs at 19.6 years. Extrapalatal site was the only significant determinant of DFS (p = 0.028), though ALI nearly attained significance (p = 0.053). Conclusions: PLGA remains diagnostically challenging. Extrapalatal tumors appear to behave in a more aggressive fashion than palatal tumors, and base of tongue tumors frequently metastasize to lymph nodes suggesting a role for neck dissection in these patients. Recurrence of histologic parameters justify an aggressive approach to achieving initial complete excision. ALI may be important, but other clinicopathologic parameters need to be further validated.

P091 (COSM poster #214)

INTERNAL JUGULAR VEIN THROMBOSIS FOLLOWING SIALOADENECTOMY - Andrew J. Lerrick, MD; Alexis M. Mandli, MS, Seanna J. Kall, MS, Gary Arlinfin, MD; Rush University Medical Center, Chicago, Illinois; Holy Family Medical Center, Des Plaines, Illinois

Chronic sialoadenitis may contribute to significant regional inflammatory soft-tissue changes. We present a case in which a 62-year-old woman with a protracted history of left submandibular sialoadenitis with sialolithiasis underwent an uneventful sialoadenectomy but developed acute left internal jugular vein thrombosis within days of undergoing surgery. The patient reported having episodes of neck swelling, pain, and purulent sialorrhrea several times a week for more than twenty years. Early during the course of her illness she had limited access to medical care. Once treated, she failed medical therapy. A pre-operative CT scan revealed an enlarged left submandibular gland without foecality, consistent with chronic infection. A ductal sialolith was identified and normal internal jugular vein perfusion was demonstrated. Excision of the submandibular gland was performed without complication. The nerve stimulator failed to activate the marginal mandibular nerve due to extensive fibrosis. The hypoglossal and lingual nerves were adherent to the gland’s capsule. All nerves were preserved. The facial artery and vein were ligated per routine. A segment of the internal jugular vein was exposed and the vein preserved. Five days after surgery she complained of increasing neck and headache pain. She was admitted for pain management. Brain and neck MRI’s revealed an internal jugular vein thrombosis. A CT scan confirmed venous occlusion. Heparin was initiated to prevent clot propagation intracranially and brachiocephally. She was discharged on warfarin for long-term dissolution. Increasing post-operative neck pain following sialoadenectomy for chronic sialoadenitis not consistent with wound infection delayed common carotid blockage, or concern for thromboembolism. Timely diagnostic radiologic studies can confirm the diagnosis, allowing for prompt institution of therapy.

P092 (COSM poster #215)

MALIGNANT SALIVARY GLAND TUMORS OF THE SINONASAL TRACT: OUTCOMES OF 88 CASES TREATED IN A SINGLE INSTITUTION - Marcus Vinicius, M. Carrara, MD, Fernando L. Dias, MD, Roberto A. Lima, MD, Lulyanav R. Toscano, Roberta C. Ferreira, MD, Marcus Vinicius, M. Camara, MD, Fernando L. Dias, MD, Marcello Roter, DO Adriano Loyola, DO, Fernando G. Botelho, MD, Terence P. Farias, MD; BNCI- Brazilian National Cancer Institute

Background: Malignant salivary gland tumors of the sinonasal tract are rare neoplasms that accounts for less than 10% of all malignancies at this site. The objective of the current study was to evaluate prognostic factors, treatment outcomes, recurrence patterns and survival rates for malignant sinonasal salivary gland tumors. Method: A retrospective chart review was performed at a referral center. Between 1998 and 2005, 88 patients were evaluated for salivary gland carcinoma of the sinonasal tract at a single institution. Demographics and clinical presentation, TNM classification, histopathological, characteristics, treatment, and outcomes were evaluated. Rates of recurrence and death were estimated by the Kaplan-Meier method. Factors with possible prognostic impact were evaluated through univariate analysis. Results: Most patients (57.5%) were males, with a median age of 55.5 years (range, 18-82 years). The mean follow-up was 46.6 months. Maxillary sinus (66.7%) and nasal cavity (16.7%) were the most common sites found. Adenoid cystic carcinoma (59.1%) and mucoepidermoid carcinoma are the most common histology.
(12.3%) were the most common histopathological types. The majority of patients presented with T3/T4 (74.6%), N0 (98%), M0 (97%) disease. Seventy-four percent of patients underwent surgery with postoperative radiotherapy for their primary disease. The 5-year overall survival and 5-year disease-free survival (DFS) rates were 72.2% and 54.3%, respectively. The local and regional recurrence rates were 30.3% and 4.7% respectively; while distant metastases were found in 18.6% of patients. Variables adversely affecting DFS were skin invasion (p=0.016) and sphenoidal bone invasion (p=0.0008). Histopathological variables affecting DFS were positive tumor margins (p=0.003) and angiolympathic spread (p=0.027). Surgery with postoperative radiotherapy provided the best overall and disease-free survival compared with other treatment modalities, such as radiotherapy and chemotherapy. (p=0.05) and (p=0.04) respectively. Conclusion: Malignant salivary gland tumors of the sinonasal tract are rare neoplasms that usually present with advanced stage disease. Poor prognostic factors that affect survival include skin invasion, positive tumor margins, sphenoid bone invasion and angiolympathic spread. The current data suggests that surgical resection plus postoperative radiotherapy provides the best overall survival in patients with malignant salivary gland carcinoma.

**P093 (COSM poster #216)**

**POLYMORPHOUS LOW-GRADE ADENOCARCINOMA: PATTERNS OF RECURRANCE** - Rupali N. Shah, MD, Mihir R. Patel, MD, William W. Shockley, MD; University of North Carolina-Chapel Hill

Objective: To review the natural history of polymorphous low-grade adenocarcinoma (PLGA), pathologic features, treatment options, and outcomes including incidence of local recurrence, regional and distant disease. Design/Settings: Retrospective review of a tertiary referral center. Patients: Seventeen patients with a pathologic diagnosis of PLGA within the last twenty years were identified. Follow-up ranged from 2 to 10 years. A retrospective chart review was undertaken to determine clinical presentation, imaging studies, treatment modalities, incidence of local recurrence, regional or distant metastases, pathologic features, outcome, and length of follow-up. One head and neck pathologist reviewed banked tissue for features of aggressive disease. Results: An asymptomatic mass was the most common presentation (9 patients) with the hard palate (11 patients) being the most common site. Two patients (12%) had neck disease at initial presentation. Pathologic review revealed no correlation between site, papillary features, perineural invasion, or vascular invasion with recurrent or metastatic disease. The majority of patients underwent wide local excision, 3 patients received postoperative radiation, 1 patient received primary radiation therapy, and 1 patient received primary neutron beam therapy. One patient received neutron beam therapy for local recurrence. Four of seventeen patients (24%) developed distant metastases within 5 years after initial treatment, and 3 patients (18%) developed distant metastasis within four years post-treatment. Main Outcomes Measured: 1. Incidence of local recurrence; 2. Incidence of regional and distant metastasis. Conclusions: Polymorphous low-grade adenocarcinoma is a minor salivary gland malignancy, which in some patients can be aggressive. Long-term follow up is important as local recurrence may occur several years later. Metastatic work-up should be undertaken in all patients, as distant metastasis and death can occur. Wide surgical excision is the mainstay of treatment, while postoperative radiation is traditionally reserved for positive surgical margins. The role and efficacy of neutron beam therapy and chemoradiotherapy is yet to be determined.

**P094 (COSM poster #217)**

**PROGNOSTIC VARIABLES AND OUTCOMES IN PEDIATRIC SINONASAL SARCOMAS** - Michael E. Kupferman, MD, Jose P. Zavallos, MD, Kunal Jain, BS, Winston Huh, MD, Alfredo A. Santillan, MD, Dianna Roberts, PhD, Ehab Y. Hanna, MD; Department of Head and Neck Surgery, University of Texas MD Anderson Cancer Center, Houston, TX (MEK, JZ, KH, AAS, EYH); Bobby R Alford Department of Otolaryngology Head and Neck Surgery, Baylor College of Medicine, Houston, TX (JPZ)

Introduction: Sarcomas of the sinonasal tract are rare, aggressive tumors that arise predominantly in the pediatric population. Despite advances using multimodality treatment, survival remains poor, particularly for advanced disease. Due to the rarity of these malignancies, standardized treatment strategies have not been developed to date. The purpose of this study is to review the experience of a single cancer center in the management of pediatric sinonasal sarcomas. Methods: The diagnosis, treatment, prognostic factors and outcomes for patients over a ten-year period are reviewed. Results: Thirty-four patients were identified. The mean age was 12 years, and 52.9% were female. The most common sinonasal symptom was nasal obstruction (29.4%), however, 41.2% of patients presented without sinonasal symptoms. The most common primary tumor sites were the maxillary sinus (38.2%), ethmoid sinuses (17.6%), and nasal cavity (14.7%). Rhabdomyosarcoma accounted for 73.6% of tumors. Thirty-eight percent of patients presented with stage IV disease; 17.6% and 9% had regional and distant metastases at presentation, respectively. The majority of patients were treated with chemoradiation (47%) or chemoradiation plus surgery (38.2%). The recurrence rate was 43%, with 32% and 11% patients having local and regional recurrence, respectively. No patients developed distant recurrence. At 10 year follow-up, the overall survival was 66.8%, the disease-specific survival was 68.1%, and the disease-free survival was 31.9%. Positive nodal status at presentation was associated with decreased overall survival (p<0.04).

Conclusions: The overall survival was 66.8% in this single institution experience, which is similar to other experiences. Multimodality treatment is the mainstay of management. The role of surgery, in addition to its role in the diagnosis of sinonasal tumors, is important. The role of surgery is further supported by the fact that it is an independent predictor of survival in this subset of patients.
patients with a primary malignant melanoma of mucosal sites in the head and neck were identified in the SEER database between 1973-2005. Pertinent patient data including age, gender, year of diagnosis, tumor subsite, tumor stage and mode of therapy were analyzed as prognostic factors for survival, which was calculated using the Kaplan-Meier method. Univariate and multivariate analyses were performed using the Cox proportional hazards model. Results: The 3- and 5-year overall survival estimates were 37.2% and 25.2%, and 3- and 5-year disease specific survival probabilities were 44.4% and 34.4%. The nasal cavity (45.8%) was the most common site affected in the head and neck, followed by the oral cavity/oral pharynx (23.4%), paranasal sinuses (21.6%), and nasopharynx (6%). The mean age at diagnosis was 68.9. Older age was associated with inferior survival (p<0.001). Subsite was also a significant predictor of survival (p<0.001), with mean survival times ranging from 27.7 months (paranasal sinuses) to 71 mo (oral cavity/oral pharynx). Advanced clinical stage (local, regional, or distant disease) was also a negative prognostic factor for survival (p<0.001). Conclusions: Mucosal melanoma of the head and neck exhibits poor overall survival. Advanced clinical stage, older age at diagnosis, and anatomic subsite are independent predictors of poor outcomes.

TREATMENT STRATEGIES AND OUTCOMES IN LOW-RISK CUTANEOUS HEAD AND NECK MELANOMA - James Jaber, James J. Jaber, MD, Chad A. Zender, MD, Joseph Clark, MD, Kamil Muzaffar, MD, Paul J. Feustel, PhD Michael Frett, BS; Loyola University Medical Center Objective: To assess the value of sentinel lymph node biopsy for low-risk, â‰¥1 mm, cutaneous head and neck melanoma (CMHN). To compare selection criteria, treatment strategy, local regional failure (LRF) and overall survival (OS) for patients that underwent wide local excision (WLE) and sentinel lymph node biopsy (SLNBx) versus those that underwent WLE alone. Design: Retrospective chart review. Patients and Methods: We reviewed the records of 45 individuals with CMHN with a Breslowâ‰¥7??. depth of â‰¥1 mm that underwent surgical intervention at our institution between 2002 and 2008. Patients were divided into two cohorts; Group I underwent WLE with SLNB (n = 37) and Group II underwent WLE alone (n = 8). We analyzed patient demographics, tumor characteristics, and patient outcomes to assess the value of SLNBx in low-risk lesions. SLNBx-associated complications were also reviewed. Results: The majority of patients in Group I (n = 21) were male (85%) and were diagnosed with superficial spreading melanoma (70%) with an average Breslowâ‰¥7??. depth of 0.70 mm (0.4-1.0 mm). SLNBx was positive in only two patients (5%). One patient had LRF (3%) despite a negative SLNBx. No patient developed distant metastasis and overall survival was 97%. One patient developed a hematomas following the SLNBx. Nine patients underwent SLNBx without postoperative facial deficits. There was an equal distribution of males and females in Group II (n = 8) with an average Breslowâ‰¥7??. depth of 0.55 mm (0.4-0.7). No patient developed LRF or distant metastasis, and OS was 100% at last follow-up. Group I consistently demonstrated several higher risk histopathologic tumor features in comparison to Group II; thickness, p = 0.015, higher mitotic rate, p = 0.007, Clark level IV, III, p < 0.05). Despite this, there was no difference in LRF, distant metastasis, and OS between the two cohorts. Conclusion: Current recommendations do not include SLNBx in patients with low-risk CMHN unless histopathologic features place them at higher risk. Despite selecting for high-risk tumor features within a low-risk CMHN population, we found no difference in LRF, distant metastasis, and OS. Consequently, the risks of SLNBx must be carefully considered in low-risk lesions given no overall difference in survival despite higher risk histological features.

TREATMENT STRATEGIES AND OUTCOMES IN LOW-RISK CUTANEOUS HEAD AND NECK MELANOMA - James Jaber, James J. Jaber, MD, Chad A. Zender, MD, Joseph Clark, MD, Kamil Muzaffar, MD, Paul J. Feustel, PhD Michael Frett, BS; Loyola University Medical Center Objective: To assess the value of sentinel lymph node biopsy for low-risk, â‰¥1 mm, cutaneous head and neck melanoma (CMHN). To compare selection criteria, treatment strategy, local regional failure (LRF) and overall survival (OS) for patients that underwent wide local excision (WLE) and sentinel lymph node biopsy (SLNBx) versus those that underwent WLE alone. Design: Retrospective chart review. Patients and Methods: We reviewed the records of 45 individuals with CMHN with a Breslowâ‰¥7??. depth of â‰¥1 mm that underwent surgical intervention at our institution between 2002 and 2008. Patients were divided into two cohorts; Group I underwent WLE with SLNB (n = 37) and Group II underwent WLE alone (n = 8). We analyzed patient demographics, tumor characteristics, and patient outcomes to assess the value of SLNBx in low-risk lesions. SLNBx-associated complications were also reviewed. Results: The majority of patients in Group I (n = 21) were male (85%) and were diagnosed with superficial spreading melanoma (70%) with an average Breslowâ‰¥7??. depth of 0.70 mm (0.4-1.0 mm). SLNBx was positive in only two patients (5%). One patient had LRF (3%) despite a negative SLNBx. No patient developed distant metastasis and overall survival was 97%. One patient developed a hematomas following the SLNBx. Nine patients underwent SLNBx without postoperative facial deficits. There was an equal distribution of males and females in Group II (n = 8) with an average Breslowâ‰¥7??. depth of 0.55 mm (0.4-0.7). No patient developed LRF or distant metastasis, and OS was 100% at last follow-up. Group I consistently demonstrated several higher risk histopathologic tumor features in comparison to Group II; thickness, p = 0.015, higher mitotic rate, p = 0.007, Clark level IV, III, p < 0.05). Despite this, there was no difference in LRF, distant metastasis, and OS between the two cohorts. Conclusion: Current recommendations do not include SLNBx in patients with low-risk CMHN unless histopathologic features place them at higher risk. Despite selecting for high-risk tumor features within a low-risk CMHN population, we found no difference in LRF, distant metastasis, and OS. Consequently, the risks of SLNBx must be carefully considered in low-risk lesions given no overall difference in survival despite higher risk histological features.
total laryngectomy after partial laryngectomy those seemed worse as compared to those of the primary laryngectomy after previous (chemo) radiotherapy (p=0.06). Complication rate was 58%: 34% minor and 24% major complications. Smoking was a significant independent predictor for postoperative major complications (p=0.01) and 84% of the patients was able to have a "normal? or "soft? diet with no significant change in BMI. All patients with partial laryngectomy could be decannulated, and 85% of the patients with total laryngectomy were able to produce speech with a voice prosthesis. Lymph node metastases were found in 25% of the neck dissections, with significantly more regional disease at higher initial T-stage (p=0.006). Regional recurrences after selective neck dissection were only observed in combination with a local recurrence. Conclusion: For operable patients laryngectomy after previous (chemo) radiotherapy offers a reasonable survival with an acceptable risk of complications and a good functional outcome. Optimal selection for conservative laryngectomy and selective neck dissection is warranted.

P101 (COSM poster #224)
TRANSPORTAL ROBOTIC SURGERY AND HUMAN PAPILLOMAVIRUS STATUS: PRELIMINARY ONCOLOGIC RESULTS - Marc A. Cohen, MD, Gregory S. Weinstein, MD, Bert W. O’Malley, Jr., MD, Michael Feldman, MD, Harry Quon, MD; Department of Otorhinolaryngology: Head and Neck Surgery, Hospital of the University of Pennsylvania
Introduction: There have been recent reports stratifying oncologic response in patients with oropharyngeal squamous cell carcinoma (OP SCC) indicating favorable oncologic outcomes following chemoradiation in human papillomavirus (HPV) positive lesions. We evaluated early patient outcomes following Transoral Robotic Surgery (TORS) to assess for oncologic differences with respect to HPV status. Methods: A retrospective review was conducted of a previously completed prospective trial evaluating outcomes of TORS for OP SCC from 2005 to 2007. Thirty-one patients have been included in analyses. Analysis included PCR based assessment of HPV status and serotype, neck disease, surgical margins, recurrence, overall survival, disease-specific survival, and disease-free survival. Mean follow up time was 22 months (3-40 months). Results: Of the 31 patients assessed for HPV, 28/31 (90%) were AJCC stage 3 or 4. Twenty-two were HPV positive (71%). Ninety-five percent of HPV positive lesions were serotype HPV-16. Neck disease was present in 75% and 74% of HPV negative and positive lesions, respectively. Final margins of resection were negative in 8/8(89%) of HPV negative lesions and 22/22 (100%) of HPV positive lesions. One HPV negative patient had neck recurrence (11%) and one HPV positive patient (5%) had local recurrence and one (5%) had distant metastases at last follow up. At 1- and 2-year time points for at risk HPV negative patients, disease-specific survival was 7/7 (100%) and 5/5 (100%) respectively. For HPV positive patients, the corresponding disease-specific survival at 1- and 2-years was 21/21 (100%) and 8/8 (89%), respectively. Within our patient population, using Kaplan-Meier analysis, there were no statistically significant differences in overall survival, disease-free survival, or disease-specific survival with respect to HPV status. Conclusion: Consistent with the literature, 71% of our patients with OP SCC were HPV positive. In contrast to prior studies investigating primary chemoradiation therapy, using TORS as the initial treatment modality, our preliminary results do not reveal a significant survival disadvantage to HPV negative serology. This preliminary data indicates that further investigation correlating HPV status and patient outcome in TORS is warranted.

P102 (COSM poster #225)
NEAR-TOTAL LARYNGECTOMY FOLLOWING FAILURE AFTER SUPRACRICOID PARTIAL LARYNGECTOMY - Andrea Gallo, PhD; Maria Suriano, MD, Massimo Cervellini, MD, Giulio Pagliuca, MD, Marco de Vincentis, PhD; Department of Otorhinolaryngology, Audiology and Phoniatry – “La Sapienza” University – Rome – Italy
Background: Severe and persistent aspiration represents an uncommon functional failure after supraccricoid partial laryngectomy (SPL). Surgical revision of the cricohoidoptyexy and/or an intensive rehabilitation program are usually advised to face this adverse outcome. The aim of this paper is to present a surgical alternative to total laryngectomy in case of otherwise intractable aspiration. Methods: Two patients previously treated with SPL for laryngeal cancer and affected by persistent aspiration underwent conversion to near-total laryngectomy (NTL) after failure of both surgical and rehabilitative attempts to reduce dysphagia. Results: Both patients had an unremarkable post-operative course and showed restoration of swallowing within the second post-operative week. Good voice quality was maintained in both patients. Conclusions: Conversion from SPL to NTL could be considered among the surgical procedures when dealing with intractable aspiration after SPL.

P103 (COSM poster #226)
SHORT HOSPITAL STAY FOLLOWING NECK DISSECTION - Jeremiah C. Tracy, Jeffrey Spiro, MD; University of Connecticut Health Center
Objective: To review the clinical characteristics of patients who had a short hospital stay (<24 hours) following neck dissection, and to assess the incidence and type of complications in this patient group. Methods: This study presents a retrospective case series performed at a University-based academic medical center. All patients who underwent neck dissection at our institution between July 2004 and June 2008 and were discharged within 24 hours post-operatively (short stay) were included. Main Outcome Measures: Characteristics of the patients (age, sex, co-morbidities, and cancer site/type) and of the procedures performed (levels dissected, structures sacrificed, and concurrent procedures) were reviewed. In addition, medical records were examined for any re-admission within 30 days post-operatively. In the event of a re-admission, additional characteristics including re-admission diagnosis and length of stay were reviewed. Results: Review of a prospectively maintained surgical database identified 125 consecutive neck dissections performed at our institution between 7/1/2004 and 6/30/2008. Of these 125 procedures, 71 patients had a post-operative stay of less than 24 hours. These 71 patients had a mean age of 60, and 23 (32%) were female. The most common co-morbidities observed were hypertension and hyperlipidaemia at 30 (42%) and 12 (17%) respectively. In addition, some patients in our short-stay group had more severe co-morbidities such as coronary artery disease (7%) and chronic obstructive pulmonary disease (6%). Neck dissection alone was performed in 22 of the 71 short stay cases (31%). The most commonly performed concurrent procedures included oral cavity or oropharyngeal resections (21 patients) and parotidectomy (13 patients). Modified radical neck dissection was performed in 22 of the 71 cases (31%); the remaining procedures were selective neck dissections. Cranial nerve XI, internal jugular vein, and sternocleidomastoid muscle were all preserved in 57 cases (81%). Of the 71 patients discharged within 24 hours following neck dissection, only 2 (3%) required re-admission for a surgical complication (wound infection) within 30 days of their procedure. Conclusions: In selected patients, discharge within 24 hours following neck dissection appears to be safe and appropriate. Given the potential for significant cost savings, short stay should be studied further in this patient population.

P104 (COSM poster #227)
MORBIDITY AND MORTALITY RELATED TO POST-THYROIDECTOMY HYPOCALCEMIA - David A. Zopf, MS, Matthew A. Hilburn, MD, Edward C. Weisberger, MD; Indiana University School of Medicine
Objective: Post-operative hypocalcemia is a known risk of total thyroidectomy patients. An assessment of the impact of the electrolyte imbalance was performed. Study Design: A retrospective case review was performed of 167 patients who underwent total thyroidectomy with or without concomitant procedures between 2000 and 2008. Patients were identified using pertinent CPT codes. Two thresholds were utilized to evaluate biochemical hypocalcemia: (1) total serum calcium levels less than 7.0 mg/dl or ionic calcium levels less than 1.0 mmol/l, (2) total serum calcium greater than or equal to 7.0 mg/dl but less than 8.4 mg/dl. Results: Of the 167 patients, 25% of patients (n=42) had total serum calcium levels less than 7.0 mg/dl or ionic calcium levels less than 1.0 mmol/l in the perioperative period. Of these, 10 patients (24%), developed clinical symptoms related to hypocalcemia. 17 of the 97 patients (18%) with total serum calcium greater than or equal to 7.0 mg/dl but less than 8.4 mg/dl developed clinical symptoms of hypocalcemia. The most common symptoms were generalized and extremity tingling, perioral paresthesia, and muscle cramping. Three cases of prolonged QT on EKG were documented during hypocalcemia. No tetany, bronchospasms, laryngeal stridor, mental status changes, or
cardiac arrhythmia were noted related to hypocalcemia. Conclusion: Post-operative hypocalcemia is a known risk in total thyroidectomy patients. None of the patients experienced medically serious morbidity or mortality related to hypocalcemia. This might impact the design of post-thyroidectomy protocols for monitoring and managing hypocalcemia. A suggested protocol for calcium monitoring is offered.

P105 (COSM poster #228)
LEVEL VI LYMPHADENECTOMY – THE POTENTIAL RISK FACTOR OF INADVENTENT PARATHYROIDECTOMY DURING THYROID CANCER SURGERY - Yu Wang, MD, Qinghai Ji, MD; Department of Head & Neck Surgery, Cancer Hospital, Fudan University, Department of Oncology, Shanghai Medical College, Fudan University, Shanghai, China

Background and Objective: Inadvertent removal of parathyroid glands is a recognised complication of thyroidectomy, especially in malignant cases. And, this may have consequences on the longterm regulation of calcium homeostasis post-operatively. The aim of this study was to evaluate the risk of inadvertent parathyroidectomy (IPE) during thyroid cancer surgery. Method: This was a retrospective study of 418 surgical patients who had undergone unilateral thyroid surgery for malignant thyroid diseases from 2004-2007. Clinical and Pathological data were collected. The following criteria were used to study the predictive value of IPE: gender, the histological type of thyroid carcinoma, level VI lymphadenectomy (LNDVI), extrathyroidal extension of carcinoma, max diameter of tumor, and the presence of thyroiditis in the thyroid. The risk factors were compared between IPE and no IPE groups. Results: No permanent hypocalcaemia had been observed after surgery in all 418 cases, including 94 (22.5%) cases with IPE. In malignant cases, LNDVI is the only risk factor for IPE with a relative risk of 1.9. There was no statistically significant difference between the IPE and no IPE groups regarding gender, the histological type of thyroid carcinoma, extrathyroidal extension of carcinoma, max diameter of tumor, or the presence of thyroiditis in the thyroid. Conclusion: LNDVI is a strong risk factor for IPE in malignant cases of primary unilateral thyroid surgery. The indication of LNDVI should be handled rigorously.

P106 (COSM poster #229)
LEVEL SIX NECK DISSECTION FOR THYROID CANCER – IS ITS MORBIDITY JUSTIFIED? - Anurag Jain, Hisham M. Mehanna; Institute of Head & Neck Studies & Education, University Hospital, Coventry, United Kingdom

Objectives: To compare the morbidity (post-operative hypocalcaemia and vocal cord palsy) resulting from level 6 neck dissection when combined with total thyroidectomy for thyroid carcinoma with morbidity from total thyroidectomy alone. Methods: Analysis of 113 consecutive total thyroidectomy operations performed by the same surgeon was done to compare the incidence of post-operative hypocalcaemia and vocal cord palsy in patients undergoing total thyroidectomy with and without level 6 neck dissection. Results: 30/113 (26.5%) patients had total thyroidectomy with level six neck dissection for thyroid carcinoma and 83/113 (73.5%) had total thyroidectomy only for other indications - mainly thyrotoxicosis or multinodular goitre (MNG). Vocal cord palsy rate was 1/30 (3.3%) in patients receiving level six neck dissection and 0/83 (0.0%) in patients without. Temporary hypocalcaemia requiring treatment was 30% in thyroid carcinoma cases undergoing level 6 neck dissection and 20.5% in cases without level 6 neck dissection (Z test = 0.862, p = 0.39). Permanent hypocalcaemia was significantly higher (13.3%) for cases with level 6 neck dissection and 3.6% for other indications who had no level 6 dissection (Z test = 1.618, p = 0.05). Conclusion: Level six neck dissection for thyroid cancer results in significantly higher morbidity in the form of temporary and especially permanent hypocalcaemia, as well as vocal cord palsy, than total thyroidectomy alone. Its risk/benefit ratio should be considered carefully before incorporating it in a patient's management plan.

P107 (COSM poster #230)
TOTAL THYROIDECTOMY IN EARLY/SMALL WELLDIFFERENTIATED CANCER: IS IT A SAFE AND EFFICIENT APPROACH? - Antonio E. Alfeno, MD, Joelle D. Zyzanski, MD; Long Island College Hospital

Background: The extent of surgical resection for differentiated thyroid carcinoma remains controversial and debated. The basis for advocating conservative surgery is to diminish the incidence of permanent hypocalcaemia and recurrent laryngeal nerve injury. On the other hand, others have effectively demonstrated not only decreased local recurrence but even increased overall survival with total thyroidectomies applied to patients with small well-differentiated thyroid cancers. Methods: Clinical records of 344 surgically treated thyroid cancers by surgical residents in an academic training program supervised by a single surgeon over 25 years with a mean follow up of 8 years were reviewed. All operative complications were analyzed. After the exclusion of those with regional nodal metastasis, palpable contralateral nodules and anaplastic cellular features, a subset of 240 cases with well differentiated thyroid cancers who had undergone total thyroidectomies were subjected to further analysis. The patients were stratified by age (<45 years and > 45 years), tumor size (<1cm, 1cm to 2cm, 2cm to 4cm, and >4cm), and presence or absence of contralateral non-palpable malignancy. Contralateral malignancy was detected by the demonstration of visible nodules only after gross serial sectioning and then subjected to histologic confirmation and not through routine subserial histologic examinations. Results: Contralateral histologic malignancy was demonstrated in 30/240 (12.5%) cases. There was no recurrent laryngeal nerve injury. Conclusions: Although the prognostic significance of histologic multicentricity is still debated, its presence was definitely significant even in the group with early and small well-differentiated cancers especially in those over 45 years. Total thyroidectomy can be performed safely and can be advantageously offered to all patients with well differentiated thyroid cancers over 1cm in size.
P109 (COSM poster #232)

PREDICTING POST-THYROIDECTOMY HYPOCALCEMIA: RACIAL DIFFERENCES IN PRE-SURGICAL LEVELS OF VITAMIN D - Helen Perakis, MD, Melanie W. Seybt, MD, Tee Todd, BS, Blake Troiani, BS, David J. Terris, MD; Medical College of Georgia

Background: Hypocalcemia is the most common complication following thyroid surgery. As ambulatory thyroid surgery becomes more common, determining factors associated with an increased risk for hypocalcemia is of interest.

Study Design: Prospective clinical analysis performed at a tertiary academic center.

Methods: 185 patients who underwent thyroid surgery from 11/2007 to 12/2008 had parathormone (PTH), serum 25-hydroxyvitamin D (25-OH), ionized calcium (iCa) and total calcium (tCa) levels drawn during their pre-operative visit. Demographic data, laboratory values, and postoperative outcomes including postoperative hypocalcemia were assessed. Pearson correlation tests were used to explore for factors predictive of risk for development of hypocalcemia.

Results: Transient post-operative hypocalcemia occurred in 3.8% of patients. Of those patients, 42.9% were managed on an outpatient basis. African-American (AA) patients were found to have lower 25-OH levels in comparison to non-AA patients (p = 0.0029). Lower total calcium levels were seen with increase in age (p = 0.0005). Pre-operative laboratory values were not predictive of post-operative hypocalcemia, however hypocalcemia did correlate with younger age (p = 0.0020). Conclusion: AA patients have significantly lower Vitamin D levels than non-AA patients. Pre-operative 25-OH levels, PTH levels, iCa levels, and tCa levels do not appear predictive of postoperative hypocalcemia, perhaps reflective of the efficacy of prophylactic calcium supplementation.

P111 (COSM poster #233)

EXAMINING COMPLEMENTARY AND ALTERNATIVE MEDICINE USE IN THE THYROID PATIENT POPULATION OF A HEAD AND NECK PRACTICE - Maria K. Brake, MD, Tarren Vyas, MD, Robert D. Hart, FRCS, MD, Jonathan R. Trites, FRCS, MD, S. Mark Taylor, FRCS, MD; Division of Otolaryngology, Department of Surgery, Dalhousie University, Halifax, NS, Canada

Background: Complementary and alternative medicine (CAM) use has become more widespread, particularly among the younger patient population. Health care providers are starting to incorporate CAM into routine patient assessments, but CAM use is likely often overlooked.

Objective: To investigate the prevalence of CAM use among thyroid patients presenting to a Head and Neck Oncology clinic. Subsequently, to determine whether the common therapies used were likely to interfere with the planned patient’s care, and whether the predominance was significant to warrant inclusion in routine history assessments.

Methods: A survey regarding CAM use was completed by 75 thyroid patients upon their initial presentation to a Head and Neck Oncology practice. The mean age of the cohort was 41 years. Pre-operative 25-OHD levels, PTH levels, iCa levels, and tCa levels were not predictive of post-operative hypocalcemia, however hypocalcemia did correlate with younger age (p = 0.0020). Conclusion: AA patients have significantly lower Vitamin D levels than non-AA patients. Pre-operative 25-OH levels, PTH levels, iCa levels, and tCa levels do not appear predictive of postoperative hypocalcemia, perhaps reflective of the efficacy of prophylactic calcium supplementation.

P110 (COSM poster #234)

MINIMALLY INVASIVE VIDEO-ASSISTED THYROIDECTOMY AND PARATHYROIDECTOMY WITH INTRA-OPERATIVE RECURRENT NERVE MONITORING - Shafik N. Wassef, Haytham Alalabass, Paul Friedlander, MD, Emad Kandil, MD; Department of General Surgery, Endocrine Surgery, Tulane Medical School, New Orleans, LA

Objective: To study the feasibility of using intraoperative neuromonitoring (IONM) in minimally invasive video-assisted thyroidectomy and parathyroidectomy (MIVAT/P) with emphasis given to the identification of recurrent laryngeal nerve (RLN). Methods: Consecutive series of forty seven patients with seventy seven recurrent laryngeal nerves at risk undergoing both MIVAT/P and IONM were enrolled in this retrospective, nonrandomized analysis study. All operations were performed by the same surgeon within an Academic institution setting. Main Outcome Measures: Incidence of temporary or permanent laryngeal nerve injury. Demographics, pathological characteristics, thyroid size, operative time, intra operative and postoperative complications following surgery were collected. Results: Out of the total of seventy seven RLNs, there was 1 permanent unilateral RLN injury (1.29%) in a patient with advance papillary thyroid cancer, managed by cord injection. There was another transient RLN paresis that resolved spontaneously (1.29%). There were no instances of equipment malfunction or interference. Conclusions: This is the first reported MIVAT/P series from the United States of America with a standardized IONM technique. The technical feasibility of IONM seems acceptable and may serve as a meaningful adjunct to the visual identification of nerves. Neuromonitoring during MIVAT/P is effective in providing identification of laryngeal nerves and enables surgeons to feel more comfortable with MIVAT/P. Comparative series are needed for further evaluation.

P112 (COSM poster #235)

VALIDATION OF PROGNOSTIC SCORES SYSTEMS FOR WELL-DIFFERENTIATED THYROID CARCINOMA IN BRAZIL - Leonardo G. Secco, MD, Steia V. Peres, MSc, Gustavo A. Fernandez, MD, Carlos R. Santos, MD, Luiz P. Kowalski, PhD, Andre L. Carvalho, PhD; Barretos Cancer Hospital, Graduate Program on Oncology FMUSP, A.C.Camargo Hospital; Brazil

Background: In the last 30 years, there has been an increase number of studies about risk factors in well-differentiated thyroid carcinoma. The main reason for this was to better select patients for treatment approach according to their risk groups. Most of these studies were developed in another ethnic group with different incidence of endemic goiter compared to the Brazilian population.

Objective: The aim of this study was to validate the prognostic score systems already published (EORTC, AGES, AMES, Clinical Class, OSU, Noguchi, Munster, UAB & MDA, Murcia, TNM, CIH, GAMES and MACIS) in our population of well-differentiated thyroid carcinoma, looking for those with better fit.

Method: This is a retrospective study including surgical patients treated in two oncologic institutions in Brazil (A.C.Camargo Cancer Hospital and Barretos Cancer Hospital), from 1980 to 2000. We included 554 patients in this study. The data was analyzed with the statistical package SPSS for Windows version 15.0. Results: We analyzed the overall survival and the cancer-specific survival for this patients. In order to compare the prognostic models we used the Cox analysis and the proportion of variation explained (PVE). Regarding overall survival models, according to the PVE we observed that EORTC (29.2%), OSU (21.4%) and TNM (18.7%) were the best systems to describe our population outcome. Specifically for papillary carcinoma; MACIS (39.1%), UAB&MDA (36.6%) and Clinical Class (21.3%) models had the best ranking at the PVE analysis. Afterwards, we did the same analysis for the cancer-specific survival and OSU (20.8%) and EORTC (20.8%) were the best for well-differentiated carcinoma and UAB&MDA (34.5%), MACIS (31.9%) and Clinical Class (17.8%) fitted better for the papillary carcinoma population in this specific setting. As previously stated, there may be pitfalls in applying the results of published studies to another population. This lead us to study the best prognostic model for our population. The use of PVE method allowed us to include these statistical models in the same analysis finding which one would better describe our population outcome. Conclusion: The EORTC and MACIS score systems were the best models to predict outcome in the well-differentiated thyroid carcinoma and for papillary carcinoma settings, respectively in our population.

P113 (COSM poster #236)

FEASIBILITY AND SURGICAL APPROACH OF TRANSAXILLARY ROBOTIC THYROIDECTOMY - Carol M. Lewis, MD, Woon Y. Chung, MD, F. Christopher Holsinger, MD; Dept of Head and Neck Surgery, MD Anderson Cancer Center, Houston, TX; Dept of Surgery, Yonsei University Severance Hospital, Seoul, Korea

Background: Over the past 15 years, minimally invasive head and neck surgery (MIHNS) has moved from the margin to the mainstream of head and neck oncology. With significant advances in transoral laser microsurgery and robotics, MIHNS now plays an important role in managing primary tumors of the upper aerodigestive tract. However, despite numerous published reports, minimally invasive approaches to the thyroid and neck are still not widely considered as standard of care. We evaluated an approach to the central compartment and neck surgery from 11/2007 to 12/2008 had parathormone (PTH), serum 25-hydroxyvitamin D (25-OH), ionized calcium (iCa) and total calcium (tCa) levels drawn during their pre-operative visit. Demographic data, laboratory values, and postoperative outcomes including postoperative hypocalcemia were assessed. Pearson correlation tests were used to explore for factors predictive of risk for development of hypocalcemia.

Results: Transient post-operative hypocalcemia occurred in 3.8% of patients. Of those patients, 42.9% were managed on an outpatient basis. African-American (AA) patients were found to have lower 25-OH levels in comparison to non-AA patients (p = 0.0029). Lower total calcium levels were seen with increase in age (p = 0.0005). Pre-operative laboratory values were not predictive of post-operative hypocalcemia, however hypocalcemia did correlate with younger age (p = 0.0020). Conclusion: AA patients have significantly lower Vitamin D levels than non-AA patients. Pre-operative 25-OH levels, PTH levels, iCa levels, and tCa levels do not appear predictive of postoperative hypocalcemia, perhaps reflective of the efficacy of prophylactic calcium supplementation.

Objective: To investigate the prevalence of CAM use among thyroid patients presenting to a Head and Neck Oncology clinic. Subsequently, to determine whether the common therapies used were likely to interfere with the planned patient’s care, and whether the predominance was significant to warrant inclusion in routine history assessments.

Methods: A survey regarding CAM use was completed by 75 thyroid patients upon their initial presentation to a Head and Neck Oncology practice. The mean age of the cohort was 41 years. Pre-operative 25-OHD levels, PTH levels, iCa levels, and tCa levels were not predictive of post-operative hypocalcemia, however hypocalcemia did correlate with younger age (p = 0.0020). Conclusion: AA patients have significantly lower Vitamin D levels than non-AA patients. Pre-operative 25-OH levels, PTH levels, iCa levels, and tCa levels do not appear predictive of postoperative hypocalcemia, perhaps reflective of the efficacy of prophylactic calcium supplementation.

P110 (COSM poster #234)

MINIMALLY INVASIVE VIDEO-ASSISTED THYROIDECTOMY AND PARATHYROIDECTOMY WITH INTRA-OPERATIVE RECURRENT NERVE MONITORING - Shafik N. Wassef, Haytham Alalabass, Paul Friedlander, MD, Emad Kandil, MD; Department of General Surgery, Endocrine Surgery, Tulane Medical School, New Orleans, LA

Objective: To study the feasibility of using intraoperative neuromonitoring (IONM) in minimally invasive video-assisted thyroidectomy and parathyroidectomy (MIVAT/P) with emphasis given to the identification of recurrent laryngeal nerve (RLN). Methods: Consecutive series of forty seven patients with seventy seven recurrent laryngeal nerves at risk undergoing both MIVAT/P and IONM were enrolled in this retrospective, nonrandomized analysis study. All operations were performed by the same surgeon within an Academic institution setting. Main Outcome Measures: Incidence of temporary or permanent laryngeal nerve injury. Demographics, pathological
using a trans-axillary incision and use of the DaVinci surgical robotic system, with exposure maintained by fixed retractor system without gas insufflation. Our objective is to present the anatomic basis for trans-axillary robotic thyroidectomy and thus to determine the feasibility of this approach for prospective study trial. Methods: Anatomic laboratory dissections were performed on human cadavers, with photo- and video-documentation. Using the da Vinci Surgical Robot (Intuitive Surgical, Inc., Sunnyvale, CA), we performed five cadaveric dissections, using the transaxillary approach as described by Chung et al. The cadaver is positioned with the head slightly extended and the ipsilateral arm rotated 180 degrees and then carefully protected. This position rotates the clavicle, lowering its medial aspect and providing excellent access to the central compartment. A 5-cm incision in the axillary fold is made and a plane is developed above the pectoralis major muscle until the medial attachments of the sternocleidomastoid muscle is found. Dissection proceeds underneath the SCM and the sternohyoid and sternothyroid muscles are retracted. After flaps are suspended, the curved Harmonic Scalpel shears are used to perform ipsilateral thyroid lobectomy with the robotic surgical system under magnification.

Results: The da Vinci Surgical Robotic System provided excellent visualization of the recurrent laryngeal nerve, superior laryngeal nerve, as well as parathyroid glands and paratracheal lymphatics. There was no injury to the great vessels using this lateral approach. Over the five experimental sessions, operative time diminished from >90 to just under 30 minutes. Conclusions: We demonstrated the feasibility and ease of this approach with proper instrumentation and understanding of the surgical anatomy. Since transaxillary robotic thyroidectomy is not yet a widespread practice, there are currently no standardized criteria to identify patients who would most benefit from this procedure. Thus, based on this preclinical laboratory study as well as promising clinical results from Korea, we advocate for further development of robotic-assisted minimally invasive surgery of the thyroid and neck. But, first, this approach should be judiciously studied, with rigorous criteria, in the setting of a prospective clinical trial.

**P114 (COSM poster #237)**

**THE USE OF THE HARMONIC-FOCUS HEMOSTAT VERSUS CONVENTIONAL APPROACH IN THYROID SURGERY** - Haytham H. Alabbes, MD; Emad Kandil, MD; Tarik Farrag, MD; Ralph P. Tufano, MD; Tulane University Medical Center, New Orleans, LA; Johns Hopkins School of Medicine, Baltimore, MD

**Background:** New hemostatic technologies are often employed in thyroid surgery in the effort to reduce operating time and complications. The aim of this study was to compare the effect of the new Harmonic-Focus hemostat dissection technique without supplementary vessel ligation to conventional surgical thyroid resections. We hypothesized that the use of the Harmonic Focus dissector could lead to faster and comparable outcome compared to conventional thyroid cancer surgery techniques.

**Methods:** This is a nonrandomized, prospective analysis of a series of 153 consecutive patients undergoing thyroid resections by two surgeons. Demographics, pathological characteristics, thyroid size including nodule size and behavior, operative time, intraoperative and postoperative complications were collected. **Results:** 78 patients out of 153 patients underwent surgery with the Harmonic Focus Dissector “no tie” technique. The 2 groups were similar regarding age, sex, thyroid size and primary tumor size. Mean ± SD operative time (minutes) was shorter in the harmonic focus dissector group compared with the conventional technique group (183 ± 77 vs. 211 ± 88, p=0.07). There was no difference in temporary or permanent recurrent laryngeal nerve palsy, hypoparathyroidism, post-operative hematoma and intraoperative blood losses (p=0.24).

**Conclusions:** The use of the Harmonic Focus dissector without supplementary vessel ligation is safe, and significantly reduced the operative time compared to the use of the conventional hemostatic techniques.
P117 (COSM poster #240)
CAN PREOPERATIVE ULTRASONOGRAPHY HELP DETERMINE WHETHER UNILATERAL VS. BILATERAL PARATRACHEAL NODAL DISSECTION IS NECESSARY FOR RECURRENT/PERSISTENT PAPILLARY THYROID CANCER? - Tarik Y. Farrag, MD, Ralph P. Tufano, MD; Johns Hopkins School of Medicine, Department of Otolaryngology-Head & Neck Surgery

Objective: To determine whether pre-operative high resolution ultrasonography can be used to determine the likelihood of unilateral vs. bilateral paratracheal nodal disease for recurrent/persistent papillary thyroid cancer (PTC) when at least one side harbors FNA confirmed disease. Study Design: Retrospective chart review. Methods: We reviewed the charts of 52 patients with recurrent/persistent PTC after bilateral thyroidecctomy and radioactive iodine ablation who underwent reoperative thyroid bed surgery from July 2000 - March 2008 for at least unilateral paratracheal FNA-confirmed disease. All patients underwent preoperative high resolution ultrasonography of the neck including the thyroid bed as well as histopathologic analysis of the paratracheal nodal dissection specimen. Results: A total of 52 patients underwent at least unilateral paratracheal nodal dissection for recurrent/persistent PTC in the central compartment. All patients had PTC as the primary tumor (2 patients had follicular variant, and 2 patients had tall cell variant). Initially, 18 consecutive patients underwent bilateral para-tracheal nodal dissection. 11/18 of these patients had unilateral suspicion of disease based on preoperative ultrasound with FNA and final pathology confirmation of unilateral paratracheal nodal PTC only. 7/18 had bilateral suspicion of disease based on preoperative ultrasound, but only 4/7 of them had bilateral FNA and final pathology confirmation; while 3/7 had this confirmation only unilaterally (Sensitivity=100%; Specificity=79%; PPV=88%; NPV=100%). 34 patients have since undergone unilateral para-tracheal LN dissection alone based on preoperative ultrasonography and FNA confirmed disease in the paratracheal region in the absence of suspicion for bilateral disease. All 34 patients had evidence of PTC in the paratracheal nodal dissection specimen. 26 of these 34 patients have since had ultrasonography performed at least 6 months after their reoperative surgery, which did not show any suspicion of disease recurrence or persistence in the central compartment. Conclusion: Preoperative high resolution ultrasonography is a reliable modality to help to determine whether reoperative thyroid bed surgery for PTC should consist of a unilateral vs. bilateral paratracheal nodal dissection. This may help to reduce unnecessary exploration and the morbidity that is inherently higher with reoperative thyroid bed surgery.

P118 (COSM poster #241)
MANAGEMENT CONSIDERATIONS FOR THE RLN IN PATIENTS WITH RECURRENT/PERSISTENT THYROID CANCER UNDERGOING RE-OPERATIVE CENTRAL NECK SURGERY - Tarik Y. Farrag, MD, Ralph P. Tufano, MD; Johns Hopkins School of Medicine, Department of Otolaryngology-Head & Neck Surgery

Objective: To determine how recurrent/persistent thyroid cancer in the central neck affects the intra-operative management of the recurrent laryngeal nerve (RLN). Study Design: Retrospective chart review. Methods: We reviewed the charts of 60 consecutive patients from July 2001 - December 2008 with thyroid cancer who underwent reoperative central neck surgery for FNA confirmed recurrent/persistent disease. All patients underwent preoperative documentation of their vocal fold function. All patients underwent preoperative high resolution ultrasonography of the neck as well as histopathologic analysis of the central neck dissection specimen. Patients were divided into 2 main groups according to the site of the tumor recurrence/persistence in the central neck: (1) Disease found in the thyroid remnant/soft tissue +/- central neck lymph nodes; (2) Disease found in the central neck lymph nodes only. Results: A total of 60 consecutive patients were involved in the study. All patients underwent preoperative fiber-optic laryngoscopy for evaluation of vocal fold (VF) mobility. Only those patients who underwent reoperative central neck on the side of a working vocal fold were included in the study. 45/60 patients had their tumor recurrence/persistence in the central neck lymph nodes only; and 15/60 patients had their tumor recurrence/persistence in the thyroid remnant +/- central neck lymph nodes. A total of 7 patients had their RLN sacrificed intra-operatively due to tumor involvement. 6 of these patients requiring RLN sacrifice had tumor present at the thyroid remnant approximating the RLN. Conclusion: Patients undergoing reoperative central neck dissection for recurrent/persistent thyroid cancer are more likely to require RLN sacrifice to obtain clearance of disease when the tumor recurs/persists in the thyroid remnant as opposed to lymph nodes alone even when there is no evidence of preoperative vocal fold motion impairment.

P119 (COSM poster #242)
DOES PARATHYROIDECTOMY FOR TERTIARY HYPERPARATHYROIDISM, IN KIDNEY TRANSPLANT RECIPIENTS, DETRIMENTAL RENAL GRAFT SURVIVAL? - Emad Kandil, MD, Haytham Alabbas, MD, Jennifer McGee, MD, Salem Noureldine Nizar S. Hariri Tareq Islam, MD, Sander S. Florman, MD, Douglas P. Slakey, MD; Tulane University Medical Center, New Orleans, LA

Background: Tertiary hyperparathyroidism (THPT) usually regresses within the first months after renal transplantation. Subsequently, Persistent hyperparathyroidism after successful renal transplantation rarely require parathyroidectomy. Consequently, very few studies have been published regarding the impact of parathyroidectomy for persistent disease on the renal graft survival. Some claimed that parathyroidectomy will deteriorate renal graft survival. We examined the effect of parathyroidectomy for persistent disease after successful kidney transplantation on the glomerular filtration rate (GFR) and graft survival. To test this hypothesis, we performed this retrospective case-controlled study. Methods: Various demographic, clinical and biochemical data were collected on a total of 794 consecutive kidney allograft recipients at our center. The patients with at least 3 year of follow-up were included. Patients who underwent parathyroidectomy were identified. Results: 49 among the 794 renal transplant recipients, presented with THPT. 19 out of 49 patients developed persistent hyperparathyroidism and eventually underwent parathyroidectomy. Patients with THPT and non-THPT had similar 3 year renal graft survival (88% versus 84%, P=0.51). Parathyroidectomy for persistent disease worsened GFR at 3 years (P=0.04) (Figure1), however, there was no statistical deterioration for the graft survival (71% versus 88%, P=0.06).

Conclusion: Parathyroidectomy in renal transplant recipients appears to be safe and protective against persistent and recurrent disease. Parathyroidectomy gradually worsened GFR but didn’t influence overall graft survival. These highly significant findings, however, warrant further investigation.
Certificate of Incorporation

Certificate of Incorporation of

The American Head and Neck Society, Inc.

Under Section 803 of the Not-for-Profit Corporation Law

1. The name of the Corporation is THE AMERICAN HEAD AND NECK SOCIETY, INC.

2. This Corporation has not been formed for pecuniary profit or financial gain, and shall not be conducted or operated for profit, and no part of the assets, income or net earnings of the Corporation is distributable or shall inure to the benefit of the directors, officers, or other private persons, except to the extent permitted under the Not-for-Profit Corporation Law. Upon the dissolution of this Corporation, no director, officer, or other private person shall be entitled to any distribution or division of its remaining property or its proceeds, and the balance of all money and property of the Corporation shall pass to, or shall inure to the benefit of, those organizations described in Section 201 of the Not-for-Profit Corporation Law and Section 501(c)(3) of the Internal Revenue Code of 1986, which are not private foundations described in Section 509(a) of such Code. Any such assets not so disposed of shall be disposed of by the Supreme Court of the State of New York for the County in which the principal office of the Corporation is then located, as provided by law, exclusively for such purposes or to such organization or organizations as said Court shall determine, which are organized and operated for the purposes set forth in Paragraph “3” below.

3. The purposes for which the Corporation is formed and the powers which may be exercised by the Corporation, in addition to the general powers set forth in Section 202 of the Not-for-Profit Corporation Law of the State of New York, are:
   (a) to advance knowledge relevant to medical and surgical control of neoplasms of the head and neck;
   (b) to solicit, obtain, apply for, and spend funds in furtherance of any activities or purposes of the Corporation;
   (c) in general, to do any and all acts or things and to exercise any and all powers which may now or hereafter be lawful for the Corporation to do or exercise under and pursuant to the laws of the State of New York for the purpose of accomplishing any other purpose of the Corporation as set forth herein;
   (d) to engage in any and all lawful activities incidental to any of the foregoing purposes of the Corporation.

4. The Corporation is organized exclusively to achieve public objectives, including for such purposes, the making of distributions to organizations that qualify as exempt organizations described in Section 115 or Section 501(c)(3) of the Internal Revenue Code of 1986, provided that such organizations are not private foundations described in Section 509(a) of such Code. The Corporation shall not carry on any other activities not permitted to be carried out by a corporation exempt from federal income tax under Section 501(c)(3) of such Code or by a corporation contributions to which are deductible under Section 170(c)(2) of such Code (or the corresponding provisions of any future United States Internal Revenue Law).

5. Nothing contained herein shall authorize this corporation to undertake or to carry out any of the activities specified in paragraphs (b) through (u) of Section 404 of the Not-for-Profit Corporation Law, or to establish, maintain or operate a hospital or to provide hospital service or health-related service, a certified home health agency, a hospice, a health maintenance organization, or a comprehensive health services plan, as provided for by Article 28, 36, 40 and 44, respectively, of the Public Health Law or to solicit, collect or otherwise raise or obtain any funds, contributions or grants from any source, for the establishment, maintenance or operation of any hospital or to engage in the practice of medicine or any other profession required to be licensed by Title VIII of the Education Law.

6. No substantial part of the activities of this Corporation shall consist of carrying on propaganda or otherwise attempting to influence legislation, and the Corporation shall not participate in, or intervene in (including the publication or distribution of statements), any political campaign on behalf of any candidate for public office.

7. The Corporation is a corporation as defined in subparagraph (a)(5) of Section 102 of the Not-for-Profit Corporation Law, and it is a Type B Corporation.

8. The principal office of the Corporation is to be located in the City of Syracuse, County of Onondaga and State of New York.

9. The territory in which the Corporation’s activities are principally to be located is the territorial limits of the United States of America, the Domain of Canada and the Pan-American countries.

10. The number and manner of election or appointment of the directors constituting the Board of Directors shall be as provided in the Bylaws, except that the number of said Board members shall not be less than three (3). Members of the Board of Directors need not be residents of the State of New York. The names and addresses of the Directors of the Corporation who shall act until the first meeting of the Board of Directors, all of whom are over the age of eighteen (18) and are citizens of the United States, are:

   [Names and Addresses]
   [Names and Addresses omitted.]

11. Management of the business and affairs of the Corporation is vested in the Board of Directors which shall use its best efforts to carry out in good faith the purposes of the Corporation.

12. To further the Corporation’s objectives and purposes, the Corporation shall have and may exercise all of the powers conferred by the New York Not-for-Profit Corporation Law in pursuit of the purposes expressed in Paragraph THREE hereof. Without limiting the generality of the foregoing, the Corporation shall have power to sue and be sued, to
The Corporation is to have members.

American Head and Neck Society 2009 Annual Meeting

Surgeons must be a member of the American College of
member boards of the American Board of Medical Specialties.
Active Fellowship shall be a Diplomate of a particular specialty
Qualifications for Active Fellowship.
An applicant for
Section 3.
section 3.
neck.
the prevention of neoplasms and other diseases of the head and
the advancement of research in neoplasms and other diseases of the head
It is the objective of this Society to promote and
Section 2.
the head and neck and the prevention of neoplasms and other
diseases of the head and neck.
rehabilitation of patients with neoplasms and other diseases of the
head and neck.
and to do any and all things incident to the carrying out of
the objectives and purposes as stated and as limited herein.
The Corporation shall have full powers or management,
investment and reinvestment and the collection of all rents,
revenues, issues and profits arising therefrom.
13. The Corporation is to have members.

Constitution

Article I
Section 1. The name of the Corporation shall be The American
Head and Neck Society, Inc.

Article II
Section 1. The purpose of this Society is to promote
and advance the knowledge of diagnosis, treatment and
rehabilitation of patients with neoplasms and other diseases of the
head and neck and the prevention of neoplasms and other
diseases of the head and neck.
Section 2. It is the objective of this Society to promote and
advance research in neoplasms and other diseases of the head
and neck.
Section 3. It is the objective of this Society to promote the
highest professional and ethical standards.

Article III
Section 1. Members of this Society shall be designated as
Fellows, and shall consist of six classes
(a) Active
(b) Honorary
(c) Corresponding
(d) Senior
(e) Associate
(f) Candidate
Section 2. Active Fellows of this Society shall be those who
maintain a license to practice medicine and who are actively
engaged in diagnosis, treatment and rehabilitation of patients
with neoplasms and other diseases of the head and neck and
the prevention of neoplasms and other diseases of the head and
neck.
Section 3. Qualifications for Active Fellowship. An applicant for
Active Fellowship shall be a Diplomate of a particular specialty
board, or have credentials that are equivalent to those issued by
members boards of the American Board of Medical Specialties.
Surgeons must be a member of the American College of
Surgeons, a Fellow of the Royal College of Surgeons (Canada),
or have similar credentials. A significant portion of practice
shall be concerned with managing patients with neoplasms and
other diseases of the head and neck. Further qualifications and
requirements for Active Fellowship are contained in the By-Laws,
Article VI, Sections 1 and 2.

Section 4. Qualifications for Honorary Fellowship. Honorary
Fellowship shall be a distinction bestowed by the Society on an
individual who has made outstanding contributions to the field of
head and neck oncology.

Section 5. Qualifications for Corresponding Fellowship.
Corresponding Fellowship shall be granted to those who, in the
judgment of the Council, are actively engaged in the prevention,
diagnosis, treatment and rehabilitation of patients with
neoplasms and other diseases of the head and neck and who
reside in a country other than the United States or Canada.

Section 6. Qualifications for Senior Fellowship. Any Active
Fellow, upon cessation of active practice, may request by writing
to the Secretary a change in status to Senior Fellowship.

Section 7. Qualifications for Associate Fellowship. A candidate
for election to Associate Fellowship shall be a physician, dentist
or allied scientist who has demonstrated a special interest in the
field of head and neck oncology.

Section 8. Qualifications for Candidate Member. The trainee
currently enrolled in, or a graduate of, an approved residency
program in Otolaryngology, Plastic Surgery, or General Surgery
or in a Fellowship Program approved by the Joint Training
Council may become a Candidate Member. This nonvoting
membership is subject to fees established by the Council. The
membership shall expire if the candidate member has not made
application for Active Fellowship in The American Head and
Neck Society, Inc. five years after the completion of training.

Section 9. Privileges of Members. All members shall have the
same rights and privileges except that only Active Fellows in
good standing shall have the privileges of voting in the conduct
of the affairs and business of the Society or of holding office or
of chairing Standing Committees.
Constitution

Article IV
Meetings
Section 1. The annual meeting of this Society shall be held at such time and place as may be fixed by the Council at its annual meeting.
Section 2. The annual meeting shall consist of at least one scientific session and one business session.
Section 3. The scientific session shall be open to all Fellows of the Society and members of the medical profession. Attendance at any business session is limited to Fellows of the Society.
Section 4. Only Active Fellows in good standing shall have the privilege of a vote in conduct of the affairs and business of the Society.

Article V
Officers
Section 1. The officers of this Society shall be President, President-Elect, Vice-President, Secretary, and Treasurer.

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Article I
Rights and Duties of Members
Section 1. Any Active Fellow shall have all the rights of Fellowship, shall be subject to all the duties, roles and responsibilities incumbent upon the members of any scientific parliamentary body.

Article II
Delinquents
Section 1. Unless excused by the Council, a Fellow delinquent in dues for two consecutive years, or attendance for four consecutive years, shall be dropped from Fellowship. Delinquency in dues is defined as failure to pay by the end of the calendar year.

Article III
Dues
Section 1. The amount of the Society's dues shall be determined by the Council. The Council shall have the authority to establish an initiation fee or special assessment.

Article IV
Order of Business
Section 1. The regular order of business at annual meetings shall be carried out in a manner prescribed by the Council.

Article VI
Board of Directors
Section 1. The governing body of this Society shall be the Council, consisting of the President, President-Elect, Vice-President, Secretary, Treasurer, and Past Presidents (for a period of three years following the termination of term of office). In addition, there shall be nine Fellows-at-Large, three of whom shall be elected each year to serve terms of three years each. At no time shall the Council exceed eighteen in number. The manner of election of officers and members of the Council is stated in the By-Laws, Article VII, Sections 1 and 2.

Amendments to the Constitution or Bylaws
Section 1. A proposed amendment to the Constitution or By-Laws must be submitted to the Secretary in writing not less than two months before a meeting of the Council, and must be signed by at least two Active Fellows. The Secretary shall forward the proposed amendment to the Constitution and Bylaws Committee for review and comment. The Constitution and Bylaws Committee will make a periodic review of the Constitution and Bylaws and recommend modification which may be submitted as amendments. Any proposed amendment must first be acted upon by the council. The Secretary shall mail a copy of any proposed amendment to each Active Fellow not less than one month prior to the annual meeting of the Society. Two-thirds vote of the Active membership present at the meeting shall be required for acceptance.

Special Provisions
Section 1. All conditions, circumstances, emergencies or contingencies not covered by this Constitution and its Bylaws shall be dealt with and administered by the directive of the Society's Council, subject to approval by the membership at the next annual meeting.

Qualifications for Fellowship
Section 1. Candidates desiring election to Fellowship in any class other than Associate Fellow must hold a valid, unrestricted license to practice medicine in the state or country in which they reside and shall be proposed by two Active Fellows with at least one from the applicant's local geographical area. A special form will be provided by the Secretary for this purpose. Both of the sponsors must submit letters of recommendation pertaining to the qualifications of the candidate.

Section 2. Special Qualifications for Active Membership.
A. In addition to fulfilling the requirements under the Constitution, Article III, Section 3, surgeon candidates must submit evidence that they have the skill and capacity to diagnose and treat neoplasms and other diseases of the head and neck.
B. An applicant for Active Fellowship shall provide documentation that he or she has received adequate training.
Bylaws

in the management of patients with head and neck tumors and that a significant portion of current professional activity is devoted to the care of such patients. Such documentation will include a description of experience during residency and/or fellowship training, a summary of subsequent post training experience, and a listing of at least 35 patients with head and neck tumors managed during preceding year. Additional evidence of academic activity such as one paper published on cancer of the head and neck is required.

C. Active Fellows must be members of the American College of Surgeons or its equivalent.

D. Active Fellows are expected to uphold ethical standards.

Section 3. Special Qualifications for Corresponding Fellowship.

A. Corresponding Fellows shall be physicians who, by their professional associations and publications, would appear in the judgment of the Council to be qualified to treat neoplasia and diseases of the head and neck. All proposals for candidates for Corresponding Fellowship shall be accompanied by a curriculum vitae of the candidate, a letter of recommendation from at least two Active Fellows. The delinquent clause relative to failure to attend meetings will not pertain to this class of membership.

Section 4. Election to Fellowship

A. All proposals for candidates for any class of Fellowship shall be sent to the Council through the Secretary. Subsequent to approval by the Council, nominees’ names must be circulated to the membership at least 120 days before the annual meeting. Fellows shall be given an opportunity to make written objections at least 90 days in advance of the annual meeting. Objections will be investigated by the Credentials Committee and presented to the Council for a vote. The Council will use the AMA Code of Ethics as a guide in this matter.

B. Election to any class of membership shall require three-fourths favorable vote of the Council.

C. A candidate for Active Fellowship must be present at the annual meeting to be inducted.

Article VII

Officers of the Society

Section 1. Election of Officers. The officers of the Society shall be a President, President-Elect, Vice-President, Secretary, and Treasurer, who shall be elected at regular annual business meetings of the Society.

Section 2. Accession to Office. The newly elected officers shall assume their duties before the adjournment of the meeting at which they have been elected.

Section 3. Tenure of Office.

A. The President and President-Elect, and Vice-President shall serve for a term of one year. The Secretary and the Treasurer shall serve for a term of three years and may be elected to one additional term.

B. An outgoing President (Past President) automatically becomes a member of the Council to serve for a period of three years. A past-president’s membership on the Council which shall be terminated by death or other incapacity to serve shall remain vacant until filled by regular succession.

Section 4. Vacancies in Office. Vacancies in office occurring between elections shall be filled by appointment by the President. These appointments shall be subject to written approval of a majority of the Council. Should the office of the President become vacant between elections, it shall automatically be filled by the President-Elect. Should the offices of both President and President-Elect become vacant, these offices will be served by the Secretary.

Article VIII

Duties of the Officers

Section 1. Duties of the President.

A. The President shall preside at meetings of the Society and shall have the power to preserve order and to regulate the proceedings according to recognized rules.

B. The President shall serve as Chairman of the Council.

C. The President shall appoint standing and special committees, except the Nominating Committee. See Article X, Section 2.

D. The President shall fill vacancies in offices that occur in the interim between regular meetings subject to approval by a Council majority.

E. The President shall be an ex-officio member of all standing committees.

Section 2. Duties of the Vice President.

A. The Vice-President shall serve and assist the President and President-Elect.

B. Oversees the work of the committees. Shall direct, plan and implement the long range and strategic planning retreat of the Council listed in Article IX section 2E.

Section 3. Duties of the President-Elect.

A. The President-Elect shall perform all duties that may be delegated to him or her by the President.

B. In the absence of the President, the President-Elect shall perform all duties of the President and shall preside at all meetings.

Section 4. Duties of the Secretary.

A. The Secretary shall keep or cause to be kept an accurate record of all transactions of the Society.

B. The Secretary shall send due notice of all meetings to members; notice of at least 15 days shall be provided prior to Council meetings.

C. The Secretary shall notify all committee members of their appointments and the duties assigned to them.

D. The Secretary shall notify all applicants for membership of the action taken by the Society.

E. The Secretary shall keep a correct alphabetical list of members, together with their current addresses and shall supply application forms to members who apply for same.

F. The Secretary shall act as custodian of all papers of the Society and its committees.

Section 5. Duties of the Treasurer.

A. The Treasurer shall collect, receive and be accountable for funds accrued by the Society from dues or other sources.

B. The Treasurer shall deposit all moneys in a special bank account under the official name of the Society, in a city of his choice.

C. The Treasurer shall disburse from the treasury such funds as
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may be necessary to meet appropriations and expenses of the Society.
D. The Treasurer’s financial records shall be audited at each regular annual meeting by a specially appointed auditing committee, who will report at the business session.
E. shall prepare and submit an annual budget for the following year to the Finance committee for subsequent approval of the Council at the fall meeting.

Article IX
The Council

Section 1. Composition of the Council. The Council shall consist of the officers, the three immediate Past Presidents, and nine Fellows at Large, three of whom shall be elected annually to serve staggered three-year terms. A Fellow at Large elected to the Council may not succeed himself or herself.

Section 2. Duties of the Council.
A. The Council shall conduct the affairs of the Society during the interim between sessions.
B. The Council shall pass on all applicants for Fellowship and present its recommendations to the Society at one of its business sessions so that necessary action may be taken.
C. The Council shall report to the members at regular business sessions all decisions and recommendations made so as to obtain approval of the whole membership of its actions.
D. Should the membership disapprove of any action of the Council the questions shall be referred back for further consideration and reported at the next business meeting.
E. The Council shall have a long range and strategic planning retreat at least every three years.

Section 3. Quorum and Manner of Acting.
A. A majority of officers and Council members shall constitute a quorum. A majority of the quorum at any meeting of the Council shall constitute action by the Council unless otherwise provided by law or by these By-Laws.
B. Any action required or permitted to be taken at a meeting of the Council may be taken without a meeting if a consent in writing setting forth the action to be taken shall be signed by all Council members entitled to vote.
C. Meetings may be conducted by telephone provided that all officers and Council members participating in such a meeting may communicate with each other. A majority of officers and Council members shall constitute a quorum for telephone meetings and the act of a majority of the quorum shall constitute action by the Council.
D. Officers and Council members shall not receive compensation for their services, but, by action of the Council, expenses may be allowed for attendance at meetings of the Council or for official representation of the Society and the Council may underwrite any activities that it deems essential to the functioning of the Society.

Article X
Committees

Section 1. Other than as specifically stated below, The President shall appoint committee members to serve for three years. Initial appointments shall be staggered such that approximately one-third of committee members shall change each year (other than the Scientific Program Committee and Nominating Committee).

Section 2. Scientific Program Committee. This committee shall be appointed by the President to serve for one year and shall consist of at least three Active Fellows. It shall be the duty of this committee to establish a scientific program at the Annual Meeting.

Section 3. Nominating Committee. The Nominating Committee shall consist of the three immediate past presidents and two Active Fellows elected at the business meeting. The Nominating Committee shall be chaired by the immediate past President. This committee shall prepare a slate of officers and members-at-large of the Council for vote at the next annual meeting. (See Article VII, section 2).

Section 4. Credentials Committee. This committee shall be chaired by the President and shall additionally consist of the two immediate Past Presidents plus two Active Fellows appointed by the President. In addition, the Secretary shall be a member, ex officio. The Credentials Committee shall advise the Council on the credentials of candidates for membership.

Section 5. Education Committee. This committee shall consist of at least three Active Fellows. It shall be the duty of this committee to develop appropriate educational activities for the Society.

Section 6. Research Committee. This committee shall consist of at least six Active Fellows. It shall be the duty of this committee to: increase the quality and quantity of research conducted in head and neck oncology; encourage the design and implementation of new research protocols; review applications for research funds; and suggest possible new methods of research funding.

Section 7. Council for Advanced Training in Oncologic Head and Neck Surgery. This committee shall consist of ten Active Fellows, each to serve a five-year term, with appointments staggered so that two Active Fellows are appointed to membership on this committee each year. The President’s appointments to this committee shall be submitted for approval by the Council. It shall be the duty of this committee to evaluate training programs as to whether they qualify for Phase III training and to make recommendations to this Society concerning what constitutes adequate training in head and neck oncologic surgery.

Section 8. Constitution and By-Laws Committee. This committee shall consist of at least five Active Fellows, with the Secretary serving ex-officio. It shall be the duty of this committee to completely evaluate the Constitution and By-Laws every three years to maintain their relevance.

Section 9. Finance Committee. This committee shall consist of three Active Fellows elected at the business meeting to serve three year terms so that one member is elected each year. The Treasurer shall be an ex officio member. It shall be the duty of this committee to audit the financial records of the Society and review investments and to report at the annual business meeting. It shall review the financial reports of the Treasurer prior to the presentation to the Council.

Section 10. CME Compliance Committee. This committee should consist of at least three Active Fellows. It shall be the duty of this committee to monitor and ensure compliance with the CME requirements of the Accreditation Council for Continuing Medical Education; to review and improve the quality of the educational programs of the Society; and to review
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annually, prior to the annual meeting, any potential financial conflict of interest of members of the Program Committee, Program Chairs, faculty, and presenters.

Section 11. Quality of Care Committee. This committee should consist of at least three Active Fellows. It shall be the duty of this committee to formulate quality of care standards for patients with head and neck neoplasms; to promote compliance with these standards as a framework for the measurement of quality head and neck care; to disseminate these standards to the membership of the Society; and to provide AHNS representation to the applicable committees of other head and neck medical societies that are charged with the development of specialty specific quality standards upon which pay-for-performance benchmarks may be based.

Section 12. Publications Committee. This committee should consist of at least three Active Fellows appointed by the President. This committee shall be chaired by the Associate Editor for the Head and Neck Section of the Archives of Otolaryngology-Head and Neck Surgery. In addition, the Archives of Otolaryngology-Head and Neck Surgery Editor, if a member of the Society, shall be a member of this committee, ex-officio. The Secretary and President will be members of this committee. It shall be the duty of this committee to assure manuscript submission to the official journal of the Society, the Archives of Otolaryngology-Head and Neck Surgery, prior to presentation at the annual meeting; to assure rapid peer review of submitted manuscripts; and to facilitate the timely publication of the proceedings of the annual meeting in a dedicated issue of the official journal of the Society.

Section 13. Prevention and Early Detection Committee. This committee shall consist of at least six Active Fellows. It shall be the duty of this committee to: develop, facilitate the implementation, and participate in programs directed toward the prevention and early detection of oral and head and neck cancers and to cooperate with national and international organizations in these efforts.

Section 14. Endocrine Surgery Committee. This committee should consist of at least three Active Fellows. It shall be the duty of this committee to increase research and education related to head and neck endocrine disorders, to encourage endocrine-related contributions to the annual meeting, and to foster interaction between the Society and other societies and organizations with interests in endocrine disorders.

Section 15. Standing Committees. Other standing Committees shall be constituted as described in the Policies and Procedures.

Section 16. Ad hoc Committee(s). As necessary, the President may appoint one or more Ad Hoc committees to serve for one year.

Article XI

Quorum

Section 1. A quorum for any meeting of the Council shall be a majority of those persons then serving as members of the Council.

Section 2. A quorum for the regular business session of the society shall be 18 Active Fellows.

Article XII

Society Assets

Section 1. The interest in the funds property and other assets of the Society of any member whose membership shall terminate for any reason except the dissolution of the Society shall, ipso facto, immediately cease and such members and the representatives of such member shall have no claim against the Society or against the other members of their representatives or any of them.

Section 2. In the case of dissolution of the Society, the funds, property, and other assets shall be used for the purpose of furthering the expressed purposes for which this Society was formed and no member shall be entitled to receive any of the assets upon liquidation.

Section 3. If the Society’s annual receipts exceed the annual expenses in any given year, the Council may, by a majority vote, elect to distribute the surplus for such scientific or educational uses as the Council shall deem to be most consistent with the Society’s purposes; or it may, should it reasonably anticipate a need for operating surplus to meet future expenses, accumulate such surplus in an interest bearing account or otherwise.

Article XIII

Indemnification

Section 1. The Society shall indemnify any and all of the directors or officers former directors or officers, employees, agents, or any person who may have served at its request or by its election as a director or officer of another society or association, or his heirs, executors and administrators, against expenses (including attorney fees, judgments, fines and amounts paid in settlement) actually and necessarily incurred by them in connection with the defense or settlement of any action, suit or proceeding in which they, or any of them, are made parties or a party, by reason of being or having been directors or a director, officer, employee or agent of the Society or of such other Society or association, except in relation to matters as to which any such action, suit or proceeding to be liable for willful misconduct in the performance of duty and to such matters as shall be settled by agreement predicated on the existence of such liability. The termination of any action, suit, or proceeding by judgment, order, settlement, conviction, or upon a plea of nolo contendere or its equivalent shall not, of itself, create a presumption that the person is engaged in willful misconduct or in conduct in any way opposed to the best interests of the Society. The provisions of this section are severable, and therefore, if any of its provisions shall contravene or be invalidated under the laws of a particular state, country or jurisdiction, such contravention or invalidity shall not invalidate the entire section, but it shall be construed as if not containing the particular provision or provisions held to be invalid in the particular state, country, or jurisdiction and the remaining provisions shall be construed and enforced accordingly. The foregoing right of indemnification shall be in addition to and not exclusive of other rights to which such director, officer, employee or agent may be entitled.
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Article XIV

Merger Provisions

To facilitate the merger of the Society with The Society of Head and Neck Surgeons, an Illinois nonprofit corporation ("SHNS"), pursuant to an agreement calling for the SHNS to be dissolved and its assets transferred to the Society and the Society recast as The American Head and Neck Society, Inc. ("AHNS") to serve as a successor of both entities, notwithstanding any other provision of the Constitution or these By-Laws to the contrary:

1. The Council shall be expanded as necessary to include the officers and directors of the SHNS, who shall serve on the Council with their voting status as provided by the SHNS bylaws until their term of office within the SHNS shall expire. The Council shall return to its size and with its composition provided in Article IX hereof through the passage of time.

2. The President-Elect of the SHNS shall become as President-Elect of the AHNS following the completion of his term as President-Elect of the SHNS. The President-Elect of the Society shall become President of the AHNS to serve a term of six months (i.e., from May 15, 1998 through November 14, 1998), whereupon the said President-Elect of the SHNS shall serve as President of the AHNS to serve a term of six months (i.e., from November 15, 1998 through the membership meeting in May of 1999 or until his successor shall assume office). During the combined one-year term of office, the two said individuals shall regularly consult and cooperate with each other on all meaningful and significant decisions to be made during the year so that it may appear that they are serving as co-presidents for the full year, provided, however, that the AHNS shall have only one President in office at one time. At the conclusion of this one-year term, the President-Elect next in line shall succeed to the Presidency.

3. The members of the SHNS shall be admitted to the Society recast as the AHNS in the membership category that correspond to that which they hold in the SHNS. More specifically, Active Members of the SHNS shall become Active Fellows of the AHNS; Senior Member of the SHNS shall become Senior Fellows of the AHNS. Consulting Members of the SHNS shall become Associate Fellows of the AHNS. International Corresponding Members of the SHNS shall become Corresponding Members of the AHNS. Honorary Members of the SHNS shall become Honorary Fellows of the AHNS. Candidate Members of the SHNS shall become Candidate Members of the AHNS.

4. The Council shall act to preserve the unique heritage and history of the SHNS and the ASHNS.
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