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WASHINGTON UNIVERSITY IN ST. LOUIS • OTOLARYNGOLOGY

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New Approaches to Head and Neck Cancer Treatment: Transoral Laser Surgery



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- HPV in Oropharyngeal Cancers
- Reducing Disparities in Cancer Treatment
- Next Steps for 2010 Alumni



ON THE COVER:

MRI scan depicts a base-of-tongue tumor. Such scans facilitate minimally invasive access evaluation for surgical removal, and also targeted radiation planning.

Pioneering Transoral Laser Microsurgery for Management of Head and Neck Cancer

Many patients with laryngeal, pharyngeal and oral-cavity tumors can now be treated by minimally invasive transoral laser microsurgery (TLM), which reduces the risk of damaging delicate surrounding structures. Although this procedure has typically been performed for early-stage cancers in the mouth and throat, Bruce H. Haughey, MBChB, and his colleagues at Washington University are pioneering transoral surgery at Barnes-Jewish Hospital for treatment of more advanced cancers.

Current analysis of outcome data from this treatment option indicates TLM helps improve survival and reduce the treatment impact on normal function for those patients diagnosed with oral cavity, pharynx, and larynx cancer.

According to Haughey's research, advanced-stage oropharyngeal cancer patients undergoing TLM have a 5-year survival rate of 92%, with the majority of patients experiencing excellent swallowing function after treatment. The technique, which utilizes the microscope, endoscopes and a CO2 laser, leads to high levels of precision in removing the whole primary tumor and usually eliminates the need for a tracheostomy. Only 3.8% of living patients still had G-tubes following surgery.

Reaching a throat tumor by opening and dissecting the neck through traditional surgical approaches not only threatens the delicate and crucial structures in the neck, but it also creates a wound that even when healed can interfere with mobility and function. Further, treatments such as chemotherapy and radiotherapy can threaten the ability to swallow, talk, eat, smell, taste, hear, and breathe normally. Reduced doses of radiotherapy or chemotherapy may be possible, however, as adjuvant treatment to the minimally invasive transoral laser microsurgery.



Haughey has given more than 25 lectures on TLM in the last 12 months; for the past two years, he has served as chair of the Washington University postgraduate TLM course—the first of its kind in the United States. The course, designed to teach TLM surgical techniques to experienced professionals and specialists from around the world, allows attendees to share their knowledge with other surgeons at their home institutions. Haughey, who is the Kimbrough Professor of Otolaryngology and director of head and neck surgical oncology at Washington University School of Medicine, recently served as guest faculty for the hands-on Transoral



Bruce H. Haughey, MBChB

Laser Microsurgery Course held in conjunction with the 63rd Annual Meeting of the Canadian Society of Otolaryngology (see photo p. 7). He will also serve as guest faculty for the Transoral Laser Microsurgery for Head & Neck Cancer Course conducted by the Mayo Clinic in Scottsdale, Ariz., April 15-17, 2010.

A Critical Review

Human Papillomavirus in Oropharyngeal Cancers

Human papillomavirus (HPV) is a double-stranded DNA virus with the capacity to cause benign or malignant neoplasms. The high-risk types (primarily 16 and 18) are the major causes of cervix cancer and were previously thought to be associated with some head and neck cancers. During the past decade, it has become evident that HPV, primarily type 16, is involved with many tonsil and tongue-base oropharyngeal cancers but only rarely involved with laryngeal or oral-cavity cancers. The reason HPV has tropism for the tonsil and tongue base mucosal tissues is not known. It is now generally accepted that this virus has a role in causing oropharyngeal cancer development and that HPV-associated oropharyngeal cancer is a distinct epidemiologic, molecular, and clinical entity.

Cancer centers throughout the United States and other countries have consistently reported that about 70% of newly diagnosed oropharyngeal cancers are HPV related.

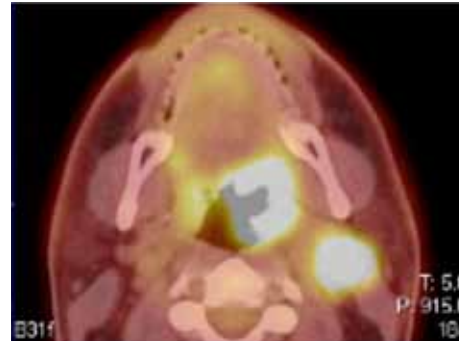
Patients with HPV-related cancer are mostly males and tend to be younger than those with tobacco-induced oropharyngeal cancers.

High-risk sexual activity is the major risk factor for developing disease. Patients will frequently present with a neck mass that represents regional metastatic disease, and then the primary site is found upon examination of the oropharynx.

At a molecular level, carcinogenesis is caused by integrated HPV and the translation of the E6/E7 proteins. Rather than causing genetic mutations as described in tobacco-induced carcinogenesis, these viral proteins cause increased degradation of p53 and inhibition of the retinoblastoma protein. Alteration of the retinoblastoma pathway subsequently causes increased expression



Brian Nussenbaum, MD



FDG-PET/CT scan shows an oropharyngeal squamous cell carcinoma (involving the tongue base and tonsil) with an associated neck metastasis.

of p16. Overexpression of p16 is now being used as a surrogate biomarker for HPV-induced oropharynx cancer because the test is straightforward to perform and interpret on biopsy specimens. The histologic morphology of a non-keratinizing tumor is also very predictive of HPV-induced disease. Other available tests include *in situ* hybridization and polymerase chain reaction.

Consistently, studies show that HPV-induced oropharyngeal cancers have a better prognosis than those that are tobacco induced. Most recently, an analysis of the RTOG 0129 study reported by Gillison ML et al. at the 2009 ASCO meeting showed that chemoradiation-treated patients with HPV-positive oropharynx carcinomas had an 83% overall survival compared to 57% for those with HPV-negative carcinomas. Patients with HPV-positive oropharynx carcinoma also have an excellent and improved survival when treated with minimally invasive transoral laser surgery and postoperative adjuvant therapy, as recently shown by Bruce H. Haughey, MBChB, in *Laryngoscope* 2009. Both studies showed that p16 status (positive or negative) is the most predictive biomarker for overall survival. Since these patients have an excellent survival with different therapeutic modalities, future research will need to directly compare functional outcomes and quality of life for various treatments.

—**Brian Nussenbaum, MD, FACS**

Associate Professor, Otolaryngology
Vice Chair for Clinical Affairs

Leadership: By the Numbers

14 Washington University otolaryngology specialists
have held more than 45 key leadership roles in their field.

Visit ent.wustl.edu for more information.

Reducing Socioeconomic Disparities in Head and Neck Cancer

Cook County Hospital can be described as a place of limited resources and seemingly infinite patient need. Despite the state-of-the-art facility that was built in 2002, Cook County is still a safety-net hospital that serves a largely uninsured or underinsured patient population. With the sheer number of head and neck cancer patients, it seemed like a great place for a new head and neck surgeon to start.

During my first year, I concentrated efforts on establishing a head and neck tumor clinic, assembling a multidisciplinary head and neck tumor board and introducing rotating otolaryngology residents from the University of Illinois at Chicago and Northwestern University to a more systematic approach to cancer patients. With these changes, free flaps that were once esoteric became routine. Armed with a Minority Based-CCOP grant from the National Cancer Institute (NCI) that funded a Clinical Trials Office, we opened a number of multi-institutional clinical trials through cooperative oncology groups such as ECOG, RTOG, and ACOSOG to offer our patients access to investigative regimens.



Urjeet A. Patel, MD

As I expanded my practice to include work with Northwestern University, with the juxtaposition of practices, I began to better understand some of the disparities in health care delivery. We provided cancer care to Cook County patients that was comparable to what we offered at Northwestern; yet, I suspected our Cook County patients still fared more poorly. Barriers to access, delays in both diagnosis and treatment, and questionable compliance to treatment and follow-up surveillance remained. My research efforts have focused on examining and reducing these disparities,

which seemed to correlate with lower socioeconomic status. The next steps are to more precisely identify causes for delay in care and poor compliance to treatment that we are seeing at Cook County. Ultimately, we hope to institute interventions to further eliminate disparities that affect head and neck cancer patients with compromised socioeconomic status.

This year I began chairing the Cancer Committee at Cook County. With the cooperation and dedication of clinicians throughout the hospital, we are now addressing disparities across all cancer sites on an institutional level. In time, we hope to optimize outcomes for all cancer patients at Cook County and elevate the care we provide to the standards seen at other academic cancer centers like Northwestern and Washington University.

—**Urjeet A. Patel, MD, FACS**

*Assistant Professor, Northwestern University
Chairman, Division of Otolaryngology—Head and Neck Surgery
Cook County Hospital*

Upcoming Events

Michael Valente, PhD, will speak at the Columbian Academy of Audiology meeting February 17-19, 2010, in Bogota, Colombia. His talks include: "Using Evidence- Based Principles to Critically Analyze the Literature," "Fitting Options for Patients with Unilateral Hearing Loss," and "Verifying Hearing Aid Performance Using Coupler and Real Ear Methods."

Bruce H. Haughey, MBChB, will be an invited lecturer at the Multidisciplinary Head & Neck Cancer Symposium sponsored by the American Head and Neck Society, American Society of Clinical Oncology and the American Society of Therapeutic Radiology and Oncology at the Sheraton Wild Horse Pass Resort and Spa in Chandler, Ariz. His talk entitled, "Transoral Laser Surgery," will be conducted on February 26, 2010, from 1:30-2:30 p.m. Haughey also will be a guest faculty at the Mayo Clinic Transoral Microsurgery for Head and Neck Cancer course held April 15-17, 2010, at the Mayo Clinic in Scottsdale, Ariz.

Richard A. Chole, MD, PhD, has been invited to serve as the Dr. Michael Paparella Guest Lecturer at the University of Minnesota. His talk, "Bacterial Biofilms in Otolaryngology," will be presented on April 12, 2010. Chole also will be the residency graduation speaker for the Department of Otolaryngology and Communicative Sciences at the University of Mississippi School of Medicine on June 25, 2010.

The **29th Annual Ogura Lectureship** and the 24th Annual Resident Research Day will be held June 18, 2010, at the Eric P. Newman Education Center.

The resident and fellow **graduation and alumni celebration** will be held on June 18, 2010, from 6:30-11:00 p.m. at the Chase Park Plaza Hotel, Starlight Ballroom. *Check your mailboxes in March for more information!*

Next Steps for 2010 Graduates

Residents



Jonathan L. McJunkin, MD

Jonathan L. McJunkin, MD
administrative chief resident

Next steps: Currently exploring opportunities in private practice

Highlights of residency: Being part of two megaflaps and learning how to operate and manage patients from experts

Arash Morazadeh, MD

Next steps: A one-year facial plastic and reconstructive surgery fellowship at Washington University School of Medicine with Greg Branham, MD. Arash also will participate in “Face to Face,” a national organization that offers restorative facial surgery to victims of domestic violence.

Highlights of residency: His research experience on peripheral nerve, surgical management of nasal airway obstruction, and Mohs surgery defects



Arash Morazadeh, MD

Kartik D. Nettar, MD

Next steps: A one-year fellowship in San Francisco, Calif., in facial plastic and reconstructive surgery under the tutelage of Corey Maas, MD, founder and director of The Maas Clinic, San Francisco and Tahoe, Calif.

Highlights of residency: Forming friendships with colleagues, his recent marriage to Niyati Vyas on November 28, 2009, and the opportunity to enjoy the St. Louis community



Kartik D. Nettar, MD



Tom Thomas, MD

Tom Thomas, MD

Next steps: A one-year fellowship in head and neck surgery and microvascular reconstruction at the University of Pennsylvania in Philadelphia. The fellowship will focus on organ preservation surgery for laryngeal cancer and transoral laser and transoral robotic surgery for various otorhinolaryngological pathologies.

After his fellowship, he would like to pursue an academic career as a head and neck surgeon in a university setting.

Highlights of residency: The opportunity to learn and perform otolaryngology, head and neck reconstructive surgery from “world-class physicians and surgeons in the field.” He also notes the importance of the professional friendships he developed during his residency years.

Eric W. Wang, MD

Next steps: A rhinology and skull-base surgery fellowship at the Medical University of South Carolina under the leadership of Rodney Schlosser, MD. Wang’s special interests include rhinology, endoscopic skull base surgery, pathophysiology of chronic rhinosinusitis and chronic infections of the head and neck.

Highlights of residency: The friends he has met throughout his residency experience, working with a great group of residents and faculty, serving on the CORE study section, and winning First Prize for his presentation at the Triological Society, Combined Otolaryngology Section Meetings (COSM)



Eric W. Wang, MD

Fellow

Theresa B. Kim, MD

Next steps: Will join San Francisco Otolaryngology Medical Group after completing her pediatric otolaryngology fellowship

Highlight of fellowship: Working with the residents



Theresa B. Kim, MD



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Special Events

Bruce H. Haughey, MBChB, served as course chair for the inaugural Transoral Laser Microsurgery: Management of Head & Neck Cancer course at Washington University conducted May 19-21, 2008, at the Eric P. Newman Education Center. The second course, also held at Washington University from May 7-9, 2009, included faculty members Brian Nussenbaum, MD, Ravindra Uppaluri, MD, PhD, and Trevor G. Hackman, MD. International guest faculty Wolfgang Steiner, MD, was here for the 2008 course. Guest faculty for 2008 and 2009 included Michael L. Hinni, MD, from Mayo Clinic in Scottsdale, Ariz., and John B. Salassa, MD from Mayo Clinic in Jacksonville, Fla.

Saumil N. Merchant, MD, Eliassen Professor of Otolaryngology and Laryngology at Harvard Medical School and the Massachusetts Eye and Ear Infirmary, delivered the **Senturia Lecture** to a standing-room only group at Washington University on October 28, 2009.

In November 2009, **Anne E. Getz, MD**, traveled to Lima, Peru, to give a sinus course



Bruce H. Haughey, MBChB, joins Joseph C. Dort, MD, President of the Canadian Society of Otolaryngology (CSO), course director S. Mark Taylor, MD, and other colleagues for a didactic and hands-on TLM course sponsored by the CSO at its 63rd Annual Meeting.

through Global ENT Outreach (GEO). The organization's mission is to support efforts to reduce the burden of ENT disease in resource-poor countries. GEO's priorities are to train local doctors to become self-sustaining in basic otolaryngologic surgery,

provide surgery to the underserved afflicted by such disease, and provide international humanitarian service opportunities to medical students, ENT residents, fellows, and practicing ENTs.

Academic Funding Update

Lisa G. Potts, PhD, American Hearing Foundation, "Speech-Evoked Auditory Brainstem Responses in Normal-Hearing and Hearing-Impaired Adults with and Without Amplification."

Jianxin Bao, PhD, NIH/NIDCD, "Development of a Drug Therapy to Ameliorate Permanent Hearing Loss."

Joel A. Goebel, MD, Barron Associates, "Head-Mounted Vibrotactile Prosthesis for Patients with Chronic Postural Instability."

Osarenoma U. Olomu, MD, Resident Research Grant, "Psychophysics of the Aging Vestibular System."

Jay F. Piccirillo, MD, NIH/NIDCD, "RCAVS-Clinical Translational Research Core."

Stimulus Supplement awards

Richard A. Chole, MD, PhD, NIH/NIDCD, "Research Center for Auditory and Vestibular Studies."

Jill B. Firszt, PhD, NIH/NIDCD, "Effects of Asymmetric Hearing In Acoustic Listeners and Cochlear Implant Users."

Nancy Tye-Murray, PhD, NIH/NIA, "Audiovisual Integration and Age Summer Research Experience."

Nancy Tye-Murray, PhD, NIH/NIDCD, "Auditory Training and Talker Variability."

Jay F. Piccirillo, MD, NIH/NIDCD, "Collaborative Tinnitus Research at Washington University."

Alec N. Salt, PhD, NIH/NIDCD, "Inner Ear Fluid Interactions."

Mark E. Warchol, PhD, NIDCD, "Genomic Approaches in Inner Ear Hair Cell."

For more information on current research in the Department of Otolaryngology at Washington University, visit ent.wustl.edu

Department of Otolaryngology
Head and Neck Surgery
Campus Box 8115
660 South Euclid Ave.
St. Louis, Missouri 63110

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Managing Editor: Carol J. Rose

Physician Editor: M. Allison Odgen, MD

Chair: Richard A. Chole, MD, PhD

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A new year, a new look.

— Richard A. Chole, MD, PhD

The beginning of a new year seems a perfect time for a more descriptive name and design change for our newsletter. In this inaugural edition of *Innovate Otolaryngology*, we focus on the achievements of our Division of Head and Neck Surgical Oncology. Six faculty members comprise this team and play an integral part of The Alvin J. Siteman Cancer Center, an international leader in cancer treatment. Siteman holds the prestigious Comprehensive Cancer Center designation from the National Cancer Institute and membership in the National Comprehensive Cancer Network (NCCN). This issue includes information on the work of Bruce H. Haughey, MBChB, and his

team who are working together to advance transoral laser microsurgery (TLM) as well as a review of human papillomavirus research by Brian Nussenbaum, MD. Urjeet A. Patel, MD, a 2002 resident graduate, explains how his residency training has assisted him in developing organizational strategies designed to benefit uninsured and underinsured patients. At this time I would like to thank our faculty, residents, and staff for their dedication to providing outstanding patient care. We are committed to continually improving the quality and safety of our care to patients, building on a long tradition of research and innovation at Washington University.