



Otolaryngology ADVANCES

Multidisciplinary Team Performs Innovative Repair of Temporal Bone Defects

Neurotologists, neurosurgeons, neuroradiologists, and neuro-ophthalmologists at Brigham and Women's Hospital (BWH) are providing advanced multidisciplinary evaluation and treatment for patients with temporal bone defects.

"We are seeing many patients referred for cerebral spinal fluid leaks and subsequent identification of encephaloceles with a skull base temporal bone defect," said C. Eduardo Corrales, MD, a neurotologist in the Division of Otolaryngology at BWH. "Traditionally, primary causes have included traumatic temporal bone fractures, but more patients today are presenting with idiopathic conditions."

Etiology of Temporal Bone Defects and CSF Leaks

Dr. Corrales recently published a paper detailing levels of dehiscence in the temporal bone, superior canal, and posterior canal demonstrated by computed tomography scans (CT) in children less than seven years of age (*Otol Neurotol*. 2015 Sep;36(8):1383-9.). While dehiscence of the canals was commonly seen in the CT scans of infants in the first six months of life, the prevalence decreased with increasing age as the bone overlying the canals increases in thickness.

"We know that the temporal bone thickens by the time children reach seven years-of-age, but we believe that it may be thinner in some individuals than others and may wear faster in these patients as they age," said Dr. Corrales. "We have also seen an increase in the incidence of cerebral spinal fluid leaks in patients who are obese or morbidly obese with obstructive sleep apnea, so it's highly likely that there are multiple factors contributing to the rise of these cases."

Comprehensive Surgical Repair

Specialists at BWH are among few in the country to offer highly advanced surgical repair of skull base temporal bone defects. Dr. Corrales collaborates with BWH neurosurgeon Ian F. Dunn, MD, in the Skull Base Program at BWH to perform surgical repair of temporal bone defects, generally using a middle cranial fossa approach. Together, they have surgically treated more than 30

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New Clinical Trial Examines Neoadjuvant Immunotherapy in Head and Neck Cancers

The Head and Neck Oncology Center at Dana-Farber/Brigham and Women's Cancer Center is one of only two sites nationwide participating in a new clinical trial evaluating the role of neoadjuvant immunotherapy in improving locoregional recurrence and distant metastatic rates in patients with locally advanced head and neck squamous cell carcinomas (HNSCCs).

"Immunotherapies are now being more broadly used in the treatment of recurrent metastatic cancers, including head and neck cancers," said Ravindra Uppaluri, MD, PhD, Surgical Director of the Head and Neck Oncology Center. "By introducing these therapies during an earlier phase of the treatment process, our goal is to improve the upfront, first-line therapies offered to patients when they first present with cancer, particularly those at the highest risk for recurrence."

Checkpoint Inhibitors

Dr. Uppaluri is the site Principal Investigator of this Phase II study (Immunotherapy with MK-3475 in surgically resectable head and neck squamous cell carcinoma) using pembrolizumab in patients with surgically resectable Stage III or IV HNSCCs, including cancers of the oral cavity, hypopharynx, oropharynx, and larynx.

Patients participating in the study will be given pembrolizumab intravenously once over the course of 30 minutes approxi-

mately two-to-three weeks before standard-of-care surgery. Adjuvant therapy may include intensity modulated radiation therapy (IMRT), risk-based cisplatin, and pembrolizumab every three weeks for a maximum of six doses (for participants found to have positive margins or extracapsular extension).

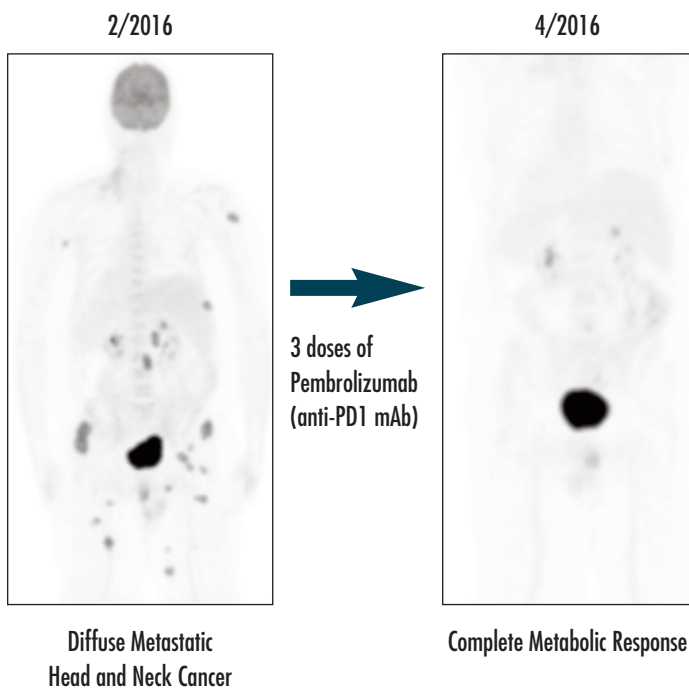
"Checkpoint inhibitors like pembrolizumab are designed to address homeostatic mechanisms that regulate immune responses and prevent the patient's own immune system from recognizing and attacking cancer cells," said Dr. Uppaluri. "These new agents essentially release the brakes on the patient's immune system."

The Head and Neck Oncology Center team participated in studies that recently led to the FDA approval of the use of immunotherapies, including pembrolizumab, in patients with recurrent metastatic HNSCCs (*J Clin Oncol.* 2016 Sep 19 and *N Engl J Med.* 2016 Oct 8.).

Additional Aspects of Neoadjuvant Study

The neoadjuvant approach will help the team to define specific responders to the therapy by observing responses before surgery and examining molecular changes in the tumor after surgery. Patients who do respond to the neoadjuvant therapy may also benefit from a reduction in extent of surgical resection, as well as treatments and treatment-related toxicities after surgery. *To learn more about this study, please contact Dr. Uppaluri at rupaluri@partners.org.*

Response to Immunotherapy



Ravindra Uppaluri, MD, PhD
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Access to our Otolaryngology Services

At Brigham and Women's Hospital and Dana-Farber/Brigham and Women's Cancer Center, our specialists are available for timely consultations and will work with you to develop treatment plans for your patients.

Our Physician Liaison Ellen Steward can provide direct assistance with patient referrals and consultations. Ellen can be reached at (617) 582-4733 or esteward@partners.org.

Multidisciplinary Team Performs Innovative Repair of Temporal Bone Defects... continued from cover

patients with very good outcomes. After craniotomy, view of the middle cranial fossa floor shows the extent of the defect and provides access to encephalocele, temporal bone defects, and superior canal dehiscence for treatment. Repair is per-

formed using autologous temporalis fascia, calvarial free bone graft, and bone paste, as well as bone wax and hydroxyapatite (See Case Study.) Titanium mesh is used to place the craniotomy bone.

Case Study: Multidisciplinary Approach for repair of skull base defects

Clinical Background

A 33-year-old woman presented with right muffled hearing, ear pain and imbalance. She was seen by her PCP who diagnosed her with acute otitis media and prescribed a course of antibiotics. There was an initial improvement, but symptoms recurred shortly after. She was referred to a local Otolaryngologist who diagnosed her with right middle ear effusion and prescribed a second course of antibiotics and prednisone. Because of her persistent symptoms, a CT scan of the temporal bones was ordered. She had a diagnosis of pseudotumor cerebri (benign intracranial hypertension) in her teens and had been treated with furosemide, acetazolamide and prednisone.

Workup

The audiogram showed a maximal conductive hearing loss on the right. CT scan showed a tegmen dehiscence with a large associated encephalocele. A contrasted MRI showed a large encephalocele filling the full extent of the mastoid and middle ear. The Patient decided to proceed with surgery.

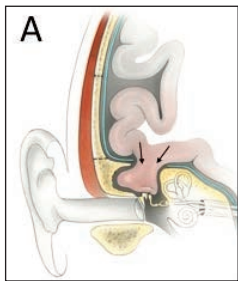


Figure A: schematic drawing showing a tegmen dehiscence with associated encephalocele

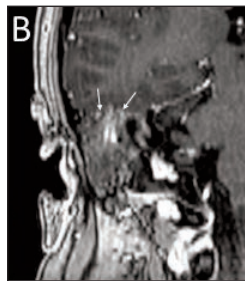


Figure B: a coronal contrasted MRI demonstrating an encephalocele protruding into the mastoid and middle ear

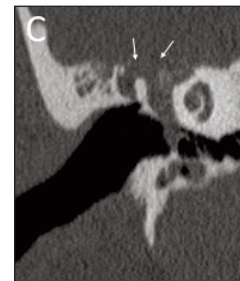
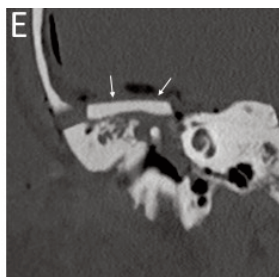
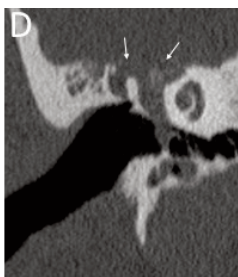


Figure C: the coronal CT scan with a large dehiscence of the tegmen (arrows indicated dehiscence in all figures)



Figures D and E: comparison between preoperative and postoperative CT scans.

Approach

A middle cranial fossa craniotomy approach was performed with full thickness calvarial bone graft used to reconstruct the tegmen dehiscence.

Follow up

Patient had an uneventful recovery with resolution of her symptoms and recovery of her hearing. She has a contralateral thin tegmen that we are currently observing. She is being managed in a multidisciplinary fashion, and Neurology is following her for benign intracranial hypertension.



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Otology, Neurotology & Skull Base Surgery



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Access and Information

To refer a patient, or for more information, please contact our Referral Coordinators at (617) 732-9894.

BWH NEWS

Gerard M. Doherty, MD, Named Surgeon-in-Chief



An acclaimed endocrine surgeon and transformative leader, Gerard M. Doherty, MD, recently joined Brigham and Women's Hospital as Chair of the Department of Surgery and Surgeon-in-Chief, from Boston Medical Center, where he served as Surgeon-in-Chief, and Boston University School of Medicine, where he served as Chair of the Department of Surgery and James Utley Professor of Surgery. Dr. Doherty has dedicated his career to advancing the care of patients with endocrine tumors and conditions and his research interests include regeneration of parathyroid cells in hypoparathyroid patients. Dr. Doherty is a member of the Complex General Surgical Oncology Board for the American Board of Surgery and is the developer of the AccessSurgery platform for disseminating surgical information including books, images and videos for training. Additionally, he has written more than 250 peer-reviewed articles.

Neil Bhattacharyya, MD, FACS, Receives Triological Society Research Awards



Neil Bhattacharyya, MD, FACS, of the Division of Otolaryngology, has been awarded the John J. Conley, MD, and Shirley Baron Research Awards from the American Laryngological, Rhinological and Otological Society, also known as the Triological Society.

The awards are given in recognition of outstanding scholarship and high scientific rigor, and are named in honor of notable teachers, surgeons and researchers in the field of otolaryngology-head and neck surgery. Dr. Bhattacharyya was recognized for his research and collaboration with residents concerning quality outcomes in head and neck cancer surgery and socioeconomic and racial disparities in the diagnosis of otolaryngologic disease in children.

Among his many achievements, Dr. Bhattacharyya served as associate editor of the *American Academy of Otolaryngology (AAO) Journal: Otolaryngology – Head and Neck Surgery* (HNS) for 10 years and has been involved in clinical practice guideline leadership as chair for guidelines on sinusitis and benign positional vertigo for the AAO-HNS. His clinical interests include endoscopic sinus surgery, obstructive sleep apnea and sinusitis.

The mission of the Triological Society is to encourage and assist otolaryngologist-head and neck surgeons and other health care professionals to develop, maintain and enhance their knowledge and skills in their pursuit of improved patient care through education, research and fellowship.

John J. Conley, MD, was one of the founding members of the American Society for Head and Neck surgery and has been recognized worldwide for his significant contributions to the treatment of the cancer of the head and neck. Shirley Baron was past president of the Triological Society and has been cited for outstanding leadership and contributions by many organizations in the field of otolaryngology.

