Minimally invasive endoscopic resection of pituitary adenomas: an emerging paradigm?

Advances in endoscopic techniques, coupled with refinement of surgical instrumentation and the advent of surgical navigation, have facilitated minimally invasive resection of pituitary adenomas. Most of these cases can now be managed without need for the traditional sublabial approach. “The endoscopic approach offers unparalleled visualization with a magnified view, providing an opportunity for precise tumor removal,” says Sam Barnett, M.D., Associate Professor of Neurological Surgery and Co-Director of the Skull Base Program at UT Southwestern Medical Center. “Patients appear to have quicker recovery to normal activity and have better functional nasal outcomes from the operation,” adds Pete Batra, M.D., Associate Professor of Otolaryngology–Head and Neck Surgery and Co-Director of the Skull Base Program.

It appears that, to date, new emerging data supports this clinical experience at UT Southwestern. A recent meta-analysis compared 2,335 endoscopic and 2,565 sublabial cases (DeKlotz TR, et al. Laryngoscope 2012). The analysis noted significantly superior gross tumor resection rates, as well as lower CSF leak, septal perforation, and epistaxis rates for the endoscopic approach. Furthermore, hospital stays were shorter in the endoscopic group with no difference in the operative time. “This is an important study,” says Dr. Batra. “The findings attest to the effectiveness of the minimally invasive endoscopic resection. In effect, they validate much of what we have observed in our clinical practice.”

Another recent publication addresses the cost comparison of the endoscopic and sublabial approaches (Oosmanally N, et al. Int Forum Allergy Rhinol 2011). Using intricate cost modeling, the authors reported that the total cost in dollars ranges from $11,438 to $12,513 for endoscopic and $18,095 to $21,005 for sublabial approaches. The endoscopic technique was less costly than the sublabial procedure between 94 percent and 98 percent of the time. “This has important implications in the current health care environment,” Dr. Barnett says. “The ability to perform a sound procedure in a more cost-conscious manner is a win-win for the patient and the hospital.”

Although sublabial techniques have been the gold standard for many years, the developing trends in the literature may justify a shift to the endoscopic approach as the new standard for resection of pituitary neoplasms.
Stereotactic radiosurgery for skull base tumors

Stereotactic radiotherapy is a noninvasive treatment in which high-dose radiation beams are delivered to a tumor or lesion in a concentrated, extremely precise manner. UT Southwestern Medical Center’s Stereotactic Radiation Program is one of a few select sites nationally that offers both CyberKnife and Gamma Knife technologies. Combining the expertise of skull base surgeons and radiation oncologists to enhance care has been a significant advance for patients with complex skull base tumors. "Nowhere is this more apparent than in the management of glomus jugulare tumors," says Brandon Isaacson, M.D., Associate Professor of Otolaryngology–Head and Neck Surgery.

"Prior to the introduction of the CyberKnife, the only options for these patients were surgery, which typically required a week-long hospital stay, or external beam radiation, which often required four to five weeks of treatment," says Dr. Isaacson, adding that surgery for glomus jugulare can result in a prolonged recovery time secondary to swallowing problems, facial weakness, and hoarseness. The CyberKnife radiotherapy protocol used at UT Southwestern has substantially reduced treatment and recovery times compared to traditional surgery and external beam radiation. "Using the CyberKnife, we now treat these tumors over a few days on an outpatient basis, and the patients can return to work the day after treatment is completed," Dr. Isaacson says.

The UT Southwestern Comprehensive Skull Base program is using five fractions on the CyberKnife to treat patients with glomus jugulare over five days. This hypofractionated CyberKnife protocol has been used in more than 20 glomus jugulare patients in the past four years. None of the patients treated with this protocol has developed additional cranial nerve deficits or required additional treatment. “The typical side effects seen with more extensive external beam radiation, including skin toxicity, fatigue, and dry mouth, can be avoided in the vast majority of patients treated with the CyberKnife,” notes Lucien Nedzi, M.D., Associate Professor of Radiation Oncology. The Comprehensive Skull Base Program combines the latest cutting-edge technologies and recognized physician expertise with compassionate, individualized care to optimize outcomes for challenging skull base lesions.

To learn more, visit utswmedicine.org.
To refer a patient, call 214-645-8300.
Role of intraoperative CT imaging in sinus and skull base surgery

Intraoperative navigation has evolved to become an integral component of the endoscopic surgical paradigm and has been widely employed as an important tool for improving outcomes in endoscopic sinus surgery. However, image-guided surgery relies on the preoperative dataset and cannot account for manipulations during surgery. Thus, image guidance may be rendered least reliable during complex skull base procedures.

The advent of cone-beam CT provides a platform for acquiring CT imaging in the operative suite. Could this intraoperative CT dataset modify the surgical plan and impact the completeness of surgery? To answer this important question, a prospective clinical trial was undertaken at UT Southwestern Medical Center.

A total of 49 patients undergoing endoscopic sinus and skull base surgery were enrolled. Average acquisition time was 5.3 minutes, and CT quality was deemed excellent or good in 79.6 percent of cases. Additional interventions were performed in 18 percent of cases, including removal of ethmoid partitions, frontal cells, and residual tumors.

“Intraoperative CT imaging clearly has the potential to be an essential technology in skull base surgery, but the exact indications remain to be elucidated,” says Pete Batra, M.D., Associate Professor of Otolaryngology–Head and Neck Surgery and Co-Director of the Skull Base Program, who served as the principal investigator on this study. Peter Roland, M.D., Professor and Chair of Otolaryngology–Head and Neck Surgery at UT Southwestern, adds, “Intraoperative CT also holds promise in lateral skull base and cochlear implant surgery.”

“With accrued experience and future research, we hope to better refine indications of this technology,” Dr. Batra says.


To learn more, visit utswmedicine.org.
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Hearing preservation for acoustic neuroma surgery

UT Southwestern Medical Center skull base surgeons recently published in Neurosurgery their findings on hearing preservation results after acoustic neuroma removal. Postoperative hearing status was reviewed in 47 patients who underwent a middle fossa craniotomy approach for acoustic neuromas. Hearing was preserved in 63 percent of patients, improving to 76 percent if the patient’s tumor size was 10 mm or less in maximum diameter.

“With widespread use of MR imaging, the diagnosis of small acoustic neuromas with good hearing is not uncommon,” says Walter Kutz, M.D., Assistant Professor of Otolaryngology–Head and Neck Surgery at UT Southwestern. The options for patients include observation, radiosurgery, or microsurgery with a hearing preservation approach.

“This study has important implications for informed medical decision-making in patients with small acoustic tumors,” Dr. Kutz adds. “It confirms that microsurgery can offer reasonable success rates in hearing preservation with low complication rates.” However, the optimal treatment strategy still rests on a multitude of factors, including tumor size and location, the patient’s age, and patient preference, according to Dr. Kutz. UT Southwestern skull base surgeons present all acoustic neuroma cases to the multidisciplinary skull base conference to optimize the care of their patients.


To learn more, visit utswmedicine.org.
To refer a patient, call 214-645-8300.
In the News

- **Dr. Pete Batra** was the guest of honor at the Annual Egyptian Rhinology Conference held in November 2012.
- **Dr. Brandon Isaacson** served as visiting professor at the 2012 University of Michigan Temporal Bone Dissection Course.
- **Dr. Walter Kutz** received the Honor Award from the American Academy of Otolaryngology.
- **Dr. Kyle Allen** will graduate as the first neurotology fellow at UTSW and join the Tampa Bay Hearing and Balance Center in July 2013.
- **Dr. Caitlin McLean** will be the incoming fourth rhinology fellow in July 2013 after completing her otolaryngology residency at the University of Rochester.
- **Dr. Sachin Gupta** will be the second neurotology fellow in July 2013 after completing his otolaryngology residency at New York University.
- **Neurotology Fellowship** was officially recognized as an ACGME-accredited program.

Join Us at CME Rhinology Course

UT Southwestern Medical Center will host the 2013 Lone Star Rhinology Course the weekend of **April 26-28** on its campus in Dallas. The program, “Cadaver Lab with Image Guidance,” is designed for practicing otolaryngologists, residents and fellows in training, and other health care providers interested in a comprehensive update on advances in medical and surgical care of rhinologic disease.

Sponsored by UT Southwestern, UT Health Sciences Center at Houston, and the UTSW Office of Continuing Medical Education, the three-day event will feature as guest of honor **Brent A. Senior, M.D., F.A.C.S., F.A.R.S.** Chief of the Division of Rhinology, Allergy, and Endoscopic Skull Base Surgery at the University of North Carolina School of Medicine.

For complete program details and registration, visit **sinuscourse.com** or call **214-648-3138**.

For More Information

For information or to refer a patient to UT Southwestern Medical Center, please call 214-645-8300, Monday through Friday, 8 a.m. to 5 p.m. Online appointments and referral requests are available at utswmedicine.org.

Skull Base Team Members

**Rhinology**
- Pete Batra, M.D.
- Bradley Marple, M.D.
- Matthew Ryan, M.D.
- Barbara Schultz, M.D.

**Neurotology**
- Brandon Isaacson, M.D.
- Walter Kutz, M.D.
- Peter Roland, M.D.

**Neurological Surgery**
- Sam Barnett, M.D.
- Hunt Batjer, M.D.
- Christopher Madden, M.D.
- Bruce Mickey, M.D.
- Babu Welch, M.D.
- Jonathan White, M.D.
- Louis Whitworth, M.D.

**Head and Neck Surgery**
- Larry Myers, M.D.
- Baran Sumer, M.D.
- John Truelson, M.D.

**Neuro-Ophthalmology**
- Kamel Itani, M.D.
- John McHenry, M.D.

**Neuro-Oncology/Radiation Oncology**
- Ramzi Abdulrahman, M.D.
- Lucien Nedzi, M.D.
- Robert Timmerman, M.D.
- John Yordy, M.D.

**Radiology**
- Dianne Mendelsohn, M.D.
- Carlos Perez, M.D.

**Interventional Neuroradiology**
- Lee Pride, M.D.
- Phillip Purdy, M.D.