



# ENT Today

THE NEWS CENTER FOR  
OTOLARYNGOLOGIC CARE

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## In This Issue

What Is the Effect of ACGME  
Duty Hours Regulations? . . . . . 3

Current Thinking on  
Evaluation of Dysphagia . . . . . 6

OSA: Only the Beginning  
of the Riddle of Daytime  
Sleepiness . . . . . 9

SLIT vs SCIT: A Q&A . . . . . 16

### SPECIAL REPORT: Facial Prosthetics: An Evolving Field



Turn to page 12 to learn about  
the latest techniques to help  
restore near-normal appearance to  
patients with facial damage.

## Endoscopic Technology Brings Major Changes to Head and Neck Surgery

Part 3 of a series

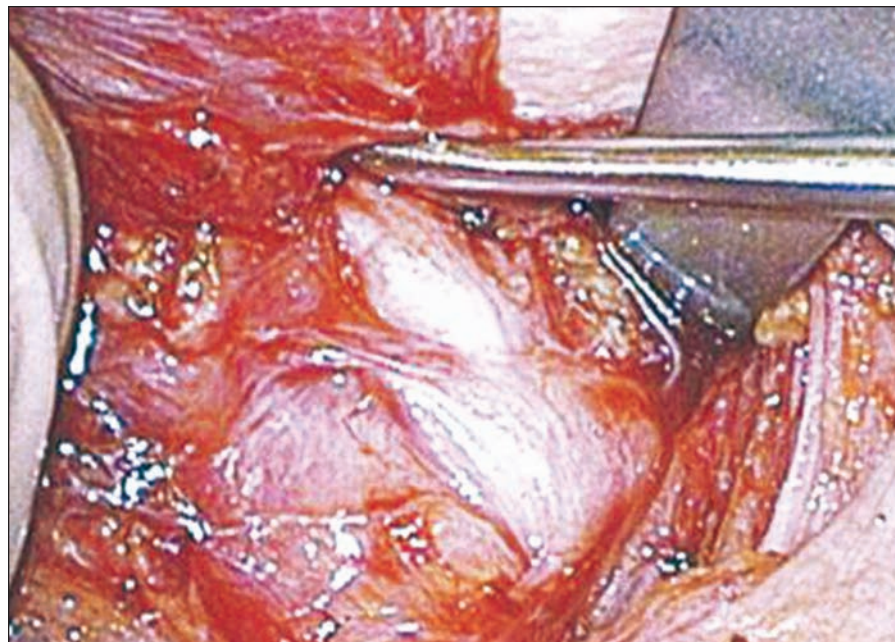
By Ed Susman

**T**he way David J. Terris, MD, performs thyroid and parathyroid surgery today bears almost no resemblance to the way he learned to do it in residency 15 years ago—but with the strides being accomplished in robotic surgery, there could be another sea change in techniques that might make his work today obsolete as well.

In a series of lectures by a panel at the 111th annual meeting of the Triological Society meeting, Dr. Terris, Porubsky Professor and Chairman of the Department of Otolaryngology at the Medical College of Georgia in Augusta, described the current state of thyroid surgery, when performed with endoscopic techniques, as a “drain-less, sutureless outpatient procedure.”

He and his team perform about 150 to 200 thyroid procedures a year, he said, and about one-third of these operations are done with the endoscope, safely removing

*Continued on page 19*



*The high-resolution endoscope enhances visualization by producing an image of the recurrent laryngeal nerve that is magnified many times compared with what is seen in unaided dissection.*

## Bioentrepreneurship: A Primer

By Alice Goodman

**A** quick scan of course offerings and lecture titles at medical meetings shows that bioentrepreneurship is a growing phenomenon in the United States. With the expansion of technological capabilities, physicians and other researchers have come up with new products to meet unmet needs in medicine, be it drugs or devices. Bioentrepreneurship for otolaryngologists typically involves developing a new device to improve otolaryngologic surgery. *ENT Today* spoke with several bioentrepreneurs about the road to success.

“Bioentrepreneurship involves taking technology from the mind of a researcher and bringing it to the marketplace. Typically the two pathways for doing this are patenting and proving a concept and licensing it with a larger company or using the new technology as the basis for a start-up company that may grow into a larger company or may be acquired in the future by a larger company,” explained Donald A. Gonzales, MD. Dr. Gonzales, a bioentrepreneur, is founder and Chief Medical Officer of ENTrigue Surgical in San Antonio, TX. The company currently has

one commercialized articulating sinus instrument, a stapler for septoplasty awaiting approval, and ongoing clinical trials for a middle turbinate medializer.

### Becoming a Bioentrepreneur

Bioentrepreneurship may come about in any number of ways, but generally it involves identifying a product for an unmet need and considering whether it will benefit all the major stakeholders: patients, physicians, site of care, and payors, explained Thomas V. Ressemann, another

*Continued on page 21*

## Endoscopic Technology

*continued from page 1*

lesions in low-risk patients with barely a discernible scar after a short healing period.

In the previous articles in this series for *ENT Today*, Dr. Terris and his panel reported on work in four areas of surgery where minimally invasive procedures were changing the playing field in a variety of treatments. Researchers discussed endoscopic skull base surgery and use of sentinel node biopsy that may prove useful in sparing patients of the need for neck dissection.

“We are witnessing a very rapid change in how thyroid surgery is done,” Dr. Terris said. “Many of these advances have been technologically driven. Whether it is in new devices or in image guidance, the operation of thyroidectomy has been effectively transformed.” In addition, “parathyroid surgery bears very little resemblance to the way I was trained to do that operation just 15 years ago.”



*Photo courtesy of David Terris, MD*

*After endoscopic identification and preservation of the critical structures related to the thyroid, the gland may be retrieved through minimal incisions, which are just big enough to permit removal.*

When doctors find a patient who is ideal for the endoscopic approach to thyroid surgery, the patient will undergo an incision of about three-quarters of an inch, and the operation can be managed through this small access point without damaging major blood vessels or impinging on critical nerves.

“We don’t use drains on these patients at all,” Dr. Terris said. “We don’t use sutures for the skin. It is almost always outpatient surgery, even in total thyroidectomy patients. It can be done under local anesthesia in carefully selected patients.”

In his presentation, Dr. Terris showed several film clips of actual procedures to give a sense of what a doctor is looking at when performing endoscopic surgery. He described the removal of a left-sided lesion, pointing out the ease of identifying nerves with endoscopic magnification. He also narrated the ligation of the

superior thyroid artery using ultrasound-based devices.

“In a matter of five or six seconds, the vessel is completely and reliably ligated. The device generates a little bit of steam that can be evacuated,” he said. “We then look to secure the thyroid vein in exactly the same way. We can get to within one or two millimeters to the nerve with temperatures that are reached that are so much lower than with electric cautery. The nerve dissection is done off the monitor.

“We use blunt elevators and—in a significant departure from the way I was

trained—we dissect perpendicular to the direction of the nerve. I was trained to dissect parallel to the nerve,” he said. The use of the blunt elevators allow for the thyroid to be retracted medially.

“It is far easier and gentler on the nerve to identify it that way,” Dr. Terris said. “Once the gland is exteriorized, we follow it all the way to the junction with the larynx to make sure the nerve is not injured.”

He showed before-and-after pictures of one patient—a pediatric nurse in his institution who underwent the surgery. The evidence of the operation was vir-

tually undetectable. “Obviously, these surgeries heal quite well,” he said. He made the incision low in the neck—about 20 mm in length—and was able to safely remove the thyroid gland.

## Technology Advances Enable Change

“What has allowed us to accomplish these beautiful access techniques has been changes in technology,” Dr. Terris said. “Advanced energy devices, whether it be a laser device or an ultrasonic device, have certain

*continued on page 20*

## Endoscopic Technology

continued from page 19

advantages. The ultrasonic devices reach temperatures of 70 to 100 degrees Celsius, which is enough to ligate blood vessels but not as high as you get with electrocautery. That's the safety factor. Another advantage is that it is very efficient. It lets you ligate and cut in a single step rather than with the suture technique. In addition to ligating and cutting, now you can actually dissect with this instrument. That has increased our efficiency, which has cut down our time in surgery. It is nearly bloodless surgery. If we lose more than 5 cc of blood on

a case, it is unusual. I like the fact that there is nothing left in the wounds. There are no clips, there are no silk ties. Because of the confidence in hemostasis, we are able to get away from using drains; we are now doing about 70 percent of our cases on an outpatient basis."

Dr. Terris said that changes in imaging technology—particularly, advances in ultrasound visualization—in the mid-1990s "have allowed us to use a targeted approach to parathyroid surgery, and this gives us the confidence of having performed a complete resection."

In the surgery procedure itself, he illustrated how the use of blunt elevators allows

doctors to perform an atraumatic dissection in the region where the site of the adenoma is anticipated. "We are really looking for a color change associated with an adenoma," he said. "It's kind of a purplish hue. Once the adenoma is identified, then it is a matter of gently dissecting around the gland. The gland really wants to come out. You just have to help it a little bit."

In the case he described, the large ade-

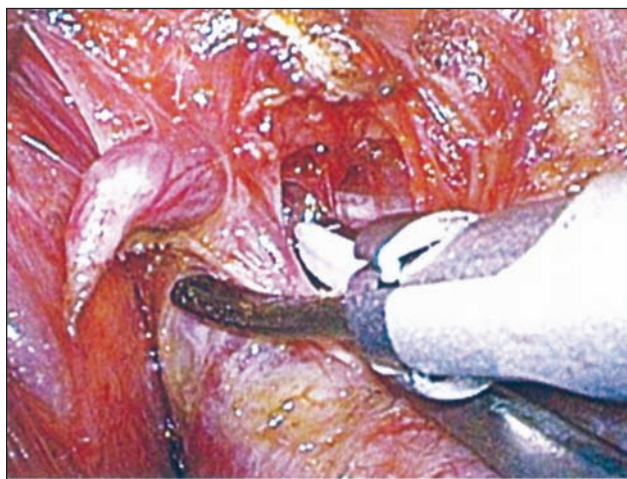


Photo courtesy of David Terris, MD

Reliable ligation of the upper pedicle with a low-profile instrument is critical, and achieved with an ultrasonic device such as the Harmonic.



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—David J. Terris, MD

noma made it necessary for the surgeon to deal with the major nerve in the area. "To make sure that nerve is not injured, we identify it, trace it out, and dissect it away from the adenoma, so we can retract the adenoma laterally in this case," Dr. Terris explained. "It is a process of gentle blunt dissection to mobilize that nerve away from the adenoma."

"We usually find the end artery of the adenoma. We could use the harmonic device, but we usually find that there is just one blood vessel that we are ligating for this entire operation, so I think it is hard to justify a \$300 handpiece just for that. So we use an endoscopic clip. We fire three clips—two on the patient side and one on the adenoma side—and we divide the artery between

these clips. Once that is done, the adenoma is devascularized."

The surgery can be performed in such a manner that the patients recover rapidly, and almost all of them are discharged the day of the operation. "I think we are enjoying the benefits of technology in that there is a high rate of cure even in less-experienced hands," Dr. Terris said. "In the old days, it was more important to have an experienced parathyroid surgeon. Now I think that even in less-experienced hands, we are finding quite good results."

The next article in this series will provide tips to practitioners of endoscopic surgery. **ENT**

# Product Watch

## Have an Item for Product Watch?

Each month, **Product Watch** offers readers the latest information on new and innovative products for otolaryngologists—head and neck surgeons. Please submit information on new products to [ENToday@lwwny.com](mailto:ENToday@lwwny.com).

Listing of a product in Product Watch does not imply endorsement by *ENT Today*.

## Integrated Power Console Platform for Use in ENT Surgery

Medtronic Inc. has announced the launch of its new Integrated Power Console (IPC™) platform, its first multispecialty surgical power console for use in spinal, cranial, and ear, nose, and throat (ENT) surgeries. The console powers Medtronic's Midas Rex® Legend EHS® and Legend EHS Stylus® drills, used primarily in spinal and cranial applications, and the Straightshot® M4 Microdebrider, Visao®, and Skeeter® drills used in ENT and neurotology procedures.

To increase functionality, the console includes integrated irrigation with IntelliFlow™ remote control and redesigned tubing, plus expanded

handpiece options. An intuitive touch-screen interface, IV-pole mount and the three-button non-slip foot pedal make the IPC system easy to use.

Along with the IPC platform, Medtronic launched the Stim Bur Guard for the Visao High-Speed Otologic Drill. Stim Bur technology works with Medtronic's NIM-Response® 2.0 and NIM-Neuro® 2.0 intra-operative nerve monitors to alert surgeons of proximity to the facial nerve during surgery. It is the first and only commercially available surgical tool that combines an electric drill with stimulation.

"The IPC platform goes a long way toward helping hospitals streamline their ORs," said Bob Blankemeyer, President of the Surgical Technologies business and Senior Vice President at Medtronic. "It is our first true cross-specialty power platform and represents a significant advancement from power consoles previously available in the neurologic, spine, and ENT markets. The powered instruments we design in the coming years will be built to run on the IPC platform."

Contact: 800-874-5797; [www.medtronic.com](http://www.medtronic.com)



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