Promoting Quality of Life With Transoral Robotic Surgery

During his initial visit to the Head and Neck Surgical Oncology clinic at the Massachusetts Eye and Ear Infirmary, Norman Croteau was relieved that Drs. Emerick and Lin asked him what he did for a living. As a long-time prosecutor and an elected District Attorney from Lewiston, Maine, his voice is vital to his career. After six months of consultations, tests, and procedures that led to the discovery of a myoepithelial carcinoma at the base of his tongue, this was the first time Mr. Croteau was asked about his work life. “I’m sure the others just didn’t think about it, but I’m a lawyer—a prosecutor. So it’s definitely a quality of life issue for me,” Mr. Croteau said.

He was prepared to have an invasive surgery that carried many risks, including the risk of damage to his vocal cords, with another physician. The traditional open surgery involves resecting the tumor from the outside of the throat, with a long incision from the outer corner of the lip to the ear; and often involving dissection of the jawbone. The risks are considerable, and the surgery usually requires a long hospital stay, an arduous recovery period, and potential disfigurement.

Weeks prior to the planned surgery, a family member suggested to Mr. Croteau that he seek a second opinion at the Massachusetts Eye and Ear Infirmary. He initially consulted with Dr. Kevin Emerick, who suggested that Mr. Croteau would be a candidate for a less invasive treatment.
Promoting Quality of Life With Transoral Robotic Surgery (continued)

ment option, transoral robotic surgery, and referred him to Dr. Derrick Lin.

Dr. Lin and his colleague Dr. James Rocco in the Division of Head and Neck Surgical Oncology have pioneered efforts toward bringing transoral robotic surgery to appropriate head and neck cancer patients at the Massachusetts Eye and Ear Infirmary. After completing a training course in 2011, Drs. Lin and Rocco set out to find a surgical robot to use to provide this treatment to Massachusetts Eye and Ear Infirmary patients. With guidance from Dr. Holly Gallivan, Chief of Otolaryngology–Head and Neck Surgery, and Dr. Jeffrey Brown, they found a solution at Winchester Hospital, which is located in the northwest suburb of Boston.

“We knew that this was technology that we needed to offer our head and neck cancer patients, because it allows us to do things that we weren’t able to do before. It allows us to give an alternative to patients who would otherwise be treated with chemotherapy and radiation, or traditional open surgery,” Dr. Lin said.

The surgery is performed using technology that was FDA approved in 2010—a surgical robot with four arms controlled by the surgeon at a console a short distance away. Three of those arms are used to hold surgical instruments, and the fourth arm holds a camera for enhanced visualization during surgery.

“It allows us to get our fingers in areas we wouldn’t be able to reach otherwise, and we can see better because we’re using a high definition camera right at the surgical site. For those reasons, it has helped us to see the tumor extension, to have better visualization, to better articulate the instruments, and to better control the tumor,” Dr. Lin said.

The ideal candidate for transoral robotic surgery for head and neck cancer would be a patient with a T1 or T2 tumor in the oropharynx (including areas of the tonsil or base of tongue). Early stage disease is preferable to avoid the harsh side effects of chemotherapy and/or radiation. At this time, Drs. Lin and Rocco perform robotic surgery on upfront surgical candidates only, as the risks are much higher in patients who have already been treated with chemotherapy and radiation.

“T3 and T4 patients are not candidates for robotic surgery, because the tumor is too big,” Dr. Lin said.

In many cases, chemotherapy and radiation can be lessened or avoided entirely following transoral robotic surgery, which spares the patient the harsh side effects of those treatment regimens. In an effort to preserve organ function and to promote cosmesis, speech, swallowing, and recovery outcomes are vastly improved with transoral robotic surgery. With traditional open surgery, tracheotomies are often necessary, and patients are typically admitted at the hospital for a period of up to three weeks. With transoral robotic surgery, the average hospital stay after surgery is one to two days.

Aside from mildly slurred speech from recent chemoradiation therapy, he is otherwise able to eat normally and continue his work as District Attorney.

For more information on transoral robotic surgery, please contact Dr. Lin’s office at 617-573-3502 or Dr. Rocco’s office at 617-573-3192.
An Important Part of Treatment for Patients with Facial Paralysis

A week before her daughter’s wedding, Beth Shiff woke up one morning, looked into the mirror, and realized that something was very wrong. The 60-year-old physical education teacher of Methuen, Mass., was in Florida on vacation, relaxing before her daughter’s big day. Methuen, Mass., was in Florida on vacation, relaxing before her daughter’s wedding, Beth Shiff

Unable to move the left side of her face and fearful that she may be having a stroke, Shiff called an ambulance and was diagnosed with Bell’s palsy in a nearby emergency room. Meanwhile, a concerned friend at home in Massachusetts located Dr. Tessa Hadlock’s Facial Nerve Center feeling nervous about this devastating condition that impairs their ability to make facial expressions. This anxiety is mostly due to inconsistencies in diagnosis and treatment, and a lack of information and resources.

Co-founded by Drs. Mack Cheney and Michael McKenna in 1988, the Facial Nerve Center offers a multidisciplinary approach to treating facial nerve disorders caused by a variety of conditions—acoustic neureuma, Bell’s palsy, Ramsay Hunt syndrome, hemifacial spasm, and others.

Under the directorship of Dr. Hadlock since 2002, the Center has expanded its team of experts to better accommodate the varied needs of patients with facial paralysis. Subspecialty physicians (otolaryngologists, cornea specialists, otologists, and neurosurgeons), a chemodenervation nurse, and two physical therapists, Mara Robinson and Jennifer Baiungo, bring their highly specialized expertise to patients with facial paralysis.

For many patients, physical therapy plays an integral role in the treatment plan. Patients across the spectrum, including those with acute paralysis, recovering paralysis, after facial reanimator surgery, and even paralysis that has plateaued, can benefit from a therapy program tailored to their needs. This means that each patient is met at their level of need, whether that includes weekly, monthly, or even yearly visits with Robinson and Baiungo.

“Given the variety we’ve seen over the past decade, we’ve put together an algorithm based on what the patient has and the strategies that are applied to them,” Robinson said.

Robinson and Baiungo use a variety of techniques to help facial paralysis patients achieve their goals, including instruction on the anatomy and physiology of the face, soft tissue techniques and massage therapy, neuromuscular retraining with a mirror, and facial relaxation techniques. Given the intense impact that the loss of facial expression can have, patient goals in therapy vary by individual and can have both functional and cosmetic implications.

“We have musicians who come in and they want to be able to play again, and they say, ‘I don’t care what anything else looks like, as long as I can successfully play this instrument.’ So just like any other realm of physical therapy, we have individually based goals,” Baiungo said.

For Shiff, it was a matter of minimizing the pain from facial twitching associated with her Bell’s palsy recovery.

“I was willing to try anything, because I wanted to feel better. It was the pulling and the pain,” Shiff said.

In addition to the intensive clinical aspects of physical therapy, many patients with facial paralysis benefit from the strong emotional support that routine visits with a physical therapist can provide.

“It’s so devastating for people to lose their ability to smile and express their emotions. I’ve worked with people with neurological conditions like stroke and spinal cord injuries, but for some reason this one brings on the most tears. It’s psychologically draining for our patients,” Robinson said.

Robinson and Baiungo also play a role in identifying candidates for surgical or medical interventions, especially chemodenervation.

“There are a lot of settings where you have a therapist who does the therapy, but then you have a neurologist who gives the botoks, and they might not communicate as much as we do or work together as often. So because we can just go across the hall, I think the patients understand when I say, ‘I’m going to go talk to Dr. Hadlock about this,’ that I’m actually going to do that. It won’t be a three-week lag time in communication. It’s a big thing as a physical therapist to know that, if you have a question, or you’re thinking of a new idea, you have people to bounce those ideas around with,” Baiungo said.

A few years ago, Dr. Hadlock initiated weekly facial nerve conferences in the Center, as a medium for discussing complex cases and to promote fluid communication across disciplines.

“We problem solve together, which is important,” Baiungo said.

Though she admits that her experience at her daughter’s wedding was emotionally traumatic, and that she avoids looking at photographs from the event, Shiff has worked extensively with Robinson over the years and says that she has found her smile.

“She has taught me how to make my smile better. Sometimes when we’re going to take a picture, I’ll say, ‘Wait a minute!’ and I’ll feel it. I can adjust it. Mara had me do it in a mirror a lot, and now I can do it without the mirror.’

For more information on physical therapy for facial paralysis, contact the Facial Nerve Center at 617-573-3641.  

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Nerve Monitoring Program Protects Patients from Complications in Thyroid and Parathyroid Surgery

With a family history of thyroid cancer, 49-year-old professional opera singer Dominique Labelle has been mindful of her risk for developing the disease all her life. When she was diagnosed with a tumor in 2010, her general otolaryngologist suggested that, given Labelle’s career as a professional singer and the risk of vocal cord paralysis associated with thyroidectomy, the tumor could be monitored through quarterly ultrasounds. But by 2012, the tumor appeared to be extending out of the thyroid, “like a muffin top,” as Labelle described it.

Deciding that it was time for surgical intervention, Labelle was then referred to Dr. Gregory Randolph in the Thyroid and Parathyroid Surgery Division at the Massachusetts Eye and Ear Infirmary.

“All of the doctors I spoke with said that this was a very serious surgery for me, because I could lose my voice over this,” Labelle said.

Many thyroid cancer patients, and especially those who are professional singers, feel considerable trepidation when faced with the prospect of thyroidectomy surgery. Located in an area of complex anatomy, the thyroid gland sits very close to the recurrent laryngeal nerves—the nerves that innervate the vocal cords—on the right and left side of the neck. Surgical trauma to one or both of those nerves can lead to vocal cord paralysis, along with an array of complications related to speech, swallowing, and respiration.

“The nerve that powers the muscles of the vocal cord is very close to the thyroid gland, and so it can be injured with thyroid surgery,” Dr. Randolph said.

Trauma to the recurrent laryngeal nerves during thyroid surgery is not uncommon, and the consequences become more severe when both nerves are damaged. “Some estimate that perhaps 10 percent of thyroid surgery is associated with at least temporary injury to one of the laryngeal nerves. One nerve being injured versus two can have a wide range of complications. Voice and swallowing are compromised if just one nerve is injured. If both nerves are injured, breathing problems and the need for tracheotomy tubes becomes an issue,” Dr. Randolph said.

In October 2012, Dr. Randolph was able to safely remove Labelle’s tumor in part due to innovative nerve monitoring technology that provides critical information to minimize risk to the recurrent laryngeal nerves during surgery. The technology was developed at the Massachusetts Eye and Ear Infirmary by a handful of physicians and scientists in the early 1980s, Drs. Aaron Thornton, Joseph B. Nadol, Jr., Ralph Metson, and James Kobler among them.

In thyroid surgery, placement of an endotracheal tube allows the measurement of electrical activity of the vocal cords, providing audio and visual information to the surgeon, who is assisted by an anesthesiologist, who keeps the patient adequately anesthetized, and an audiologist or technician, who operates the monitoring equipment.

“Because of the functional importance in terms of speech, swallowing, and respiration, it’s important to preserve those nerves during thyroidectomy. The monitoring system allows us to obtain electrical information from the nerve and vocal cords during surgery,” Dr. Randolph said.

This innovative technology is employed by the Department of Audiology across a variety of head and neck disciplines. At the Massachusetts Eye and Ear Infirmary, audiologists monitor the recurrent laryngeal nerves during thyroid surgery and the facial nerve during mastoid surgeries. At Massachusetts General Hospital, the technology is used to monitor head and neck nerves during a variety of neurosurgical interventions.

Dr. Randolph has popularized the use of this important technology in thyroid and parathyroid surgery through teaching and professional outreach initiatives on the international stage, from sharing these best practices in nerve monitoring with clinical fellows to encouraging peer physicians to employ nerve-monitoring technologies to protect their patients from severe complications. He has also developed a set of international guidelines for nerve monitoring in thyroid and parathyroid surgery to reduce inappropriate variations in monitoring technique.

Dr. Randolph performed his 3,000th case assisted by intraoperative neural monitoring in June 2012. He continues to lead efforts in nerve preservation through his research, exploring new areas such as continuous vagal nerve monitoring.

Following her thyroidectomy, Labelle is extremely grateful for her good outcome. She is now easing her way back into performing, and gave a concert in New York City on March 11.

“One was very, very nervous. I was able to make music and be in front of all those people. It was a great concert,” Labelle said.

She performed in St. Matthew Passion by Bach at Carnegie Hall on March 28.

For more information on nerve monitoring during thyroid and parathyroid surgery, please contact Dr. Randolph’s office at 617-573-4115.