New Surgical Skills Laboratory to Provide Residents Critical Skills for Real-Life Scenarios

Surgical simulation has emerged as a proven training tool with significant potential for reinforcing previously acquired skills and learning more advanced procedures and techniques. As surgical simulation technology has evolved, one of its earliest users, the University of Cincinnati Medical Center, has kept pace with these changes. The University of Cincinnati Medical Center Department of Otolaryngology—Head and Neck Surgery has a long history of using simulation for training, from its early temporal bone laboratory to its current Resident Bootcamp and Midwest Airway Laboratory. The recent expansion of this initiative is a state-of-the-art Surgical Skills Laboratory, the Surgical Skills Laboratory, which currently under construction and expected to open early in 2016. The laboratory will be available 24/7 and provide critical skills training to all otolaryngology residents in both the adult and pediatric programs.

Charles M. Myer, IV, MD, head and neck surgeon at Cincinnati Children’s Hospital Medical Center, who leads this initiative, explains, “The goal of simulation is to provide opportunities for residents to practice in real-world situations with no risk to the patient.” Faculty will conduct lectures and workshops in the Skills Laboratory, as well as review videos of the surgeons’ performance-specific skills to evaluate their competency. Resident surgeons will develop the “muscle memory” necessary to perform both common and uncommon procedures, the Surgical Skills Laboratory will be especially useful in providing opportunities to practice with high risk, low frequency conditions such as orbital hematomas, pharyngocutaneous fistulas, and foreign body injuries. Additionally, a student in our training program who is your child is a rare event, to practice on the simulator may serve to increase our overall pediatric outcomes.

The surgical community is one example of a procedure that residents will be able to practice safely even when they’re not operating rooms. Harper and colleagues have submitted for publication their experiences with modifications made to a Zeebra’s simulator to improve the fidelity, and use as a standardized competency-based training experience. (Continued on page 3)

Exploring a Novel Method for Improving Facial Nerve Healing from Facial Nerve Injury

Facial nerve injuries result in significant functional deficits and cosmetic deformities. Better methods are still needed to improve facial nerve healing resulting from injuries. To further explore this, the latest work on improving facial nerve healing was a process at the University of Cincinnati Medical Center. The center used the magnesium filaments to assist in peripheral nerve healing. David, MD, Director of the Division of Facial Plastics and Reconstructive Surgery, and the Program Director of the Otolaryngology at UC Medical Center and Medical School, MD, former otolaryngology surgeon who collaborated with Sarah Lynn, PhD, University of Cincinnati, Department of Anesthesiology and Cellular and Molecular Physiology, to develop this novel method, which was recently reported in a letter to the American Academy of Otolaryngology and Head and Face Surgery (AARH). The University of Cincinnati Medical Center is one cutting-edge technology that surgical residents often test. "The goal of simulation is to provide our residents with a "hands-on" approach to surgery," says Myer. "By using surgical simulation, we can get residents to practice safely and effectively, which will lead to improved patient outcomes." The Sonopet Ultrasonic Aspiration System

Technical Innovation in Skull Base Surgery Program

Skull base surgeons are some of the most skilled surgeons in medicine, but with every procedure, so every advantage is welcomed. As skull base surgeons, we always have to adapt in order to push the frontier of medicine forward. However, one advantage of this project, however, can be seen in training vestibule shave and transcranial surgery, which involves the brain's basal ganglia. This could possibly decrease the frequency of preoperative therapeutic breakdowns.

"As skull base surgeons, we always have to adapt in order to push the frontier of medicine forward." Dr. David Weber, associate professor of otolaryngology and neurosurgery at UC Medical Center, has been leading the challenge that the department was facing: how to decrease the risk of hearing function is especially difficult. The ultrasonic bone aspirator may allow for less hearing loss and better outcomes for patients.

The Sonopet Ultrasonic Aspiration System is a versatile system for precise control of soft tissue while simultaneously allowing free bone aspiration in close proximity to delicate structures. The device (shown left) is capable of running the handpiece (shown above) at multiple frequencies through a single connection port. Images courtesy of 3M

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University of Cincinnati Medical Center

Challenging cases such as this example were recently presented at the National AAO-HNS meeting in Dallas 2010 by Dr. Home and P. Mamby, MD. Over the last six years, Home and Mamby have taught an annual National AAO-HNS course on "Optimal Surgical Strategies for Treating Facial Nerve Palsy" from facial plastic surgery and neurotology standpoint. Contract research into magnesium filament implants, which have the potential to improve repair of injured peripheral nerve deficits, may help improve outcomes in these patients. Says Home, "Our study is preliminary research, but the findings are promising, and we went to indicate that magnesium is compatible with peripheral nerve healing. Clearly, this warrants additional study.

Figure 1: Typical wound closure resulting in 6-mm-long, 3-mm-wide gap. Note the intact edge of the incision (red line) and the area where it is sutured (red arrow).

Figure 2: Photograph of a patient following the use of magnesium implants. The incision is closed primarily, with nearly full range of motion of the right eye. The patient is also able to close the left eye, which was previously "sunken in" and droopy.

Methods

All patients were evaluated and operated on under the care of the Otolaryngology-Head and Neck Surgery Section of the Cincinnati Children's Hospital Medical Center. Approval for the study was obtained from the Institutional Review Board of Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio. Written informed consent was obtained from all patients and parents at least 18 years of age. All children younger than 18 years of age required written informed consent from a legally appointed guardian. After surgery, patients were discharged on a daily basis. The magnesium filaments were removed after an average of 7 to 10 days, at which time a 6-mm-long incision was necessitated. The patients were observed for 1 year after surgery for evaluation of outcome. None of the patients had a history of facial palsy before surgery.

Results

The patients demonstrated improved excursion of the facial nerve. The patients were able to close their eyes and smile, which were absent preoperatively. The patients had a normal eye position. No complications related to the surgical procedure were observed.

Conclusion

Magnesium filaments may serve as an alternative to nerve grafts or free muscle transfer for reconstruction of the facial nerve. Further studies are needed to confirm these findings.

References


New Development in Epithelial Cytoskeleton

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