U of M Neurosurgery This Week

January 7, 2019

New kind of neurosurgical operating theater to be built on campus – first in the world

Fairview Health Services, in partnership with the U of M, has committed $13 million to build a new kind of neurosurgical operating theater. Dubbed the T-suite – for Tomorrow's Technology, Treatment and Training – it will be the first of its kind in the world.

According to the suite's manufacturer, Minnetonka-based IMRIS, the T-suite will be the most advanced surgical theater constructed to date. It features a four-room configuration with a 3-Tesla, high-field MR scanner that travels into both operating rooms on demand to provide intraoperative images of diagnostic quality. The suite enables procedures, including laser ablation, that cannot be performed in a conventional operating room.

"Previous iterations of MR suites were designed to just allow surgeons to see the outcome of their surgery," explained Department Head Dr. Chen. "This surgical suite will enable surgeries previously thought impossible."

The suite is unique in that each room is outfitted for a particular purpose. "The magnetic field of an MR scanner is 20,000 times greater than that of the earth. In such a field, metallic objects, including most surgical instruments, become dangerous airborne projectiles," Dr. Chen said. "State-of-the-art surgeries require specialized equipment such as endoscopes that are potential hazards in an MR suite. The T-Suite is designed to safely accommodate such equipment."

One of the suite's rooms will be a dedicated angiosuite for embolization and stroke treatment. "Look at what happens today with the typical stroke patient – they must be taken to multiple areas to get imaging needed for surgery," noted Dr. Chen. "For a stroke patient, time is brain. This new setup, where the angio-suite is two seconds away from the MRI, will minimize time required for travel and allow the surgeon to assess the impact of

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Department adds neurosurgeons in Pediatrics and Functional Neurosurgery

Carolina Sandoval-Garcia, MD
Although a native of Colombia, Dr. Sandoval-Garcia is by no means new to the upper Midwest. She completed her residency in Neurological Surgery at the University of Wisconsin Hospital and Clinics in Madison, where she won the 2016 Resident Academic Achievement Award. Just before coming to Minnesota, Dr. Sandoval-Garcia completed a year-long fellowship in pediatric neurosurgery at Nicklaus Children's Hospital in Miami, FL. She attended medical school at the University Colegio Mayor de Nuestra Senora del Rosario in Bogota, Colombia.

Pediatric neurosurgery was especially attractive to Dr. Sandoval-Garcia because caring for children when she was in training was "particularly gratifying. They are the most resilient patient population," she said. "Their unique strength and determination to get better motivated me to push myself further as I cared for them."

Dr. Sandoval-Garcia was attracted to the U of M by the prospect of a career in academic pediatric neurosurgery, "in a department with great faculty and residents," she said. "The U provides significant opportunities for early career development within a dynamic and supportive environment. I feel they foster collaboration and partnerships in a multidisciplinary environment…all of which aligns well with my interests in research and outreach."

Teaching was an important part of Dr. Sandoval-Garcia's training in Miami and she enjoys working with the U's neurosurgical residents. Being able to combine a busy clinical practice with research initiatives also excites her. Her research will emphasize her clinical interests in conditions such as epilepsy, vascular pathology, and hydrocephalus.

When Dr. Sandoval-Garcia has time away from work, she enjoys traveling, spending time with her husband and cats, reading, running, playing basketball and tennis, watching movies and listening to music.

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T-suite, continued from page 1

of their intervention to maximize the benefit for our patients."

The three rooms also allow the same patient to undergo multiple procedures. For instance, they can receive an injection of a substance that chokes off a brain tumor's blood supply in one room, then be moved to another outfitted for laser ablation to destroy remaining tumor blood vessels. Then they can be moved to a third room designed for minimally invasive endoscopic removal of the tumor.

In addition, the suite's MR scanner will enable visualization of the neural connections that allow the brain to function as the procedure occurs. "To see the real-time consequences of our surgery is a dream come true for surgeons and a 'giant leap for mankind' in how we can personalize surgery to the specific needs of the patient," said Chen.

The T-suite, as visualized by IMRIS

"Until now," he added, "the operative suite MR scanner just helps the surgeon see how much of a brain tumor, for instance, has been removed. But the T-suite technology will enable us to surpass this by many orders of magnitude. While I am enormously excited about the T-suite's potential, I would be disappointed if I've predicted everything we can do with it. In the end, this suite gives us a canvas upon which we can paint human imagination and innovation onto the neurosurgery of tomorrow."

Dr. Chen noted that the T-suite should be up and running in a year.

New neurosurgeons, continued

Robert (Bob) McGovern, MD

Dr. McGovern, whose specialty is functional and stereotactical neurosurgery, splits his time between the university and the Minneapolis Veterans Affairs Medical Center. "It's a unique position that serves two different patient populations," he explained. Dr. McGovern is at the U two days a week and at the VA the other three.

He arrived in Minnesota after completing a fellowship in epilepsy surgery at the Cleveland Clinic in Ohio. Dr. McGovern is excited about providing the latest treatments to his epilepsy patients throughout the Upper Midwest.

Along with patient care, Dr. McGovern enjoys teaching and performing research. "Teaching patients, residents and medical students is one of the most important things we do in an academic practice," he said. "What's especially nice at the VA is that there is only one resident for each six-month rotation, which gives you an opportunity to develop an intimate relationship. It's a great way to teach."

Dr. McGovern also has interesting plans for his research. He wants to set up a lab to study refractory (untreatable) gait and balance problems in patients with Parkinson's disease. "I did some work in this area when I was a resident at Columbia University," he said. On the clinical research side, Dr. McGovern would like to determine why there aren't more epilepsy surgery referrals. "I'm interested in figuring out how to overcome existing biases against referring patients for this potentially life-changing surgery," he said.

A native of Rhode Island, Dr. McGovern graduated from Trinity College in Hartford, CT, and before earning his medical degree from Columbia University College of Physicians and Surgeons in New York, NY, he then spent two years in Boston working in a lab. Dr. McGovern completed his neurosurgical residency at Columbia University Medical Center/New York-Presbyterian Hospital.

When he has spare time, Dr. McGovern likes to play with his son at home, find new and interesting restaurants with his wife, and stay active running. He also is a passionate fan who loves all sports, but particularly baseball and his "beloved Red Sox."

LAANTERN study evaluates effect of laser ablation on patients' quality of life

U of M patients are now being enrolled in the LAANTERN (Laser Ablation of Abnormal Neurological Tissue using Robotic NeuroBlate System) study, a multi-center effort designed to evaluate how this precision laser treatment affects the patient's quality of life.

"Patients with malignant brain tumors located deep in the brain are typically not considered optimal candidates for surgery, because of the extensive amount of healthy brain tissue that can be damaged during an operation," said Dr. Chen, LAANTERN principal investigator. "As a result, overall survival and quality of life for these patients is poor. By applying this next-generation, precision laser treatment, however, we can help patients who would otherwise be considered inoperable."

The laser procedure requires a small, pea-sized skin incision and a similarly sized opening in the skull. The laser probe is inserted in this opening directly into the tumor and used to destroy the cancer cells, with minimal impact to nearby healthy brain tissue.

The treatment requires real-time MRI monitoring and a dedicated intra-operative MRI team. It cannot be performed in a conventional operating room.

During the multidisciplinary study, participating physicians will measure enrolled patients' quality of life factors such as physical, social, emotional and functional well-being, in addition to how well the symptoms of disease are being controlled.

The study hopes to enroll a total of 1,000 patients across all participating sites.

"By understanding how our treatment impacts their lives, we can better serve our brain tumor patients and develop interventions necessary for improving the quality of their lives," said Chen.

Department adds clinic nursing staff and telestroke provider

The Department of Neurosurgery recently welcomed three new nursing staff members – Kate Bard, Ann Messer and Morgan James.

Kate is a certified physician assistant who joined the M Health stroke team in October 2018. In addition to seeing patients at Fairview Southdale Hospital, she helps support stroke patients remotely. "I work with the telestroke program to evaluate patients and provide specialist care, while they remain at their local Fairview hospital," she said.

Before accepting this new role, Kate spent five years working in general and stroke neurology, and two years in neurocritical care. "I gained lots of stroke experience and wanted a job that focused more on those patients," she said.

Kate's undergraduate degree is in biology and Spanish (she is fluent in that language). She attended PA school at Lock Haven University in Pennsylvania, where she grew up. In her spare time, Kate likes to travel, play guitar, and spend time with her Brittany spaniel, Tippet.

Registered Nurses Ann Messer and Morgan James were hired in late 2018 after having been on temporary contracts.

Ann has 20-plus years' nursing experience and earned her BSN at Montana State University. Before joining the department, she managed a cardiology clinic at Baylor Medical Center in Dallas, TX. She currently supports Drs. Grande, Haines and Ritter in the clinic.

Ann originally returned to the Twin Cities (she grew up in St. Paul) to be with her father, who is almost 94. She had moved to Texas right after college and still has two adult children there. In her spare time, Ann likes to swim, ride bikes, and go for walks. She hopes to start ice skating this winter.

Prior to joining the department, Morgan completed 14 weeks as a travel nurse in Anchorage, AK. She earned her BS in Nursing from the U of M and has worked at Regions Hospital in St. Paul and at North Memorial Health Hospital in Robbinsdale.

Morgan enjoys the challenge of working in a new type of role (as a clinic nurse) and in a new specialty. She supports Drs. Jones and Tummala.

When Morgan has spare time, she likes to play guitar, dance, ride horses, and play with her cat and three dogs.