The Most Advanced Brain Tumor Surgery North of Boston

With Cutting Edge Technology and High Tech Medicine Holy Family Hospital is Revolutionizing Neurosurgery Close to Home

Seven months ago, Eileen Lannon got up in the morning for a planned day at the beach, but a short while later she wasn't feeling well and started walking in circles in her kitchen.

"I didn't know what I was doing, and I couldn't think clearly," said Eileen. "I knew something was wrong, but couldn't put my finger on it."

When she told her husband she didn't want to go to the beach because she just didn't feel right, he called their three sons and asked them to come over. Soon afterward she was at the local emergency department where she met Neurosurgeon Katharine Cronk, MD from New England Neurological Associates.

Dr. Cronk examined Eileen and determined that she'd likely had a seizure, but to be thorough she ordered an MRI. The MRI showed a small abnormality which could have indicated a small stroke or something more, so follow-up imaging was recommended.

When Eileen returned, her second MRI revealed that the small abnormality had grown, indicating a brain tumor.

Prior to her diagnosis, Eileen, 75, was very active and had been going to the gym three to four days a week.

"I thought I was healthy. This was a shock," said Eileen

Dr. Cronk suggested that Eileen go to Holy Family Hospital because its state-of–the-art 3T MRI provides high quality images that provide much greater detail, which is crucial for intricate brain surgery.

"Holy Family is the only hospital in this area with a high field strength MRI. I compare it to a light bulb; if you want to see the fine print you have to turn the light up. With a 3T MRI you can see much more detail," said Bruce Cook, MD, a senior neurosurgeon at New England Neurological Associates and Holy Family Hospital.

Dr. Cronk ordered the 3T MRI as well as specialized MRIs, and that is when Eileen met Radiologist Mara Kunst, MD, who is fellowship trained in neuroradiology, and director of neuroimaging at L&M Radiology at Holy Family Hospital.

According to Dr. Kunst, once an MRI has identified a mass within the body, three special types of MRI done prior to surgery assist neurosurgeons before, as well as during the actual surgery.

Perfusion MRI identifies blood flow, and because cancerous tumors have the ability to create their own blood supply (angiogenesis), it helps determine whether the tumor is benign or cancerous.

Spectroscopy MRI helps measure the chemical metabolism of a tumor, which helps differentiate the type of tumor and its aggressiveness.

Functional MRI, also called fMRI, helps identify where each individual patient's speech and motor centers are, offering the neurosurgeon a more precise roadmap during brain surgery, to help minimize speech or motor damage during tumor biopsy and tumor removal.

"Holy Family is the only hospital in this area with a high field strength MRI." - Bruce Cook, MD

Neuroradiologist Mara Kunst, MD and MRI technologist Bill Perrin comfort a patient about to have a 3T MRI. Holy Family is the only hospital in the region with this high field strength MRI, which provides images with great detail, which is crucial for intricate brain surgery.

The atmosphere in a smaller community hospital is more conducive to collaboration between neurosurgeons and radiologists.

"This advanced technology allows us to process beautiful images that help guide the surgery," said Dr. Cook. "We are able to do this at Holy Family Hospital because we have a closer working relationship with the radiologists, and they know exactly what we need."

According to Dr. Kunst, getting functional MRI (fMRI) up and running required a substantial investment from the hospital administration, as well as six months of teamwork to perfect protocols, do background work, complete software updates, develop paradigms, and find test patients - including herself, MRI techs and fellow radiologists.

"We have a 3T MRI scanner outfitted with the latest neuroimaging software, but we also have great MRI techs who know how to treat patients," said Dr. Kunst. "We want patients to be comfortable. This is not a passive exam. Patients are actively engaged."

During fMRI patients are asked to tap their hands, crunch their feet, squint or move their lips over and over. This identifies where blood is flowing in the brain with movement in order to locate motor cortices.

To locate speech cortices, patients are asked questions, but told to think of their answers rather than say them, because if they move their lips, the motor cortices will become involved. Dr. Kunst supervises the exam to monitor the patient's responses and data real-time.

Dr. Cronk has also used fMRI technology to locate speech and motor cortices prior to surgery to control seizures.

"The technology at Holy Family Hospital is outstanding," said Dr. Cronk. "There is no need to travel to Boston for these procedures."

Neuroradiologist Mara Kunst goes over images with MRI Tech Bill Perrin.

Following Eileen's series of MRIs, Dr. Cronk performed surgery, removed the tumor and sent it for biopsy. When the report came back, it confirmed, as the tests had indicated, that her tumor was cancer, and an aggressive type called glioblastoma.

"I had my surgery at Holy Family Hospital because I was told it's the best hospital around for the type of tumor I had," said Eileen. "I had no pain and I was home in two days."

Following surgery, Eileen underwent radiation therapy five times a week for six weeks, to eradicate any microscopic pieces of the tumor that could have remained after surgery. Then she started chemotherapy.

Eileen currently has an MRI every three months to monitor the tumor site for growth.

"At Holy Family Hospital, the people were terrific and my care was excellent. "I'm pretty lucky to have come back the way I have."

New Physicians Caring for Our Community

Gioacchino Curiale, MD

Neurology

Office Location: New England Neurological Associates, PC
354 Merrimack St.
Lawrence, MA 01843

Board Certification: Neurology, Vascular Neurology

Areas of Special Interest: Stroke and general neurology

Affiliated with Holy Family Hospital

Katharine Cronk, MD, PhD

Neurosurgery

Office Location: New England Neurological Associates, PC
354 Merrimack St.
Lawrence, MA 01843

Areas of Special Interest: Minimally invasive surgery for degenerative spine disorders, tumors of the brain and spine, deep brain stimulation for Parkinson's disease and essential tremors, carotid artery disease, epilepsy, cerebrovascular disease, peripheral nerve surgery

Affiliated with Holy Family Hospital