INNER SPACE EXPLORERS
Treating Big Diseases in Small Places
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They work with the smallest of instruments to treat the biggest of health problems.

These inner space explorers from Northwestern Medicine® use X-rays and ultrasound to guide their tubes and needles into spaces often less than 2 millimeters in size.

“Interventional radiology involves minimally invasive surgery and image-guided therapy, which make complex diagnoses and interventions possible using tiny entry points and ultrasound or CT guidance.”

Interventional radiologists can kill a tumor by burning it from the inside out, stop internal bleeding, fuse a broken spine and clear blood clots out of arteries — treating diseases that once required full-blown surgery in a way that lessens a patient’s physical trauma and speeds healing.

Interventional radiology (IR) is a subspecialty of radiology that uses the least-invasive techniques possible to diagnose and treat diseases throughout the body. As a result, patients are less likely to develop an infection, have quicker recoveries and shorter, if any, hospital stays.

Some of the more common conditions that can be addressed with interventional treatments include arterial disease, varicose veins and uterine fibroids, but they can also be used to treat conditions such as aneurysms and cancer.

In February, the Interventional Radiology Outpatient Clinic opened at Elmhurst Memorial's Center for Health, located on the Hospital campus. It’s staffed by three primary interventional radiologists — Andrew Blum, M.D., Ryan Hickey, M.D., and Elias Hohlastos, M.D., all members of Northwestern Medicine®.

Dr. Blum, who focuses on peripheral vascular disease, has been part of the IR team at Elmhurst Memorial since 1993. Dr. Blum works closely with Drs. Hohlastos and Hickey, who are also experts in interventional oncology.

“Most of the procedures are outpatient procedures, so patients can recover in the comfort of their own homes,” says Riad Salem, M.D., chief of interventional radiology at Northwestern Medicine® and medical director of interventional radiology at Elmhurst Memorial Hospital.
There came a time in Joseph Gilles’s life when he simply could not sleep at night. A severely fractured bone in his spine, which was aggravated after Gilles moved a heavy box, was causing intense, constant pain. “It was a ten on a scale of one to ten,” says Gilles, 66, of Lombard.

An orthopedic specialist recommended kyphoplasty, a procedure that entails injecting bone cement into the fractured vertebral body to fuse it together. Dr. Andrew Blum notes that Gilles’s condition did not require surgery. But the interventional procedure speeds the healing process, relieves pain and helps restore normal mobility.

“Previously the only option was weeks or months of bed rest and potential bracing,” explains Dr. Blum. “This procedure gets patients up and walking sooner without the need for a brace.”

Two days after his procedure, Gilles said that he was out of bed and walking around. “The hospital staff was amazed at my progress,” says Gilles.

Now Gilles is at home, working on what could be a six-month recuperation because he has two additional fractured vertebral bodies, which are gradually healing. He is taking pain medication as well as supplements to strengthen his bones. Gilles says that his condition improves each day. “I’m grateful for the job they did. And the nurses on the floor — they were terrific,” Gilles adds.

MEET JOSEPH

AGE: 66, LOMBARD

“Interventional radiology involves minimally invasive surgery and image-guided therapy, which make complex diagnoses and interventions possible using tiny entry points and ultrasound or CT guidance,” Dr. Salem explains.

“Interventional radiology has come a long way over the past 20 years,” Dr. Salem adds. “Interventional methods, which began as procedures mainly on the heart, can now be performed on many other parts of the body. Many patients tolerate interventional procedures better since there is minimal anesthesia, and the incision is typically less than two millimeters in size, requiring no sutures.”

Northwestern Medicine’s interventional radiology group works closely as a multidisciplinary team with patients’ referring Elmhurst Memorial Healthcare physicians to ensure the best possible treatment. Clinical nurse coordinators assist patients with planning and follow-up care.

From left to right: Elias Hohlastos, M.D., Andrew Blum, M.D., and Ryan Hickey, M.D., all members of Northwestern Medicine®.
Nancy Kuhfuss was getting frustrated.

An active person accustomed to dancing the night away at a local jitterbug club, Kuhfuss, 72, of Franklin Park, was down to two dances in a row before her leg pain became unbearable. Not only that, the pain disrupted her walking and water aerobics schedules.

The pain had started about two years earlier and gradually worsened. By October 2013, Kuhfuss says that her leg really started to hurt. She couldn’t walk like she used to, because the pain in her ankle, knee and calf prevented her from even finishing a walk around a store.

Her doctor noticed a weak pulse in her right ankle and sent her to the Elmhurst Memorial interventional radiologists. After an ultrasound of her leg showed an abnormal result, Dr. Elias Hohlastos ordered a CT angiogram, which revealed blockage in an artery behind her right knee due to a build-up of plaque from atherosclerosis.

“The symptom that Ms. Kuhfuss was experiencing, pain with activity, is called claudication,” explains Dr. Hohlastos. “It’s caused by a lack of sufficient oxygen reaching the muscles of the leg due to the narrowing or blockage of the arteries by plaque.”

“The problem could have been corrected with a surgical bypass to divert blood around the blockage, but Kuhfuss would have been under general anesthesia during the surgery and would have needed several days to weeks to recover,” explains Dr. Hohlastos.

With an interventional procedure, however, Dr. Hohlastos was able to perform an atherectomy, removing the plaque from her artery, followed by angioplasty, stretching Kuhfuss’s blood vessel with a balloon inserted with a catheter, which restored the flow of blood to her lower right leg.

“The benefit of interventional radiology is that the procedures are far less invasive, most often performed on an outpatient basis, require only moderate sedation, and recovery time is only a day or two,” says Dr. Hohlastos.

Days after the procedure, Drs. Blum and Hohlastos told her to test her leg — go back to her usual activities and see how it feels. “Dr. Blum said, ‘If after two dances it used to hurt, I want you to do four or five dances now to see if your leg feels better,’” says Kuhfuss. “He said, ‘I want you to go to Costco and walk the whole building.’”

“I finally went — I was walking all over the store and didn’t think about my leg at all,” adds Kuhfuss.
A kidney stone was driving Patrick Pisciotto crazy.

When he got it checked out, however, his doctor discovered a more serious health threat on his other kidney — a cancerous tumor.

“They were talking about taking out the kidney or taking half of it,” says Pisciotto. “I said, ‘I don’t like that idea.’ If I only have one (kidney) and something happens, I’m in trouble.”

Pisciotto, 71, of Wood Dale, was referred to the Interventional Radiology Outpatient Clinic at Elmhurst Memorial Center for Health, where doctors told him that they could kill the tumor with thermal ablation and keep his kidney intact.

“The standard of care for patients with Stage I renal cell carcinomas, which was the stage of Mr. Pisciotto’s cancer, remains surgical resection, including complete removal of the kidney or, when possible, partial removal of the involved part of the kidney,” says Dr. Ryan Hickey.

Thermal ablation was especially suited to Pisciotto. For patients with additional medical issues, the risks of anesthesia and surgery are substantially higher. It is in these circumstances that minimally invasive “percutaneous” options, such as thermal ablation, have a particular value.

The American Urological Association considers thermal ablation — inserting an electrode or probe through the skin into the tumor using CT imaging, then killing the tumor cells with radiofrequency heat — an acceptable treatment option for Stage I renal cell carcinoma in patients with a high surgical risk.

The dead tumor tissue shrinks and slowly turns into a scar. The procedure does not harm healthy tissue, so it can be repeated if necessary, according to the Society of Interventional Radiology. Thermal ablation is safe, has low complication rates and has become more widely available in the last couple of years, the Society reports.

“No only is ablation easy for patients to physically tolerate — and can be performed under light sedation — but the recovery after the procedure is also generally very quick,” says Dr. Hickey. “Patients may stay in the Hospital overnight or go home the same day. Depending on the route of access to the tumor, there may be some pain that one would expect to feel — like a bruise.”

Pisciotto said he spent one night in the Hospital, then was out and driving his vehicle the next day. “It was fast, it was precise, it was accessible,” Pisciotto says. “I’ve been doing well; I have no problems.”

Pisciotto can also attest to the group’s follow-up, saying that they have kept tabs on his healing, checking in every three months without fail. He said that they put him at ease from the moment he walked into their office.

“I felt so secure because they said, ‘No problem. We can do this,’” says Pisciotto. “They were so positive about it. I just left myself in their hands. They’re amazing to me.”

Interventional oncology is a relatively new term that refers to using guided therapy to fight cancer.

“We can diagnose cancers earlier, treat them earlier and get better outcomes,” says Dr. Salem. “We can now treat some liver cancers using what we call ablation, which involves placement of a needle inside a tumor and essentially killing the tumor using heat.”

It is used at various stages in cancer treatment, either alone or alongside treatments, such as chemotherapy and radiation, as a pain-relieving method or as a bridge to organ transplantation. Through new, refined procedures, interventional oncologists deliver radiation or chemotherapy directly to the blood vessels. This is very helpful in the treatment of liver cancer and is often used on patients who cannot handle surgery or with tumors that do not respond well to chemotherapy.

WHAT DOES 2 MM LOOK LIKE?