

Thoracic Surgery:

An inside look at minimally-invasive lung surgery

It isn't every day that you hear cancer surgery described as "a nice experience," but that is how Marie McKay recalls her recent operation and follow-up care at Cape Cod Hospital. In April, the 70-year-old East Sandwich woman had surgery to remove a tumor from her lung and spent six days in the hospital. She credits Thoracic Surgeon Jeffrey Spillane, M.D., his surgical team, and the nurses on Mugar 5 with transforming her anxiety and pain into a largely pleasant memory.

"Everyone was wonderful," she said. "(Dr. Spillane) definitely has the right team around him."

Dr. Spillane brought Mrs. McKay into the OR on April 13 to investigate the suspicious tumor. During the operation, Dr. Spillane planned to excise the tumor, and if it was malignant, remove the lobe of the lung in which it was found. Instead of making a large incision across McKay's chest to reach the lung (a thoracotomy), as most lung surgeries are performed, Dr. Spillane would do a minimally-invasive type of surgery known as a Video-Assisted Thoracoscopic Lobectomy (also known

as VATS Lobectomy.) "It's been demonstrated to be better on older folks," since the ribs don't have to be spread, meaning less post-surgery pain, said Dr. Spillane.

In the OR that morning were Circulating Nurses Ewa Jazwierski, R.N. and Lisa Johnson, R.N.; Surgical Technician Molly Winship-Molyn, R.N.; Anesthesia Nurse Liz Wittenstein, CNRA; Nurse Practitioner Paula Brooks; Anesthesiologist Ken Scalera, D.O.; Debbie McCulloch, R.N.; and Boston University Medical School student Biju Mathew.

After the Surgical Time Out, Dr. Spillane made three small incisions on McKay's left thoracic area. These would be the entry points for his instruments and the tiny fiber-optic camera on the end of a scope. On a screen above him on both sides of the table was a monitor displaying the scope's images inside the body. Without this visual aid, the surgery would not be possible.

"It's a window into the body," Dr. Spillane said.

A bright light at the tip of the scope lit up the areas where Dr. Spillane probed. He quickly

zeroed in on the reddish tumor, amidst the pink lung tissue surrounding it. Operating inches from Mrs. McKay's heart, he began the delicate process of cutting it away.

Although McKay was under general anesthesia, Dr. Spillane also injected local anesthetic around the surgical area. Without it, Mrs. McKay's subconscious brain would still register pain, causing the release of stress hormones, he said. "When you hurt, you don't breathe, which can lead to complications (lung congestion.)"

McKay's left lung was clamped off during surgery so it would not move. There are five lobes in a human lung; three in the right lung and two in the left. Dr. Spillane worked in McKay's upper left lobe, inserting a coagulating tool to staunch the bleeding of tiny blood vessels as he separated lung tissue from the tumor.

The surgeon removed lymph nodes, as he continued to cut away the tumor. The nodes would need to be examined for cancer if the mass was malignant. As he cut an artery or vein, or a section of lung tissue, Dr. Spillane used an endostapler, a plier-like instrument with

Inside the OR

Pictured at right: Thoracic Surgeon Jeffrey Spillane, MD and surgical team perform minimally-invasive lung surgery on Marie McKay.



Quicker Recoveries, Less Pain

three rows of metal staples on each side. The instrument effectively cuts and staples the vessel or tissue at the same time.

After he separated the 2-centimeter tumor from the lung, Dr. Spillane inserted a small catch bag through one of the incisions and used another tool through another of the incisions to nudge the tumor into the bag.

Once out of the body, the bag was whisked away to the pathology department for quick examination and diagnosis of the mass.

About 15 minutes after the specimen was sent to pathology, the OR team received news that the tumor was squamous cell cancer, a type found in the middle of the lungs.

A lobectomy is performed after confirmation of cancer to make sure any other cancerous cells that may remain in the lung are removed. Dr. Spillane began by making a fourth small incision in Mrs. McKay's chest to give him even better vision into the area. At times, he worked with two instruments in the chest cavity, using both as extensions of his hands as he watched the screen in front of him for guidance.

"One of the complaints (about VATS lobectomies) is you go from 3D to 2D," Dr. Spillane said. "The key is knowing the anatomy."

Dr. Spillane used the tools to carefully separate the lobe from the surrounding tissue. He made his way to one of the lung's bronchi, or "trunks of the tree," which had to be cut to remove the lobe. Like the nose of a shark, the shiny gray endostapler appeared on the screen as Dr. Spillane used it to cut and staple the severed pieces.

He changed the camera angle and, using tweezers, slipped a band around the lobe which now sat detached in the chest cavity. A collection bag was pushed into the area and Dr. Spillane coaxed the eggplant-size lobe into it. Then came the work of gently pulling the sack through one of the small incisions.

"Pulling out the lobe (through the small incision) is like delivering a baby. Sometimes it takes a few minutes," he said.

"And now this is the 'gee willikers' part of the operation," Dr. Spillane announced. With that, the clamp on the ventilator to the left lung was removed and, as everyone watched

on the screen, the remaining lobe of the lung slowly plumped up like a balloon being inflated. Healthy pink tissue began the rhythmic in and out of air exchange.

Mrs. McKay spent several days in the hospital following the surgery. During a follow-up visit to Dr. Spillane in May, she learned that the lymph nodes surrounding the tumor were cancer-free, so no further treatment was needed. She is now recovering at home with her husband, Rod, and their three dogs, and hopes to be out working in her garden soon.

SCREENING FOR LUNG CANCER

Lung cancer is the leading cause of cancer deaths, and yet there is no screening for it, as there is for prostate and breast cancer, said Dr. Spillane, a strong proponent of screening. Only 16 percent of lung cancer is being diagnosed at its earliest stages, according to the Lung Cancer Alliance. Routine CT scans for high-risk people are under consideration by health experts, Dr. Spillane said.

