Thoracic today, thymectomies tomorrow?

Surgeons Starting to Use UCH’s Robot for More Kinds of Procedures

Thoracic surgeon John Mitchell, MD, has so far performed only a handful of surgeries with the help of the da Vinci robotic system. But he expects soon to have his hands full keeping up with them.

Mitchell, chief of General Thoracic Surgery at the University of Colorado School of Medicine, recently completed his certification training on the da Vinci Surgical system, but already is one of just two surgeons in the Denver area to perform minimally invasive thoracic procedures with it. And he’s the first in the area to use the da Vinci for both lung and mediastinal (center of the chest) procedures, according to Intuitive Surgical clinical sales rep Chelsea Knipp of Intuitive Surgical, the Sunnyvale, CA company that makes the robot.

Mitchell himself has now done several thoracic procedures, including the mid-March removal of a large (10-centimeter-plus) mediastinal cyst. But it required three incisions of just 1 centimeter each – one for the camera that produces high-definition, three-dimensional, magnified images of the surgical area and two for the robot’s working arms – rather than the 10- to 15-centimeter incision that an open procedure requires.

**Shorter stays?** “It was tailor-made for the da Vinci,” Mitchell said. In addition to allowing him to make smaller incisions than he would during an open procedure, Mitchell said the da Vinci’s three-dimensional images are superior to the two-dimensional pictures produced by minimally invasive video-assisted thoracic surgery (or VATS).

Clear images were especially important in this case, he explained, because the cyst was “intimately involved with the esophagus. We had better ability to discern the structures [in the chest] and stay away from the esophagus and airway.”

The cystectomy highlighted the major advantages of the da Vinci, Mitchell said. Smaller incisions generally mean shorter hospital stays for patients, less pain and quicker recovery times.

And in some cases, he added, the robotic arms – which Mitchell manipulates from a separate console, where he also views the surgical area – give the surgeon greater control.

“It potentially enhances our ability to reach certain places in the chest and operate,” he explained.

He said he anticipates using the da Vinci this spring for thymectomies (removal of the thymus gland). The procedure is used to treat conditions like myasthenia gravis, a neurological disorder that leads to gradual muscular weakening. Surgeons sometimes must open the sternum to reach the thymus, which is located in a cavity in the center of the chest, near the heart.

“We hope to avoid that,” Mitchell said, adding that healing from a sternum-splitting can take a month.

Mitchell said he practiced robotically assisted thymectomies on cadavers as part of his recently completed da Vinci thoracic certification training. The training included observation of procedures at the University of Alabama Birmingham, on-line instruction and practice.
on cadavers at Intuitive Surgical’s headquarters. Mitchell’s surgical team also participated in the training.

In the final stage, Mitchell handled “live” proctored cases at UCH, under the supervision of Paul Maroni, MD, assistant professor in the School of Medicine’s Division of Urology. Maroni has performed hundreds of da Vinci-assisted procedures.

“The da Vinci isn’t replacing other procedures, Mitchell emphasized. “It’s a platform that allows us to do certain procedures, not all. But we anticipate [the number of cases] growing over time.”

Right now the greatest limitation on the number of procedures, he claimed, is the availability of the robot. The hospital has just one, although it is considering getting a second. Two new operating rooms, scheduled to open April 4, have been built to accommodate da Vinci procedures, a sign that the hospital anticipates handling more volume (Insider, March 2).

“As the volume of cases grows, we’ll demonstrate the case for a second machine,” Mitchell predicted. “It will find a surgical role in the future in the OR.”

Mitchell, second from left, with (from left) clinical nurses Tamara Mayne and Shauna Sutton and surgical technologist Ronny Lamar.