



Doctor does surgery with help from robotic arms

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Dr. William Burke sat huddled over a boxy control panel, his hands on complex joysticks and his bare feet tapping four pedals as if he were performing on the giant Wurlitzer organ at Radio City Music Hall.



DAVID BERGELAND/STAFF PHOTOGRAPHER

Surgeons William Burke and Noah Goldman performed a robotic hysterectomy using the da Vinci robotic system Saturday at the Valley Hospital in Ridgewood. The surgery was transmitted live and interactive to the World Robotic Gynecology Congress in Chicago.

Instead of producing music, though, Burke's movements controlled three robotic arms a few feet away that snipped at a cancer patient's lymph nodes during a robotic hysterectomy today at The Valley Hospital in Ridgewood.

Valley is among the top 10 percent of Northeast hospitals in gynecological surgeries using robotics, Burke said, and today's operation was televised live to some of the 400 medical professionals in Chicago at the first World Robotic Gynecology Conference, hosted by the University of Michigan Medical School, the University of North Carolina School of Medicine and the Mayo Clinic.

The conference was designed to train surgeons in the growing use of robotics, and included six live telesurgeries. As Burke proceeded with the robotic hysterectomy in

Ridgewood, he narrated what he was doing, and the doctors watching in Chicago could ask him questions.

Burke's hand and foot movements controlled several mechanical arms of a da Vinci Surgical System. The white robotic arms looked like a huge mechanical mantis looming over the patient. The end of each arm, and a small TV camera, were inserted into round holes in the patient's lower torso, each hole measuring eight to 12 millimeters in diameter.



DAVID BERGELAND/STAFF PHOTOGRAPHER

Surgeon William Burke uses the hand and foot controls to perform the surgery.

At the end of each robotic arm were small pincers, and Burke manipulated these remotely to snip, burn and cauterize as needed. The pincers looked like metallic versions of a crab's claw or a bird's beak, and the arms can move like a human wrist.

"I explain to patients that it takes my two arms and turns it into four," said Burke's colleague, Dr. Noah Goldman, who also participated today. "It's like the character Doc Ock in 'Spider-Man.'"

Going robotic has multiple benefits, Burke and Goldman said. A more traditional surgery leaves a large incision, often five or six centimeters, compared with the tiny holes, about the diameter of a thumb, needed for the robotic arms. As a result, there's a lower risk for infection or medical complications.

In addition, robotic procedures shorten hospital stays and speed recovery times, they said. Gynecological operations that might normally require a four-night hospital stay are

reduced to an overnight visit. And recoveries that usually take six to eight weeks become two or three weeks, Goldman said.

Robotic surgery is a further refinement of laparoscopic, or minimally invasive, surgery. Burke and Goldman said the robotic system broadens the field of patients on whom they can conduct minimally invasive surgery to women who have had complicated prior surgeries and those who are overweight. (Obesity is a risk factor for endometrial cancer, Burke said).

Using robotics also allows for greater deftness during a surgical procedure. Burke said that in the case of cervical cancer, standard surgery could mean removing both the cervix and ovaries. But with the precision of the robotic system, he can conduct a trachelectomy to remove the cervix and leave the ovaries, preserving a patient's fertility.

Burke said he and Goldman initially were skeptical that a robotic system would provide much value over regular laparoscopic surgery. But they have been quickly won over. Goldman estimates they handle about 200 robotic surgeries a year.

The Valley Hospital's Robotics Institute now has doctors who can perform robotic surgery in oncology, urology, gynecology and cardiology. Valley's Dr. Anusak Yiengpruksawan was the first in the United States to perform a robotic surgical procedure called the Whipple, which removed a cancerous pancreas.

A typical robotic system costs as much as \$2 million, Goldman said.

The da Vinci system is manufactured by Intuitive Surgical of Sunnyvale, Calif., and there are currently about 900 systems in 800 hospitals, a company official said. Valley was among the first 30 to get one.

As he operated today, Burke, dressed in blue scrubs, tapped the four pedals with bare feet — he sat outside the sanitized zone around the patient. "He's like the Def Leppard drummer," Goldman had said, referring to Rick Allen, who plays the drums with an extra pedal after his arm was amputated.

Burke peered constantly at a 3-D screen, which provided a TV image of the patient's pelvic cavity, magnified 10 times. He manipulated the complex joysticks, which direct the metallic pincers at the end of the robotic arms. He deftly moved the pincers like chopsticks, using them to spread fatty tissue away from the organs. Then he used the pincers to carefully snip away the patient's para-aortic lymph nodes. A tiny plastic bag was inserted through a tube, the pincers dropped the detached nodes into the bag, and the bag was sucked through the tube and out of the patient's body to a waiting attendant.

The patient, a 56-year-old woman from Rockland County, has endometrial cancer. Through the robotic hysterectomy, the doctors hope she will not need any post-operative treatment, such as radiation and chemotherapy.

The day before, Burke had been in Chicago at the robotic conference, lecturing to hospital executives and his peer gynecologists. He said he expects future generations of surgeons who were raised in the video game era will take to robotic surgery as second nature.

About 120 Ridgewood High School students have already had a chance to use Valley's da Vinci Surgical System, through the hospital's Ridgewood Academy for Health Care Professions, a three-year program that gives students exposure to the field. The robot was put in the hospital lobby, and students tried controlling the mechanical arms and pincers to peel the silver foil from Hershey's Kisses.

Burke and Goldman said there are a few studies that indicate those who play video games tend to learn robotic surgery at a faster rate than their non-video-gaming peers, at least initially.

Burke himself enjoys playing games on his Xbox 360, and Goldman said he just bought a Wii – though he rarely gets to use it.

“My son is always on it,” he lamented.