

# MEDICINE - MECHANICAL SURGERY LESS INVASIVE

## Robot revolutionizes the surgeon's touch

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BY JIM HALL

Dr. Gregory R. Szlyk did not stand beside the operating table when he removed Steve Robertson's cancerous prostate.

Szlyk did not handle the scissors and needle drivers he used during surgery. In fact, he barely touched Robertson.

Szlyk was seated in a corner of the operating room, 15 feet from the table, his head buried in a console. The four hands inside Robertson's abdomen belonged not to the doctor but to a robot.

The procedure, done July 17, signals a new chapter in the way surgery is done at Mary Washington Hospital. Surgeons now can be physically separated from their patients and use a mechanical assistant whose capabilities are superior to their own.

"This is a major revolution in surgical care," Szlyk said.

Szlyk is a Fredericksburg urologist and the hospital's newly named director of robotics. He is leader of a team of people that uses the da Vinci Surgical System, a \$1.6 million robot that the hospital purchased this spring.

Szlyk trained with the robot at hospitals in Illinois, Ohio, New Jersey, Washington and Northern Virginia before doing his first procedure at Mary Washington in June. Since then he has done three other surgeries with the robot, all like Robertson's, involving the removal of a cancerous prostate.

Robertson, 57, was diagnosed with cancer in June after a blood test during his regular physical picked up elevated levels of the prostate-specific antigen.

"I'm a firm believer in PSAs now," the Falmouth resident said.

Robertson talked with former patients, studied his options and consulted with Szlyk before deciding on surgery with the da Vinci robot.



**Dr. Gregory Szlyk, a Fredericksburg urologist, is the first doctor at Mary Washington Hospital trained on the da Vinci robot. Though it's now used for prostate surgeries, its role could be expanded to other operations.**

"This seemed to be the least invasive," he said.

The robot consists of three major pieces: a console connected by fiber optic cable to the robotic cart and supported by a video tower.

When using the robot, Szlyk begins with six small incisions in the patient's abdomen, then inserts the robotic arms.

With the patient prepared, he moves across the room to a console, where he operates finger and foot controls, which are translated into scaled movements of the robotic arms.

The federal Food and Drug Administration licensed the robot for general surgery in 2000. Since then it has been used in a number of specialty procedures. Up to half of all prostatectomies in the United States are now done with the help of a robot, Szlyk said.

Szlyk believes that eventually the robot will be used at Mary Washington during some types of heart, thoracic, gynecologic and general surgeries. For now, it is used for prostate cancer surgery only.

Proponents say that robot-assisted surgery combines the benefits of laparoscopic, or minimally invasive surgery, with the advantages of a "mechanical man."

"I would say it's the next logical step," said Dr. Robert Harry, a retired surgeon at Mary Washington Hospital and instructor in the nursing program at Germanna Community College.

Harry has not performed surgery with the da Vinci, but he has a doctorate in biomedical mathematics and engineering and a lifelong interest in medical technology.

"With laparoscopic, you use instruments to do things less invasively," he said. "Whenever you're using a robot, you're also able to extend human capability."

The da Vinci extends human capability with tiny "wrists" that can be inserted deep into tight places within the body.

"The angles and maneuvers you're able to do with the robot, you just simply can't do with your hands," Szlyk said.

Also, the da Vinci's camera magnifies what it sees and captures the scene in three dimensions and high definition.

"It's as if you are standing right there in front of this prostate with your head as close as you want to it," Szlyk said.

The instruments are inserted into the body through incisions no wider than a third of an inch. When a prostatectomy is done using traditional "open" techniques, the physician makes a 4-inch incision.

The goal of all prostate cancer surgery is to cure the cancer, reconstruct the urinary tract to give the patient good urinary control and spare the nerves that control sexual function, Szlyk said.

Robot-assisted surgery fulfills these goals at least as well as open surgery, Szlyk said, with the added benefit of less pain and blood loss for the patient.

"The recovery is so much easier," he said.

On the downside, robot-assisted surgery takes longer: about 4 1/2 hours, compared to three hours for open surgery.

The robot uses expensive, disposable items and requires a larger surgical team.

Also, because the surgeon is not at the operating table with instruments in hand, he or she loses the sense of touch.

"It's a significant loss," Szlyk said. "But I think that what you lose in your inability to feel you gain in your ability to see."

Studies have differed in whether the technique results in shorter hospital stays for the patient. A 2005 report found no difference between traditional techniques and robot-assisted surgery.

Szlyk said his patients stay in the hospital an average of one day if their surgery was done with the robot and two days if done with an open incision.

Robertson was discharged from the hospital the day after surgery. He said he used none of the pain medication that Szlyk prescribed for him.

This week, recovering at his home, he said he felt good. He said he expects to return to his job as a lobbyist for the American Legion next week.

Staff librarian Sandy Mahaffey contributed to this story.

Jim Hall: 540/374-5433

Email: [jhall@freelancestar.com](mailto:jhall@freelancestar.com)



**The da Vinci Surgery System employs multiple arms that hold a camera and various instruments.**