Robots in operating rooms support rapid return to duty

U.S. Army

BETHESDA, Md. (Jan. 25, 2013) -- Surgeons using robots in the operating room at Walter Reed National Military Medical Center, the nation's largest military medical treatment facility, ensure many patients experience less pain, less blood loss, and shorter recovery times, according to the physicians and patients.

More than nine experts at Walter Reed National Military Medical Center, or WRNMMC, in the areas of gynecology, urogynecology, gynecology oncology, urology, prostate oncology, pediatric urology, and cardiothoracic surgery, as well as reproductive endocrinology and infertility, perform robotic surgery. The technology allows more patients than ever before to benefit from minimally-invasive surgery, the surgeons explained.

"With greater acceptance and use, robotic surgery is going to become increasingly important in the future as we try to continue to minimize the invasive nature of surgery and disruption in people's lives, whether it's time away from work or time spent recovering," explained Col. (Dr.) Joseph M. Gobern, chief, Department of Obstetrics and Gynecology at WRNMMC, who has performed robotic surgery since 2008.

Keisha Turner, a behavioral health case manager at Fort Meade, Md., said less down time is the reason why she opted for robotic surgery. Severe back pain and other symptoms she endured for more than a year as a result of uterine fibroids affected her lifestyle so much that the wife of a retired Soldier was unable to make it through her 16-year-old son's high school football game.

The myomectomy Gobern performed on Turner from a robotic console in September to remove the fibroids went without complication. She returned home after an overnight stay at WRNMMC, and returned to work two weeks later.

"I feel great," Turner said.

Recovery time is the biggest difference for cardiothoracic patients who undergo robotic surgery to remove anterior mediastinal tumors, in front of the chest, explained Navy Capt. (Dr.) John Thurber, chief of Cardiothoracic Surgery. "We used to have to split the breast bone," said Thurber, who performs about five thoracic procedures a month at WRNMMC. He uses a robot to treat lung cancer, esophageal disorders and meticulous tumor resection around vital structures of the chest.

"Instead of dividing the bone, we go through the side," he said. "The patient can go home in one or two days."

Using the side-approach with the robot, Thurber said the usual two-month recovery period is reduced to about a week.

Robotic technology also offers three-dimensional or 3-D visualization, which enables surgeons to see depth when operating, he explained.

"Better than even high-definition scopes," Thurber said. "Patients are asking for it."

The cardiothoracic surgeon said he plans to begin performing robotic-assisted cardiac mitral valve repairs and bypass surgery later this year.

Navy Cmdr. (Dr.) Lisa Cartwright, a pediatric urologist, uses the 3-D viewing to perform delicate pyeloplasty, a surgical repair of the tube that connects the kidney and bladder, on babies through several tiny incisions, the largest measuring 1.2 centimeters long.

Seated at a console several feet away from her small patient draped on a table, Cartwright grips hand-controls to operate a computerized "endowrist" that mimics her motions with intuitive, seven-degree movement and 90-degree articulation. "The robot doesn't do anything that I don't do," she said.

After the surgical area is prepped and filled with carbon dioxide to change the pressure around the organs for surgery, up to five incisions are made - the largest in the belly button to insert a small scope the surgeon will use to look through. A surgical assistant at the bedside changes out the surgical instruments connected to up to three computerized "arms" that cut, dissect, grasp and suture.

"It's just a way for me to move my hands," explained Col. (Dr.) George Stackhouse, a WRNMMC urologist who has used robots in surgery since 2004. "Anybody who needs a surgical procedure that requires a lot of sewing and knot-tying inside of the body, we can do that with the robot," he said.

Surgeons at WRNMMC also use robots to remove ovarian cysts and pelvic adhesions, as well as perform reconstructive pelvic surgery and prostate removals, also known as prostatectomy.

"Blood loss can be significant with an open prostatectomy," explainedLt. Col. (Dr.) Inger Rosner, the director of urologic oncology and associate director of the Center of Prostate Disease Research at WRNMMC. She said robotic surgery reduces the amount of bleeding, which lessens the patient's need for blood transfusion and improves the surgeon's view.

Cmdr. Sarah Dachos, a foreign policy advisor assigned to the Pentagon, said she had no doubt or concern about a surgeon using a robot to perform her May 2012 surgery.

"I actually thought it would be better," she said. The Navy officer watched videos before her surgery. She said she noted how the physician remains seated during the surgery, which could take several hours.

Dachos and Turner said they did their own research on robotic surgery before they elected the option. The two agree they each made the right choice. Four months after her robotic-assisted laparoscopic myomectomy at WRNMMC, Turner said she would absolutely recommend robotic surgery to other patients, and preferred to have the operation at WRNMMC.

"I knew I'd have it here," she explained.

Since 2007, the number of robotic procedures that are performed in the U.S. has nearly tripled, from 80,000 to more than 250,000 in 2010, according to the New England Journal of Medicine. As early as 2001, robotic surgery has been an option for service members at military treatment facilities, initially to urology and gynecology patients at the former Walter Reed Army Medical Center, according to Col. (Dr.) Ernest G. Lockrow, who has been cited as a pioneer of military laparscopic robotic surgery.

Lockrow was the first military surgeon to use 3-D minimally invasive surgical technology in 2007 at then Walter Reed Army Medical Center, after a congressional grant established a Telerobotics and Advanced Minimally Invasive Surgery Program in 2006. A next-generation robot was purchased the same year, expanding robotic surgery to other surgical specialties. With both telesurgery and telementoring capabilities, the military's first Minimally Invasive Gynecologic Surgery, or MIGS Fellowship was established in 2010. The program graduated its first fellows at WRNMMC in November 2011. Walter Reed Bethesda added the medical center's newest surgical robot in October 2012.

"We currently have two of the latest generation of surgical robots and have expanded robotic surgery further," Lockrow said. The MIGS fellowship program director at WRNMMC and associate professor at Uniformed Services University of the Health Sciences, explained plans to expand the use of robotic technology to other surgical specialties throughout the medical center.

"We're doing everything that we can to offer our patients the most modern, the safest and best care, every modern option for our patients," Stackhouse said.

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