Robot-Assisted Option Offers Advantages For Kidney Surgery

A comparison of two types of minimally invasive surgery to repair kidney blockages that prevent urine from draining normally to the bladder found that robot-assisted surgery was faster and resulted in less blood loss and shorter hospital stays.

Reporting in the Canadian Journal of Urology, Ashok Hemal, M.D., a urologic surgeon from Wake Forest University Baptist Medical Center, compared laparoscopic and robot-assisted surgery for repairing the blockage, known as uretero-pelvic junction obstruction. Following the patients for 18 months showed that both options were equally successful, but the robot-assisted technique had several advantages.

On average, robot-assisted surgery was 50 percent faster (98-minute versus 145-minute average), resulted in 60 percent less blood loss (40ml versus 101ml average), and required a two-day hospital stay, versus 3.5 days for laparoscopic surgery.

"This was one of the first studies where a single surgeon at one center performed both types of surgery and compared the results," said Hemal, director of the Robotic and Minimally Invasive Urologic Surgery Program at Wake Forest Baptist. "It allows for a more accurate comparison of surgical options than multiple physicians performing the surgeries. The results showed that robot-assisted surgery had significant advantages for this condition. It is also generally easier for surgeons to learn."

All 60 patients had a procedure known as pyeloplasty that involves reconstructing the narrow area where part of the kidney meets the ureter, the tube that carries the urine from the renal pelvis into the bladder. Blockages in this area can be the result of birth defects or, in adults, from injury, previous surgery or disorders that can cause inflammation of the upper urinary tract.

Previously the repair required a large incision. New technology led to minimally invasive approaches that require only small incisions -- laparoscopic surgery, in which the surgeon directly manipulates a viewing device and operating instruments inserted into the abdomen, and robot-assisted surgery, in which the surgeon sits at a console and uses hand and finger movements to control centimeter-size instruments while viewing the surgical site on a screen.

Various studies have reported on the results of the options, but this is one of the first studies in which a surgeon with expertise in both options compared them. Hemal treated 30 patients with laparoscopic surgery and 30 with robot-assisted surgery.

"The evolution of laparoscopic surgery in urology has been limited because it is technically challenging and requires the surgeon to be proficient in advanced suturing," said Hemal. "Robot-assisted surgery offers a way of overcoming some of the major impediments of laparoscopic surgery. This study shows the two options are equally effective and that robot-assisted surgery has several advantages."

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