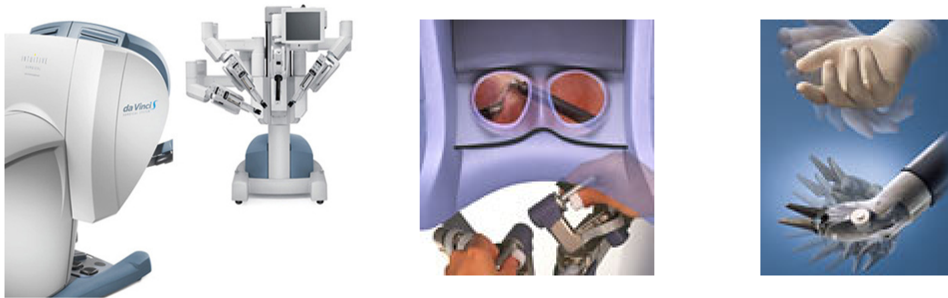
Urologic Surgical Associates of Delaware

DA VINCI ROBOTIC CYSTECTOMY

Da Vinci Robotic Cystectomy (also known as Robotic Assisted Laparoscopic Radical Cystectomy) is the most advanced method of performing Cystectomy. This minimally invasive procedure coined its name from the Da Vinci© Robot, which is manufactured by "Intuitive Surgical." The Robot combines the latest achievements in medical technology and laparoscopy including:



Surgeon's console and patient side cart.

High-performance InSite® Vision System

Proprietary *EndoWrist®* Instruments.

Ergonomically designed surgeon's console. While sitting comfortably at the console, the surgeon operates while viewing a 3-D color image of the surgical field.

Patient-side cart with four interactive robotic arms (three instrument arms and one endoscope arm) that execute the surgeon's commands through the key-hole incisions in the patient's abdomen. Surgical team members assist the surgeon by properly installing the Endowrist instruments.

High-performance InSite® Vision System with high-resolution 3-D endoscope provides real-time 3-D images of the operative field, with magnification of 12-15 times. This advanced technology spares nerves and delicate tissues during the operation, which plays an important role in patients' fast recovery.

Proprietary *EndoWrist®* Instruments - the instruments are designed with seven degrees of motion that mimic the movements of the human hand and wrist. All movements of the surgeon hands are translated into precise movements with micro-instruments.

Treating Bladder Cancer

Invasive cancer can be highly dangerous and needs to be treated aggressively. A new diagnosis of invasive bladder cancer requires a metastatic survey with an abdominal CT scan, and chest x-ray or chest CT scan. Some blood work may also be performed. If the bladder cancer appears to be confined to the bladder then the standard treatment for invasive bladder cancer is a radical cystectomy. Radical cystectomy is a major operation with significant risk of blood loss and blood transfusion as well as significant risk of heart attack, stroke, and pulmonary embolism. Radical cystectomy also requires a reconstruction of the remaining urinary tract (the upper tracts) so that the urine can drain out of the body in the absence of the bladder. This urinary reconstruction usually involves creating an ileal loop urinary diversion which is using a piece of small bowel to create a loop that drains urine to a bag on the abdomen. Small bowel could, alternatively, be used to reconstruct a new bladder for certain patients. If you're a candidate for this “neobladder" using bowel and you are interested in such a diversion and you require radical cystectomy you should be prepared to catheterize your neobladder through the urethra. Radical cystectomy involves complete removal of the bladder and prostate in the male and in the female radical cystectomy involves complete removal of the bladder, the female pelvic organs (in many cases), and part of the vagina. There is usually a seven to ten day stay in the hospital if there are no major untoward events during the postoperative recovery. Most patients experience some small or even major setback during the recovery period of a radical cystectomy. Such a setback might include any of the serious consequences mentioned above or a delay in the healing process to slow the recovery of bowel function or a wound infection or a ureteral stricture (a narrowing of the ureter where it connects to the ileal diversion) or pneumonia or some other type of difficulty that delays the recovery process. Dr. Schanne is one of the few urologists in the United States completing this complex procedure, including the cystectomy and the urinary reconstruction, using the robotic technique.

Robotic technique greatly reduces blood loss and speeds recovery from the radical cystectomy and pelvic lymph node dissection. With younger men who require cystectomy the robotic technique may improve our ability to preserve your sexual function. Most patients with invasive bladder cancer will be offered pre-operative (neo-adjuvant) chemotherapy for three months prior to surgery.

Urinary Diversion

Urinary diversion is a surgical reconstruction to drain the urine from the kidneys and ureters when the bladder will no longer be used. This urinary diversion is often done as part of a radical cystectomy for bladder cancer, but might also be used to manage a dysfunctional bladder.

The most commonly used form of urinary diversion is an ileal loop urostomy using about eighteen centimeters of ileum (small bowel). The eighteen centimeter segment of ileum is separated from the remaining ileum and the remaining ileum is put back together to keep the bowel functioning in continuity. The eighteen centimeter segment of ileum is then used to connect the ureters at one end and to bring the other end of the ileum out on the

abdomen, usually the right lower quadrant (to the right of and below the belly button). Where the ileal loop exits the abdominal wall is called a stoma. The stoma is a pink fleshy exit orifice that has a diameter that can usually accommodate an index or "pinky" finger. The urine drains from this stoma continuously into a plastic urostomy appliance. In some cases this stoma narrows down or strictures creating an obstruction. If the stoma cannot accommodate your pinky when you're changing the urostomy appliance you have stomal stenosis and this may require surgical revision.

Finding the right urostomy appliance to fit your stoma and learning how to manage your appliance so that there is no urine leakage is a major part of the post-operative recovery. Nurses in the hospital and visiting nurses that come to your home, your family members, vendors who supply appliances, our office staff, and prior patients can all help you learn to manage the appliance.

One of the critical surgical features of any urinary diversion is the suturing of ureter to ileum (the ureteral anastamosis). Because this is a man made anastamosis, it will heal with scar tissue. If this scar narrows down too much it is called a ureteral or anastamotic stricture. Robotic technology reduces, but does not eliminate, the risk of stricture. If a stricture does occur, it could need dilation or surgical revision in the future. To protect the ureteral anastamosis, plastic stents are sometimes left in both ureters for six weeks after surgical urinary diversion. These stents may be visible at the stoma intermittently.

Because the ileum is a piece of bowel, it will always shed its inner cell lining, or mucosa, daily. This results in significant mucus production from the stoma. This is normal. The amount of mucus may decrease over time, but it will never entirely stop.

Another form of urinary diversion is an ileal neobladder where a new bladder is created using sixty centimeters of ileum. The ileum is opened and reconfigured into a sphere and the ureters are sutured into the neobladder sphere. The neobladder is then sutured to the urethra over a foley catheter. The foley catheter and ureteral stents and several other surgical drains remain in place for several weeks.

Again, the ileum sheds its mucosal lining, creating substantial mucus. With an ileal loop, the mucus simply exits out the stoma. With a neobladder, the mucus becomes trapped inside the neobladder. This mucus must be irrigated out of the neobladder, and this need for irrigation continues for life. A patient who elects neobladder reconstruction must be able to catheterize his or her new bladder through the urethra for life. This catheterization process is necessary for irrigating out mucus and maintaining the neobladder. Catheterization may also be needed because 20% or more of neobladder patients cannot empty their new bladder by urination but must catheterize daily or several times a day to drain their new bladder. Neobladder reconstruction also significantly lengthens surgical time and so it increases risks of surgery.