

Center for Urologic Health

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CENTER for UROLOGIC HEALTH

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Robotic Assisted Radical Prostatectomy BY TODD BREAU, M.D.

One in six American men will be diagnosed with prostate cancer within their lifetime. Approximately 41,000 men die annually due to prostate cancer, making it the second most fatal cancer in men. Advances in the early detection and treatment of this disease are believed to have sharply increased survival. Ten-year disease-specific survival rates of patients with radical prostatectomies are greater than 90% for low-grade adenocarcinomas, greater than 85% for medium grade adenocarcinomas.

When removal of the prostate is warranted, several important factors regarding the procedure are commonly taken into consideration by both patients and physicians:

- Cancer Removal
- Safety
- Continence
- Potency
- Pain

With such important issues at stake, it is important that patients receive the very best treatment possible. That is why the Physicians Center for Urologic Health is proud to offer Laparoscopic Prostatectomy assisted by the da Vinci Robotic Slave Interface. This groundbreaking technology, listed as number one in Forbes Magazine's "Five Robots That Will Change Your Life," provides unprecedented laparoscopic vision and precise robotic instrument manipulation.

Dr. Todd Breaux and Dr. John Wegryn, both of whom have extensive experience performing open radical prostatectomy, have been specially trained and certified to perform this new procedure and are excited to be able to offer this technology to our patients in the Akron area.

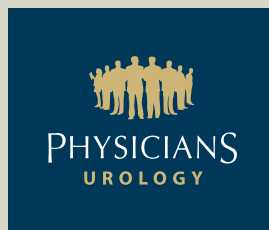
Benefits of robotic surgery

Many difficult laparoscopic procedures, such as intracorporeal laparoscopic suturing, are made easier by the robot through the use of the 3-D visualization and increased instrument maneuverability. This method has the potential to surpass the precision and visualization possible with standard surgery.

The da Vinci Robot gives the surgeon new tools for minimally invasive (laparoscopic) surgery. The robotic system was originally developed by the Department of Defense for use as a robotic surgeon for the battlefield and is approved by the FDA. The system replicates the surgeon's real-time hand movements in laparoscopic instruments. It cannot be programmed, nor does it make any independent decisions; it only does what the surgeon inputs in real-time.

The da Vinci 3D Camera

Standard laparoscopic viewing utilizes one single camera and limits surgeon's vision to a 2-D view similar to watching your television. The da Vinci robotic camera consists of TWO high resolution fiber optic cameras. Like your eyes, they produce a true 3-dimensional color picture available to the surgeon seated at the da Vinci console by viewing the twin high resolution, high frame-rate eyepieces. Magnification of up to 10-12x can be achieved with these cameras. These components constitute the Insite Vision System, by Intuitive Surgical, one of the most advanced vision systems available. A central robotic arm positions the camera and lighting exactly where the surgeon wants it, because it is operated by the surgeon by foot pedals as he/she is comfortably seated.



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ed at the console. Also, the camera can be placed within 2 inches of the prostate during surgery. Two different cameras are also available: straight and 30 degree oblique. The oblique camera can allow the surgeon to peek around the corners and to partially see underneath the prostate.

The da Vinci Surgical Instruments

Although visually similar to standard laparoscopic instruments, the robotic instruments have the additional advantage of being articulated. This allows the instruments to open, close and fully turn and twist for more natural mimicry of the human hand and wrist. Unlike your hand, these instruments are much smaller. Many of the jaws of the tools are similar or shorter in length than your fingernail. This allows very small and precise incisions to carefully dissect out the prostate.

Manipulations of da Vinci Surgical Instruments

Standard laparoscopic instruments are manipulated counter-intuitively or 'backwards'. The surgeon operates one end of the instrument, which acts like a lever—push one end down and the other end goes up. Push right to make the instrument go left. This is similar to a teeter-totter, where the center is the port or entrance to the body cavity. Thus, for standard laparoscopic procedure, the surgeon has learned to operate backwards. Although difficult, a highly qualified surgeon can master this process.

The da Vinci robot does NOT have these limitations. The robot-slave technology translates a surgeon's hand movements exactly as he/she does them. Turn your wrist right and the articulated robotic wrist turns right; go up, the robot wrist move up, etc. in three dimensions. The robot also allows the surgeon to 'scale' their hand movements. A large hand movement at the console can be translated into a micro precise dissection or exposure. The robot can also filter out hand tremors, enhancing precision. Another of the many benefits of this system is that it significantly reduces surgeon fatigue associated with traditional laparoscopic prostatectomy by allowing the surgeon to remain in a natural, comfortable position while operating.

Minimizing Blood Loss With The da Vinci System

Similar to standard laparoscopic procedures, patients are insufflated in the lower abdomen. This gas pressure acts like an invisible hand to suppress blood loss and it also gently sweeps bowel away from the surgical target site. The gas is exhaled away after surgery. The enhanced visibility and magnification of the robotic cameras aid the surgeons in finding small 'bleeders,' which translates into lower blood loss. Now surgeons can keep blood loss to a minimum, which means an increased clarity of vision to more carefully identify essential anatomy of the prostate: the edges of prostate (margins), the urethra (continence), and nerves and blood vessels which may aid potency.

Frequently Asked Questions

How safe is the da Vinci Surgical System for radical prostatectomy?

The system is FDA approved for radical prostatectomies and is being used routinely in a great number of hospitals across the country. (See intuitivesurgical.com for a current listing.) Each da Vinci system is rigorously maintained, tested, and upgraded as necessary by Intuitive Surgical.

What happens if there is a malfunction in the da Vinci System?

In the unlikely event of malfunction, or if the surgeon feels that it is not safe to continue with the robot, the da Vinci System will be withdrawn and the surgery can proceed via the traditional approach to open radical prostatectomy. The instruments and supplies necessary are kept on hand such that conversion, if necessary, can occur seamlessly. Both Dr. Breaux and Dr. Wegryn are experienced in open radical prostatectomy such that good surgical results can still be obtained in this unlikely event.