Prostate Cancer Overview

Prostate cancer is a disease in which malignant (cancer) cells form in the tissues of the prostate. The prostate is a gland in the male reproductive system located just below the bladder and in front of the rectum. It is about the size of a walnut and surrounds the urethra (the tube that empties urine from the bladder). The prostate gland produces fluid that is a component of semen.

Approximately 16% of U.S. men will be diagnosed with prostate cancer sometime in their lives. Treatment options and prognosis depend on the stage of the cancer, the Gleason score, and the patient’s age and general health.

The most common patient scenario is the man with clinically localized disease (classified as stage T1 or T2) with no regional lymph node or distant metastasis. According to the American Urological Association, of the 234,460 men in the United States diagnosed with prostate cancer annually, 91% have localized disease.¹

With greater public awareness, early detection is on the rise and mortality rates are declining. Additionally, new advances in medical technology are enabling cancer patients to go on to live active and productive lives after their treatment. Patients should always consult with their doctor for advice on the options that are available to treat their individual condition.

¹ AUA Guideline for the Management of Clinically Localized Prostate Cancer: 2007 Update
Treatment Options for Prostate Cancer

When prostate cancer is believed to be still localized within the prostate gland, there are essentially five treatment options available to a patient:

1) Observation (watchful waiting)
2) Hormonal therapy (non curative)
3) Removal of the cancerous prostate (radical prostatectomy)
4) Radiation of the cancerous prostate (either external radiation or radioactive seed implants)
5) Freezing of the cancerous prostate (cryosurgery)

Patients should discuss the advantages and disadvantages of each treatment approach with their doctor. For localized prostate cancer, radical prostatectomy (surgical removal of the prostate and surrounding cancerous tissues) has historically been considered the “gold standard” or definitive way to remove the cancer.²

*da Vinci® Prostatectomy: Introduction*

*da Vinci* Prostatectomy is an effective, minimally invasive approach to surgical treatment of prostate cancer.

This method incorporates the latest advancements in robotic-assisted technology and allows a surgeon greater visualization, dexterity, precision and control as well as superior ergonomics.

The *da Vinci* Surgical System is a sophisticated robotic platform designed to enable complex surgery through small incisions. The *da Vinci* System consists of a surgeon’s console, a patient-side cart with up to four interactive robotic arms, a high-performance 3D high definition vision system and *EndoWrist®* instruments which enhance the possible range of motion.

Powered by state-of-the-art robotic technology, the *da Vinci* System is designed to scale, filter and seamlessly translate the surgeon's hand movements into more precise movements of the *EndoWrist* instruments. The net result is an intuitive interface with enhanced surgical capabilities.

da Vinci Surgical System instruments are approximately the diameter of a pencil and are unique due to their articulating wrist architecture. The precision this innovative design enables in delicate surgery is unsurpassed.

For qualified candidates, da Vinci® Prostatectomy offers numerous potential benefits over traditional open prostatectomy, including:

- Shorter hospital stay
- Less pain
- Less risk of infection
- Less blood loss and fewer transfusions
- Less scarring
- Faster recovery
- Faster return to normal activities

da Vinci Prostatectomy received FDA clearance for prostate cancer surgery in the U.S. in May 2001. Since then, the preference of patients and surgeons for the da Vinci approach to radical prostatectomy has grown to over 100,000 procedures performed. da Vinci Prostatectomy is now the #1 treatment choice for prostate cancer in the United States.³

³ Claim based upon 2007 U.S. data on file with Intuitive Surgical, Inc.
Candidates for *da Vinci Prostatectomy*

Every surgical candidate should be considered individually in consultation with their urologist. Good candidates for *da Vinci Prostatectomy* will usually be men with localized disease who have optimal potential for long-term survival post-treatment. Prior surgery and obesity can add challenges to the procedure, but do not necessarily rule out a man as a candidate. Men should also discuss whether the location and staging of their prostate cancer allows for a nerve-sparing procedure (either bilateral or unilateral).

*da Vinci Prostatectomy: Procedure*

Radical prostatectomy is a complex and delicate procedure due to many factors, including the location of the prostate gland deep inside the pelvis. In radical prostatectomy, the surgeon removes the entire prostate gland along with both seminal vesicles, both ampullae (the enlarged lower sections of the vas deferens), as well as additional surrounding tissues. The surgeon may be able to spare the nerves that run on both sides near the prostate, known as the neurovascular bundles, which can help preserve potency and urinary continence. The section of urethra that runs through the prostate is cut away, and the bladder is re-attached to the remaining section of urethra.

**Potential advantages of *da Vinci Prostatectomy***

In the United States today, surgeons use one of three approaches to radical prostatectomy: open surgery, laparoscopic surgery and robotic-assisted laparoscopic surgery, of which the latter two are minimally invasive. An open prostatectomy requires a 5-7 inch incision in the patient’s abdomen for direct access to the operative site. Conventional laparoscopic and robotic-assisted laparoscopic approaches require several dime-sized incisions, or operating “ports,” which are used to introduce narrow-shafted instruments. The surgeon and assistants maneuver the instruments from outside the body, under vision provided by a surgical camera.

The potential advantages of laparoscopic and robotic-assisted laparoscopic prostatectomy (*da Vinci Prostatectomy*) over conventional open surgery include smaller incisions for less post-operative pain and improved cosmetics, reduced blood loss and less need for blood transfusions, as well as a faster return to normal activities. The two major drawbacks of conventional laparoscopy are its reliance on the use of rigid, hand-held instruments and visualization provided by a standard 2D video monitor. While these technologies enable smaller incisions, they can limit the surgeon’s depth perception, as well as his/her dexterity and precision. Standing at the patient’s side, the surgeon must operate in a counterintuitive fashion, moving the long-shafted instrument handle in precisely the opposite direction of where he or she intends to move the instrument tip. The surgeon maneuvers the instruments while looking up at the 2D view of the operating field projected on a tablesided video monitor and must instruct an assistant on how to position the surgical camera.

In contrast, *da Vinci Prostatectomy* (dVP) incorporates state-of-the-art video and robotic technologies that provide natural depth perception and allow a surgeon’s hand movements to be scaled, filtered and translated into precise micro-movements of tiny instruments at the operative site. The superior visualization, enhanced dexterity, precision and control enable the surgeon to perform complex procedures — like radical prostatectomy — through dime-sized operating “ports.” For most patients, *da Vinci Prostatectomy* offers substantially less pain and a shorter recovery period than traditional prostate surgery. Other advantages may include reduced need for blood transfusions, less scarring and lower risk of infection. In addition, recent studies suggest that *da Vinci Prostatectomy* may offer improved cancer control and a lower incidence of impotence and urinary incontinence.
Comparison of Open Prostatectomy, Laparoscopic and da Vinci Prostatectomy

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<th>Open</th>
<th>Laparoscopic</th>
<th>dVP</th>
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<tbody>
<tr>
<td>Patients</td>
<td>100</td>
<td>50</td>
<td>100</td>
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<tr>
<td>Operative Time (Min.)</td>
<td>164</td>
<td>248</td>
<td>140</td>
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<tr>
<td>Blood Loss (mL)</td>
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<td>380</td>
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<tr>
<td>Cancer Remaining</td>
<td>24%</td>
<td>24%</td>
<td>5%</td>
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<tr>
<td>Complications</td>
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<td>10%</td>
<td>5%</td>
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<tr>
<td>Catheter, Days</td>
<td>15</td>
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<td>7</td>
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<tr>
<td>Hospitalization (Days)</td>
<td>3.5</td>
<td>1.3</td>
<td>1.2</td>
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Menon M. Robotic radical retropubic prostatectomy. BJU Int. 2003 Feb;91(3):175-180.

Additionally, da Vinci has allowed many surgeons to effectively use nerve-sparing techniques with radical prostatectomy to reduce the risk of impotence and urinary incontinence.

Potential disadvantages of da Vinci Prostatectomy

While clinical studies support the use of the da Vinci Surgical System as an effective tool for minimally invasive surgery, individual results may vary. da Vinci Prostatectomy remains a surgical procedure, and as such carries inherent risks. Though data supports high rates of cancer control, maintaining sexual function and return to urinary continence, there is no guarantee of these benefits to every patient. Also, some individuals may not be candidates for a full nerve-sparing procedure due to the extent of their cancer. Results, as with the open operation, are surgeon-dependent and improve significantly with surgeon experience in this surgical modality.

Choosing da Vinci Prostatectomy with Urological Associates of Bridgeport

Learn more on our website at www.urolassoc.com/dv-surgery.shtml.

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