



# Your Health Matters

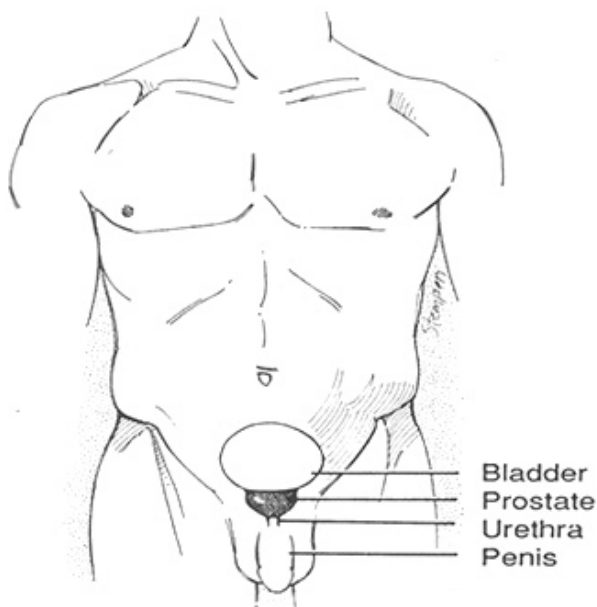
## Radical Prostatectomy – A Patient Guide

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### Overview

A radical prostatectomy is a surgical procedure whereby the prostate gland is removed. Lymph nodes near the prostate can be removed at the same time. Radical prostatectomy is one option for men with clinically localized prostate cancer. Potential advantages include the following: 1) removal of the prostate and analysis by a pathologist allows accurate assessment of cancer aggressiveness (stage and grade); 2) follow-up after surgery is straightforward: the serum PSA (prostate specific antigen) level should be undetectable, and recurrence of cancer is relatively easy to detect because of this; 3) radiation can be given after surgery, if necessary, with a relatively low risk of any additional side effects; and 4) surgery appears to be associated with a very limited risk of late (i.e. beyond 5 years) local recurrence if careful and sensitive PSA testing is performed. Patients who are in good health, have a long life expectancy and have cancers which appear to be confined to the prostate gland are candidates for radical prostatectomy. Some men with more advanced cancers may benefit from the procedure as well. The procedure is associated with certain side effects, although major complications are very rare. Many men may be candidates for a “nerve-sparing” radical prostatectomy whereby sexual function may be preserved.

### What is the prostate gland and where is it located?



The prostate is a male gland which is normally the size of a walnut (about 20-25 grams). It is located behind the pubic bone and below the bladder and surrounds the upper portion of the urethra (canal that drains urine from the bladder). The prostate gland lies in front of the rectum, and part of its surface can be felt during a rectal examination. Adjacent to the prostate are the seminal vesicles, two small glands which are also removed during radical prostatectomy. The function of the prostate and seminal vesicles is to secrete most of the fluid which, together with sperm, constitutes semen.

## **What is a radical prostatectomy?**

A radical prostatectomy is surgery to remove the entire prostate gland and seminal vesicles and, on occasion, regional lymph nodes after a diagnosis of prostate cancer is made. Radical prostatectomy is one of many options for the treatment of prostate cancer. You should discuss all options with your physician.

Radical prostatectomy can be done via an incision made in the abdomen (“radical retropubic prostatectomy”) or in the perineum, the area between the scrotum and the anus (“radical perineal prostatectomy”). Alternatively, it may be done with laparoscopy (“laparoscopic radical prostatectomy”). Laparoscopy is a technique in which surgery is performed by making small incisions and passing specially designed telescopes and instruments into the body. Laparoscopic radical prostatectomy is a relatively new technique, which may result in less discomfort and earlier return to work. At UCSF we perform laparoscopic radical prostatectomies using a robotic surgical system called the da Vinci® robot. The system features magnification and surgical precision. Outcomes in terms of cancer control, urinary function and sexual function are generally similar to a radical retropubic prostatectomy. The robotic approach has been modified based on our large experience with open surgery in order to optimize outcomes. The subtle differences between the procedures can be discussed with your surgeon. At UCSF, the majority of procedures are done using a robotic approach for the following reasons: the robotic approach appears to be able to remove the prostate cancer equally as well as the open approach, it is associated with somewhat less blood loss and an earlier return to normal activities and may be associated with an enhanced ability to spare the neurovascular bundles. However, selected patients, usually those with more advanced cancers, may benefit from the open approach.

In addition to removing the prostate gland, the lymph nodes in the area of the prostate may be removed either before or during the same operation. This is done to determine if the prostate cancer has spread to the lymph nodes. This procedure is called "pelvic lymph node dissection." The risk of having cancer in the lymph node can be estimated and only men with a moderate or high risk of pelvic lymph node metastases need to undergo pelvic lymph node dissection. Criteria for lymph node dissection vary, but may include high grade (Gleason pattern 4 or 5), higher PSA values and/or possible extra-prostatic disease based on preoperative ultrasound.

## **Why would I choose to have a radical prostatectomy?**

Radical prostatectomy is one of several options for men whose prostate cancer still appears to be localized to the prostate. It allows, in most cases, for complete removal of the cancer. Once the prostate is removed, one can tell how advanced the cancer is, what the risk for cancer recurrence is and whether or not additional treatment may be needed. It is relatively easy to follow men who have undergone radical prostatectomy to be sure their cancer is gone. Once the prostate is removed, PSA should fall to undetectable levels within six weeks. Radiation can be given after surgery, if necessary, with a relatively limited risk of any additional side effects.

Patients who choose radical prostatectomy should be in very good health, have a life expectancy exceeding 10 years, have cancers that appear to be localized to the prostate gland and have discussed all available treatment options with their doctors. Some men with prostate cancer extending beyond the prostate gland may be candidates for the procedure as well. Radical prostatectomy may occasionally be an option when prostate cancer recurs after radiation or other treatments. This approach ("salvage prostatectomy") carries higher risks of side effects, and should be considered carefully.

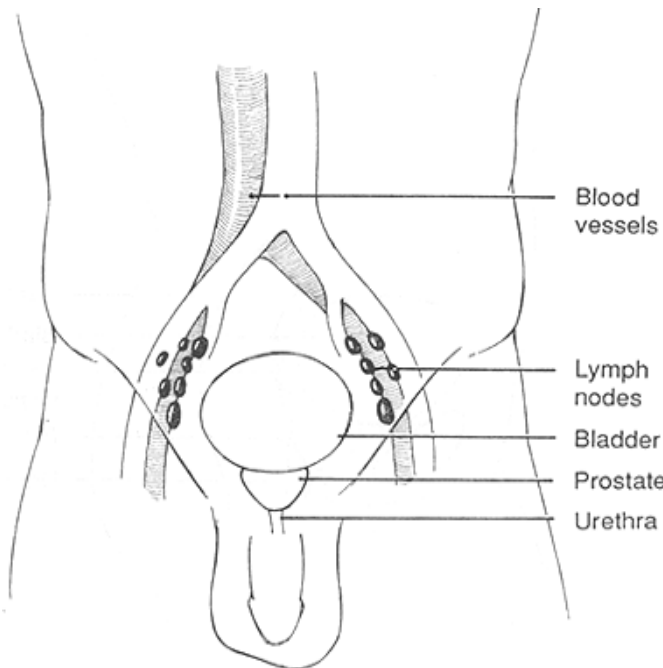
## **What will happen before surgery?**

Before surgery, a number of tests will be performed to determine the extent of the disease. These tests include blood tests, transrectal ultrasound, and a prostate biopsy. In selected patients, a bone scan and a CT or MRI scan of the abdomen and pelvis may be done. You will have a physical examination performed and discuss the various types of anesthesia with anesthesiologists. This visit will be arranged by your doctor and will occur the week before surgery. You will be admitted to the hospital on the day of your surgery. However, you may begin a “bowel prep” at home on the day before your surgery. This is done to cleanse the bowel and may consist of a clear liquid diet, medication to promote bowel movements, and/or an enema. This is a routine preparation done before many types of abdominal and pelvic surgery.

## **What type of anesthesia should I have and do I need to donate blood?**

There are various types of anesthesia. General anesthesia is a technique whereby the anesthesiologists give medication, which allows patients to be “asleep” or unconscious during the procedure. Spinal or epidural anesthesia are techniques whereby medication is instilled into the space around the spinal cord. Epidural anesthesia allows for the delivery of medication postoperatively through a small tube or catheter in the back, resulting in continuous levels of pain medication. The techniques may be combined. Most UCSF radical prostatectomy patients do not require spinal or epidural anesthesia; we normally use general anesthesia with ketorolac, an anti-inflammatory medication, after surgery. With the laparoscopic approach, general anesthesia is required.

Donation of autologous blood (your own blood) is offered to patients, but given the limited blood loss noted by most experienced surgeons, it may not be necessary. This limited blood loss tends to be even less with laparoscopic (robotic-assisted) surgery. If you do wish to donate blood, 1 to 2 units of blood can be stored and used at the time of surgery if it is necessary.



## **What happens during surgery?**

### *Lymph node dissection*

When prostate cancer spreads (metastasizes) it often does so into lymph nodes in the area of the prostate. For this reason, the lymph nodes close to the prostate may be removed to check for tumor spread. The lymph nodes may be removed during either open or laparoscopic (robot-assisted) surgery and will be performed at the same time as prostate removal using the same incision(s). As mentioned, lymph node dissection is not necessary in all patients. Only those at moderate or high-risk of lymph node metastases need undergo the procedure.

## Radical prostatectomy

At the time of radical prostatectomy, the entire prostate gland and seminal vesicles are removed. The seminal vesicles are glandular structures lying next to the prostate which may be invaded by prostate cancer. Once the prostate gland and seminal vesicles are removed, the bladder is reattached to the urethra. A catheter is left in the bladder to allow drainage of urine while healing takes place. In addition, a “drain” (tube that drains fluid accumulations) is left in place for one or two days.

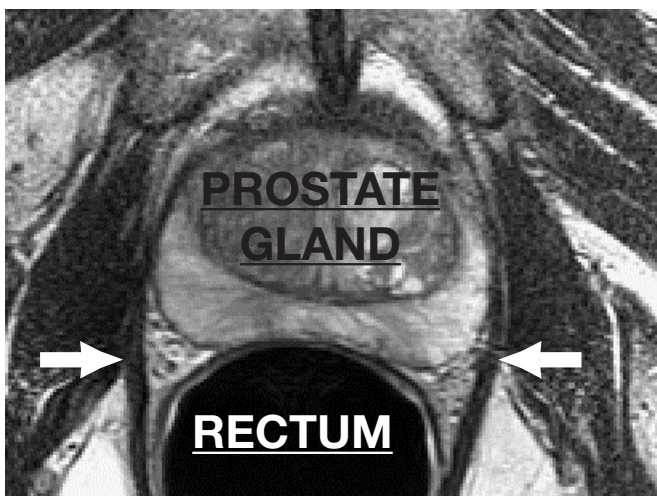
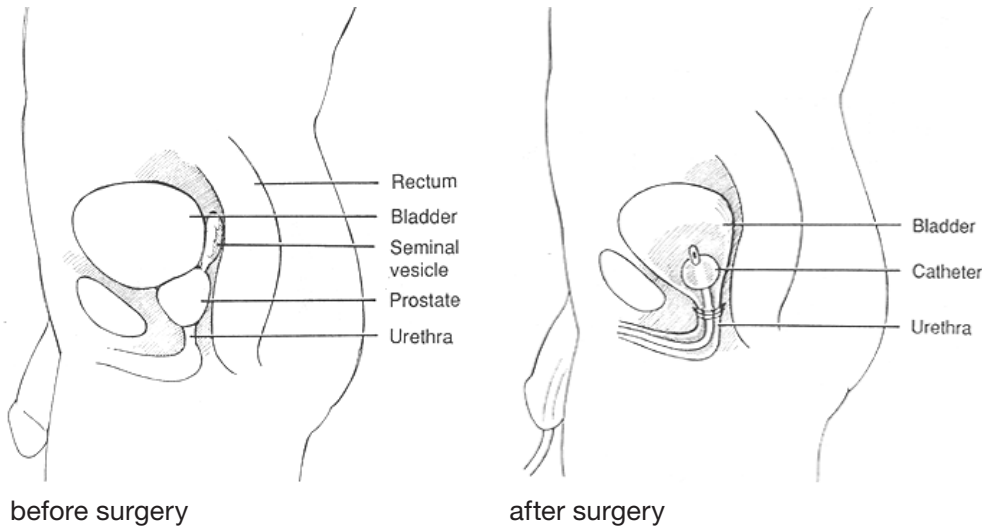


Figure Cross-sectional MRI Image of the Prostate Showing the Position of the Neurovascular Bundles (arrows).

## Nerve-sparing radical prostatectomy

The nerves and blood vessels (“neurovascular bundles”) which allow the penis to become erect run on either side of the prostate. The figure shows a cross-sectional MRI of the prostate gland. The arrows note the neurovascular bundles. These bundles may be partially or completely spared during radical prostatectomy, thereby preserving sexual function in some men. Either one or both bundles can be spared. The best results are achieved if both bundles can be spared. Young men who are sexually active and report having very good erections are most likely to benefit from preservation of the bundles. Older men and men who report limited erections are less likely to benefit. In some cases,

preservation of the bundle may not be advised due to the location or extent of the cancer. As the nerves run very close to the prostate, preservation of the bundles in some men may risk leaving cancer behind. The risks and benefits of nerve-sparing surgery should be discussed with your doctor.

Whereas urinary continence tends to return early after surgery, sexual function returns more gradually in those who have undergone nerve-sparing radical prostatectomy. Little or no function is noted immediately after surgery in most men. Erections show more substantive improvement in the first six months, and may continue to improve up to 18 to 24 months after surgery. Return of erections may be facilitated by early use of oral drugs (Viagra/Levitra/Cialis) or penile injection therapy. You should discuss these and other options with your doctor.

Please see the Your Health Matters document *Managing Impotence – A Patient Guide* for more information ([http://urology.ucsf.edu/patientGuides/pdf/Manage\\_Impotence.pdf](http://urology.ucsf.edu/patientGuides/pdf/Manage_Impotence.pdf)).

## **What should I expect after surgery?**

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### *Eating and drinking*

You will begin to drink fluids shortly after the procedure and will be allowed to eat solid food thereafter.

### *Duration of hospitalization*

The three goals which must be met in most cases before you may return home after surgery are:

- Pain control with oral medications
- Tolerating solid food
- Walking unassisted

After either open or laparoscopic prostatectomy most men are well enough to go home the next day after surgery. Some will stay a second day, especially if the surgery finished later in the day.

### *Drains and dressings*

All abdominal incisions are usually closed with absorbable suture, so no sutures or clips need to be removed. The incisions are covered with bandages called Steri-strips which help keep them closed while the skin heals. These usually fall off in the shower in one to two weeks, and can be removed if not gone by two weeks. Covering the Steri-strips will be gauze dressings with paper or clear plastic tape; these can be removed 48 hours after surgery. Laparoscopic incisions may be dressed with a bioglue or band-aids instead of traditional bandages. The glue will gradually wear away, within a week or two.

### *Managing pain*

Both open and laparoscopic (robot-assisted) prostatectomies are generally tolerated with relatively little pain. After surgery you will receive an anti-inflammatory medication called ketorolac (Toradol), which is similar to ibuprofen (Motrin), unless you have a history of stomach ulcers or kidney dysfunction. For some men, this is sufficient. If you do have pain, you may receive oral narcotic tablets, usually Vicodin (hydrocodone and acetaminophen), and if your pain is more severe you can receive intravenous hydromorphone (Dilaudid), which is similar to morphine. Narcotics, both oral and intravenous, can cause nausea and drowsiness and tend to slow bowel function, so you should use only as much of these medications as you need. On the other hand, it is important to make sure your pain is controlled enough not just to lay in bed, but also to take deep breaths, cough and walk. It is easier to stay ahead of postoperative pain than to try to catch up once in severe pain, so make sure you ask for pain medicine early if needed. The same guidelines apply when you go home with medication (usually Vicodin) for pain. If you feel you are not getting adequate pain relief, please feel free to discuss this with your nurse or doctor. Each person's experience of pain is different, and although we may not be able to completely eliminate all of your discomfort, we want you to be as comfortable as possible after your surgery.

### *Bathing*

Your nurse will assist you with a daily sponge or bed bath. Showers are permitted after the dressings have been removed, usually within two or three days. Do not take a bath, swim, or otherwise soak the incisions for four weeks to avoid having the sutures absorb more quickly than they should.

## What you can do to help

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To prevent complications, such as pneumonia and blood clots, you will be encouraged to do three things as soon as possible after surgery: walk, use your incentive spirometer (a small disposable device which encourages deep breathing) and do your leg exercises. The nurses will instruct you on how to use the spirometer and do leg exercises, and will assist you in walking after surgery until you can manage on your own. While in bed you will have compression devices on your legs which squeeze intermittently to prevent blood clots. You can remove them only once you are walking regularly.

## Going home: what to expect

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### *Diet and exercise*

It is normal to feel tired for several weeks after your surgery. Make sure someone drives you home from the hospital. Get plenty of rest, eat a well-balanced diet with plenty of protein and iron, and do some light exercise (such as walking) every day. You should drink at least two to three liters of fluids each day, and monitor the color of the urine in the catheter tubing (not the bag). The urine should be clear or light yellow. If the color is dark yellow or light red you should drink more fluids. Do **not** do any heavy lifting (more than 10 to 20 pounds) or strenuous exercise for two to four weeks following surgery. You can increase your exercise schedule gradually thereafter. Light exercise such as walking, jogging and stretching should be done initially. Golf or tennis can be played within two to three weeks. If you feel comfortable, you can increase your activity. Heavy abdominal exercise, such as sit-ups as well as cycling on an upright bicycle, should be avoided for six weeks. It is important that you do exercise that you feel comfortable with. Any activity that causes pain should be avoided.

### *Driving*

Driving is usually permitted after the catheter is removed if you feel comfortable, are taking no narcotic pain medication and can twist your torso quickly to look over your shoulder without significant pain.

### *Caring for the incision*

The incision for an open prostatectomy runs from above the base of the pubic area to well below the navel. The key words here are “clean” and “dry,” showering once a day should do it. If you notice extreme or increasing tenderness, progressive swelling, more than a small amount of drainage (i.e. teaspoon) or any pus or redness, notify your doctor right away. Incisions from laparoscopic radical prostatectomy are smaller, but more numerous. They should be cared for similarly.

### *Going home with a catheter*

You will be discharged from the hospital with a catheter in place to drain urine from the bladder into a bag. The balloon port of the catheter should be secured to the leg with a Stat-lock at all times. **Should the catheter fall out or malfunction you should call your urologist and not allow an emergency department or other non-urology physician to replace or manipulate the catheter.** A large bag should be used at night and while at home to allow for better drainage. The leg bag should be used when out and about. The doctor will remove the catheter in the office in five to 14 days.

Be sure to clean the catheter where it exits your penis twice a day with soap and water, to apply a small amount of water-based lubricant (Surgilube, KY, etc.) to the catheter at the tip of penis (meatus) to minimize irritation, and to empty the bag frequently. The bag should always be positioned lower than your bladder (i.e. secured to your leg or on the floor at the side of the bed). A small amount of redness at the tip of the penis and/or discharge around the catheter is usually a sign of mucosal irritation, not pus, and is a sign that the catheter should be cleaned and/or lubricated more often. On occasion, the catheter may irritate the bladder, causing “bladder spasms” which can be quite uncomfortable. Most

patients will be sent home with bladder spasm medication. Pain behind the pubic bone or the tip of the penis as well as leakage around the catheter may be signs of bladder spasm. If these occur, you should use the prescribed medication. Leakage of urine around where the catheter exits the penis may also occur, if most of the urine is still draining into the bag this can be managed by wearing incontinence pads as described in the next section. However, if the urine is leaking and little or none is draining into the bag you should call your doctor. It is normal for your urine to look cloudy for a few weeks after surgery. Occasionally, bleeding may occur around the catheter or be noticed within the urine. This is also common. If passage of large clots, more than an inch in length, is noted or if the catheter becomes plugged, contact your physician. No anesthesia is required for catheter removal and only a little discomfort is experienced by most patients.

### *Managing incontinence*

After your bladder catheter is removed, you may have leakage of urine (“incontinence”). Initially, the leakage may be significant (leakage all the time). Your doctor or nurse will teach you exercises which you can do to strengthen your sphincter muscle. These are called Kegel exercises and they can be done anytime: when lying down, sitting, standing or walking. You should do 200 repetitions of five second Kegel exercises per day. These exercises will tend to decrease the amount of time it takes you to recover continence.

At your local pharmacy you can buy incontinence pads such as “Attend” or “Depend” to protect your clothing and waterproof underpads to protect bedding. These can be obtained without a prescription and are available in a variety of sizes and absorbencies. Please bring one or two pads to your physician’s office the day your catheter is to be removed. Your ability to maintain bladder control should improve significantly with time. Normally, continence returns in three phases: Phase I – you are dry when lying down; Phase II – you are dry when walking; Phase III – you are dry when you rise from a seated position, cough or exercise. Most patients regain very good control by three months. However, it may take more time for some patients. If adequate urinary control does not return by six months, consult your doctor. If you believe that the force or diameter of your urinary stream is slow or narrow, or if you have any difficulty or pain on urinating, notify your doctor immediately. Rarely, scarring may cause blockage to the normal flow of urine. Most often, this can be treated easily by dilating the urethra. This is a brief procedure which can be done with local anesthesia in an outpatient setting.

### *Skin care*

If you have any incontinence, your skin may become irritated (depending on the amount of urinary leakage). You may need to protect your skin with a barrier such as Desitin or A&D ointment. If you develop a rash, notify your doctor.

### *Managing constipation*

Constipation is a common side effect of pain and bladder spasm medications. During the time that you are taking them, be sure to increase your fluid intake (at least eight glasses of water a day), take stool softeners, and eat lots of roughage (whole grains, fruit and vegetables). Use laxatives only as a last resort. Diarrhea may also occur in the first few days after surgery as your bowel function returns to normal. This usually fairly mild; if it is severe or not improving, contact your doctor.

### *Medications*

You will go home with the following medications:

1. An anti-inflammatory medication (e.g., ibuprofen or naproxen) which reduces both pain and inflammation. You should take this for at least a few days after you go home, or until you are free of significant pain. These should be taken with a full glass of water and ideally with food.

2. A narcotic pain medication (e.g., Vicodin/hydrocodone or Percocet/oxycodone), which you should take, one to two tablets every six hours as needed. These can cause nausea and constipation.
3. A medication for bladder spasm (e.g., Ditropan/oxybutynin), which you can take up to every eight hours as needed. This can also cause constipation and drowsiness, as well as dry mouth. Do not take Ditropan starting 24 hours before your catheter is due to be removed.
4. A stool-softener (Colace/docusate) which should be taken as long as you are taking narcotic pain or bladder spasm medication, unless you develop diarrhea.
5. A medication for erectile restoration (Viagra, Levitra or Cialis). These medications work by increasing the flow of fresh blood to the penis, which in turn may facilitate nerve recovery. You should take a half a pill before bed two to three times a week starting immediately after surgery or after the catheter is removed. You should not expect to have erections, although they may occur. Taking these pills early after surgery is meant to improve the likelihood that you will have good recovery of function later.
6. Depending on your age and other medical problems, you may be given a beta-blocker (e.g., metoprolol) to protect your heart, which you should continue for seven days after surgery.
7. If you take aspirin or anti-platelet agents such as Plavix, these can be resumed seven days after surgery unless your physician informs you otherwise.
8. If you take Coumadin (warfarin) talk with your doctor about the timing of resuming this pill.

### *What about sex?*

Some men find it difficult to have an erection after radical prostatectomy. The nerves and blood vessels (neurovascular bundles) that control erection are located on either side of the prostate. Sometimes one or both of these nerves and vessels can be preserved during surgery (“nerve-sparing” radical prostatectomy), thereby maintaining the ability to have an erection. However, depending on your age, your pre-operative ability to obtain and maintain an erection, and the extent of the cancer, natural erections may not return. In some cases, the neurovascular bundles need to be removed because cancer may extend close to them. Therefore, complete cancer excision may not be possible without removing them. Please feel free to discuss any concerns with your physician, who will provide information about alternative ways to manage impotence, such as oral drugs (Viagra/Levitra/Cialis), penile injections, vacuum pumps, and, rarely, penile implants. Since the prostate has been removed, there will be no ejaculate (semen) released. Whether or not you are able to obtain an erection, you should still be able to have an orgasm (climax) with stimulation to the penis. A UCSF Your Health Matters guide titled "Managing Impotence - A Patient Guide" is available in the Urologic Oncology Clinic, at the Cancer Resource Center, and on-line at <http://urology.ucsf.edu/patientguides/neuromale.html>. In addition an excellent booklet entitled “Sexuality & Cancer: For the Man Who Has Cancer, and His Partner” is available from the American Cancer Society free of charge. Please call your local chapter for a copy. It is important to realize that one can continue to be sexually active despite even extensive prostate cancer treatment. Be open-minded, seek treatment for impotence if it occurs and realize that sexual gratification can be achieved (for you and your partner) in many ways.

### *Is there anything else I should know?*

Swelling and bruising of the penis and scrotum occur commonly after radical prostatectomy. This is temporary and should resolve within four to seven days. Swelling of the feet or legs is uncommon and your doctor should be notified if this occurs.



## **What is the pathology report and how do I interpret it?**

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Once the prostate gland and lymph nodes are removed, a pathologist will coat the prostate with ink and fix all the tissues in substances which will preserve the architecture of the tissues and allow the pathologist to detect the extent of the cancer using the microscope. The prostate gland is coated with ink to allow the pathologists to determine how close any cancer comes to the edge of the prostate. There are at least three features which are important in the pathology report: cancer grade, cancer stage, and margin status.

### *Cancer grade*

Cancer grade refers to how malignant cancer cells look through the microscope. Most often grades are assessed using the Gleason grading system named after the pathologist who developed it. Gleason grade is a numerical value given to prostate cancers that measures tumor grade. Grades are assigned to the most common pattern of cancer as well as the second most common. Grades for each pattern range from 1 to 5. A grade of 1 denotes a cancer that closely resembles benign or normal tissue. A grade of 5 is assigned to cancers that appear aggressive and differ significantly from benign tissue. Therefore two grades are given: a primary and secondary grade. When added together, a total sum or Gleason sum is obtained. This sum can range from 2 to 10 but in contemporary practice is rarely below 6 (see below).

Cancers with both primary and secondary grades of 1 to 3 (sums of 2 to 6) tend to have a better outcome (lower chance of recurrence), compared to cancers of higher grades. Cancers with grades of 4 and 5 (sum of 7 to 10), tend to have a higher chance of recurrence. A word of caution about Gleason sum 7 cancers (3+4 or 4+3): Gleason grade 3+4 cancers are associated with a lower risk of recurrence compared to grade 4+3 cancers. Over the years pathology grading practices have changed so that Gleason grades 1 and 2 have become very uncommon. Today Gleason grade 3 is usually the lowest grade assigned, and a Gleason 3+3 (Gleason sum 6) is the most common low-grade tumor.

### *Cancer stage*

Cancer stage is a measure that defines the extent of a tumor. T2 cancers are those completely confined to the prostate. T3 cancers are those that have gone beyond the prostate, either through the capsule of the prostate, T3a, or into the seminal vesicles, T3b. T4 cancers are very rare and include those which have invaded nearby organs such as the bladder. Patients with T3 cancers are at an increased risk of cancer recurrence compared to those with T2 cancers.

### *Margins*

It is the goal of surgery to remove all the cancer. A positive margin means that the pathologist notices that cancer cells are at the very edge of the prostate touching the ink that was applied during initial processing of the prostate gland. The pathologist will note the number and location of any positive margins. Those patients with positive surgical margins are at an increased risk of cancer recurrence. Patients with more than one positive margin are more likely to have the cancer recur compared to those with a single positive margin. Patients with an extensive positive margin (large area where the cancer is in contact with the edge of the prostate) are more likely to have recurrence of their cancer compared to those with a very small area (focal positive margins) where the cancer just touches the edge.

It is important to note that most patients with positive margins are cured by prostatectomy alone and do not require further treatment. Depending on the number and extent of margins, your physician may recommend post-operative radiation to decrease the risk of recurrence.

## **Do I need any additional treatment?**

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Usually, you will not need any additional treatment after a radical prostatectomy. You and your physician will make a decision on the need for additional treatment based on the pathology report and your PSA level after surgery. Your PSA should drop to undetectable levels after surgery. Patients with cancer in the lymph nodes, T3 cancers, high-grade cancers and positive margins are at an increased risk of recurrence and should discuss the type and timing of any additional treatment with their doctors.

On occasion, radiation, hormonal therapy or any one of a number of new agents being evaluated in clinical trials may be given if the cancer removed was extensive or recurs in the future. All patients should have regular check-ups including PSA blood tests, and in very selected cases, imaging tests (bone scan, CT scan, MRI, etc.).

## **How often do I need to see my doctor?**

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You will see your doctor initially to be sure that your recovery and return of urinary continence is occurring normally. For those who are sexually active and have not regained potency, your doctor will discuss various options for management. The frequency of doctor visits and serum PSA tests will be determined based on the risk of cancer recurrence. Most often, serum PSA is obtained at three to six month intervals for the first three years (depending on the risk of cancer occurrence). PSA is measured less frequently thereafter.

## **A final note**

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The diagnosis of prostate cancer and its treatment evokes strong emotions in patients and their loved ones. It is important that you share your concerns, fears and frustrations with your doctor and those around you. Good communication is important to recovery. Visit the UCSF Cancer Resource Center for helpful information on a wide range of topics. You may find participation in a support group very helpful. Information on support groups, including ones close to you, can be obtained from the Cancer Resource Center.

## **Troubleshooting**

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**Bleeding in the urine** – Bleeding in the urine is common and it may be intermittent. While you have a catheter, monitor the color of the urine in the tubing draining the catheter rather than the urine in the bag, as the urine in the tubing represents the urine you are actively making. Pink or light red urine is not concerning and is just a signal to drink more fluids. Call your physician for any of the following: 1) passage of large blood clots (longer than an inch), 2) very bloody urine (like burgundy wine or so thick that one cannot see through the urine in the clear urinary drainage tube or bag), 3) blocked catheter whereby the urine fails to drain easily.

**Cloudy urine** – This is common and will resolve once the catheter is removed and healing occurs. You should drink plenty of fluids each day, at least eight glasses.

**Constipation** – Constipation is a common side effect of pain medications and surgery. During the time that you are taking them, be sure to increase your fluid intake (at least eight glasses of water a day), take stool softeners (i.e. Metamucil or Colace), and eat lots of roughage (whole grains, fruit and vegetables). Use laxatives only as a last resort. If constipation occurs, try a gentle laxative initially (Milk of Magnesia, two tablespoons). This can be repeated, if necessary.

**Contacting your doctor** – Minor problems or concerns can be relayed to your doctor during daytime office hours. Frequently, a call to his or her nurse will suffice. Any major concerns should be transmitted immediately. Major problems are rare. However, all doctors should have 24-hour contact telephone numbers. If your doctor is not immediately available or you have need of emergency

treatment, contact your local emergency room or dial 911. Doctors at your local hospital or emergency room will contact your doctor as well. You should have copies of your doctor's office number (daytime and 24 hour) readily available.

**Diarrhea** – A change in bowel habits is common after surgery. Although you may notice an increase in the frequency of bowel movements, diarrhea (frequent liquid bowel movements) is uncommon. This can be due to an infection. Consult your doctor if you have persistent diarrhea, especially if it is accompanied by increasing abdominal pain, swelling or fever. Diarrhea due to infection can be treated with oral antibiotics.

**Difficulty getting or maintaining erections** – Return of sexual function (erections) following surgery is dependent on many factors, including surgical technique (whether one or both neurovascular bundles were saved), patient age, preoperative function and overall health (presence of diabetes, a history of smoking, high cholesterol levels, etc. which increase the risk of sexual dysfunction following the procedure). If your erections were good before the procedure and your surgeon was able to spare the nerves and blood vessels responsible for normal erections, your erections are likely to return over time. However, despite good pre-operative sexual function and seemingly good surgical technique, some patients may not have full return of full erections without the use of additional techniques. To facilitate the return, your doctor will prescribe oral drugs (Viagra/Levitra/Cialis) or other techniques (self-injection, urethral suppositories, and vacuum devices). The return of erections usually takes several months. Your ability to have orgasm (climax) should remain intact. You will not be able to ejaculate, as the prostate and seminal vesicles have been removed. You may produce some secretions because small glands in the urethra remain following surgery. If your doctor was unable to spare the neurovascular bundles, you should discuss options for treatment. You should remain sexually active with treatment. Those men who may want to father children after having their prostatectomy should consider sperm banking prior to the operation.

**Diet** – There is no specific diet following radical prostatectomy. Patients are able to drink liquids immediately and progress to solid foods within 24 hours in most cases. Patients are encouraged to eat a well-balanced diet. There is no need to eat large meals; many patients find that ingestion of small meals is satisfying after surgery. On occasion, iron is taken to replenish blood cells. Ask your doctor whether this is necessary. Eat a diet that you find satisfying and palatable. Normal dietary habits will return as healing occurs and you resume normal physical activity.

**Exercise** – Walking after the procedure is encouraged. The amount of walking may be limited for the first two or three days after the procedure but should increase thereafter. There is no specific restriction, but one should restrict activity due to pain or fatigue. Most patients are walking a block or two within four to seven days. Activity increases progressively, especially once the catheter is removed. Lifting (more than 15 or 20 pounds) should be avoided for the first seven to 10 days. Heavy abdominal exercise (i.e. sit-ups) and cycling on an upright bicycle should be avoided for approximately six weeks. Patients can return to jogging, swimming, golf, etc. when they feel comfortable with these types of exercise.

**Excessive drain fluid** – A drain is frequently left in after the procedure. The drainage should be either clear or blood-tinged. It usually decreases and the drain removed before discharge from the hospital. On rare occasions, it persists and you will be discharged home with the drain in place. You will be asked to record the drainage daily. The drain will be removed, once the drainage is limited in amount (usually less than 50 to 100 cc in 24 hours).

**Fever** – A persistent temperature above 38° C (101° F) is not normal. If you have a fever, call your doctor.

**Leakage around the catheter** – Passage of small amounts of blood or urine or thick secretions around the catheter is common and no cause for alarm. Wash the area with soap and water daily.

**Pain** – Pain along the incision is to be expected, but it should be effectively managed by use of pain medication. Call your physician if it is not. On occasion, patients with catheters in place may develop “bladder spasms.” These are characterized by intermittent episodes of pain just above the pubic bone, often radiating down the penis, and often associated with passage of urine around the catheter. These will resolve once the catheter is removed. If they occur frequently or are very painful, contact your doctor, who can prescribe medication (Detrol or Ditropan) to control them. The medication should be stopped just before the catheter is removed.

**Poor urinary flow** – The caliber of the urinary stream often varies after the procedure. Most often, it is stronger than before the procedure. On occasion, it may appear to be weaker. Rarely, the anastomosis (the area where the urethra was sutured together after prostate removal) will narrow, making urination difficult. This can be managed with dilation (gentle stretching) of the urethra. Call your doctor if the caliber of the urinary stream narrows so the stream becomes intermittent, you have to strain to urinate, or feel that you are not emptying your bladder completely.

**Redness along the incision** – Some degree of redness is expected during the healing process, but it should not be excessive (extending beyond the incision for more than a few millimeters) or expanding. Call your doctor if you note increasing redness, certainly if it is associated with fever, increasing pain in the area or thick, purulent (pus) drainage.

**Swelling or bruising of the scrotum or penis** – Swelling or bruising of the scrotum and penis occur commonly after the procedure. It is usually limited and will resolve within seven to 10 days of the procedure. On occasion, elevation of the scrotum with a rolled towel while in bed will be helpful.

**Swollen leg(s)** – Some patients may notice mild swelling of the ankles after surgery due to the large amount of fluid they may receive during surgery. However, more substantial swelling of the calf or thigh is unusual, especially if it associated with pain or occurs in one leg. If such swelling occurs, contact your doctor. Rarely, patients may develop blood clots in the leg after almost any type of surgery.

## **Glossary of Common Terms**

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**Biopsy:** Sampling of tissue.

**Bone scan:** A radiologic imaging study that utilizes a radioactive compound that is injected into a vein to identify abnormalities in the skeleton.

**Cancer:** A condition of unregulated cell growth. Cancer cells, unlike benign cells, exhibit the properties of invasion and metastasis.

**Catheter:** Small tube inserted to drain or instill fluid.

**Cell:** Any one of the minute protoplasmic masses that make up organized tissue. A cell is the fundamental structural and functional unit of living organisms.

**CT scan (Computerized tomography):**

A radiologic imaging study in which cross-sectional images of the body are obtained using x-rays.

**Drain:** A tube used to drain fluid accumulations after surgery.

**Gleason grade:** A numerical value given to prostate cancers that measures tumor grade. Grades are assigned to the most common pattern of cancer as well as the second most common. Grades for each pattern range from 1 to 5. A grade of 1 denotes a

cancer that closely resembles benign or normal tissue. A grade of 5 is assigned to cancers that appear aggressive and differ significantly from benign tissue.

- Impotence:** Inability to get a natural erection.
- Incontinence:** Uncontrolled loss of urine.
- Kegel exercises:** Exercises designed to strengthen the muscles around the bladder and bladder opening. The exercises can be done anywhere or anytime. They are done by tightening and then relaxing the pelvic floor muscles.
- Laparoscopy:** A surgical technique in which small incisions are made in the body in order to introduce specially designed telescopes and instruments. In some cases a surgical robot can be used to facilitate laparoscopic surgery. The robotic system at UCSF is called DaVinci and facilitates robot-assisted laparoscopic radical prostatectomy.
- Lymph node:** The main source of lymphocytes of the peripheral blood. In addition, lymph nodes serve as a defense mechanism by removing noxious agents such as bacteria, toxins and cancer cells.
- Metastasis:** The transfer of disease from one organ or part to another not directly connected to it. The capacity to metastasize is a characteristic of all malignant tumors.
- MRI Scan:** An imaging study in which cross-sectional images of the body measure how different types of body tissue respond to a magnetic field.
- Pelvic lymph node dissection:**  
Removal of the lymph nodes adjacent to the prostate.
- Prostate gland:** A gland in the male which surrounds the neck of the bladder and urethra. The prostate contributes to the seminal fluid.
- Prostate specific antigen (PSA):**  
A protein that is specifically manufactured by prostatic epithelial cells. The level of PSA often correlates with the likelihood and extent of prostate cancer and the size of benign prostatic enlargement or BPH.
- Radical prostatectomy:**  
A surgery in which the entire prostate gland and seminal vesicles are removed.
- Seminal vesicles:** Glands located on either side of the prostate that secrete substances to nourish sperm.
- Sphincter muscle:** The muscle used to control the flow of urine from, and hold urine in, the bladder.
- Transrectal ultrasound:**  
A radiologic imaging test in which an ultrasound probe is placed into the rectum to image the entire prostate. This test facilitates prostate cancer staging and prostate biopsy.
- Urethra:** Canal that drains urine from the bladder. It passes through the center of the prostate gland.

## **Important Phone Numbers**

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UCSF Helen Diller Comprehensive Cancer Center: 415/353-7171. This is a 24-hour number. Normal office hours are 9 AM to 12 PM and 1 PM to 5 PM. After hours, either your doctor or the doctor on call can be contacted for questions.

## **Notes**

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