

Vol. 2, No. 1

Post-operative
Care of the
Laryngectomy
Patient

**Radical
Prostatectomy**



Radical Prostatectomy

by Karen Dowler, RN, BSN, CCRN

Prostate cancer is the most common type of cancer in American men, other than skin cancer. Although men of any age can develop prostate cancer, it is found most often in men over 50 years of age. In fact, 8 of 10 men with prostate cancer are over the age of 65. The American Cancer Society estimates that about 179,300 new cases of prostate cancer will occur in 1999 and about 37,000 men will die of this disease.

Anatomy

The prostate gland is a male sex gland about the size of a walnut. It is located just below the bladder and in front of the rectum. The urethra runs through the prostate. This gland produces a fluid that is part of semen and needs male hormones to function. The major male hormone is testosterone, which is made mainly by the testes. The adrenal glands also produce male hormones.

Cancer that begins in the prostate is called primary prostatic cancer. It may remain in the gland or spread to nearby lymph nodes. Prostate cancer can also spread to the bones, bladder, rectum, and other organs.

Symptoms

Early prostatic cancer is often asymptomatic. When symptoms occur, they include some of the following problems:

- a frequent need to urinate, especially at night
- difficulty starting or holding back urine
- inability to urinate
- painful or burning urination
- painful ejaculation
- blood in urine or semen
- frequent pain or stiffness in the lower back, hips, or upper thighs

Although these symptoms can be caused by other health problems, such as benign prostatic hyperplasia (BPH) or infection, a man who has these symptoms should see his primary-care physician or a urologist.

Diagnosis

If symptoms occur, the physician should obtain a complete medical history and perform a physical examination. The exam should include:

- *Digital rectal examination (DRE)*: During the DRE, the practitioner inserts a gloved, lubricated finger into the rectum and palpates the prostate through the rectal wall to check for hard or lumpy areas. The American Cancer Society recommends that every man of 40 years of age or older have a digital rectal exam as part of an annual health check-up.
- *Blood work*: Laboratory measurements of prostate specific antigen (PSA) and prostatic acid phosphatase (PAP) should be performed. While these measurements may be higher in nonmalignant conditions, these levels will be taken into account in conjunction with other data.
- *Urine evaluation*: The urine needs to be checked for blood or infection.
- *Transurethral ultrasonography* : A ultrasonic probe is inserted into the rectum. Sonic waves are bounced off the prostate, and a computer uses these echoes to create a sonogram.
- *Intravenous pyelogram*: A series of x-rays of urinary tract organs is ordered.
- *Cystoscopy*: A physician looks into the urethra and bladder through a thin lighted tube.

If test results suggest that cancer may be present, the patient will need to have a biopsy. If cancer is present, the pathologist reports the tumor grade. When present, the patient and his physician need to know the stage or extent of cancer. Staging identifies whether the cancer has spread and, if so, what parts of the body are affected. Treatment decisions depend on these findings.

Staging

Stage I(A): Cancer cannot be detected by rectal exam and causes no symptoms. The cancer is usually found during surgery to relieve problems with urination. Stage I tumors may be found in more than one area of the prostate, but there is no spread outside the prostate.

Stage II(B): The tumor is felt during DRE or detected by a blood test, but there is no evidence that the cancer has spread outside the prostate.

Stage III(C): The cancer has spread outside the prostate to nearby tissues.

Stage IV(D): Cancer cells have spread to lymph nodes or other parts of the body.

Risk factors

The exact cause of prostate cancer remains unknown; however, researchers have found several factors that are consistently associated with an increased risk of developing this disease. They include:

- *Age:* The chance of having prostate cancer increases rapidly after 50 years of age.
- *Race:* Prostate cancer is about twice as common among African-American men as in Caucasian-American men.
- *Nationality:* Prostate cancer is most common in North America and Northwestern Europe. It is less common in Asia, Africa, Central America, and South America.
- *Diet:-* Studies suggest that men who eat a high-fat diet have a greater chance of developing prostate cancer. Lycopenes, which are found in fruits and vegetables, seem to lower prostate cancer risk.
- *Physical activity:* Regular exercise and maintaining a healthy weight may help reduce prostate cancer risk.
- *Family history:* Prostate cancer seems to run in some families, suggesting an inherited or genetic factor. DNA research has already isolated genetic involvement.
- *Vasectomy:* Men who have had a vasectomy may have a slightly increased risk of prostate cancer.

Treatment

Decisions about how to treat prostate cancer are complex. The patient and physician develop a treatment plan to fit each patient's needs. Treatment for prostate cancer depends on the stage and grade of the tumor. Other important factors are the man's age, general health, and his feelings about the various treatments and their possible side effects, as they can affect quality of life. The major treatments are surgery, radiation therapy (internal and/or external), and hormone therapy. Sometimes, patients receive a combination of treatments.

Surgery

Surgery is a common treatment for early stages of prostate cancer. Cryosurgery is a procedure that uses extremely cold liquid nitrogen to destroy cancer cells. Orchiectomy is the surgical removal of the testicles. Surgery to remove the entire prostate gland and surrounding tissue is called radical prostatectomy.

Radical prostatectomy is performed when there is no evidence of metastases. Two main types of radical prostatectomies are performed: retropubic or perineal approaches. In the retropubic approach, an incision is made in the lower abdomen. With this approach, it is sometimes possible for the surgeon to avoid removing the nerves that control erections and bladder muscles. This lowers but does not eliminate the risk of impotence and incontinence after surgery.

In radical perineal prostatectomy, the incision is made in the skin between the scrotum and anus. Nerve-sparing surgery cannot be done with this approach. Lymph nodes cannot be removed through this incision; however, the surgeon can remove some lymph nodes through a small incision in the abdomen by using a narrow, lighted tube called a laparoscope.

Both surgeries last from 2 to 6 hours. The perineal approach takes less time than the retropubic approach. They are followed by an average hospital stay of 3 days and an average time away from work of 3 to 5 weeks.

Perioperative fluid management must be maintained by the administration of crystalloid and colloid solutions. In most cases, patients can donate their blood prior to surgery to guarantee autologous transfusions. The anesthesiologist monitors the patient's hemodynamic status, responses to fluid losses and administration, ventilatory status, and administration of analgesia.

Complications

Complications after radical prostatectomy include hemorrhage and shock during or after surgery, urinary tract infection, wound infection, urinary obstruction, displacement or accidental catheter removal, urethral stricture, short- and long-term urinary incontinence, impotence, and the usual problems associated with deep anesthesia and highly invasive surgery.

The immediate postoperative period, the first 12 hours after surgery, is the most crucial for the patient. Close observation at this time is important. The patient's physical and psychological functioning must be supported, until the effects of anesthesia have worn off.

Post-operative Nursing Care

Nursing assessment of the patient's respiratory status begins on admission to the recovery room and continues throughout the post-operative period. Normal respiratory function

depends on the maintenance of an open and clear airway. Causes of a closed airway include:

1. obstruction due to:

- mucus collection in the throat
- aspiration of mucus or vomit
- loss of the swallowing reflex
- loss of control of the muscles of the neck, jaw, and tongue

2. laryngospasm due to:

- intubation
- irritating effects of anesthetics

3. bronchospasm due to:

- prior respiratory disease
- inhalation of gastric juices during surgery

Nursing interventions should be aimed at assessing for signs of poor respiratory function: restlessness, tachypnea, tachycardia, cyanosis, snoring, wheezing, or stridor.

Interventions to promote adequate respiratory function include positioning, suctioning, use of adjunct airways, and artificial ventilation.

As the patient regains consciousness, the nurse should encourage coughing, deep breathing, and the use of incentive spirometry. The nurse may apply an abdominal binder (Velcro[®]-type) to encourage a more productive cough.

The surgeon will be most concerned with bleeding, which can be venous or arterial. Hypovolemia is defined as a reduction in intravascular volume relative to that person's normal blood volume. Shock can occur when a person loses about one-third of their normal blood volume. Hemodynamic status needs to be assessed often. Vital signs, urinary output, mentation, the operative site, wound and catheter drainage, serial hematocrit measurements, and hemodynamic monitoring, when indicated, should be measured and assessed. The fluids most often given are colloid and crystalloid infusions.

Indwelling urethral catheters are typically used after all types of prostatectomies. Hematuria is usual for a few post-operative days. Various types of catheter irrigation systems may be used after surgery. A closed system permits constant or intermittent flow of irrigating fluid without the hazard of breaking aseptic technique. It is important to prevent overdistention of the bladder, as it can cause secondary hemorrhage by placing undue strain on freshly coagulated blood vessels.

Observe the patient carefully for local systemic indications of infection. After perineal prostatectomy, aseptic technique must be closely maintained because of a high possibility of wound infection, owing to the location of the incision.

Prevent wound trauma after perineal surgery by avoiding enemas, rectal tubes, thermometers, or rectal medications.

The urinary catheter serves not only for urinary drainage but may act as a splint for urethral anastomosis. Therefore, its patency and security need to be maintained. Blocked catheters can lead to infections, bladder distention, and painful bladder spasms. Often, the surgeon places the catheter in traction or a stretched position to control bleeding. A Velcro[®]-type legband holder helps to hold the Foley catheter in traction.

Although patients are often uncomfortable during the first few days after surgery, their pain can be managed with analgesia. Patient-controlled analgesia and epidural administration of narcotics should be considered for optimal pain relief in the post-operative period. Optimizing pain control will enhance respiratory function, increase the patient's ability to move, facilitate early ambulation, and hasten recovery time.

In most patients, an indwelling catheter is inserted into the bladder after the surgery, while the patient is still asleep. This allows the patient to urinate easily, keeping the operative area free of pressure from a full bladder and allowing the nurse to adequately measure urinary output. The catheter typically stays in place for 10 to 21 days.

Discharge education must include care of the Foley catheter. A Velcro[®]-type legband holder secures the Foley catheter comfortably and stably with less skin irritation than may be associated with adhesive tape.

Surgery to remove the prostate can cause urinary incontinence secondary to disruption of the bladder neck musculature during surgery. If nerve-sparing techniques were used, they may prevent permanent injury to the bladder opening. When successful, urinary incontinence will only be temporary. Normal bladder control returns for many patients within several weeks to several months after surgery.

About 10% of men will experience permanent incontinence after prostate surgery. Mild stress incontinence (passing small amounts of urine when coughing, laughing, sneezing, or exercising) may happen in up to 35% of men.

Surgery to remove the prostate can cause impotence (the inability to obtain or sustain an erection). Nerve-sparing techniques may prevent injury to the nerves that control erection. If successful, impotence will be temporary. Currently, there is a 30% to 40% risk of permanent impotence. Even if impotence is temporary, men who have had a prostatectomy no longer produce semen. Should impotence persist, the patient should consult his urologist about alternative therapies, e.g., medications or implants.

Discharge Planning

Although most patients are eager to return home, after prostatectomy, many men have concerns. The diagnosis of cancer and its implications can be devastating. Coping with these problems is often easier when people have helpful information and support services. Families, friends, and support groups may be helpful. People with cancer may worry about their job, caring for their family, and resuming daily activities. Financial concerns can be overwhelming. Social workers, counselors, and members of the clergy may provide support.

It is natural for a man and his partner to be concerned about the effects of prostate cancer and its treatment on their sexual relationship. They may want to talk to their physician about their concerns and options. Infertility may concern the patient and his partner. They may need to discuss their concerns and may eventually need a referral for assisted reproductive services.

Patient education needs to include the use of medications, particularly analgesics.

More than likely, your patient will be discharged with an indwelling catheter, and catheter care must be taught to the patient and/or family. A Velcro[®]-type legband holder provides catheter stability and freedom of movement during walking.

Lastly, encourage your patient to comply with his follow-up regimen. He should see his surgeon two weeks after surgery. Typically, at this time, the catheter will be discontinued. PSA levels and physical exams will be closely monitored. These tests usually begin three months after surgery.

Conclusion

Radical prostatectomy is the treatment of choice for men who have nonmetastatic prostate cancer, especially in the early stages or younger, healthy men. This lengthy operation totally excises the gland and surrounding tissue. This surgery can be curative as opposed to palliative, yet it is not without significant side effects. The patient and physician should determine if it is the treatment of choice.

Nurses play an integral role in the perioperative period, postoperative recovery, and transition to home care. It is important for nurses to provide information to their patients but be aware of community resources.

American Cancer Society 1-800-ACS-2345

National Cancer Institute 1-800-4-Cancer

American Foundation for Urologic Disease 1-800-242-2383

References

1. Korda M. *Man to Man: Surviving Prostate Cancer*. Random House, 1996.
2. Schover L. *Sexuality and Fertility after Cancer*. Wiley & Sons, Inc., 1997.
3. Walsh P, Worthington J. *The Prostate: A Guide for Men and the Women Who Love Them*. Johns Hopkins Press, 1995.
4. Parker S, Tong T. Cancer statistics. *Cancer J Clin* 1997;47:5-27.
5. Gann PW. Interpreting Recent Trends in Prostate Cancer Incidence and Mortality. *Epidemiology* 1997;8:117-120.
6. Merrill RM, Potosky AL. Changing Trends in U.S. Prostate Cancer Incidence Rates. *J National Cancer Institute* 1996;88:1603-5.

I would like to express my thanks to Steve Tannenbaum, MD, Dept. of Urology, New England Medical Center, and Nancy Ling at New England Sinai Hospital and Rehabilitation Center.



Karen Sue Dowler, RnC, BSN, CCRN, specializes in post-anesthesia care for adult and pediatric surgery patients at New England Medical Center, Boston, MA. She also works at the Boston VA Medical Center, where she is a primary-care nurse for critically ill patients and their families and co-leads an ICU family support group. She works as administrative clinical manager of the 23-bed medical ICU on a rotational basis.