

Bladder Cancer



You may believe that bladder cancer is rare because you don't hear much about it. Yet this form of cancer occurs more often than you might think. Bladder cancer is the fourth most common cancer among men and the ninth most common among women in the United States. Each year, more than 60,000 new cases of bladder cancer are detected, according to the American Cancer Society.

Fortunately, most people with bladder cancer will not die of this disease. However, approximately 13,000 deaths are attributed to bladder cancer each year. Earlier diagnosis is important in reducing that number.

test your knowledge about

If you or someone in your family has bladder cancer, you may need to know the answers to the questions below.

1. What is the primary function of the bladder?
 - a. creates urine
 - b. stores urine
 - c. collects solid waste
2. Which of the following is the most common sign of early bladder cancer?
 - a. having difficulty urinating
 - b. pain in the pelvic area
 - c. blood in the urine

BLADDER cancer

Most bladder cancers can be treated without major surgery. There are other effective treatments with little, if any, effect on quality of life. Most patients with bladder cancer are not at risk of developing a cancer that will spread and become life threatening.

This booklet is designed to answer your questions about bladder cancer—what it is, what its signs are, how it is treated and what you can do to help keep your bladder healthy.

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3. Which of the following statements is true?
 - a. Bladder cancer is extremely rare in the United States.
 - b. Women are more likely than men to get bladder cancer.
 - c. Smoking doubles your risk of getting bladder cancer.
4. True or False: Treatment of bladder cancer usually involves removal of the bladder.
5. True or False: Bladder cancer is generally fatal.

Answers on page 16.

There also is a glossary of terms you may not be familiar with at the end of this booklet.

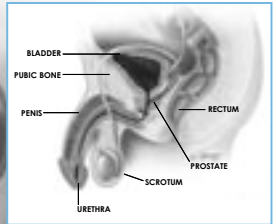
WHAT IS THE BLADDER?

The bladder is the part of the urinary system that stores urine. (See illustrations below.) Urine is the liquid produced by the kidneys as they remove waste and water from the blood. Urine travels from the kidneys down two narrow tubes, called the ureters, and is stored in the bladder, a hollow, balloon-like organ. The bladder normally can store approximately two cups (16 ounces or 450cc) of fluid.

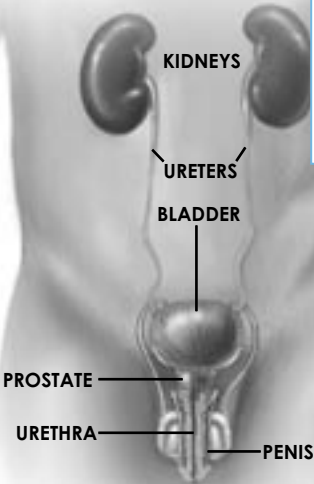
When the bladder becomes full, it signals its need to empty. The bladder contracts, expelling the urine through another tube called the urethra, in a process called “urinating.” (Some people say “pee,”

MALE

*Side view,
interior of male pelvis*



*Front view,
interior of male
urinary system*



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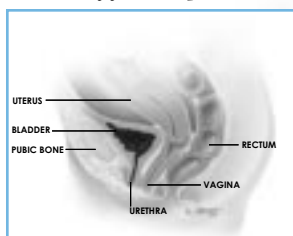
“go to the bathroom,” “pass water,” “void,” or any of several other words or phrases that mean the same as “urinate,” the term used in this booklet.)

WHAT IS BLADDER CANCER?

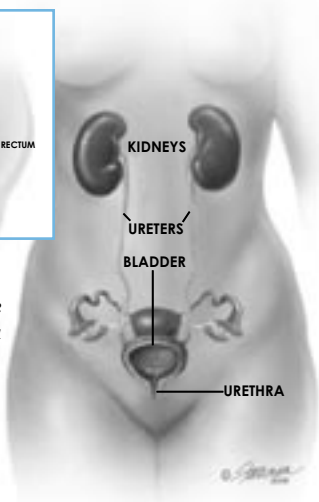
The bladder is lined by a layer of cells. These cells protect the bladder tissue from urine, which can be irritating. Although these lining cells normally produce new cells throughout your life, in some people they start to multiply uncontrollably and form a growth, or tumor. (See illustration on page 4.) “Growth” and “tumor” are sometimes used to mean cancer or malignancy, although not all tumors are cancerous. When a doctor finds evidence of a tumor in the bladder, a biopsy is required. The doctor will remove a small tissue sample for inspection with a microscope to determine whether the cells are likely to be

FEMALE

*Side view,
interior of female pelvis*



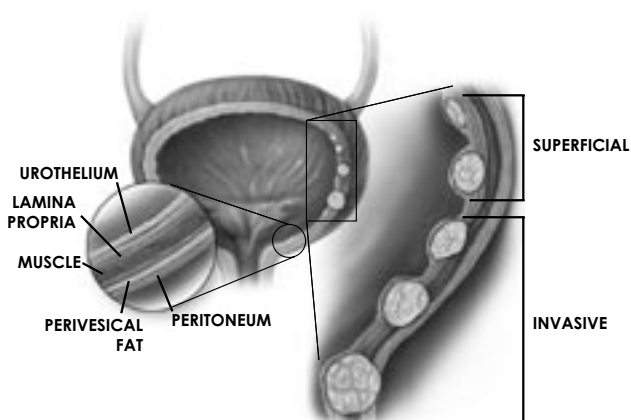
*Front view,
interior of female
urinary system*



noncancerous (benign) or cancerous (malignant). Usually if a growth looks like a tumor, it is surgically removed (resected) and examined under a microscope in much the same way.

Most bladder tumors are not aggressive.

Aggressive cancerous growths can invade the wall of the bladder and then spread to other parts of the body, possibly resulting in death. But even potentially aggressive forms of bladder tumors may not spread or become life-threatening if they are found and treated in the early stages. Even after successful treatment, regular checkups are required to monitor the bladder for new growths. These checkups include examining the urine for the presence of blood, and using a tool called a cystoscope (described later in more detail) that allows the doctor to look directly at the bladder.



A section of the bladder wall showing superficial and invasive bladder cancer stages. The superficial cancer is present only in the lining; it has not entered the other layers of the bladder wall.

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WHO IS AT RISK OF GETTING BLADDER CANCER?

Bladder cancer is unusual in people under 40 years of age. Men are affected four times more often than women. Most importantly, cigarette smokers are two to three times more likely than nonsmokers to develop bladder cancer. Cigarette smoking is a bladder cancer risk factor that can be controlled or modified.

In addition, exposure to certain chemicals in the workplace has been associated with an increased risk of developing bladder cancer. This includes aniline dyes, so hairdressers and people who work in the rubber, chemical, textile, metal and leather industries may be affected. Ironically, certain drugs used in chemotherapy (e.g., cyclophosphamide) are also associated with bladder cancer, so people who work with those drugs—making, storing, administering or disposing of them—may be at higher risk, too.

WHAT ARE THE SIGNS OF BLADDER CANCER?

The earliest clue that you may have a bladder tumor is blood in your urine (hematuria). You may see the blood, but sometimes it can be spotted only under a microscope. That is why it is important for your doctor to look at your urine under a microscope as part of your annual checkup.

Blood in the urine does not necessarily mean you have a bladder tumor. Kidney stones, urinary tract infections, and for men, an enlarged prostate gland can also cause blood in the urine.

Blood in the urine is usually not accompanied by pain. Occasionally, however, there may be some discomfort when urinating—often described as a “burning” sensation. Some people notice that they need to urinate more frequently or urgently than usual. If you experience any of these symptoms, tell your doctor. Don’t ignore those symptoms just because you may not have seen any blood when you urinate. Remember, sometimes the blood is visible only with a microscope.

Some of these symptoms—like burning or urgency—can be like the symptoms of a urinary infection. It is important to see a doctor in order to find out exactly what is causing those symptoms and what kind of treatment you may need.

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HOW TO DETECT BLADDER CANCER

When blood is found in your urine, several tests are performed to find out whether a bladder tumor is present. Your doctor will probably refer you to a **urologist**, a doctor who specializes in diseases of the male and female urinary tracts and the male reproductive system. All of the tests below may be performed by a urologist or other specialist. You won't have to stay overnight in a hospital or have anesthesia (medication that puts you to sleep).

Urinary cytology: Bladder wall cells, usually taken from a urine sample, are examined under a microscope to search for cancer cells.

Cystoscopy: A thin, telescope-like instrument called a cystoscope is inserted gently into the urethra and passed into the bladder. The cystoscope has a light source and magnifying lens, allowing the urologist to see the bladder lining and, if necessary, remove a tissue sample for a biopsy.

Imaging: Doctors use several types of high-tech imaging methods to get a close, detailed look at internal organs from the outside of the body. These include:

- ◆ *Computed tomography (or CT) scan:* The CT scanner takes multiple X-ray images from different angles. Those images are combined

by a computer, giving a doctor a very detailed image. A doctor may use a CT scan to see whether cancer has spread from the bladder to other organs.

- ◆ *Magnetic resonance imaging (or MRI) scan:* An MRI scan uses high-powered magnets in creating an image. As with the CT scan, a doctor may order an MRI scan to determine if bladder cancer has spread.
- ◆ *Ultrasound (or ultrasonography or sonogram):* Ultrasound uses sound waves. The image is created by the way the sound waves “echo” off body parts. This tool is used to see the size and position of a tumor.
- ◆ *Intravenous pyelogram (or IVP):* An IVP allows doctors to look at the upper urinary tract, not just the bladder. It’s used because some people with bladder tumors also develop the same type of tumor in the kidneys (where the urine collects) or in the ureters (which lead the urine from the kidneys to the bladder). This is because the urinary tract has the same cell lining from the kidneys to the urethra. In this test, a special liquid called “contrast solution” is injected into a vein where it travels quickly into the kidneys and the urine. X-rays of the urinary system, taken when the contrast solution is in the body, show images of the kidneys, ureters and bladder.

OVERVIEW OF BLADDER CANCER

STAGE	LOCATION	USUAL TREATMENT
Superficial	Bladder lining	Tumor removal; possibly medication placed directly in bladder
Invasive	Through the bladder lining into the deeper area of the bladder wall	Usually requires removal of bladder; may also involve radiation and/or chemotherapy
Metastatic	Spread beyond the bladder	Bladder usually is not removed; generally requires chemotherapy

HOW IS BLADDER CANCER TREATED?

The treatment for bladder cancer depends on how deeply the tumor has penetrated into the bladder. (See illustration on page 4.) If the growth is superficial (confined to the bladder lining and has not grown into the bladder wall), it usually can be removed with an instrument called a resectoscope. This is a slender tube-like device, much like the cystoscope, that allows the urologist to enter the bladder by way of the urethra to remove the tumor from the bladder lining.

After removing the tumor, doctors can determine what type it is and how deeply it has grown into the bladder by looking at the removed tumor and surrounding tissue under a microscope. During the procedure, which usually takes place in the hospital with the patient under anesthesia, the urologist may also remove small samples (biopsies) from other areas of the bladder lining. Although these areas may look normal, cancer cells may be present there as well.

Examining the tissue removed from the bladder helps the urologist determine if tumors are likely to return or progress. This information helps in deciding how to treat the cancer.

Removal of a bladder tumor in this way is sometimes referred to as a “transurethral resection.” After the procedure is completed, a tube called a catheter is usually left in the bladder

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for a while. It allows the bladder to rest while initial healing begins and any bleeding has a chance to stop.

After the catheter has been removed, you may feel the need to urinate more often (increased frequency) and you may have discomfort while urinating. Occasionally, some bleeding may recur. These problems are usually temporary, and urination generally returns to normal in a short time.

WILL FURTHER TREATMENT BE NEEDED?

In a large number of cases, bladder tumors may need no additional treatment. However, bladder tumors often return, especially within the first six months after diagnosis and treatment of the first tumor. Because of this, it is important for the urologist to look into your bladder with a cystoscope and to inspect cells from your urine with a microscope (urinary cytology). Generally, these tests are initially performed every three months on all patients who have had bladder cancer; later, the tests are performed less often.

If the urologist believes that you are likely to develop new tumors, you may be advised to undergo additional treatments by having medication placed in the bladder. First, a catheter is inserted in to the bladder. The bladder is then partially filled with the

medication and the patient is instructed to hold that solution in the bladder for one to two hours before urinating.

Some forms of bladder cancer are invasive, which means they have grown into the bladder wall. If the tumor has penetrated through the lining, but has not penetrated all the way into the muscle layer of the bladder, it can usually still be treated by simple resection plus medication instilled into the bladder.

When the tumor has invaded the wall, simple resection will not remove the entire tumor. In such cases, the urologist may recommend that the bladder be partially or completely removed. This operation is called a cystectomy. The urologist may also recommend additional treatment with radiation, chemotherapy (using anticancer medications to control or shrink the tumor), or both.

Sometimes, unfortunately, invasive bladder tumors have already spread into the lymph system and the bloodstream. The tumor cells may then have spread beyond the bladder to the lymph nodes, bones or lungs. Removal of the bladder in these cases will not cure the cancer. In such cases, the urologist may want to consult with an oncologist, a doctor who is a cancer specialist. The doctors may then recommend chemotherapy.

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WHAT HAPPENS TO THE URINE IF THE BLADDER IS REMOVED?

If the cancer is invasive and the bladder must be removed, doctors find alternative ways to collect urine and move it out of the body. For some people, the urine is brought through an intestinal conduit (tube) to the outside of the abdomen where it collects in a plastic pouch. In other cases, doctors use part of the patient's intestines to create a bladder-like structure inside the body. Either way, decisions are based on maintaining a good quality of life while attempting to cure the cancer. If bladder removal is necessary, your doctor will explain each of these options in detail.

KEEP YOUR BLADDER HEALTHY

The following are steps you can take to help keep your bladder healthy and reduce your risk of getting bladder cancer:

- When you have a complete annual checkup, make sure that it includes a test of your urine for blood.
- Don't smoke, and try to avoid being around smokers. Cigarette smoke is the most significant risk factor for bladder cancer.
- Consult your doctor when you notice changes in urination or bladder habits.
- Visit your doctor immediately if you see blood in your urine, have pain on urinating, urinate more frequently than usual, or have increased urinary urgency (feeling that you must urinate immediately).

GLOSSARY

benign: not malignant; not cancerous.

biopsy: the removal and microscopic examination of a small sample of body tissue to see whether cancer cells are present.

bladder: the hollow, balloon-shaped organ in which urine is temporarily stored before being discharged through the urethra.

cancer: an abnormal cell growth that can invade nearby organs and spread to other parts of the body; cancer may also be referred to as a malignant tumor or malignancy.

catheter: a soft tube that is inserted into bladder for drainage of urine.

chemotherapy: treatment with anti-cancer drugs.

cystectomy: removal of the bladder.

cytology: microscopic examination of cells obtained from the body tissue or fluids, especially to establish if they are cancerous.

cystoscope: a thin, telescope-like instrument fitted with lenses and a light source; it allows the doctor to inspect the bladder and remove tissue samples during the procedure called a cystoscopy.

frequency: the need to urinate more often than is normal.

intravenous pyelogram (IVP): X-ray of the urinary system after injecting a contrast solution that enables the doctor to see images of the kidneys, ureters and bladder.

invasive: with regard to bladder cancer, not just on the surface; having or showing a tendency to spread from point of origin to nearby tissues.

kidneys: two large bean-shaped organs that remove waste from the blood.

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malignancy: a cancerous growth.

metastatic: describes cancer that has metastasized, or spread to other parts of the body.

oncologist: a medical doctor who specializes in the treatment of cancer.

radiation: (also called radiotherapy) X-rays or radioactive substances used in treatment of cancer.

resectoscope: a tube-shaped instrument used by the urologist to remove a tumor from the bladder lining through the urethra.

superficial: on the surface; with regard to bladder cancer, a tumor that has not grown into the bladder wall.

transurethral resection (TUR): removal of abnormal tissue by surgery performed with an instrument inserted through the urethra.

tumor: an abnormal mass of tissue or growth of cells; may be malignant or benign.

ureters: two thin tubes that carry urine downward from the kidneys to the bladder.

urethra: a thin tube that carries urine from the bladder out of the body (in men it also carries sperm, and it exits through the end of the penis).

urgency: the feeling of needing to urinate immediately.

urinary cytology: microscopic inspection of cells found in the urine that looks for cancer cells.

urine: liquid waste product filtered from the blood by the kidneys, stored in the bladder and expelled from the body through the urethra; about 96 percent of urine is water and the rest waste products.

urologist: a doctor who specializes in diseases of the male and female urinary tracts and the male reproductive system.

FACTS ABOUT BLADDER CANCER

- Bladder cancer is the fourth most common form of cancer in men and the ninth most common in women.
- Each year more than 60,000 new cases of bladder cancer are discovered.
- Nearly 13,000 Americans die each year of bladder cancer.
- Men are four times more likely than women to get bladder cancer.
- Cigarette smoking increases the risk of getting bladder cancer by two- to threefold.
- Blood in the urine calls for immediate medical attention. It can be the earliest symptom of bladder cancer, but it can be a sign of other problems, too.
- The survival rate for early-stage bladder cancer is excellent; that is why early diagnosis and prompt treatment are so important.

Answers to quiz:

1) b, 2) c, 3) c, 4) False, 5) False

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NOTES AT THE DOCTOR'S OFFICE

FACTS TO TELL YOUR DOCTOR

- I smoke _____cigarettes a day, for the past _____ years.
- I saw about _____ drops of blood in my urine on this date _____
- About _____ years ago, I may have been exposed to the chemical:

To find a urologist in your area visit
http://www.urologyhealth.org/find_urologist/

ADDITIONAL RESOURCES

Bladder Cancer Advocacy Network
www.bcan.org

The American Urological Association Foundation was established to support and promote research, patient/public education and advocacy to improve the prevention, detection, treatment and cure of urologic disease.

The American Urological Association Foundation provides this information based on current medical and scientific knowledge. This information is not a tool for self-diagnosis or a substitute for professional medical advice. It is not to be used or relied on for that purpose. Please see your urologist or other health care provider regarding any health concerns and always consult a health care professional before you start or stop any treatments, including medications.

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Single copies of these booklets are available free of charge by calling or writing:



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