Testicular Cancer Overview

The information that follows is an overview of this type of cancer. It is based on the more detailed information in our document, Testicular Cancer. This document and other information can be obtained by calling 1-800-227-2345 or visiting our Web site at www.cancer.org.

What is cancer?

The body is made up of trillions of living cells. Normal body cells grow, divide, and die in an orderly way. During the early years of a person's life, normal cells divide faster to allow the person to grow. After the person becomes an adult, most cells divide only to replace worn-out, damaged, or dying cells.

Cancer begins when cells in a part of the body start to grow out of control. There are many kinds of cancer, but they all start because of this out-of-control growth of abnormal cells.

Cancer cell growth is different from normal cell growth. Instead of dying, cancer cells keep on growing and form new cancer cells. These cancer cells can grow into (invade) other tissues, something that normal cells cannot do. Being able to grow out of control and invade other tissues is what makes a cell a cancer cell.

In most cases the cancer cells form a tumor. But some cancers, like leukemia, rarely form tumors. Instead, these cancer cells are in the blood and bone marrow.

When cancer cells get into the bloodstream or lymph vessels, they can travel to other parts of the body. There they begin to grow and form new tumors that replace normal tissue. This process is called metastasis (muhs-tahs-tuh-sis).

No matter where a cancer may spread, it is always named for the place where it started. For instance, breast cancer that has spread to the liver is still called breast cancer, not liver cancer. Likewise, prostate cancer that has spread to the bone is called metastatic prostate cancer, not bone cancer.
Different types of cancer can behave very differently. For example, lung cancer and breast cancer are very different diseases. They grow at different rates and respond to different treatments. That is why people with cancer need treatment that is aimed at their own kind of cancer.

Not all tumors are cancerous. Tumors that aren't cancer are called **benign** (be-nine). Benign tumors can cause problems— they can grow very large and press on healthy organs and tissues. But they cannot grow into other tissues. Because of this, they also can't spread to other parts of the body (metastasize). These tumors are almost never life threatening.

### What is testicular cancer?

Testicular cancer can start in one or both testicles. It is most often found in young men. This type of cancer can be treated and very often cured.

### The testicles

The testicles (or testes) are part of the male reproductive system. In adult men, each one is normally a little smaller than a golf ball. They are held in a sac of skin called the **scrotum**. The scrotum hangs beneath the base of the penis.

The testicles make the male hormones testosterone. They also make sperm. Sperm cells are carried from the testicles through small tubes (the vas deferens) to the seminal vesicles. Fluid from the vesicles and from the prostate gland is added. During ejaculation (orgasm), this fluid, now called semen, travels through a tube (the urethra) in the center of the penis and out of the body. See the picture below.
The testicles are made up of several kinds of cells and each may develop into one or more types of cancer. It is important to know which kind of cell the cancer started from because these types of cancer are treated differently. They also differ in the chance of survival for the patient (prognosis).

**Main types of testicular tumors**

- Germ cell tumors are the most common type of testicular tumors. Germ cell tumors start in the cells that make sperm.
- Stromal tumors start in the cells that make hormones and the cells that support the cells that make sperm.
- Secondary testicular tumors are from cancer that has spread to the testicles from other parts of the body.

Each of the 3 types is explained in more detail below.

**Germ cell tumors**

More than 9 out of 10 of cancers of the testicles start in the germ cells. As used here, the term "germ" means seed. These are the cells that make sperm.

The 2 main types of germ cell tumors are **seminomas** and **nonseminomas**.

Seminomas start from germ cells of the testicle that make sperm. Within this group there are also subtypes. Seminomas usually happen in men when they are between 25 and 45.

Nonseminomas tend to develop earlier in life than seminomas. They are often found in men between their late teens and early 30s. There are 4 main subtypes. Most tumors are mixed, having at least 2 different subtypes. But all nonseminoma germ cell cancers are treated the same way, so the exact type is not that important.

**Carcinoma in situ**: Testicular germ cell cancers may begin as a non-invasive form of the disease called **carcinoma in situ** (CIS). Carcinoma in situ may not always go on to become invasive cancer, but if it does, it can take about 5 years.

It is hard to find CIS because it often causes no symptoms and may not form a lump that you or the doctor can feel. Some cases are found by chance in men who have a testicular biopsy for some other reason, such as infertility.

Experts don't agree about the best treatment for CIS. Since CIS doesn't always become an invasive cancer, many doctors in this country feel that observation (watching and waiting) is the best course of action.
Stromal tumors

Tumors can also grow in the cells that make hormones and in the supportive tissues (the struma) of the testicles. Stromal cell tumors are often benign (not cancer). They usually do not spread beyond the testicle and can be cured by taking them out. But a few stromal cell tumors spread to other parts of the body (metastasize). Metastatic stromal cell tumors have a poor outlook because they do not respond well to chemotherapy or radiation treatment. The 2 main types of stromal tumors are Leydig cell tumors and Sertoli cell tumors.

Secondary testicular tumors

Secondary testicular tumors start in another organ and then spread to the testicle. Lymphoma is the most common cancer that does this. In boys with acute leukemia, the leukemia cells can sometimes form a tumor in the testicle.

Cancers of the prostate, lung, skin, kidney, and other organs can also spread to the testicles. The outlook for these cancers is usually poor. That's because very often these cancers have spread widely to other organs, too. Treatment depends on the exact type of cancer.

How many men get testicular cancer?

The American Cancer Society’s estimates for testicular cancer in the United States for 2013 are:

- About 7,920 new cases of testicular cancer
- About 370 deaths from testicular cancer

A man's lifetime chance of having testicular cancer is about 1 in 270. Testicular cancer is one of the most curable forms of cancer. Because treatment is so successful, the risk of dying from this cancer is very low: about 1 in 5,000.

What are the risk factors for testicular cancer?

While we do not know the exact cause of most cases of testicular cancer, we do know some of the risk factors linked to testicular cancer.

A risk factor is something that affects a person’s chance of getting a disease. Different cancers have different risk factors. Some risk factors, such as smoking, can be controlled. Others, like a person's age or race, can't be changed. But having a risk factor, or even
several, does not mean that a person will get the disease. And not having any risk factors doesn't mean you won't get the disease.

Scientists have found a few risk factors that make a man more likely to get testicular cancer. Even if a man has one or more risk factors for this disease, there's no way to know for sure what part those factors played in causing the cancer. Also, most men with testicular cancer do not have any of the known risk factors. Research in this area is going on.

**Risk factors for testicular cancer**

**Undescended testicle:** One of the main risk factors for testicular cancer is a problem called cryptorchidism, or undescended testicle(s). Before birth, the testicles normally develop in the belly of the fetus and then move down (descend) into the scrotum before birth. But in about 3% of boys, the testicles do not move into the scrotum. Sometimes the testicle stays inside the belly. In other cases, the testicle starts to come down, but gets stuck in the groin.

Men who have had cryptorchidism are several times more likely to get testicular cancer than those who did not have the problem. The risk is higher for men with a testicle in the belly as opposed to one that has moved down at least part way. Among men with a history of this problem, most cancers start in the testicle that has not moved down. But about 1 out of 4 occurs in the normal testicle. Because of this, some doctors think that cryptorchidism is not the direct cause of testicular cancer. They believe that some other problem causes both the cancer risk and the cryptorchidism.

Most testicles will descend on their own in the child's first year. Sometimes surgery (called orchiopexy) is needed to bring the testicle down into the scrotum. Surgery done when a child is younger may be more likely to reduce the risk of testicular cancer than surgery done when the child is older, but the best time to do this surgery is not clear.

**Family history:** A family history of testicular cancer increases the risk. If a man has the disease, there is a higher risk that his brothers or sons may also get it. But very few cases of testicular cancer are actually found in families.

**HIV infection:** There is some evidence that men infected with HIV (human immunodeficiency virus) have an increased risk of testicular cancer. This may be especially true for men who have AIDS. No other infections have been shown to increase testicular cancer risk.

**CIS (carcinoma in situ):** CIS is described in "What is testicular cancer?" It isn't clear how often CIS in the testicles becomes cancer. It is sometimes found when a man is tested for infertility. It may also be found when a man has a testicle removed because of cryptorchidism. Radiation or surgery (to remove the testicle) is used to treat CIS. Since we don't know how often CIS becomes true (invasive) cancer, it isn't clear that treating CIS is a good idea. Some experts think that it may be better to wait and see if the disease
Cancer gets worse or becomes a true cancer. This could allow many men with CIS to avoid the risks and side effects of treatment.

Cancer of the other testicle: Men who have been cured of cancer in one testicle have an increased risk (about a 3% to 4% chance) of getting cancer in the other testicle.

Age: About half of testicular cancers occur in men between the ages of 20 and 34. But this cancer can affect males of any age, including infants and older men.

Race and ethnicity: White American men are about 5 times more likely to get testicular cancer than are African-American men. Whites have more than 3 times the risk of Asian-American and American Indian men. The risk for Hispanics falls between that of Asians and non-Hispanic whites. The reason for these differences is not known.

Body size: Some studies have that the risk of testicular cancer is somewhat higher in tall men but other studies have not shown a link.

Can testicular cancer be prevented?

Cryptorchidism, white race, and a family history of the disease are some of the known risk factors for this cancer. None of these factors can be prevented because they are present at birth. Also, many men with testicular cancer have no known risk factors. For these reasons, there is no way to prevent most cases of this disease.

Although we don't know what is the best age to correct an undescended testicle to prevent cancer, experts agree that it should be done during childhood for reasons related to fertility and body image. And knowing he has a risk factor like undescended testicle may cause a young man to be more watchful and to check his testicles, making it more likely a cancer will be found early.

How is testicular cancer found?

Most testicular cancers can be found at an early stage. In some men, early testicular cancers cause symptoms that prompt them to call their doctor. Most of the time a lump on the testicle is the first sign. But some testicular cancers don't cause symptoms until they have reached an advanced stage.

Sometimes testicular cancer is found during testing for other problems. For instance, fertility tests sometimes find testicular cancer.

Most doctors agree that an exam of a man's testicles should be part of his general physical exam. The American Cancer Society (ACS) recommends a testicular exam as part of a routine cancer-related check-up.
Regular self-exams of the testicles have not been studied enough to show that the practice lowers the death rate from this cancer. Because of this, the ACS does not have a recommendation about regular testicular self-exams for all men. But some doctors think otherwise, and may advise their patients to do self-exams every month. If you have certain risk factors that increase your chance of getting testicular cancer, you should talk about it with your doctor.

Signs and symptoms of testicular cancer

In most cases of testicular cancer, the man has a lump on a testicle or notices that the testicle is swollen or larger. Most of the time there is no pain. Men with testicular cancer may also notice a feeling of heaviness or aching in the lower belly or scrotum.

In rare cases, men with germ cell cancer notice their breasts are sore or have gotten bigger. This happens because some germ cell tumors give off high levels of a hormone called human chorionic gonadotropin (HCG), which causes the breasts to grow. Blood tests can measure HCG levels. These tests are important in finding, staging, and follow-up of some testicular cancers.

Some stromal tumors can make hormones. If the tumor makes male hormones (androgens), it can cause the growth of facial and body hair at a very early age in boys. The extra androgens are not likely to cause any symptoms in men. Some stromal tumors make female hormones (estrogens) and not male hormones. The female hormones can cause a man to grow breasts and/or lose his sex drive.

Signs of advanced testicular cancer

Even when the cancer has spread to other organs, few men have any symptoms. Lower back pain is a symptom of later-stage testicular cancer. Signs that the cancer has spread to the lungs can include:

- Shortness of breath
- Chest pain
- Cough
- Spitting up blood

A number of problems other than cancer, such as an injury to the testicle, infection, or inflammation, can cause symptoms like those of testicular cancer. If you have any of the signs or symptoms above, see a doctor right away. Remember, the sooner cancer is found the sooner you can start treatment. And the earlier you get treatment, the better it is likely to work. For more details, see our document Do I Have Testicular Cancer?