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Testicular Cancer - Diagnosis [1]

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ON THIS PAGE: You will find a list of the common tests, procedures, and scans that doctors can use to find out what?s wrong and identify the cause of the problem. To see other pages, use the menu on the side of your screen.

Doctors use many tests to diagnose cancer and find out if it has spread to another part of the body, called metastasis. Some tests may also determine which treatments may be the most effective.

When a man develops a testicular lump or something else that could be testicular cancer, it is important that he see his primary doctor, who may send him to a urologist. A urologist is a doctor who specializes in treating testicular cancer. A physical examination and an ultrasound (see below) of the testicles are usually the first tests performed. If these tests show an abnormality that appears to be a tumor, then blood tests are done. The testicle may need to be surgically removed to look for signs of cancer. Imaging tests, such as computed tomography (CT or CAT) scans and x-rays, may also be used to find out whether the cancer has spread.

This list describes options for diagnosing this type of cancer, and not all tests listed will be used for every person. Your doctor may consider these factors when choosing a diagnostic test:

- Age and medical condition
- Type of cancer suspected
- Signs and symptoms
- Previous test results

If the doctor suspects testicular cancer, he or she will ask about a man's medical history and general health. The following tests may be used to diagnose testicular cancer:

Physical examination. The doctor will feel the testicles for any sign of swelling, tenderness, or hardening. The doctor will also feel the abdomen, neck, upper chest, armpits and groin for evidence of enlarged lymph nodes, which may indicate that the cancer has spread. The breasts and nipples will also be examined to look for enlargement.

Ultrasound [3]**.** An ultrasound uses sound waves to create a picture of the internal organs. The sound waves produced by the ultrasound bounce off tissue in the scrotum. The echoes of the

sound waves produce a series of images called a sonogram. These images of the testicle help the doctor find any tumors or other abnormalities. If a tumor is found and is large enough to be seen on an ultrasound, then the sonogram will show the size, location, and solidness of the tumor. A solid tumor inside the testicle is very likely to be cancerous.

Biopsy [4]**.** A biopsy is the removal of a small amount of tissue for examination under a microscope. For most types of cancer, a biopsy is the only way to make a definitive diagnosis of cancer, but a biopsy of a testicle is almost never used to diagnose testicular cancer. Instead, if cancer is suspected in a testicle, the standard procedure is to surgically remove the entire testicle in a procedure called an orchiectomy (see below). In fact, a biopsy of the testicle using a needle through the skin of the scrotum should NOT be performed because this can complicate future treatment options. Occasionally, a biopsy may be taken from the lung, retroperitoneum, or other location in the body if it appears that cancer may have spread.

Orchiectomy/surgical pathology tests. If testicular cancer is suspected, a surgeon will perform a radical inguinal orchiectomy, in which the entire testicle is removed through an incision in the groin. Then, a pathologist will examine very thin slices of tissue from the testicle under a microscope to diagnose the type of cancer. A pathologist is a doctor who specializes in interpreting laboratory tests and evaluating cells, tissues, and organs to diagnose disease. For a cancer to be considered a seminoma, it must be pure seminoma. Non-seminoma is diagnosed if any of the following are found in the tissue: choriocarcinoma, embryonal carcinoma, yolk sac tumor, or teratoma. Each of these can occur alone or in any combination. Sometimes, seminoma cancer can be found as part of a non-seminoma at any percentage level. For example, a tumor that is 99% seminoma and 1% yolk sac tumor is still diagnosed and treated as non-seminoma.

If the man has one testicle to begin with or the diagnosis is uncertain, the surgeon may remove only a small sample of tissue from the testicle. The testicle may still need to be removed if there are signs of cancerous cells. If the tissue sample does not show cancer, it may be possible to repair the damage from the tissue removal and replace the testicle in the scrotum during the same surgery. However, this procedure is very rare.

Blood tests [5]**/tumor markers** [6]**.** The levels of serum tumor markers are measured before surgery to remove a testicle. Tumor markers are substances made by a cancer that are found at abnormally high levels in the blood of some people with cancer. For testicular cancer, serum tumor marker levels are used to find out the cancer?s stage (see Stages [7]) and confirm whether a tumor is a pure seminoma. Different types of cancer make different tumor markers. High levels of any one of three tumor markers (see below) may indicate testicular cancer. However, it is also possible to have this type of cancer and have normal tumor marker levels.

The following tumor markers are used to help stage and plan treatment for testicular cancer:

- Alpha-fetoprotein (AFP) is not made by seminomas, so an elevated level of AFP indicates the tumor is not a pure seminoma, even if it looks like a pure seminoma when examined by a pathologist. However, AFP levels are normal for many men with non-seminomas.
- Beta human chorionic gonadotropin (beta-hCG) can be high from either seminoma or non-seminoma. However, beta-hCG is normal for many men with non-seminomas or seminomas.
- Lactate dehydrogenase (LDH) can be elevated in any type of testicular cancer, as well as in many other cancers and non-cancerous diseases, such as liver disease or heart disease.

- Placental alkaline phosphatase (PLAP) is another tumor marker doctors may test for, although it is not commonly measured.

Learn more about tumor markers for testicular cancer [8].

Imaging tests

If cancer is found, other tests will be needed to determine the stage of the cancer and whether it has spread to other parts of the body (see Stages [7]). Usually, doctors recommend imaging tests of the abdomen, pelvis and chest. Images of the brain or bones are not as common, but images of the brain may be need for patients who have choriocarcinoma. Imaging tests may include:

X-ray. An x-ray is a way to create a picture of the structures inside of the body, using a small amount of radiation. A chest x-ray is used to determine the stage of the cancer and for follow-up screening. If a more detailed picture of the lungs is needed, then the doctor may recommend a chest CT scan (see below) but in many situations an x-ray is preferred.

CT scan [9]**.** A CT scan creates a three-dimensional picture of the inside of the body with an x-ray machine. A computer then combines these images into a detailed, cross-sectional view that can be examined to look for any abnormalities or tumors. A CT scan can also be used to measure a tumor?s size. Sometimes, a special dye called a contrast medium is given before the scan to provide better detail on the image. This dye can be injected into a patient?s vein or given as a pill to swallow. A CT scan is the most common imaging test for men with testicular cancer, and it can be used to evaluate the abdomen, pelvis, chest/lungs, brain and other areas. A CT scan of the brain is rarely needed for testicular cancer because it is uncommon for it to spread to the brain. However, if a scan of the brain is needed, MRI (see below) is generally preferred because the skull bones interfere with the ability of CT scans to show certain parts of the brain.

MRI scan [10]**.** An MRI scan uses magnetic fields to create a three-dimensional picture of the inside of the body. MRI can also be used to measure the tumor?s size. A contrast medium is given before the scan to create a clearer picture. This dye can be injected into a patient?s vein or given as a pill to swallow. For men with testicular cancer, CT scans (see above) are generally preferred to MRI for viewing the abdomen because accurately reading MRI scans of the abdomen requires extensive experience.

MRI is used only in specific situations. For instance, an MRI of the brain might be recommended if a patient is experiencing signs or symptoms that suggest that the cancer may have spread to the brain. In addition, brain MRIs are often recommended for men who have poor-risk metastatic testicular cancer (see Stages [7]) with very high serum tumor markers or if the cancer has spread to the liver or bones. Rarely, an MRI may be used to look at the abdomen, pelvis, or other parts of the body. Your doctor will explain which test is appropriate for you.

PET scan [11]. A PET scan is a way to create pictures of organs and tissues inside the body. A small amount of a radioactive sugar substance is injected into the patient?s body. This sugar substance is taken up by cells that use the most energy. Because cancer tends to use energy actively, it absorbs more of the radioactive substance. A scanner then detects this substance to produce images of the inside of the body. Studies of PET scans have shown that they are not

helpful for diagnosing or staging testicular cancer and should not be used at these times. However, they may be helpful for men with metastatic pure seminoma that does not entirely disappear after chemotherapy, but should not be done until at least six weeks after chemotherapy ends.

After diagnostic tests are done, your doctor will review all of the results with you. If the diagnosis is cancer, these results also help the doctor describe the cancer; this is called staging.

The next section helps explain the different stages for this type of cancer. Use the menu on the side of your screen to select Stages, or you can select another section, to continue reading this guide.

Links:
[1] http://www.cancer.net/cancer-types/testicular-cancer/diagnosis
[2] http://www.cancer.net/about-us
[3] http://www.cancer.net/node/24714
[4] http://www.cancer.net/node/24406
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