Parathyroid Cancer - Diagnosis [1]

This section has been reviewed and approved by the Cancer.Net Editorial Board [2], 11/2015

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 a tumor 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. For most types of tumors, a biopsy, the removal of a small amount of tissue for examination under a microscope, is the only way to make a definitive diagnosis of cancer. If a biopsy is not possible, the doctor may suggest other tests that will help make a diagnosis. Imaging tests may be used to find out whether a cancerous tumor has spread.

This list describes options for diagnosing this type of tumor, 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 tumor suspected
- Signs and symptoms
- Previous test results

In addition to a physical examination, the following tests may be used to diagnose a parathyroid tumor:

- **Blood/urine tests.** Many types of blood or urine tests may be done for parathyroid problems. The most common test is a serum calcium test. Elevated serum calcium levels can indicate the presence of a parathyroid tumor or hyperplasia, which are over-active cells, on one or more glands. Another common laboratory test looks for elevated levels of the parathyroid hormone (PTH) and phosphorus levels in the blood. Doctors may suspect parathyroid cancer if these blood tests find a very high level of calcium and/or PTH.

- **Computed tomography (CT or CAT) scan** [3]**.** 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 shows any abnormalities or tumors. A CT scan can also be used to measure the 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. The three-dimensional CT scan for parathyroid tumor localization is a "timed infusion" of contrast and, when combined with a sestamibi/SPECT scan, is considered the "gold standard" in parathyroid imaging today. See below for more information on a sestamibi/SPECT scan.

- **Sestamibi/SPECT scan.** SPECT stands for single proton emission computerized tomography. A sestamibi/SPECT scan is a procedure in which a specific protein, called sestamibi, is mixed with a radioactive material and injected into the patient's vein. A parathyroid tumor will absorb the material, and the tumor will be visible on an x-ray of the neck. A sestamibi/SPECT scan may be recommended if laboratory tests show an elevated level of PTH, or it may be used to evaluate parathyroid cancer that has spread to distant parts of the body or recurred, meaning it has come back after treatment. See the Stages [4] section for a full description of these stages.

- **Ultrasound** [5]**.** An ultrasound uses sound waves to create a picture of the internal organs. An ultrasound is very useful for locating a tumor in or around the thyroid gland. However, it has limitations if the tumor is located lower in the neck or upper chest.

- **Magnetic resonance imaging (MRI)** [6]**.** An MRI uses magnetic fields, not x-rays, to produce detailed images of the body. MRI can also be used to measure the tumor's size. A special dye called 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.

- **Surgery** [7]**.** Removing the entire tumor during an operation is the most common way to

diagnose both benign and cancerous parathyroid tumors. The tumor is then analyzed by a pathologist. A pathologist is a doctor who specializes in interpreting laboratory tests and evaluating cells, tissues, and organs to diagnose disease. Rarely a biopsy [8] may be done separately before surgery. In these cases, the doctor usually performs a fine needle aspiration, which removes a sample of fluid and cells from the tumor with a very thin, hollow needle.

Commonly, test results showing a higher level of PTH or obvious symptoms of hypercalcemia are signs that cancer may be present. Imaging, such as a CT scan, can also show if cancer has developed. In some instances, a biopsy of the neck can be done, if surgery is not recommended by surgeons experiences in treating parathyroid tumors.

After diagnostic tests are done, your doctor will review all of the results with you. If the diagnosis is a parathyroid tumor that is cancerous, these results also help the doctor describe the tumor; this is called staging [4].

The next section in this guide is Stages, [4] *and it explains the system doctors use to describe the extent of the disease. Or, use the menu on the side of your screen to choose another section to continue reading this guide.*

Links
[1] http://www.cancer.net/cancer-types/parathyroid-cancer/diagnosis
[2] http://www.cancer.net/about-us
[3] http://www.cancer.net/node/24486
[4] http://www.cancer.net/node/19514
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