

Thyroid Cancer

Medullary Thyroid Cancer

Definitions

Thyroid gland:

Located at the base of the throat, an organ that makes hormones affecting heart rate, blood pressure, body temperature, and weight.

Calcitonin: A hormone found in the “C cells” that controls calcium and phosphorus levels in the blood.

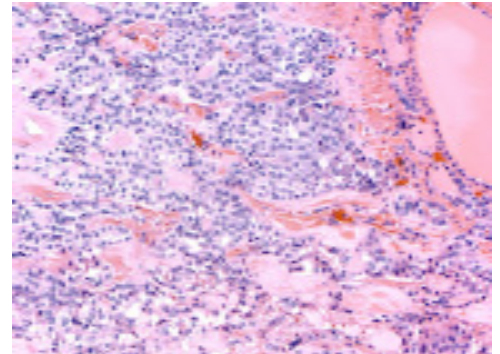
Nodules: Cellular growths in the thyroid gland. These growths are usually benign but may be cancerous.

Pathologist: A physician who examines tissues and fluids to diagnose disease in order to assist in making treatment decisions.

What is medullary thyroid cancer?

About 44,670 Americans are diagnosed with thyroid cancer each year, according to the National Cancer Institute. Thyroid cancer incidence is increasing at a faster rate among American men and women than any other type of cancer.

Medullary thyroid cancer makes up about 3 percent of these cases. Because medullary thyroid cancer can spread to the lymph nodes and to other organs early in its progression, it is easier to control if found and treated before it spreads. This type of cancer begins in the C cells of the thyroid and makes abnormally high levels of calcitonin. About 1,500 Americans die from all types of thyroid cancer each year. This relatively low death rate is due to successful early detection and treatment in most cases.



Medullary thyroid cancer.

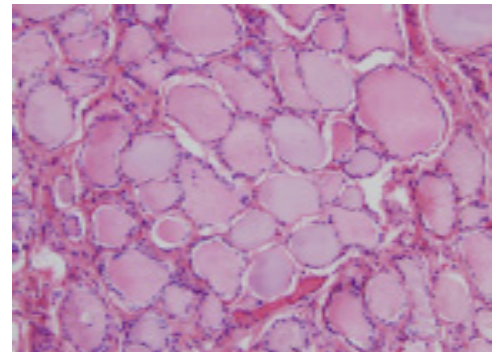
Who is likely to have medullary thyroid cancer?

Women are more likely than men to have medullary thyroid cancer. Most cases afflict individuals between the ages of 30 and 60. Another risk factor includes having a family history of multiple endocrine neoplasia syndrome. This includes tumors/cancers of various endocrine organs such as the thyroid gland, parathyroid glands, pancreas, and adrenal glands. Medullary thyroid cancer may occur in patients without a family history of endocrine organs cancers, as well, however.

What characterizes medullary thyroid cancer?

Medullary thyroid cancer is a unique type of thyroid cancer arising from the neuroendocrine cells of the thyroid gland referred to as C cells. Due to its malignant nature, this cancer can become life-threatening by spreading via blood vessels and lymphatic channels to lymph nodes or distant organs such as the lungs and bones, as well as to other tissues.

Nodules can be detected when your primary care physician checks your neck and throat and feels the thyroid for lumps. Otherwise, early thyroid cancer does not have symptoms. If the cancer grows, symptoms may include a lump in the front of the neck, hoarseness or voice changes, swollen neck lymph nodes, trouble swallowing or breathing, or throat or neck pain.



Normal thyroid cells.

How does the pathologist make the diagnosis?

If your symptoms suggest the possibility of thyroid cancer, your primary care physician will order a **blood test** that the pathologist will check for abnormal levels of calcitonin. The pathologist will also check for a high level of calcitonin. Blood test results also can show a changed **RET**

(Rearranged during Transfection) gene passed from parent to child; almost every-one with this changed gene develops medullary thyroid cancer. If you have the RET gene, you should have your children evaluated for medullary thyroid cancer. Your primary physician may recommend the option of having their thyroids surgically removed before cancer develops and having them take thyroid hormone pills throughout their lives.

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What kinds of questions should I ask my doctors?

Ask any question you want. There are no questions you should be reluctant to ask. Here are a few to consider:

- Please describe the type of cancer I have and what treatment options are available.
- What is the stage of my cancer?
- What are the chances for full remission?
- What treatment options do you recommend? Why do you believe these are the best treatments?
- What are the pros and cons of these treatment options?
- What are the side effects?
- Is your medical team experienced in treating the type of cancer I have?
- Can you provide me with information about the physicians and others on the medical team?
- If I want a second opinion, could you provide me with the names of physicians and/or institutions that you would recommend?

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What else does the pathologist look for?

Your primary care physician may also order an **ultrasound and thyroid scan**, which are reviewed by radiologists. The cells removed by **fine-needle aspiration (FNA)** or tissue by a **biopsy** are sent to the pathologist for examination. An ultrasound or thyroid scan can create images of thyroid nodules that the radiologist can view for signs of cancer. An FNA or a biopsy, however, are the only potential sure ways to diagnose cancer.

What is meant by the stage of the cancer?

Your pathologist and primary care doctor determine the cancer's **stage** to plan the best treatment. This process involves finding out the size of the cancerous nodule, whether or not the cancer has spread and, if so, to what parts of the body. Thyroid cancer spreads most often to the lymph nodes, lungs, and bones. Stage 1 cancers are small and confined to the thyroid, and stage 4 tumors have spread well beyond the thyroid. Stages 2 and 3 describe conditions in between these two extremes.

Staging may involve tests including **ultrasound, CT or MRI scans, chest x-rays, or whole body scans**. These tests enable the pathologist to determine where the cancer has spread and its stage.

How do doctors determine what treatment will be necessary?

Your treatment will depend on the size of the nodule, your age, and whether or not the cancer has spread. The pathologist consults with your primary care physician or specialist. Together, using their combined experience and knowledge, they determine treatment options most appropriate for your condition. It's important to learn as much as you can about your treatment options and make the decision that's right for you.

What kinds of treatments are available for medullary thyroid cancer?

Medullary thyroid cancer may be treated with **surgery, external radiation therapy, thyroid hormone treatment, or chemotherapy**. Many patients receive a combination of these treatments.

Surgery and external radiation therapy are **local therapies** that remove or destroy cancer in the thyroid. When the cancer has spread beyond the thyroid, these two therapies can control the disease in the thyroid. Medullary thyroid cancer patients receive a **total thyroidectomy** (removal of the thyroid). A surgeon also removes all fatty tissue and lymph nodes in the central neck area near the tumor. External radiation therapy is generally used after surgery; this therapy uses high-energy beams projected from outside the body to destroy any remaining cancer.

Thyroid hormone treatment and chemotherapy are **systemic therapies** that are delivered through the bloodstream to destroy or stop the progression of cancer cells present throughout the body. These therapies also can reduce pain.

Any of these treatments may cause side effects and alter your normal activities. Ask your primary care physician to explain possible side effects thoroughly so that you know what to expect. Because your treatment will remove your thyroid, you will be required to take thyroid hormone pills for the rest of your life to replace the natural thyroid hormone. Because the surgeon may remove the parathyroid glands, located behind the thyroid, you may need to take calcium and vitamin D supplements for the rest of your life.

Follow-up care is very important because thyroid cancer comes back in up to 30 percent of all cases. Also, if you receive external radiation therapy, you have an increased chance of developing other cancers later in your life. You should receive regular blood tests to check your levels of TSH and **thyroglobulin** (thyroid hormone stored in the thyroid). Your physicians also may recommend repeating some of the diagnostic and staging tests to see if the cancer has returned.

Clinical trials of new treatments for medullary thyroid cancer may be found at www.cancer.gov/clinicaltrials. These treatments are highly experimental in nature but may be a potential option for advanced cancers. Some trials may involve biologic therapy, which uses the natural defenses of the immune system to fight cancer.

For more information, go to www.cancer.gov (National Cancer Institute), www.medicinenet.com (owned and operated by Web MD), or www.thyca.org (Thyroid Cancer Survivors' Association). Type **thyroid cancer** into the search box.