



Understanding Thyroid Nodules

Patient Education Sheet

This sheet focuses on the diagnosis and treatment of thyroid nodules.

An Overview of Thyroid Nodules

- A thyroid nodule is a lump, bump, or growth located in the thyroid gland. Thyroid nodules are extremely common—it is estimated that 9 million people in the United States have thyroid nodules.
- Many thyroid nodules are small and are never noticed by the patient or physician.
- A thyroid nodule can be “hot,” meaning it is functional and producing thyroid hormone. A hot nodule is almost never cancerous, and the physician may decide that no medical treatment is necessary. In that case, the physician will continue to check the size of the nodule and periodically measure thyroid-stimulating hormone (TSH) levels in the blood.
- A thyroid nodule can be “cold,” meaning that it is nonfunctional and not producing thyroid hormone. Cold nodules may be cancerous in approximately 5% of patients. The physician may conduct a thyroid aspiration biopsy to determine whether the nodule should be surgically removed. During a fine-needle aspiration biopsy, a small needle is inserted into the nodule in order to remove tissue or fluid samples.

The Thyroid Gland—The Basics

- The thyroid is a butterfly-shaped gland located at the base of the neck that lies on either side of the windpipe. It produces and releases thyroid hormone.
- Thyroid hormone affects every cell in the body and controls many of the body's functions.
- The amount of thyroid hormone made by the thyroid gland is regulated by the pituitary gland and the hypothalamus in the brain.
- The pituitary gland releases TSH, which signals the thyroid to produce more thyroid hormone. When the pituitary gland senses that there is the right amount of thyroid hormone in the body, it will decrease thyroid hormone production.
- Physicians can measure the health of the thyroid gland by measuring levels of TSH.
- Too little thyroid hormone production causes a condition known as hypothyroidism; too much thyroid hormone production causes a condition known as hyperthyroidism.

Hypothyroidism and Mild Thyroid Failure

- When a patient has hypothyroidism, he or she may feel tired and cold, have a slow heartbeat, or feel depressed.
- Mild thyroid failure is a mild form of hypothyroidism. In patients who have mild thyroid failure, the thyroid hormone levels are normal, but the TSH level is elevated.
- Patients with mild thyroid failure often do not show any obvious signs or symptoms, but untreated mild thyroid failure may lead to hypothyroidism.

Hyperthyroidism and Mild Hyperthyroidism

- Patients with hyperthyroidism may feel jittery and may experience nervousness, a rapid heartbeat, or unexplained weight loss.
- Patients with mild hyperthyroidism have normal thyroid hormone levels and a decreased TSH level. Untreated mild hyperthyroidism can progress to hyperthyroidism, and may lead to potentially harmful consequences, such as cardiovascular disorders.

Discovering Thyroid Nodules

- Patients often discover thyroid nodules themselves as a result of noticing or feeling a lump on the thyroid gland. In addition, a physician may discover them during a routine physical examination.
- Symptoms of thyroid nodules include swallowing difficulty, hoarseness, or a cough. Having thyroid nodules could be a sign that the thyroid gland is overactive and causing hyperthyroidism. As a result, patients may experience symptoms of an overactive thyroid.
- Most thyroid nodules are benign, but they can be cancerous in some cases.

Examination of Thyroid Nodules

- Once a thyroid nodule is discovered, the physician will inquire about the patient's family health history, the length of time the lump has been present, and whether the patient has had any difficulty swallowing or discomfort.
- The physician will also feel the patient's neck to determine whether the nodule is soft or hard, whether there is more than one nodule, and whether the nodule moves up or down or stays in a fixed position.

Tests for Thyroid Nodules

- After the physical examination, the physician may conduct additional laboratory tests.
- The TSH test, which measures the level of TSH in the blood stream, can determine whether a nodule may be causing hyperthyroidism.
- Another test is a thyroid scan, which consists of giving the patient a small amount of radioactive iodine solution in order to scan the neck to create a picture of the entire thyroid.
- A thyroid ultrasound scans the neck using soundwaves to see the exact size and location of the nodule and to determine whether the nodule is made of solid tissue or is a fluid-filled cyst.

Treatment of Noncancerous Thyroid Nodules

- To treat noncancerous thyroid nodules, a physician may prescribe thyroid hormone tablets in an attempt to shrink the nodule. If treated with thyroid hormone tablets, patients will need to see the physician periodically to determine whether the nodule has shrunk, to check that the patient's TSH level is in the normal range, and to adjust the dosage of thyroid hormone, if necessary.
- If the thyroid nodule does not decrease in size after several months of treatment, or if the thyroid nodule increases in size, the physician may rebiopsy the nodule or recommend surgical removal of the nodule.

Treatment of Cancerous Thyroid Nodules

- To treat cancerous thyroid nodules, most patients will undergo thyroid surgery, where most cancers can be completely removed and a complete recovery is most often attained. Often after surgery, a patient will become hypothyroid and require lifelong thyroid hormone replacement therapy with a synthetic hormone called levothyroxine sodium.

More Information

- Patients who have further questions should contact their physician.