



Thyroid Nodules

What is the function of the thyroid?

The thyroid is a butterfly-shaped gland in the middle of the neck, located below the larynx (voice box) and above the clavicles (collarbones). The thyroid produces two hormones, triiodothyronine (T3) and thyroxine (T4), which regulate multiple functions of the body including hair, nails, weight, energy, temperature and cognition. Thyroid function is controlled by a gland located just below the brain, known as the pituitary gland. The pituitary produces thyroid stimulating hormone (TSH) which stimulates the thyroid to produce T3 and T4.

What is a goiter?

A goiter is a benign enlargement of the thyroid either due to overall swelling of the thyroid or from nodules (bumps).

What is a thyroid nodule?

The term thyroid nodule refers to any abnormal growth of thyroid cells in a lump within the thyroid. Thyroid nodules are very common. Up to half of all people have at least one thyroid nodule, although most do not know about it.

What causes a thyroid nodule?

We do not know what causes most noncancerous thyroid nodules to form. 9 out of 10 nodules are benign (noncancerous). If the nodule is filled with fluid, it is called a thyroid cyst. Some patients' thyroid may have a bumpy appearance that may be due to inflammation in the thyroid (*Hashimoto's thyroiditis*).

What are the symptoms of a thyroid nodule?

Most thyroid nodules do not cause any symptoms. Your doctor usually discovers them during a routine physical examination or you might notice a lump in your neck while looking in a mirror.

If the nodule is made up of thyroid cells that produce more thyroid hormone than your body needs, a patient may complain of hyperthyroid symptoms (see hyperthyroidism sheet). A few patients with thyroid nodules may complain of pain in the neck, jaw or ear. If the nodule is large, it may cause difficulty swallowing, "tickle in the throat" or shortness of breath if it is pressing on the windpipe. Rarely, hoarseness can be caused if the nodule affects the nerves to the voice box.



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How is a thyroid nodule diagnosed?

Since most patients with thyroid nodules do not have symptoms, most nodules are discovered during a routine physical exam. Once the nodule has been discovered, your doctor will try to determine whether the lump is the only problem or if you have an issue with hormone production of your thyroid gland which is known as hypothyroidism or hyperthyroidism. The initial tests may include blood draw to test thyroid hormones. Specialized tests such as thyroid ultrasound and/or thyroid scan can help determine if a biopsy is needed (see FNA handout regarding possible results).

How are thyroid nodules treated?

Most thyroid nodules do not require treatment & can safely be monitored by your doctor. Sometimes surgical removal of part or all of the thyroid is recommended.