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THYROID NODULE

What is a thyroid nodule?

Thyroid nodules, also known as lumps, masses, tumors or growths, are common but usually not detected. They are found in approximately 6 percent of women and in 1-2 percent in men. They are 10 times as common in older individuals than in younger ones. Sometimes several nodules will develop in the same person. Any time a lump is discovered in thyroid tissue, the possibility of malignancy (cancer) must be considered. Fortunately, the vast majority of thyroid nodules are benign (not cancerous).

Many nodules are found by chance during a routine physical exam or an imaging study of the neck done for unrelated reasons (CT or MRI scan of spine or chest, carotid ultrasound, etc.). In addition, a substantial number are first noticed by patients or those they know who see a lump in the front portion of the neck, which may cause symptoms, such as a pressure sensation or discomfort when swallowing. Obviously, finding a lump in the neck should be brought to the attention of your physician, even in the absence of symptoms.

Nodules can be caused by a simple overgrowth of "normal" thyroid tissue, fluid-filled cysts, inflammation (thyroiditis) or a tumor (either benign or cancerous). Most nodules were surgically removed until the 1980s. This approach led to many unnecessary operations, since fewer than 10 percent of the removed nodules proved to be cancerous. Most removed nodules could have simply been observed.

What is a thyroid needle biopsy?

A fine needle biopsy uses a very thin needle, usually smaller than one used to draw blood, and is a simple procedure that can be performed in the physician's office. Sometimes the skin over the nodule is numbed prior to the biopsy. Most patients can return to work or home with minor discomfort and bruising. This test provides specific information about a particular patient's nodule – information no other test can offer short of surgery. Although the test is not perfect, a thyroid needle biopsy will provide sufficient information on which to base treatment, and in most cases, eliminating the need for additional diagnostic studies.

In some cases, approximately 10 to 20 percent of biopsies, the information is inconclusive or inadequate, i.e., the pathologist cannot be certain whether the nodule is cancerous or benign. This situation is particularly common with cystic (fluid-filled) nodules, which contain very few thyroid cells to examine, and with those nodules composed of clusters of thyroid or follicular cells that cannot be conclusively determined to be either benign or malignant. In such cases, a physician who is experienced with thyroid disease can employ other criteria to make a decision about whether or not to operate or to use newer methods known as "molecular markers" for diagnosing thyroid nodules.

The fine needle biopsy can be repeated in those patients where the initial attempt failed to yield enough material to make a diagnosis. Many physicians use thyroid ultrasonography to guide the needle's placement.

Thyroid ultrasonography

After a physical exam, you will most likely have a thyroid ultrasound – a procedure for obtaining pictures of the thyroid gland using high-frequency sound waves that pass through the skin and are reflected back to the machine, creating detailed images of the thyroid. Nodules as small as two to three millimeters can be detected. Ultrasound distinguishes thyroid cysts (fluid-filled nodules) from solid nodules. Many nodules have both solid and cystic components, and very few purely cystic nodules occur. Recent advances in ultrasonography help physicians identify nodules that are more likely to be cancerous.

Thyroid ultrasonography is also utilized for guidance with a fine needle during a biopsy or aspirating of thyroid nodules. Ultrasound guidance enables physicians to biopsy the nodule to get an adequate amount of material for interpretation. Such guidance allows the biopsy sample to be obtained from the solid portion of those nodules that are both solid and cystic, and it avoids getting a specimen from the surrounding normal thyroid tissue if the nodule is small.

Even when a thyroid biopsy sample is reported as benign, the size of the nodule should be monitored. A thyroid ultrasound examination provides an objective and precise method for detection of a change in the size of the nodule. A nodule with a benign biopsy that is stable or decreasing in size is unlikely to be malignant or require surgical treatment.

What is a thyroid scan?

Thyroid scans are pictures of the thyroid gland taken after a small dose of radioactive material, concentrated by thyroid cells, has been injected or swallowed. Since thyroid scans only help to distinguish benign from malignant nodules about 5 percent of the time, scans are usually not performed to evaluate thyroid nodules. The percentage is higher when levels of Thyroid Stimulating Hormone (TSH), a pituitary hormone which reflects the amount of thyroid hormone inside of cells, are toward the lower end of the normal range or below the normal range. This is because the nodule will be more likely "hot" or hyperfunctioning, taking up more radioactivity than normal thyroid tissue. Because cancer is rarely found in hot nodules, a scan showing one eliminates the need for fine needle biopsy. If a hot nodule causes hyperthyroidism, it can be treated with radioiodine or surgery.

Thyroid scans should not be performed during pregnancy or if a woman is breastfeeding since radioactivity may cross the placenta or be excreted in milk, causing damage to the infant's thyroid. Whenever pregnancy is possible, pregnancy testing is mandatory prior to administering diagnostic or therapeutic radioiodine treatment. If radioiodine is inadvertently administered to a woman who is pregnant, the advisability of terminating the pregnancy should be discussed with her obstetrician and endocrinologist.

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How are thyroid nodules treated?

Your endocrinologist will use the tests mentioned above to arrive at a recommendation for optimal management of your nodule. Most patients who appear to have benign nodules require no specific treatment and can simply be followed. Some physicians prescribe thyroid hormone with the hopes of preventing nodule growth or reducing the size of "cold" nodules – ones that are not producing thyroid hormone, while radioiodine may be used to treat "hot" nodules – ones that are producing too much thyroid hormone.

If cancer is suspected, surgical treatment will be recommended. If only the side of the thyroid with the nodule is removed and malignancy is confirmed after surgery, another operation may be recommended. It is important to have regular follow-up of the nodule by a physician experienced in such an evaluation.