Thyroid Nodules

Patient Information

ClinicOI

Disclaimer: This leaflet provides general information and should not be used as a substitute for professional medical advice. It is essential to consult with a qualified healthcare professional for any health concerns or before making any decisions related to your health or treatment.

What are thyroid nodules?

Thyroid nodules are lumps that develop within the thyroid gland, a butterfly-shaped gland located at the base of your neck, just below your Adam's apple. These nodules can be solid or fluid-filled and vary greatly in size. They are incredibly common, with estimates suggesting that over half the population will develop a thyroid nodule at some point in their lives. Most thyroid nodules are benign (non-cancerous) and don't cause any symptoms. However, some nodules can become large enough to cause noticeable swelling in the neck, difficulty swallowing or breathing, or changes in your voice. A small percentage of thyroid nodules are cancerous.

What causes thyroid nodules?

The exact cause of most thyroid nodules is unknown. Several factors may contribute to their development, including:

- **Iodine deficiency:** Iodine is essential for the production of thyroid hormones. In areas with low iodine levels in the diet, the thyroid gland may enlarge and develop nodules in an attempt to compensate. This is less common in developed countries where iodine is added to table salt.
- **Autoimmune thyroiditis (Hashimoto's disease):** This condition involves the body's immune system attacking the thyroid gland, leading to inflammation and the formation of nodules.
- **Goitre:** A goitre is an enlargement of the thyroid gland, which can be caused by various factors, including iodine deficiency, Hashimoto's disease, and other thyroid disorders. Nodules can develop within a goitre.
- **Genetic factors:** A family history of thyroid nodules or thyroid cancer may increase your risk.
- **Radiation exposure:** Exposure to radiation, particularly during childhood, can increase the risk of thyroid nodules and thyroid cancer.
- **Age and sex:** Thyroid nodules are more common in women and older adults.

What are the symptoms of thyroid nodules?

Most thyroid nodules don't cause any noticeable symptoms. However, as nodules grow larger, they may cause:

- **Swelling in the neck:** A visible or palpable lump in the neck is the most common symptom.
- **Difficulty swallowing or breathing:** Large nodules can compress the esophagus (food pipe) or trachea (windpipe), making it difficult to swallow or breathe.
- **Voice changes:** Nodules can press on the recurrent laryngeal nerve, which controls the vocal cords, leading to hoarseness, voice weakness, or other voice changes.
- **Pain in the neck or throat:** Some nodules can cause pain or discomfort.
- **Symptoms of hyperthyroidism:** If the nodule produces excess thyroid hormone (a "hot" nodule), it can cause symptoms such as weight loss, rapid heartbeat, anxiety, and tremors.
- **Symptoms of hypothyroidism:** Rarely, a nodule can interfere with the thyroid gland's ability to produce enough thyroid hormone, leading to symptoms such as fatigue, weight gain, constipation, and depression.

How are thyroid nodules diagnosed?

If you notice a lump in your neck or experience any symptoms suggestive of a thyroid nodule, it's important to see your GP. They may refer you to an ENT (ear, nose, and throat) specialist or an endocrinologist (hormone specialist) for further evaluation. Diagnostic tests may include:

- **Physical exam:** Your doctor will examine your neck to feel for any lumps or nodules.
- **Blood tests:** These tests measure thyroid hormone levels to assess thyroid function.

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- **Ultrasound:** This imaging test uses sound waves to create pictures of the thyroid gland and identify nodules. It can also help determine the size, shape, and composition (solid or fluid-filled) of the nodules.
- **Fine-needle aspiration biopsy (FNAB):** This is the most important test for determining whether a thyroid nodule is cancerous. A thin needle is inserted into the nodule to collect a sample of cells, which are then examined under a microscope.
- **Thyroid scan:** This test uses a small amount of radioactive iodine or technetium to create images of the thyroid gland and assess nodule function. "Hot" nodules, which produce excess thyroid hormone, absorb more of the radioactive material, while "cold" nodules, which don't produce hormone, absorb less.
- **CT scan or MRI:** These imaging tests may be used in some cases to provide more detailed images of the thyroid gland and surrounding structures.

How are thyroid nodules treated?
The treatment for thyroid nodules depends on several factors, including the size and characteristics of the nodule, the results of the FNAB, and whether the nodule is causing symptoms. Treatment options include:

- **Watchful waiting:** If the nodule is small, benign, and not causing symptoms, your doctor may recommend monitoring it with regular ultrasounds and physical exams.
- **Medication:** If the nodule is causing symptoms of hyperthyroidism, medication may be prescribed to control hormone levels. Levothyroxine may be prescribed for hypothyroidism caused by a nodule interfering with thyroid hormone production.
- **Radioactive iodine therapy:** This treatment is used for "hot" nodules that are producing excess thyroid hormone. Radioactive iodine is taken orally and destroys the nodule tissue.
- **Surgery:** Surgery may be recommended for large nodules causing symptoms, suspicious nodules that may be cancerous, or nodules that continue to grow despite other treatments. Surgical procedures include:
    - **Lobectomy:** Removal of one lobe (half) of the thyroid gland.
    - **Total thyroidectomy:** Removal of the entire thyroid gland.
    - **Lymph node dissection:** Removal of lymph nodes in the neck if cancer is present.

What are the potential complications of thyroid surgery?
Thyroid surgery is generally safe, but like any surgical procedure, it carries some risks. Potential complications include:

- **Bleeding:** Excessive bleeding during or after surgery can occur.
- **Infection:** Infection of the surgical wound is possible.
- **Voice changes:** Damage to the recurrent laryngeal nerve during surgery can cause temporary or permanent voice changes, such as hoarseness or voice weakness.
- **Hypoparathyroidism:** The parathyroid glands, which regulate calcium levels in the body, are located near the thyroid gland. Damage to or removal of these glands during surgery can lead to hypoparathyroidism, a condition characterized by low calcium levels. Symptoms of hypoparathyroidism include tingling in the hands and feet, muscle cramps, and seizures.
- **Hypothyroidism:** After a total thyroidectomy, you will need to take levothyroxine medication for life to replace the thyroid hormone that your body no longer produces.

What is the long-term outlook for thyroid nodules?
The long-term outlook for most thyroid nodules is excellent. Most nodules are benign and don't require treatment. Even cancerous thyroid nodules are usually highly treatable, with a high cure rate. Regular monitoring and appropriate treatment can help ensure a positive outcome.

Living with thyroid nodules
If you have a thyroid nodule, it's important to:

- **Follow your doctor's recommendations:** Attend all scheduled appointments and follow any prescribed treatments.
- **Monitor your symptoms:** Be aware of any changes in your neck, voice, or swallowing, and report them to your doctor.

- **Maintain a healthy lifestyle:** Eat a balanced diet, get regular exercise, and manage stress.
- **Join a support group:** Connecting with others who have thyroid nodules can provide emotional support and helpful information.

When to seek medical advice
Contact your GP or ENT specialist if you experience:

- **A new lump or swelling in your neck.**
- **Difficulty swallowing or breathing.**
- **Voice changes.**
- **Pain in the neck or throat.**
- **Symptoms of hyperthyroidism or hypothyroidism.**

Additional resources

- **British Thyroid Foundation:** https://www.btf-thyroid.org/
- **BAETS – British Association of Endocrine & Thyroid Surgeons:** https://baets.org.uk/patients/