Thyroid lumps and thyroid surgery - Diagnostic hemithyroidectomy

QUICK FACTS

- Thyroid nodules are common and most do not require treatment.
- A diagnostic hemithyroidectomy is required if tests on the nodule are inconclusive and cannot firmly establish whether the nodule requires treatment or may represent thyroid cancer.
- Your voice may sound different after surgery. This can be temporary but rarely permanent.
- You may need another operation and further treatment depending on the pathology results.

ABOUT THE CONDITION

What is the thyroid gland?

The thyroid gland is found in the neck, in front of the windpipe, between the collarbone and the Adam's apple. It is shaped like a bowtie or butterfly (see figure 1), with two halves, the right and left thyroid lobes, connected by a bridge of tissue called the isthmus.

The thyroid gland produces a hormone called **thyroxine**. Thyroxine is released into the bloodstream and is important in controlling your metabolism.

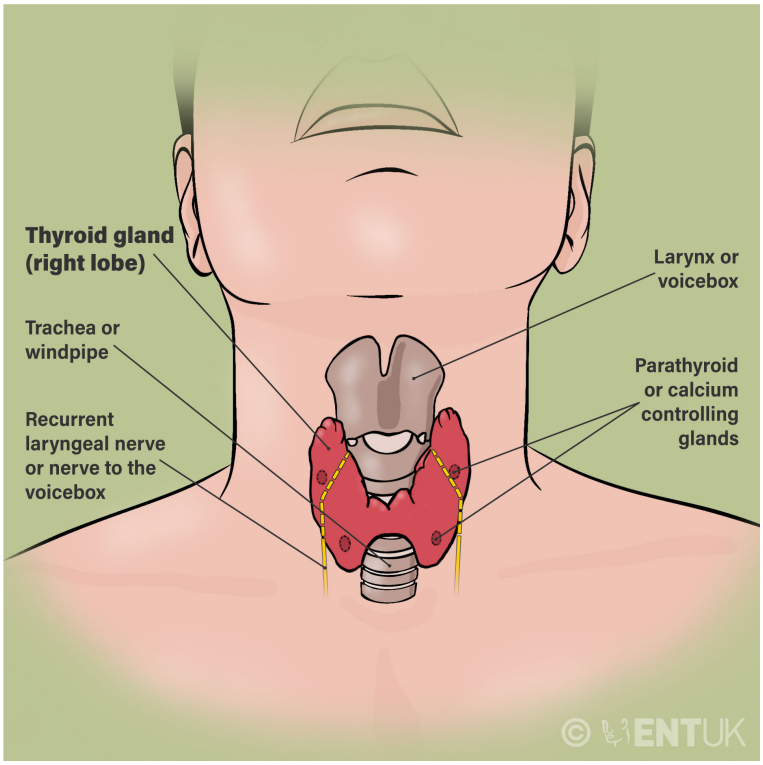

Figure 1. Location of the thyroid gland and the structures surrounding it.

What structures are next to the thyroid gland?

There are, on average, four **parathyroid glands** on the back of the thyroid gland. The parathyroid glands control the amount of calcium in your blood.

On either side, the **recurrent laryngeal nerve** runs behind the thyroid gland, in the groove between the windpipe and the oesophagus, or gullet. These two nerves move the voice box.

What is a thyroid nodule?

The thyroid gland can develop lumps or nodules over time. Thyroid nodules are common. If 100 people have an ultrasound scan, between 50 and 70 of them will be found to have a thyroid nodule. Between 3 and 7 of these will form a lump big enough to be felt in the neck. The older you are, the more likely you are to develop a thyroid nodule. Nodules are more common in women than in men.

A lot of thyroid nodules are found when looking at other areas of the neck with an ultrasound scan. Without this scan, most people would never know they had these nodules. Most would probably not cause the person any problems in their lifetime.

Most thyroid nodules (roughly 95 out of 100) are benign (not cancerous).

What tests are required?

There are several different types of tests which can be performed.

Blood tests are required to check how much thyroxine your thyroid is producing. These are usually taken at your GP practice. If the levels of thyroxine are abnormal you may be referred to a thyroid specialist, known as an endocrinologist.

An ultrasound scan allows the specialist to see the size and location of a nodule. During the ultrasound, a sample of cells may be taken from the nodule using a small needle. This is called **fine needle aspiration (FNA)**. Sometimes a larger sample of tissue, called a **core biopsy**, is taken with a larger needle.

Most of the time, other scans (for example a CT scan) are not required. Sometimes, however, a CT scan may be needed to give your specialist more information and help plan your operation.

What is a diagnostic hemithyroidectomy?

A diagnostic hemithyroidectomy is when half of the thyroid gland (one lobe, including the nodule and the isthmus) is removed. This procedure is also known as a thyroid lobectomy. This allows the pathology doctor to examine the tissue under the microscope to see whether the nodule is benign or cancerous.

Could the nodule be removed without removing half of the thyroid gland?

No. It is safer to remove the nodule and the whole lobe. If the pathologist identifies cancerous cells, they can examine the tissue that surrounds the nodule to determine if the cancer has spread. Normal thyroid tissue is also needed to distinguish between a benign nodule and a cancerous one.

ABOUT THE PROCEDURE: BENEFITS AND ALTERNATIVES

What is the benefit of having surgery?

If your surgeon has recommended surgery, it is because you have a lump in your thyroid gland and the tests so far have:

- **either** been inconclusive, and there is not enough information to tell if the lump is cancerous or benign
- **or** there are features from the tests that indicate that the nodule could be a cancer.

If the tests have been inconclusive, a repeat FNA or core biopsy may still not provide enough information to make this decision.

The benefit of having surgery is that you will find out what is causing the lump. If the lump is a cancer, then it is very likely that you will require further treatment.

What will happen if I do not have the operation?

The FNA test and ultrasound scan give your surgeon an indication of the likelihood that you have thyroid cancer. This may range from 10% (or 1 in 10) to nearly 100%. Without surgery, you and your doctor may not know for certain if the thyroid nodule is cancerous. Most thyroid cancers grow slowly over time, but some can grow quickly and spread to other parts of the body.

If the thyroid nodule is cancerous and continues to grow, the nodule will eventually grow into surrounding structures. This might be the nerve that moves the voice box (causing a hoarse voice, breathing difficulty, or both) or your windpipe. It may also spread to the lymph glands in your neck and to the lungs.

Are there any alternatives treatments?

A "watch and wait" approach may be used in certain situations, based on your test results and physical condition. Please discuss this with your surgeon.

Further Information

You may also wish to read the patient information leaflets on the following websites:

- The **British Association of Endocrine and Thyroid Surgeons** patient information leaflets: www.baets.org.uk
- The **Butterfly Thyroid Cancer Trust** is a charity dedicated to supporting patients with thyroid cancer: www.butterfly.org.uk
- The **British Thyroid Foundation** is a charity that offers reliable information and support for patients with thyroid disorders: www.btf-thyroid.org

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What does this surgery involve?

The operation is performed under general anaesthetic, which means you will be asleep.

An incision (or cut) called a collar incision will be made in a skin crease on the lower part of your neck.

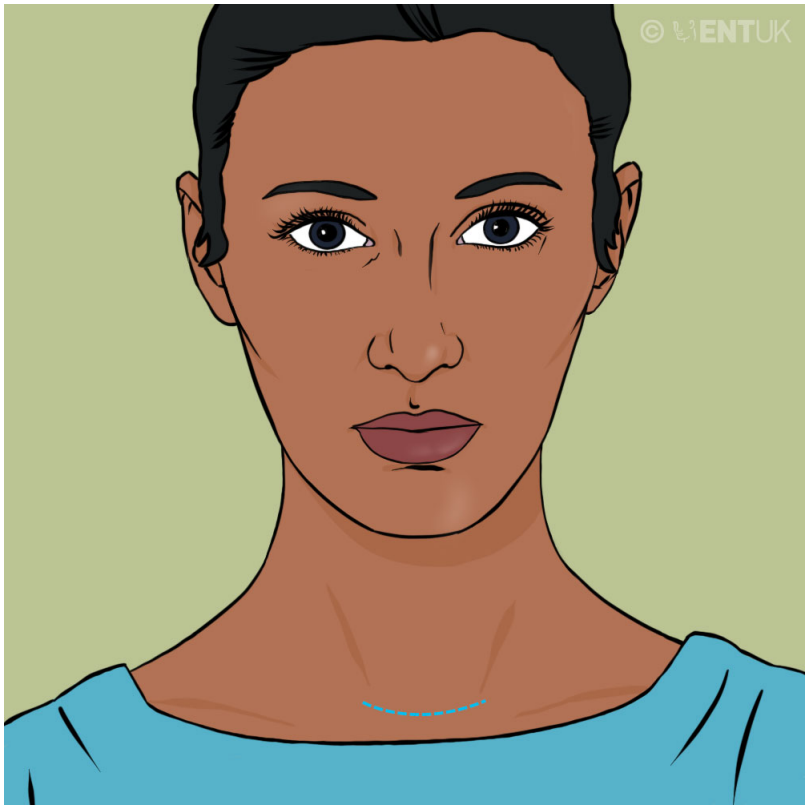


Figure 2. Location of the hemithyroidectomy scar

The surgeon will identify and protect the recurrent laryngeal nerve and the parathyroid glands. Sometimes one or more parathyroid glands are found in the thyroid gland itself and have to be removed.

The thyroid gland is carefully peeled away from the nerve, which may need to be moved around to remove the gland completely. A nerve monitoring device may be used during the operation and to test the nerve at the end of the operation.

At the end of the operation, the surgeon may insert a plastic tube called a drain through the skin. This prevents blood and fluid from collecting. The drain is removed once the surgeon is happy that no blood or fluid will collect in your neck. Once the drain is removed, most patients can go home.

Sometimes a drain is not required. In some hospitals, your surgery may be a day-case operation, which means you can go home on the day of surgery.

What should I expect after my operation?

- **Scar.** The incision, which is hidden in a skin crease, usually heals very well and fades into a thin white line. It can take up to 12 months before the scar reaches its final appearance. Rarely, scars can look thickened or develop into a **keloid scar**. If you have thickened scars elsewhere on your body, please let your surgeon know in advance and they can discuss options with you in more detail.

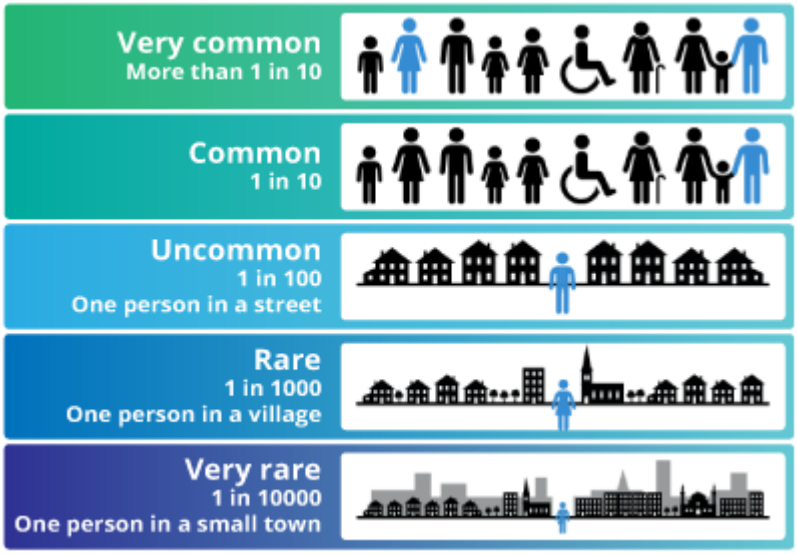
- **Numbness of the skin.** It is normal for the skin around the wound to be numb. This may improve slightly over time but is more likely to be permanent.

ABOUT THE RISKS

Are there any complications to this operation?

All operations involve some risks, but most patients who have this procedure recover well.

Complications are grouped into the following categories:



- **Seroma.** The cavity left in the neck after removing the thyroid and the thyroid lump can get filled with fluid. This is known as a seroma and happens in between 1 and 7 out of every 100 cases. If this happens, you will experience swelling of the wound and sometimes feel a sensation of pressure. Seromas can be drained with a needle and syringe in the outpatient clinic, and you may need to have this done several times.
- **Bleeding and blood clots.** A blood clot or haematoma can form under the skin. This is uncommon and can cause neck discomfort and visible swelling. In severe cases, it can cause pressure on the windpipe, resulting in breathing difficulty. If a haematoma forms, you may need to have another operation to remove the blood clot and a drain may be inserted. This happens in fewer than 1 out of 100 cases.
- **Wound infection**. A wound infection may cause pain, swelling and redness of the wound and skin. This happens in up to 3 out of every 100 cases. Factors such as diabetes and smoking can make this more likely. The infection is usually treated successfully with antibiotics. Pus may develop in the wound, but this is rare. If this happens, your surgeon may need to open the wound to drain the pus and wash it out. This is usually done under a general anaesthetic.
- **Voice changes.** Voice changes may be temporary or permanent. If there is any concern about your voice or breathing, a flexible laryngoscopy will be carried out. A small, flexible camera is gently inserted through your nostril and down into your throat. This allows your surgical team to see if your voice box is moving correctly. It is common for patients who wake up from a general anaesthetic to have a dry throat and sound a little husky, but this should not last long.
- **Non-specific voice changes.** A third of patients describe some voice change up to three months after surgery (for example, a deeper voice or the voice getting tired with use). These patients have no

recognisable nerve injury and the vocal cords move well when they are examined. Over time, the voice usually gets better without any treatment. In some cases, voice therapy may be of benefit.

- **Injury to the recurrent laryngeal nerve**. A persistent hoarse voice after surgery may suggest weakness on one side of the voice box, caused by injury to the recurrent laryngeal nerve. Temporary injury to the nerve can take place in between 2 and 11 out of 100 cases. Most will get better without treatment. Sometimes, it can take up to 12 months for the nerve to recover. Sometimes, the nerve is cut during the operation, although this is rare. If this happens, your surgeon will inform you of the reason. Permanent injury to the nerve takes place in 1 out of 100 cases. The risk to the nerve can be much higher if there is cancer close to or invading it, or if lymph glands are being removed around the nerve, or if a large thyroid gland (known as a goitre) is being removed. It can also be much higher in those who have had previous surgery on their gland. Your surgeon will be able to inform you of your specific risks.
- **Superior laryngeal nerve weakness.** The superior laryngeal nerve runs close to the blood vessels feeding the top part of the thyroid gland. It controls the tension of the vocal cords. Damage to this nerve may cause a change to the pitch of your voice, making it difficult to reach high notes when singing. You may find that your voice tires more easily. This is estimated to happen in up to 5 out of 100 cases. It may be more significant to you if you use your voice professionally.
- **Can anything be done to improve my voice?** Most bruised nerves will recover on their own. Sometimes it takes days, sometimes weeks or months. For cases of recurrent laryngeal nerve injury, a filler injection can be used to bulk up the vocal cord, enabling your voice to sound stronger, although this depends on the position of the vocal cord. This can be done in clinic under local anaesthetic. If the recurrent laryngeal nerve has been permanently damaged, more complex surgeries can be considered.
- **Complications of general anaesthetic.** The operation is performed under general anaesthetic. Complications can include blood clots in the legs (deep vein thrombosis) or lungs (pulmonary embolism), heart attack, chest infection, stroke and death. The pre-assessment team and anaesthetist will explain what happens during a general anaesthetic and the risks that are relevant to you. **This link** summarises the common events and risks of general anaesthetic.

AFTER THE SURGERY

What happens after the operation?

After the operation, you will be transferred to the recovery area. When you are fully awake, you will be taken to a ward area or the day-case unit.

Will I have a drain in my neck?

A wound drain may be inserted. The nursing staff will monitor this. You will be reviewed on the ward round and a decision will be made about when the drain can be removed. Some units do not use drains and your surgeon will let you know what to expect in your case.

Will I need any blood tests while I am in hospital?

Low calcium levels occur if none of the four parathyroid glands are working properly after thyroid surgery. This is unlikely to happen after half of the thyroid gland is removed. Removing half of the thyroid gland should not normally affect the amount of thyroxine the remaining half produces. Thyroxine and calcium levels are not routinely checked after a hemithyroidectomy.

How long will I be in hospital?

In some hospitals, a hemithyroidectomy is performed as a day-case procedure. This means you are allowed home after a few hours of observation after the surgery.

If you have a drain in your neck, you need to stay in hospital until it is removed. Your surgeon will decide when the drain should be removed. Most patients spend between 24 and 48 hours in hospital after the operation. You may need to stay in hospital for longer if you develop a haematoma or wound infection.

How long will I be off work?

You will be off work for a minimum of two weeks. You should begin to feel better the day after the operation.

Will I have stitches?

Some surgeons will close the wound with staples, stitches or skin glue. Stitches or staples are usually removed after five to seven days. Your surgical team will advise when and where these should be removed.

When will I know what the lump is?

A pathologist examines the gland. This takes at least one or two weeks. It may take longer if special tests are required. Your surgeon will advise when and how the result of the pathology will be given to you.

Follow up

Your surgical team will advise you about follow-up appointments.

Is there anything else I should know?

Your thyroid specialist will ask you if you agree to have your anonymised surgical data included in the national thyroid registry. The data helps guide future best practice and calculate the complication rates of the operation, some of which are quoted in this information leaflet.

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