Thyroidectomy – an operation to remove all or part of the thyroid gland

Information for patients

What is the thyroid gland?

The thyroid gland is a butterfly shaped gland which is found on the front of the neck just below the Adam's apple (Figure 1).

What does it do?

It produces hormones which play a major role in regulating the body's metabolism.

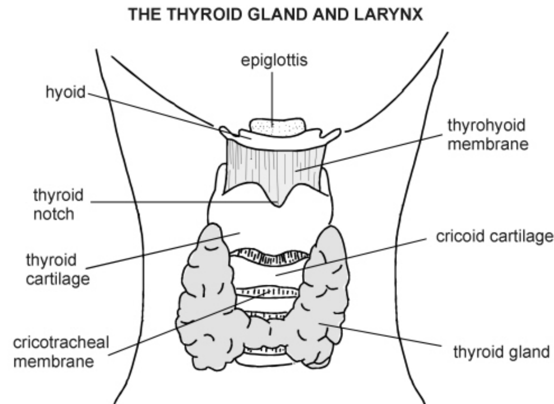

Figure 1.

Abnormal conditions of the thyroid

Abnormal conditions involving the thyroid include:

- A localised enlargement (a nodule)
- An overall enlargement (a goitre)
- The production of too much hormones (hyperthyroidism)
- The production of not enough hormones (hypothyroidism)
- Inflammation of the thyroid (thyroiditis).

How can it be treated?

Thyroid disorders can be treated with medication but sometimes surgery is required as in cases such as:

- Cancer of the thyroid
- Enlargement of the thyroid where breathing or swallowing is affected
- Patients with hyperthyroidism whose overactive thyroid cannot be treated with anti-thyroid drugs or radioactive iodine. Such patients are asked to take anti-thyroid medication or iodides before their operation. Some patients also need Propranolol to control their heart rate. Continuing all treatment is necessary until the day of the operation.

How is thyroid disease diagnosed?

- Assessment of symptoms and clinical examination by an experienced surgeon are very important before deciding what tests are needed to diagnose your condition.
- Blood test will show the levels of active hormone circulating in the body.
- Fine-needle biopsy or aspiration of fluid will be done during your outpatient visit. This analyses what type of cells are present in the nodule (i.e. cancerous or not).
- Ultrasound or CT (computerised tomography) scans show the size and the location of any abnormality in relation to the surrounding structures, such as the windpipe. These scans are indicated only in some patients.

Thyroidectomy

A **total thyroidectomy** is an operation to remove all of the thyroid gland.

A **thyroid lobectomy** is an operation to remove one half (i.e. a lobe) of the thyroid gland.

Both operations are carried out under general anaesthetic.

In individual patients, the benefit of such operations can be:

- Removal of a large goitre which may be obstructing the airway
- Definitive treatment for Graves' disease (i.e. hyperthyroidism - overactive thyroid gland)
- Treatment of thyroid cancer.

What does the operation involve?

The surgeon makes a 2 - 2½ inch (5-7 cm) cut across the front of the neck above the collar bone (see Figure 2).

The surgeon finds and takes care not to injure the parathyroid glands and the nerve which is attached to your larynx (voice box). The surgeon frees the thyroid gland from these and other surrounding structures and then removes all or part of the thyroid gland. The operation usually takes 1-2 hours, depending how big the thyroid is.

In some thyroid operations it is necessary to remove some of the lymph glands from the neck. If your surgeon expects to remove lymph glands, this will be discussed with you in more detail.

The skin cut is closed with a continuous stitch under the skin and some steristrips ("paper stitches").

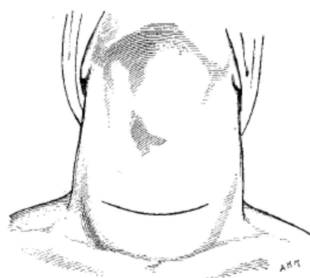

Figure 2.

What are the risks of surgery?

- **Voice changes**
  There are three possible reasons for such changes to occur:

- **Injury to the recurrent laryngeal nerve(s) (risk 1 in 100):**
  There are two recurrent laryngeal nerves, one on each side. They pass behind the thyroid gland in the neck and into the larynx where they control movements of the vocal cords.
  If "bruised", the nerve does not work properly after surgery but recovers and returns to normal during the next few days or weeks.
  Permanent damage to one of these nerves (risk 1:100) causes a hoarse, croaky and weak voice. The body usually adapts to the damage and symptoms may get better with time. If voice problems persist for more than 3 months we will refer you for voice therapy.
  Permanent damage to both nerves is very rare but is a serious problem that may have to be treated by putting a permanent tracheostomy (breathing tube) into the windpipe in the neck.

- **Injury to superior laryngeal nerve(s) (risk 1:20):**
  The external branch of the superior laryngeal nerve travels close to the vessels feeding the thyroid gland. These nerves control the tension of the vocal cords. Damage to one of these nerves results in a weak voice, although the sound of the voice in unchanged. You might have difficulty in reaching high notes when singing, your voice may tire more easily and you might not be able to shout loudly.

- **Non-specific voice changes**
  Any operation on the neck can produce some change in the voice even when there is no injury to the nerves controlling movement of the vocal cords. Fortunately this is not normally noticeable and recovers within a few months of the operation. You might find your voice is slightly deeper and you might experience voice fatigue. This is significant mainly for those who use their voice for professional reasons.

  Voice changes are more likely to occur in people who have very large goitres or cancerous tumours. Approximately 15% of our patients (1 in 6) notice a change in the pitch of their voice but most of these recovers fully.

- **Low calcium levels (risk 1 in 50):**
  During thyroid surgery the parathyroid glands could be bruised or damaged. There are four parathyroid glands, two on each side of the neck, each about the size of a grain of rice and tightly attached to the thyroid gland. They are involved in controlling the calcium level in the blood stream. It is normally possible for the surgeon to identify and save some or all of these glands, and so avoid a long-term problem.

  Unfortunately even when the glands have been saved they may not work properly for few weeks after the operation. Because of this your calcium levels might drop and hence you might experience tingling in the fingers and lips ("pins and needles").

  About 25% of patients (1 in 4) experience a drop in calcium levels in the first 2 days after surgery. To prevent such problems you will be prescribed calcium tablets for the first two weeks after your operation. By then the parathyroid glands should return to normal function. If the problem persists you might need to take extra calcium and/or vitamin D permanently.

  There is a 1-2% risk that you might need to be on long term calcium or Vitamin D tablets.

- **Bleeding after the operation**
  This is a rare complication that can lead to neck discomfort or, in more severe cases, breathing difficulties. Very rarely, patients will need to return to theatre to have the neck explored so that the cause of bleeding can be dealt with.

- **Neck numbness:**
  At the beginning of the operation we will give you an injection of local anaesthetic to help control pain at the site of the cut in your neck. This may cause a loss of sensation over the neck skin (up to the jaw line). This settles within 24 hours as the effect of the local anaesthetic wears off.

- **Swallowing difficulties:**
  Usually swallowing is improved after thyroid surgery, especially in patients whose large goitres.

  Occasionally, some mild difficulty may develop after the operation. This is generally due to a tight scar between the skin and the windpipe that creates discomfort during swallowing as the windpipe moves upwards and pulls on the scar. To prevent this you should keep the neck mobile, do some neck stretching exercises and massage the wound.

- **Scar:**
  The scar may become relatively thick and red for a few months after the operation before fading to a thin white line. Some patients develop a thick exaggerated scar but this is very rare. It takes about six months to one year for the scar to reach its final appearance - so do not worry about this until several months after the operation.

- **Wound infections**:
  These rarely occur (1:200 patients) but can be treated with antibiotics.

- **Thyroid storm:**
  This is an extremely rare complication in modern medical practice. Thyroid storm is a medical emergency and requires immediate treatment. It is caused when excessive amounts of thyroid hormones are released during the operation in patients with hyperthyroidism that are not well treated with appropriate medication before their operation.
  It is characterised by fever, weakness, palpitations, changes in mental status and in some cases coma. Death from thyroid storm is in the range of 20 – 30% (20-30 in 100). We have not seen this complication in our practice for more than 10 years.

- **Risks of general anaesthesia:**
  Modern anaesthesia is very safe and serious problems are uncommon.
  After an anaesthetic it is common (risk 1:10) to feel sick or vomit or experience the following: sore throat, dizziness, blurred vision, headache, itching, aches, pains and backache.
  It is uncommon (1 in 1000 people) to have a chest infection, bladder problems, muscle pains, slow breathing (depressed respiration), damage to teeth, lips or tongue, an existing medical condition getting worse.

  Rarely (1:10,000 or less) patients have damage to their eyes, a serious drug allergy, nerve damage, equipment failure, awareness (becoming conscious during your operation) or death.

  The risk to you as an individual will depend on: whether you have any other illness, personal factors (such as smoking or being overweight) or surgery which is complicated, long or done in an emergency.

  Please discuss any pre-existing medical condition with your anaesthetist. For more information about risks associated with your anaesthetic visit vvv.rcoa.ac.uk or ask your anaesthetist.

Pre-operative Assessment

Most patients come for an appointment at the Pre-operative Assessment clinic. At this clinic we will ask you for details of you medical history and carry out any necessary clinical examinations and investigations. This is a good opportunity for you to ask us any questions about the operation.

We will ask you about any medicines or tablets that you are taking – either prescribed by a doctor or bought over the counter in a pharmacy. It helps us if you bring details of your medicines with you - for example, bring the packaging with you.

Consent

We will give you a copy of the consent form and further information about what happens on the day of your operation. Please read these carefully. If you have any further questions, please ask a member of the surgical team on the day of your operation before signing the consent form.

What happens on the day of your operation

Our separate leaflet explains how you should prepare for your operation, the admission process, and going to the operating theatre. We will give you a copy of this leaflet at your Pre-operative Assessment visit.

When you come into hospital you will be asked to bring all your medicines with you in the special green pharmacy bag provided.

During the procedure

The operation is done under a general anaesthetic, which means you will not be conscious during the operation.

To allow access to the thyroid for the operation, the surgeon will make a 2-2½ inch cut into your neck above the top of the sternum (breastbone) in a skin crease low down on the front of the neck. During the operation, the surgeon will locate and remove part or all of your thyroid gland.

Recovery

You will wake up in the recovery area with an oxygen mask on your face. The recovery nurse will look after you until you are awake and ready to go to the ward.

Back on the ward

The ward nurse will check you vital signs and pain scores. You will be offered pain relief if you need it.

You will be allowed to drink water at first. Once are able to tolerate this you will be able to have a warm drink and something light to eat. You will have an intravenous drip in your arm that can be removed as soon as you are drinking enough.

When you get out of bed for the first time a member of staff should be with you in case you feel light headed or dizzy.

After your operation

Thyroid function

The day after your total thyroidectomy we will test your blood and you may be started on thyroid medication.

If all the thyroid gland was removed you will require lifelong replacement with thyroxine. This is a straightforward once-a-day tablet with little need for adjusting the dosage. We will give you a supply to take home with you and take every day. It is very important that you continue to take it every morning.

If only half of the thyroid was removed (i.e. thyroid lobectomy) you will not need any thyroxine tablets. A blood test will check the function of the remaining thyroid at your follow-up appointment.

Parathyroid function

If the function of the parathyroid glands is affected you may have to take long-term calcium and vitamin D supplements.

Going home

Most patients are discharged between 1 and 2 days after a total thyroidectomy. Patients having a thyroid lobectomy may be discharged later on the same day as their operation.

Is there anything I should look out for when I go home?

If you have any concerns about your wound because it is red, hot, swollen or painful you should seek advice from your GP or practice nurse.

Wound care

The wound should be kept dry for 48 hours and it can be left without a dressing. Some people like to wear a loose scarf to cover the wound. You will need to make an appointment with your GP practice nurse to have the suture under the skin removed on the third day after the operation. **Please make this appointment before you come into hospital.**

The steristrips should stay on for one week.

When completely healed the wound can be gently massaged a cream (e.g. Vitamin E cream) to soften the scarring.

Follow-up

We will give you an appointment to be seen in the Outpatient Department about 6 weeks after your operation. At this time the surgeon will discuss the results with you and any further treatment and follow-up you may need.

Resuming normal activity and returning to work

Thyroidectomy is a major operation and, on returning home, you should rest for 2-3 days. You will normally be well enough to return to work in 1-2 weeks. However this may vary depending the type of work you do. It is normal to feel tired for the first few weeks.
You can drive as soon as you are able to perform an emergency stop without pain, but check with your insurance company as policies vary.

Do not drink alcohol, operate machinery or sign any important documents in the first 48 hours after your operation.

If there is any information in this booklet that you do not understand, or if you are unclear about any other details of your operation, please ask one of the surgical team.

Further information

You may find information on the following websites useful:

www.baes.info	British Association of Endocrine-Thyroid Surgeons
www.btf-thyroid.org	British Thyroid Foundation
www.british-thyroid-association.org	British Thyroid Association