Goitre (Thyroid Swelling)

A goitre (pronounced goy-ter, sometimes spelt as 'goiter') is an enlarged thyroid gland. This gives you a lump at the front of your neck. Some people with a goitre have an underactive or overactive thyroid gland. This means that they make too much or too little thyroid hormone. There are various causes of goitre and treatment depends on the cause.

What is a goitre?

A goitre is an enlarged thyroid gland. A goitre can mean that all the thyroid gland is swollen or enlarged, or one or more swellings or lumps develop in a part or parts of the thyroid gland.

The thyroid gland is in the lower part of the front of the neck. It lies just in front of the windpipe (trachea). It has a right and left lobe which are connected together by a narrow band of thyroid tissue. It is roughly the shape of a butterfly. You cannot usually see or feel a normal thyroid gland. If the thyroid gland enlarges, it causes a swelling in the neck which you can see - a goitre.

The thyroid gland makes thyroid hormones - called thyroxine (T4) and triiodothyronine (T3). These hormones are carried around the body in the bloodstream. T4 and T3 help to keep the body's functions (the metabolism) working at the correct pace. Many cells and tissues in the body need T4 and T3 to keep them working correctly.

Types of goitre

There are different types of goitre, each with various causes.

Diffuse smooth goitre
This means that the entire thyroid gland is larger than normal. The thyroid gland feels smooth but is larger than normal.

There are a number of causes. For example:

- **Graves' disease** - an autoimmune disease which causes the thyroid to swell and make too much thyroxine (T4). In autoimmune disorders your body produces proteins called antibodies which damage a different part of your body - in this case, your thyroid gland.
- **Inflammation of the thyroid gland (thyroiditis) -** which can be due to various causes. For example, another autoimmune condition called **Hashimoto's thyroiditis** can damage the thyroid gland. Infections with germs such as bacteria and viruses can cause different types of thyroiditis. **Radiotherapy** treatment to the neck can also lead to inflammation of the thyroid gland.
- **Iodine deficiency.** The thyroid gland needs iodine to make T4 and triiodothyronine (T3). If you lack iodine in your diet, the thyroid swells as it tries to make enough T4 and T3.
- **Some medicines such as lithium and amiodarone** can cause the thyroid gland to swell as a side-effect.
- **Hereditary factors -** some people inherit a tendency for a thyroid gland to swell. In particular, it may swell at times of life when you may make more T4 and T3 - for example, when you are pregnant, or during puberty.
- **Any other disorder which causes problems in the making of T4 or T3 may cause the thyroid gland to swell.**
Nodular goitres
A thyroid nodule is a small lump which develops in the thyroid gland. There are two types:

- A multinodular goitre. This means the thyroid gland has developed many lumps or nodules. The thyroid gland feels generally lumpy.
- A single nodule. Causes include:
  - A cyst. This is a non-cancerous sac-like swelling filled with fluid.
  - An adenoma. This is a solid non-cancerous tumour.
  - A cancerous tumour (rare).
  - Other rare causes.

Goitres and production of thyroid hormones

- In many people with a goitre, the goitre does not affect the amount of thyroid hormones that you make. You are then euthyroid, which means you make the correct amount of these hormones.
- In some people, the goitre is associated with an abnormality of thyroid function. You may make too much thyroid hormone (hyperthyroidism, or overactive thyroid) or too little (hypothyroidism, or underactive thyroid). This can be shown with a simple blood test of your thyroid function. See the separate leaflet called Thyroid Function Tests.

Note: you can also develop an overactive or underactive thyroid without having a goitre.

Goitre symptoms

- In many cases there are no symptoms apart from the appearance of a swelling in the neck. The size of a goitre can range from very small and barely noticeable, to very large.
- Most goitres are painless. However, an inflamed thyroid gland (thyroiditis) can be painful.
- If your thyroid makes too much or too little thyroxine (T4) or triiodothyronine (T3), this can cause a range of symptoms. See the separate leaflets called Overactive Thyroid Gland (Hyperthyroidism), Underactive Thyroid Gland (Hypothyroidism) and Thyroid Eye Disease for more details.
- A large goitre may press on the windpipe (trachea) or the gullet (oesophagus). This may cause difficulty with breathing or with swallowing.
Assessing the situation

When you have a goitre, a doctor will usually do some blood tests to check if you are making too much or too little thyroxine (T4) or triiodothyronine (T3). Blood tests may also help to find out the cause of some goitres. Other tests may be done to find out the cause of the goitre. For example:

- An ultrasound scan of the thyroid. This is the best test for thyroid swellings. An ultrasound scan is a safe and painless test which uses sound waves to create images of organs and structures inside your body. It can tell if a nodule is a cyst or a solid lump. See the separate leaflet called Thyroid Scans and Uptake Tests.
- A small piece of tissue (a biopsy) may be taken from a nodule to look at under the microscope. The biopsy is done by inserting a thin needle into the nodule. It is a simple and safe procedure. The specialist doing the biopsy can see where they are inserting the needle by doing an ultrasound scan at the same time.
- Occasionally other specialist blood tests are needed to help establish the cause. Occasionally a computerised tomography (CT) scan or a magnetic resonance imaging (MRI) scan is needed.

Goitre treatment

Treatment depends on the cause, the size of the goitre, and whether it is causing symptoms. For example:

- If you have a small goitre that is not due to a cancerous nodule, and your thyroid gland is making the correct amounts of thyroid hormones then you may not need any treatment.
- You will need treatment if you make too much or too little of your thyroid hormones. For medicines used in the treatment of an overactive thyroid gland, see the separate leaflet called Antithyroid Medications.
- An operation to remove some or all of the thyroid gland may be an option in some cases.
- **Radioactive iodine treatment** may be an option for a goitre causing an overactive thyroid gland (hyperthyroidism).
  - This involves taking a drink, or swallowing a capsule, which contains radioactive iodine.
  - The radioactive iodine builds up in the thyroid gland.
  - As the radioactivity is concentrated in the thyroid gland, it destroys some thyroid tissue.
  - You may need to take thyroxine (T4) tablets after having radioactive iodine, if too much of the thyroid is destroyed.

- If you have cancer of the thyroid, you will probably need an operation to remove the cancer and some of the thyroid gland.
- Iodine replacement is given if the goitre is due to lack of iodine in the diet.

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