**Thyroid Lumps (including Goitre)**

Most thyroid lumps are benign but around 5% are malignant and it is important to distinguish this sinister minority.\[1\]

The term goitre refers to enlargement of the thyroid gland. A thyroid nodule may be a lump in an otherwise normal thyroid gland. However, goitres may consist of many nodules (multi-nodular goitre) and solitary nodules may exist within a goitre. Nodules may be cystic, colloid, hyperplastic, adenomatous or cancerous.

Iodine deficiency is the most common cause of goitre worldwide, but not common in the UK. In countries where iodine is added to salt, autoimmune conditions (Hashimoto's thyroiditis and Graves' disease) are more common causes. Medication (such as lithium and amiodarone) may cause thyroid enlargement. It may also occur in pregnancy and menopause.

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**Clinical Editor’s comments (October 2017)**

Dr Hayley Willacy recently read an interesting paper on milk alternative drinks posing a possible risk for iodine deficiency. The study examined the iodine content of 47 milk-alternatives, including soya, almond, coconut, oat, rice, hazelnut, and hemp, and compared it with that of cows’ milk. The majority of milk-alternative drinks did not have adequate levels of iodine, with concentrations found to be around 2% of that found in cows’ milk. It is important that people who consume milk-alternative drinks realise that they will not be replacing the iodine from cows’ milk which is the main UK source of iodine. This is particularly important for pregnant women and those planning a pregnancy.

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**Epidemiology**\[1,4\]

- Between 4-7% of adults have palpable thyroid lumps. Many more will be detectable on high-definition ultrasonography. Up to 40% of people having an ultrasound scan on their neck are found to have a thyroid nodule incidentally, and similar numbers are found incidentally at autopsy. 95% of these thyroid lumps in adults are benign.
- Thyroid cancer represents 1% of all malignancies.
- Thyroid nodules are uncommon in children and adolescents (1-1.5% are estimated to have palpable lumps).\[5\] However, the risk of nodules being cancerous in this population is higher.\[6\]

**Risk factors**\[7,8\]

- Goitres and thyroid lumps are more common in areas of low iodine consumption. This is less likely in countries where iodine is added to table salt.
- Conversely, excessive consumption of iodine (found in seaweed) can cause goitres.
- Malignancy is more common where benign thyroid disease has existed.
- The risk of malignancy in a thyroid nodule is higher under the age of 20 and over the age of 70.\[4\]
- Thyroid nodules and cancers are more common after exposure to radiation. This includes therapeutic radiotherapy, and exposure to radiation following events such as those in Hiroshima and Chernobyl.
- Smoking increases the risk of nodular goitre.
- Family history.
- Medication such as amiodarone and lithium.

**Presentation**

**Symptoms**

- Thyroid lumps are often asymptomatic and are noticed by family members or seen in the mirror.
- They may sometimes cause pain and rarely present with features of compression of the trachea.
- Ask about previous radiation.

**Signs**

- Ask the patient to drink some water and note the thyroid move as she/he swallows.
- Note enlargement or asymmetry.
- Stand behind a seated patient and use the second and third fingers of both hands to examine the gland as she/he swallows again.
- Note lumps, asymmetry, size and tenderness.
• Check for regional lymphadenopathy.

A goitre

A large multinodular goitre

Red flag features

**Prompting same day referral**
- Stridor associated with a thyroid mass

**Prompting urgent (two-week rule) referral**
- Child with a thyroid nodule.
- Unexplained hoarseness or voice changes associated with goitre.
- Painless thyroid mass enlarging rapidly over a period of a few weeks.
- Palpable cervical lymphadenopathy.
- Other potential red flags: [1, 10]
  - Family history of thyroid cancer or endocrine tumour.
  - History of previous irradiation or exposure to high environmental radiation.
  - Insidious or persistent pain lasting for several weeks.

**Prompting non-urgent referral**
- Thyroid nodules with abnormal TFTs. Refer to an endocrinologist.
- Sudden onset of pain within a thyroid lump. (Likely cause is a bleed into a thyroid cyst.)
**Differential diagnosis**

**Thyroid lumps and swellings**
- Non-toxic (simple) goitre - non-functioning nodules. TFTs are normal.
- Toxic multinodular goitre - functioning nodules. Abnormal TFTs.
- Retrosternal goitre (usually multinodular).
- Hyperplastic nodule (single nodule or part of multinodular goitre).
- Colloid nodule.
- Thyroid adenoma.
- Thyroid carcinoma.
- Graves’ disease - diffusely enlarged overactive thyroid gland.
- Hashimoto’s thyroiditis - autoimmune destruction of the gland may cause diffuse enlargement.
- Other types of thyroiditis:
  - De Quervain’s thyroiditis - neck pain, fever and lethargy soon after an upper respiratory infection or a viral illness.
  - Acute suppurative thyroiditis - results from bacterial or fungal infection causing abscess.

**Non-thyroid lumps and swellings**
- Congenital and developmental swellings:
  - Thyroglossal cyst
  - Branchial cyst
  - Pharyngeal pouch
  - Dermoid cyst
  - Laryngocele
- Lymph nodes - swelling due to inflammation, infection or malignancy.
- Salivary gland swellings - tumours, calculi, inflammation
- Non-thyroid benign and malignant tumours - lipomas, fibromas, vascular tumours, sarcomas,

**Investigations**

- **Perform TFTs.** British Thyroid Association guidelines recommend GPs perform the TFTs to determine the need for referral, and if so who to. Those with abnormal TFTs and no suspicious features should be referred to an endocrinologist. Those with thyroid swelling and normal TFT should be referred under the timeline in the "Red flag features" section, above. These guidelines advise that in those with a new thyroid swelling, GPs should NOT arrange an ultrasound as this delays specialist opinion in those who may have thyroid cancer. Referral should be to a surgeon, endocrinologist or other member of a specialist multidisciplinary team.
- **Ultrasound** is highly sensitive for detection and characterisation of thyroid nodules. It is far more sensitive than clinical examination and only a small percentage of nodules detected by ultrasound are clinically palpable. Ultrasound helps to inform which nodules need aspiration for cytology.
- **Fine-needle aspiration (FNA)** gives tissue for cytology. It is performed under ultrasound guidance for maximum accuracy. It is safe, inexpensive and provides direct information.
- **Basal plasma calcitonin and carcinoembryonic antigen (CEA)** are not used routinely but are measured if medullary thyroid cancer is suspected.
- **CT scans and MRI scans** may be needed to detect local and mediastinal spread and regional lymph nodes.

**Management**

This depends on the cause. See "Management" section in separate articles such as Thyroid Carcinoma, Benign Thyroid Tumours, Hashimoto’s Thyroiditis, and Hyperthyroidism.

**Further reading & references**

- Ultrasound-guided percutaneous radiofrequency ablation for benign thyroid nodules; NICE Interventional Procedure Guidance, June 2016.
- British Thyroid Association Guidelines for the Management of Thyroid Cancer; British Thyroid Association (July 2014).
- Neck lump; NICE CKS, February 2010 (UK access only)