Goitre: Symptoms and Treatment

Goitre refers to an abnormal enlargement of the thyroid gland, which can vary in size from barely noticeable to visibly large neck swelling.

Physiological Background:
The thyroid gland synthesizes thyroid hormones (thyroxine/T4 and triiodothyronine/T3) that regulate metabolism and multiple body systems.

Causes of Goitre

Goitre can arise from multiple causes including:

- **Iodine deficiency:** Most common worldwide; insufficient iodine intake impairs thyroid hormone synthesis, causing gland hypertrophy.
- **Thyroid dysfunction:**
  - *Hyperthyroidism* (overactive thyroid) — e.g., Graves' disease or toxic multinodular goitre.
  - *Hypothyroidism* (underactive thyroid) — e.g., Hashimoto's thyroiditis.
- **Physiological hormone changes:** During puberty, pregnancy, or menopause.
- **Medications:** Lithium and others affecting thyroid function.
- **Thyroiditis:** Inflammation due to autoimmune or infectious causes.
- **Neoplasms:** Thyroid nodules, cysts, or cancer.
- **Radiation exposure:** Prior radiotherapy to the neck or chest.

Classification

Type	Description	Notes
Simple (Non-toxic) Goitre	Diffuse enlargement usually due to iodine deficiency or defects in hormone synthesis.	Usually euthyroid.
Toxic Goitre	Hyperfunctioning gland producing excess thyroid hormones (T3, T4).	Causes thyrotoxicosis symptoms.
Neoplastic Goitre	Presence of benign or malignant nodules or thyroiditis (e.g., Hashimoto's).	Requires cytological assessment.
Infectious Goitre	Rare; caused by infections such as tuberculosis.	More common in endemic areas.

Clinical Features

- **Most patients are asymptomatic.**

- **Local compressive symptoms:**
  - Neck fullness or visible swelling.
  - Dysphagia (difficulty swallowing).
  - Stridor or dyspnea (if large goitre compresses airway).
  - Hoarseness (recurrent laryngeal nerve involvement).
  - Engorged neck veins (venous congestion).
- **Hyperthyroid symptoms (if toxic goitre):**
  - Weight loss despite increased appetite.
  - Heat intolerance, sweating.
  - Palpitations, tachycardia, arrhythmias.
  - Tremors, anxiety.
  - Menstrual irregularities.
  - Ophthalmopathy in Graves' disease (exophthalmos, lid lag).

Investigations

- **Thyroid function tests:** TSH, free T4, free T3 to assess thyroid status.
- **Imaging:**
  - Ultrasound of the thyroid — assesses gland size, nodularity, and cysts.
  - Chest and neck X-rays — to evaluate tracheal compression or retrosternal extension.
- **Fine Needle Aspiration Cytology (FNAC):**
  - Indicated for suspicious nodules to rule out malignancy.

Management

General Principles

Treatment depends on the cause and clinical presentation.

Non-Toxic Simple Goitre

- **Reassurance** is key for asymptomatic, euthyroid patients.
- **Thyroxine therapy** (50–150 mcg daily) may be trialed for 6 months to suppress TSH and reduce gland size.
- If no improvement, stop therapy and monitor.

Toxic Goitre (Hyperthyroidism)

- **Medical therapy:**
- *Antithyroid drugs*:
  - Carbimazole 15–20 mg three times daily for 3-4 weeks, then taper to maintenance dose (5–30 mg daily).
  - Alternatively, Propylthiouracil (PTU) up to 300 mg/day in divided doses (used mainly in pregnancy or thyroid storm).
  - *Beta-blockers (e.g., propranolol 60–240 mg daily in divided doses)* to control adrenergic symptoms.
- **Radioactive Iodine Ablation:**

    - Recommended if medical therapy fails after 12–24 months.
    - Contraindicated in pregnancy, breastfeeding, and young children.
    - Preferred for patients aged >35 years and those who completed childbearing.
- **Surgery (Thyroidectomy):**

Indications include:

- Toxic goitre refractory to medical therapy.
- Large goiters causing compressive symptoms.
- Suspicion or confirmation of malignancy.
- Pregnancy with intolerance to medical therapy.
- Patient preference or contraindication to radioactive iodine.

Summary

Condition	Treatment Modalities	Notes
Non-toxic goitre	Observation, thyroxine suppression	Monitor size and function
Toxic goitre (hyperthyroidism)	Antithyroid drugs, beta-blockers, radioactive iodine, surgery	Long-term management needed
Suspicious nodules	FNAC, surgery if malignant	Early diagnosis critical
Compressive symptoms	Surgery	Relief of airway or esophageal compromise