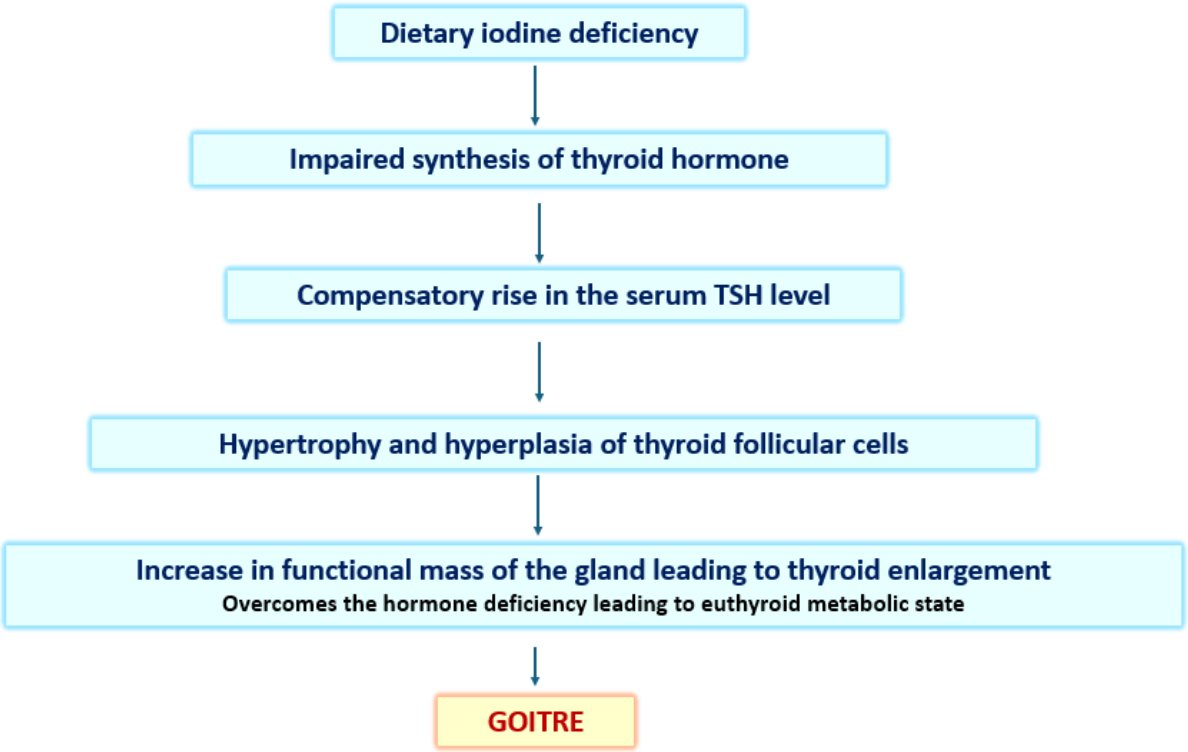
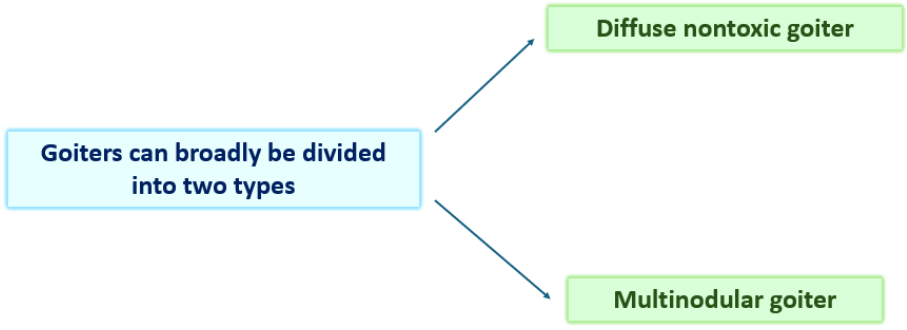
GOITRE

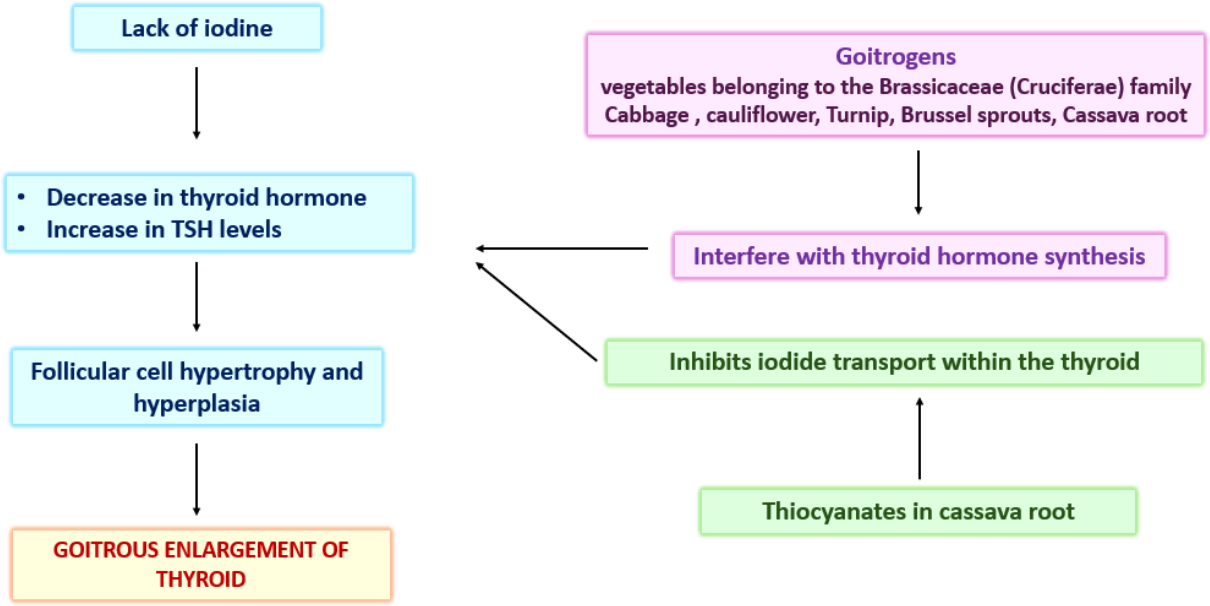
- **Most common causes of thyrotoxicosis are associated with hyperfunction of the gland and include the following**
    - **Diffuse hyperplasia of the thyroid associated with Graves disease (approximately 85% of cases)**
    - **Hyperfunctional multinodular goiter**
    - **Hyperfunctional thyroid adenoma**



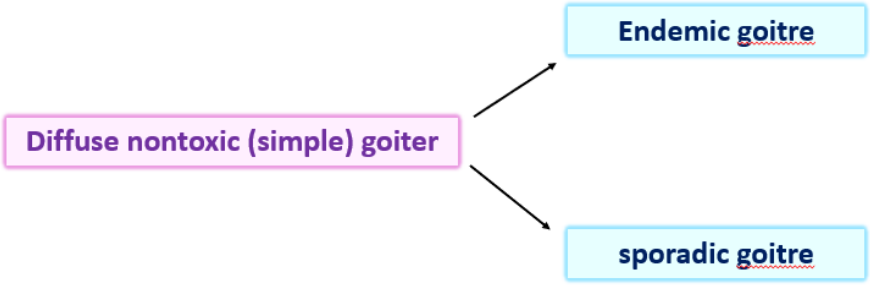
- **The degree of thyroid enlargement is proportional to the level and duration of thyroid hormone deficiency**



DIFFUSE NONTOXIC (SIMPLE) GOITER



- Diffuse nontoxic (simple) goiter causes enlargement of the entire gland without producing nodularity
- Because the enlarged follicles are filled with colloid, the term colloid goiter has been applied to this condition

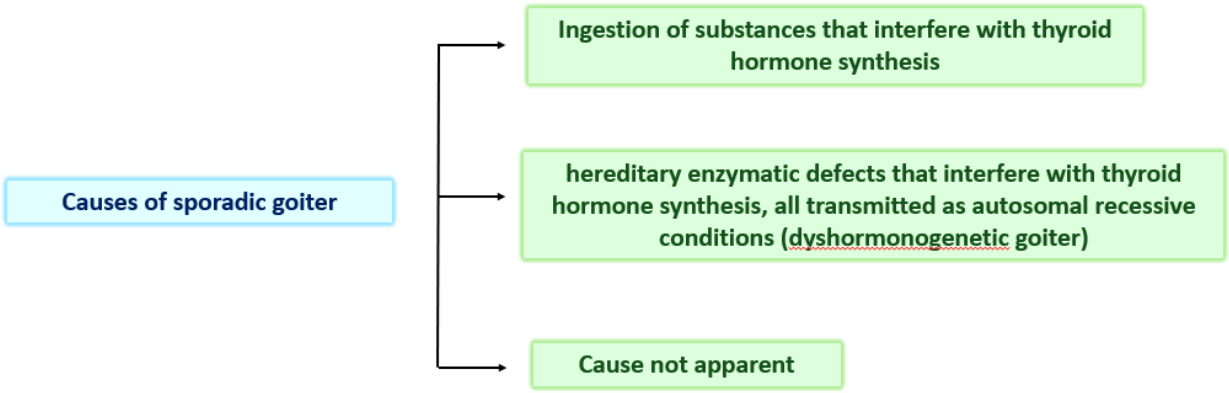


Endemic goiter

- occurs in geographic areas where the soil, water, and food supply contain low levels of iodine
- Eg in mountainous areas of the world, including the Andes and Himalayas
- The term endemic is used when goiters are present in more than 10% of the population in a given region

Sporadic goiter

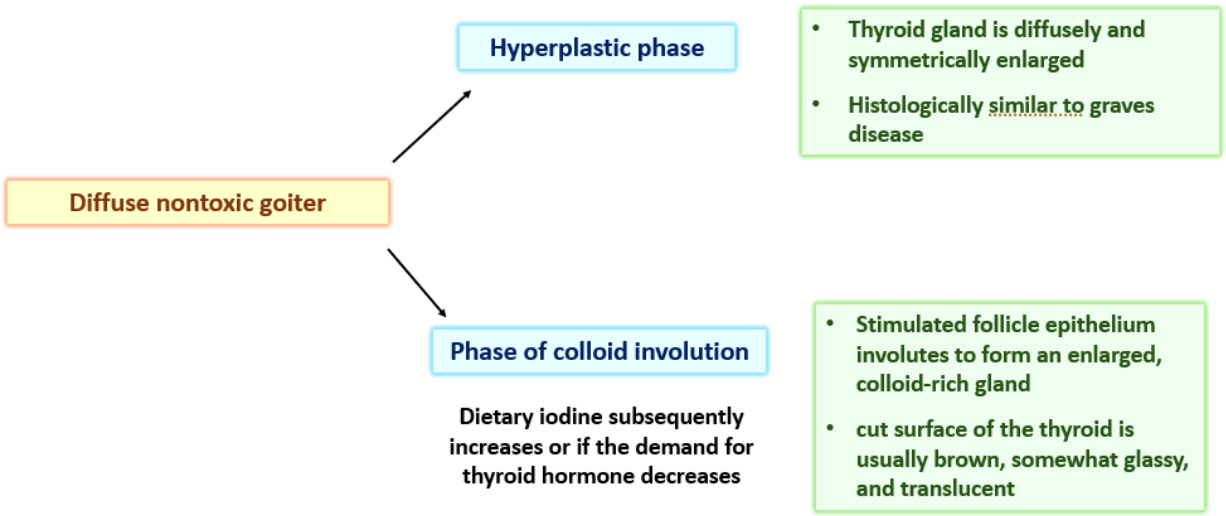
- Occurs less frequently
- Striking female preponderance and a peak incidence at puberty or in young adult life



MORPHOLOGY

Gross

- Thyroid gland is diffusely and symmetrically enlarged
- Cut surface of the thyroid is usually brown, somewhat glassy, and translucent
- Two phases can be identified in the evolution of diffuse nontoxic goiter:



Microscopy :

Hyperplastic phase

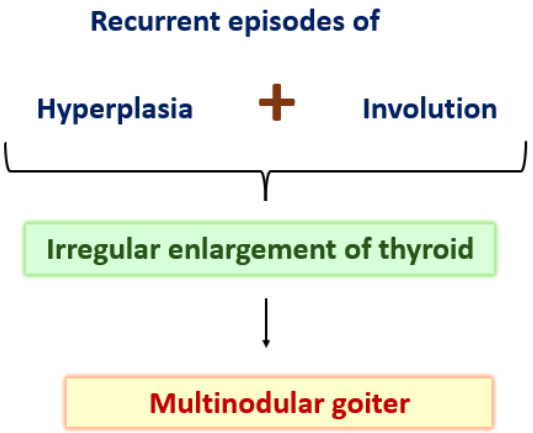
- Thyroid gland is diffusely and symmetrically enlarged

- Follicles are lined by crowded columnar cells, which may pile up and form projections

Phase of colloid involution

- Histologically the follicle epithelium is flattened and cuboidal, and colloid is abundant during periods of involution

MULTINODULAR GOITRE (THYROID FOLLICULAR NODULAR DIEASE)

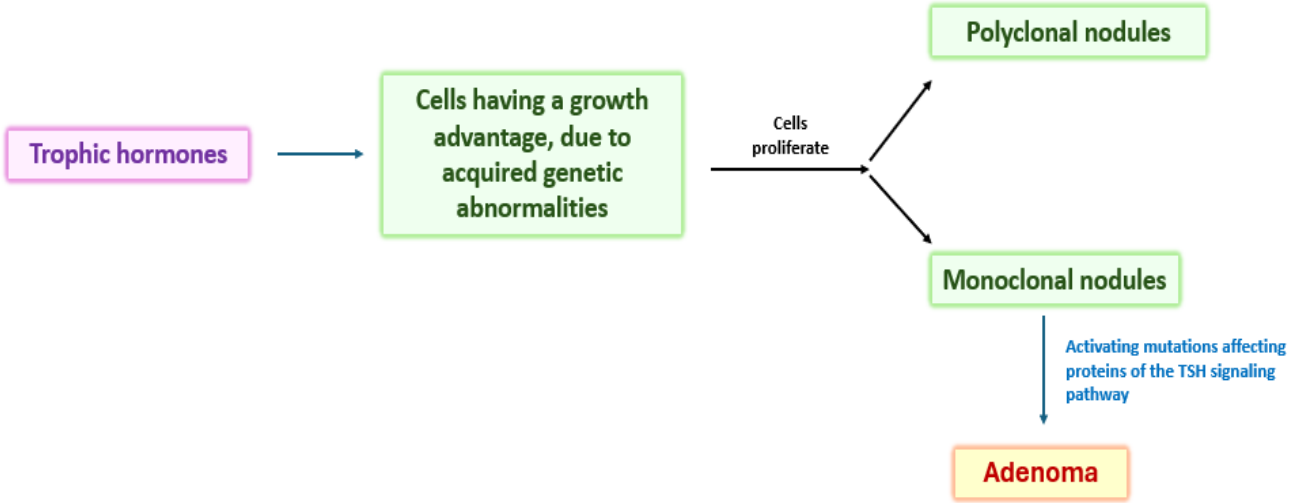


Gender - equal female-to-male distribution

Age - older individuals because they are late complications

Pathogenesis

Multinodular goitre arise because of variations among follicular cells in their response to external stimuli, such as trophic hormones



MORPHOLOGY

- **Multilobulated, asymmetrically enlarged glands that can reach weights of more than 2000 g**
- **Produces pressure on midline structures, such as the trachea and esophagus**
- **In some cases, goiter grows behind the sternum and clavicles to produce the intrathoracic or plunging goiter**
- **On cut section, irregular nodules containing variable amounts of brown, gelatinous colloid are present**
- **Older lesions have areas of hemorrhage, fibrosis, calcification, and cystic change**

Microscopy -

- **colloid-rich follicles lined by flattened, inactive epithelium and areas of follicle hyperplasia, accompanied by degenerative changes related to physical stress**
- **In contrast to follicular neoplasms, a prominent capsule between the hyperplastic nodules and residual compressed thyroid parenchyma is not present**

Clinical Features

- **Caused by mass effects - airway obstruction, dysphagia, and compression of large vessels in the neck and upper thorax (superior vena cava syndrome)**
- **Mostly euthyroid**
- **About 10% of patients over a 10-year period develop an autonomous nodule within a long-standing goiter that produces hyperthyroidism (toxic multinodular goiter), also known as Plummer syndrome**
- **Incidence of malignancy in long-standing multinodular goiters is low (<5%)**
- **Concern for malignancy arises in goiters that demonstrate sudden changes in size or symptoms (e.g., hoarseness)**

SUMMARY

GOITER