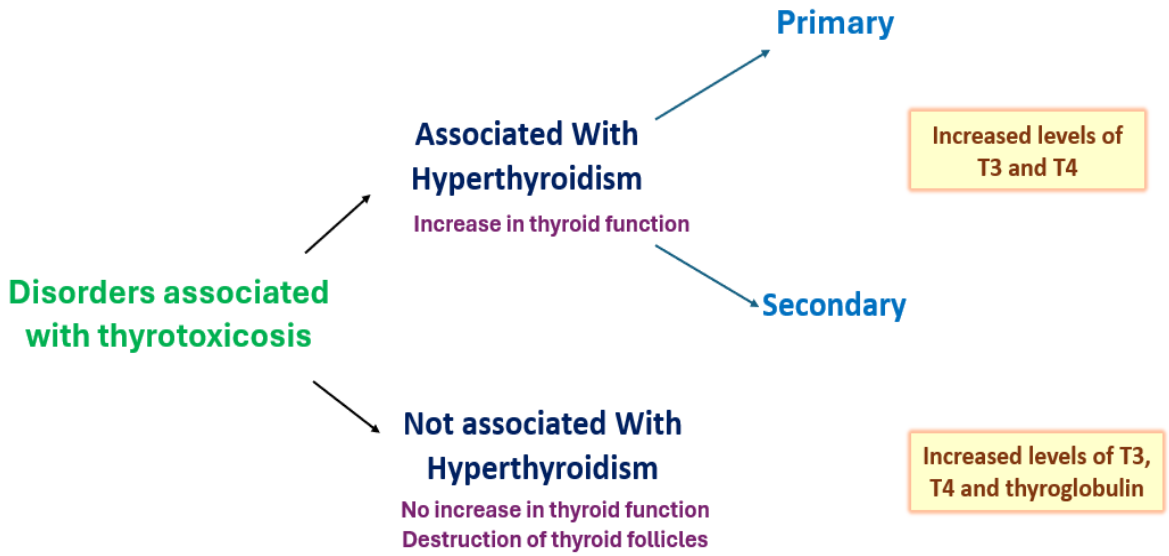
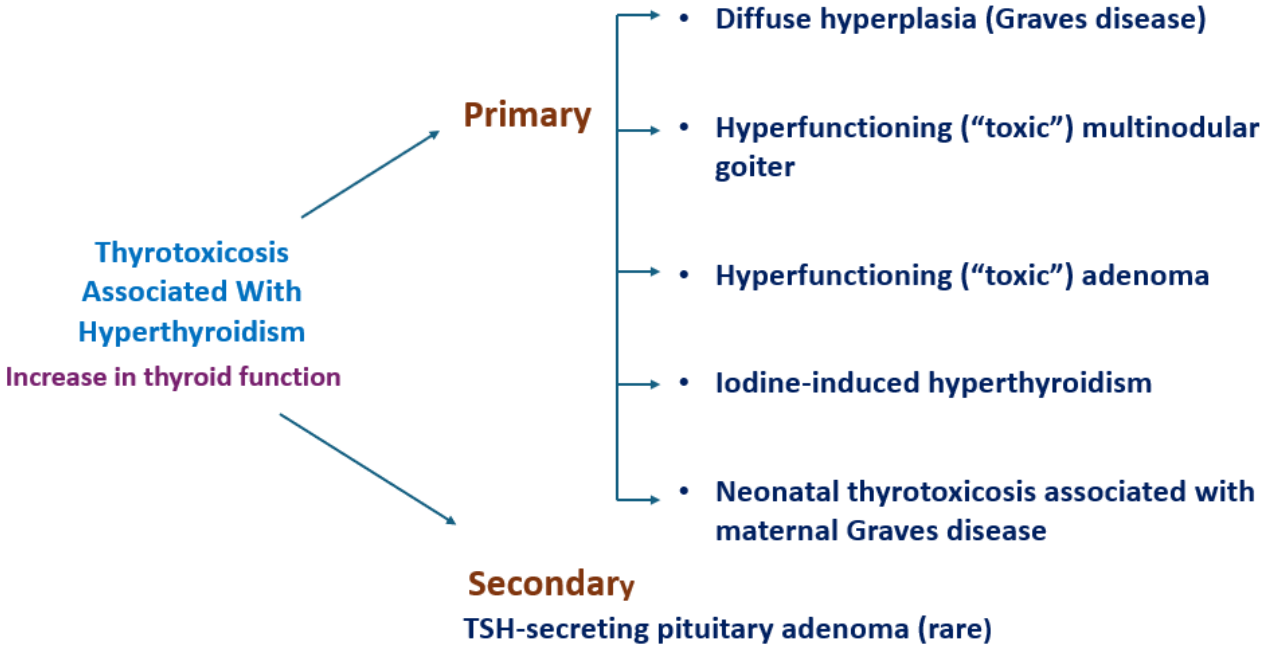
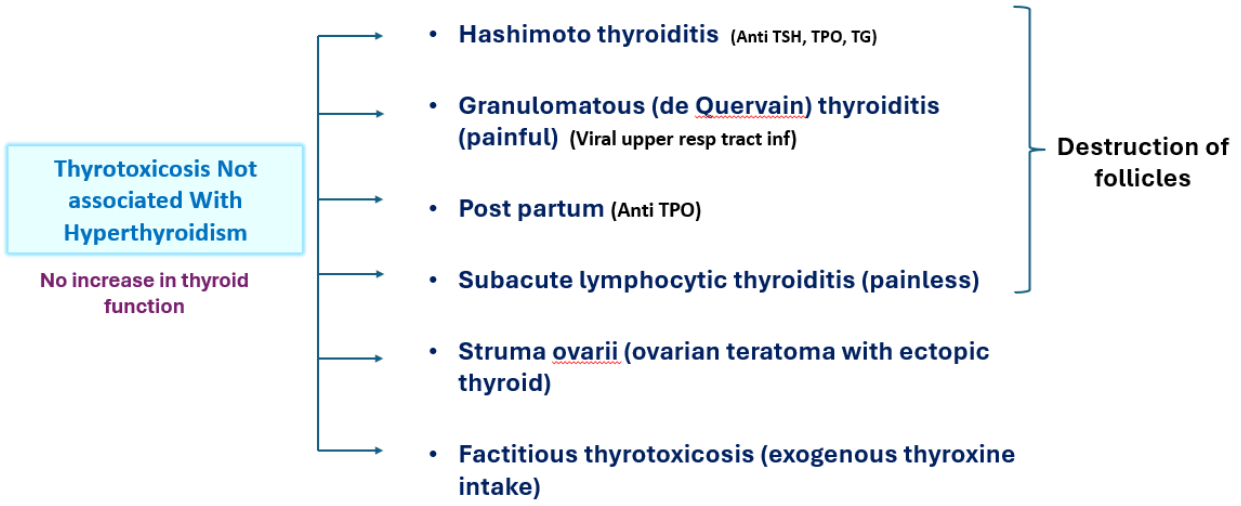
GRAVES DISEASE

- **Thyrotoxicosis is a hypermetabolic state caused by elevated circulating levels of free T3 and T4 levels**







- **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**

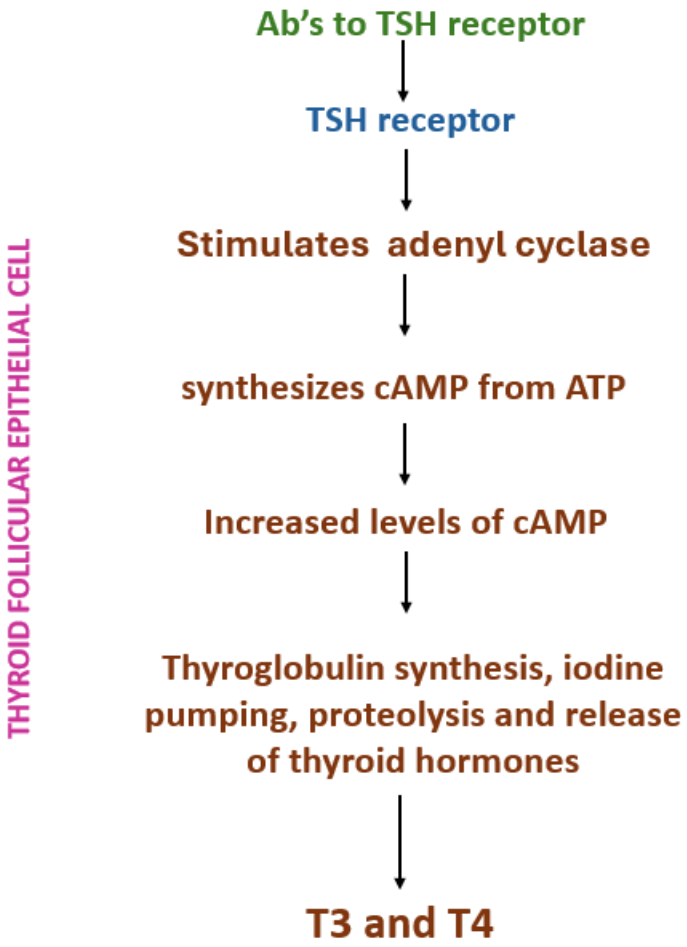
GRAVES DISEASE

- **Graves disease is the most common cause of endogenous hyperthyroidism**
- **Graves reported in 1835 his observations of a disease characterized by "violent and long continued palpitations in females" associated with enlargement of the thyroid gland**
- **Graves disease has a peak incidence between 20 and 40 years of age**
- **Women are affected as much as 10 times more frequently than men**

Pathogenesis

- **Graves disease is an autoimmune disorder characterized by the production of autoantibodies against multiple thyroid proteins, most importantly the TSH receptor**
- **Antibodies detected are Thyroid-stimulating immunoglobulin (TSI) against thyroid stimulating hormone receptor**

- **In some cases antibodies to thyroid peroxidase (TPO) and thyroglobulin (Tg) are also present**
- **Genetic susceptibility also plays role- Genetic susceptibility is associated with polymorphisms in**
    - **Immune-function genes like CTLA4, PTPN22, IL2RA, CD 40,**
    - **Variants in the TSH receptor (TSHR) gene locus**



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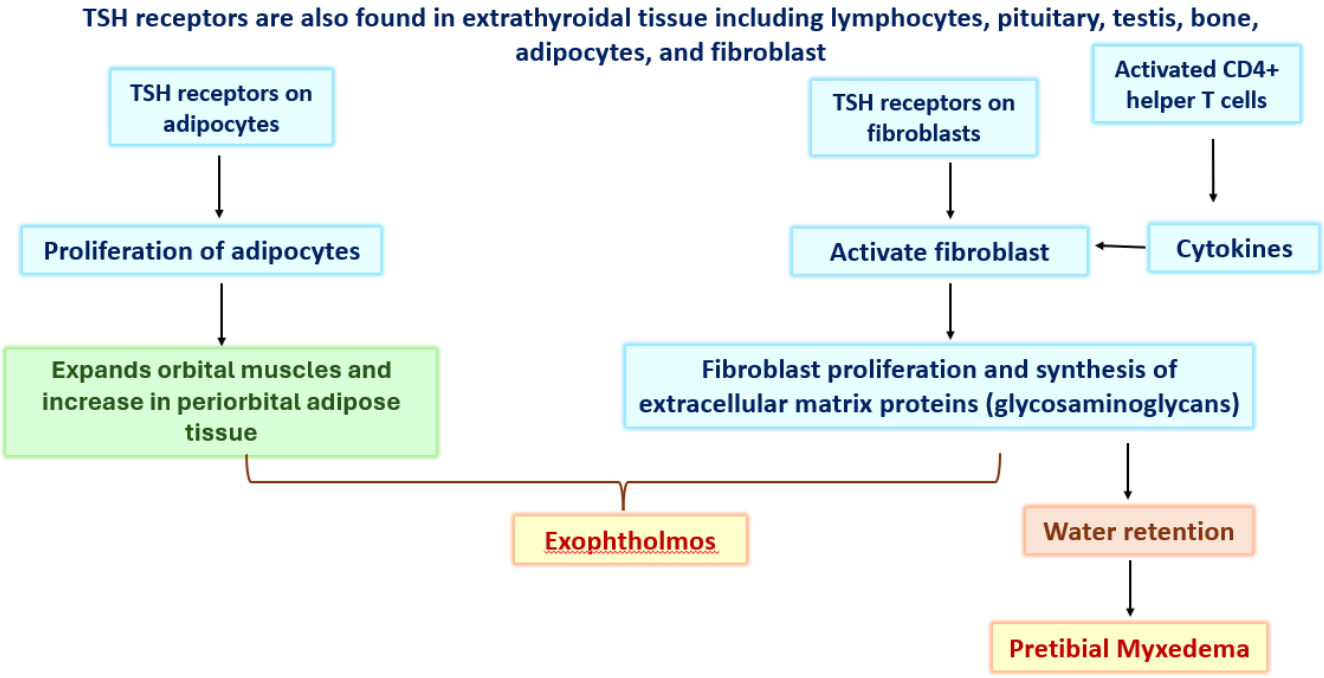

Morphology

- **The thyroid gland is usually symmetrically enlarged due to diffuse hypertrophy and hyperplasia of thyroid follicular epithelial cell**
- **On cut section, the parenchyma has a soft, meaty appearance resembling muscle**

Microscopy

- **Follicle epithelial cells are tall and more crowded than usual**
- **This crowding often results in the formation of small papillae that project into the follicle lumen and encroach on the colloid, sometimes filling the follicles Such papillae lack fibrovascular cores, in contrast to those of papillary carcinoma**
- **The colloid within the follicle lumen is pale, with scalloped margins**

- **Lymphoid infiltrates, consisting predominantly of T cells, along with scattered B cells and mature plasma cells, are present throughout the interstitium. Germinal centers are common**

Morphological changes with preoperative therapy