



HYPERTHYROIDISM

BY:

Dr. Fatima Makee AL-Hakak

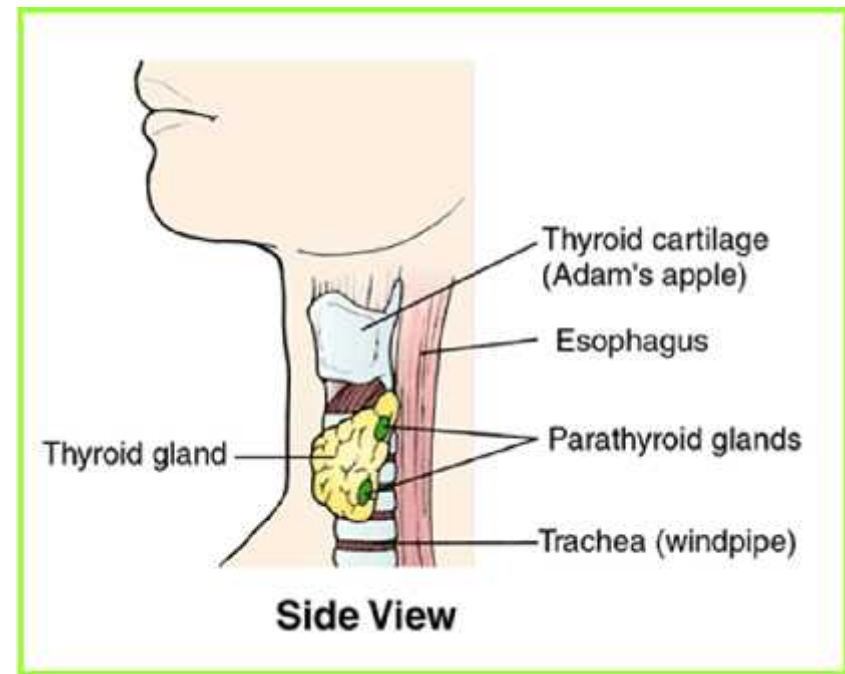
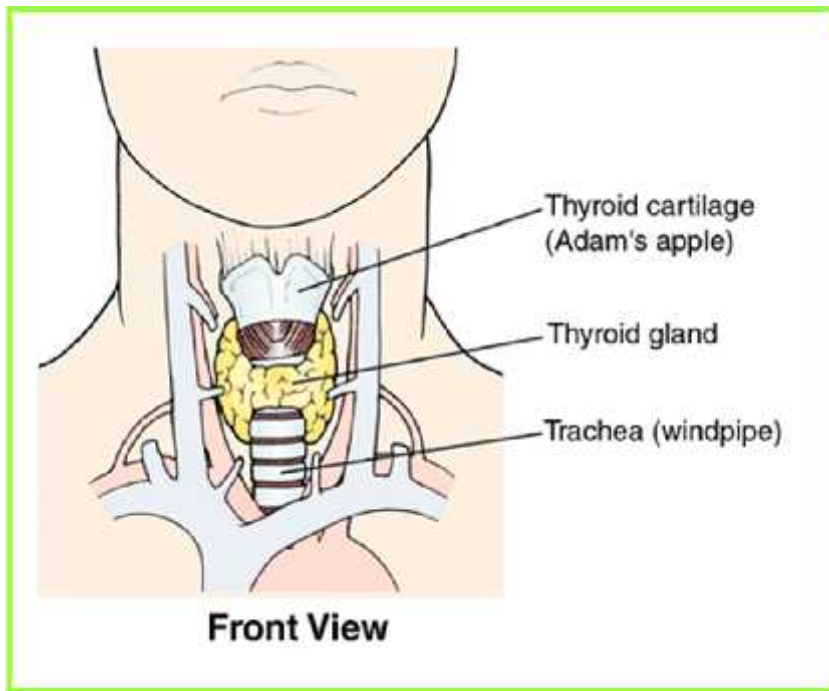
University of kerbala
College of nursing

What is the thyroid gland?

The Thyroid Gland is a butterfly-shaped endocrine gland that is normally located in the lower front of the neck. The thyroid's job is to make thyroid hormones, which are secreted into the blood and then carried to every tissue in the body. Thyroid hormone helps the body use energy, stay warm and keep the brain, heart, muscles, and other organs working as they should.

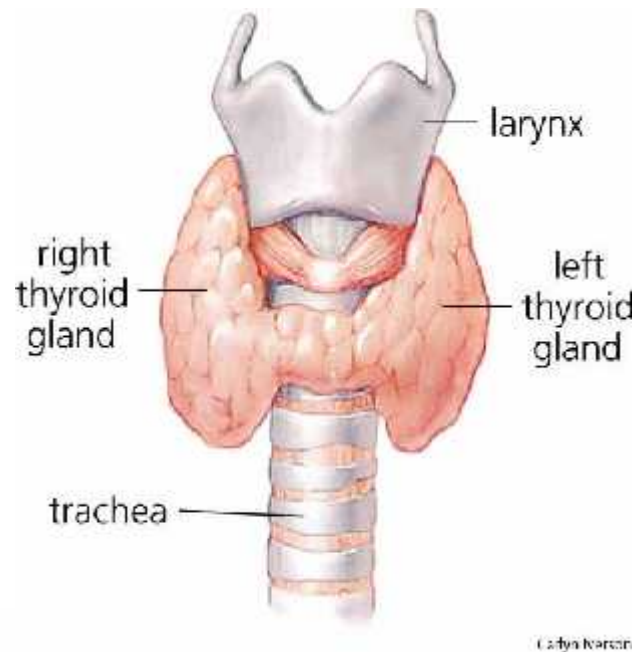


TYROID GLAND:



Thyroid Gland

Two lobes in the anterior neck on either side of the trachea inferior to the thyroid cartilage;
joined by the isthmus;
may have a pyramidal lobe (often absent or very small)



Thyroid Hormone:

The thyroid gland produces three hormones:

Thyroxine(T4)

Triiodothyronine(T3) and,

Calcitonin.

T3 and **T4** are amino acids that contain iodine molecules bound to the amino acid structure;

T4 contains four iodine atoms in each molecule, and **T3**

Three. These hormones are synthesized and stored bound to proteins in the cells of the thyroid gland until needed for release into the bloodstream.

Calcitonin, or thyrocalcitonin, is another important hormone secreted by the thyroid gland. It is secreted in response to high plasma levels of calcium, and it reduces the plasma level of calcium by increasing its deposition in bone.



Introduction

Thyroid disorders:

- Hypothyroidism
- **Hyperthyroidism and thyrotoxicosis**
 - **Graves' disease**
 - **Thyroiditis**
 - **Toxic adenoma**
 - **Toxic multinodular goitre**
 - **Thyrotoxicosis factitia**
 - **Struma ovarii**
 - **Hydatidiform mole**
 - **TSH-secreting pituitary adenoma**
- Nontoxic goitre
- Thyroid nodules & thyroid cancer
 - Benign thyroid nodules
 - Thyroid cancer
 - Papillary carcinoma
 - Follicular carcinoma
 - Medullary carcinoma
 - Anaplastic carcinoma
 - Lymphoma
 - Cancer metastatic to the thyroid



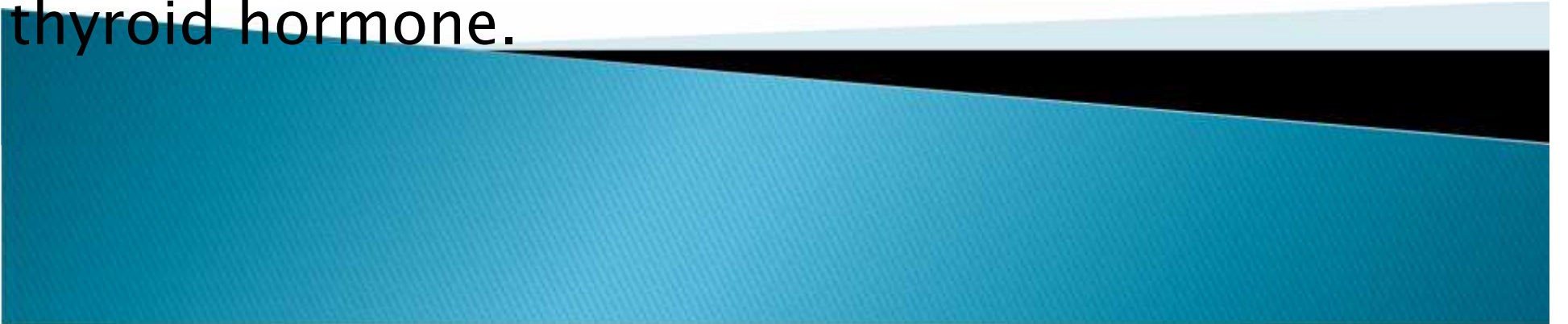
HYPERTHYROIDISM

Hyperthyroidism, a common endocrine disorder, is a form of **thyrotoxicosis** resulting from an excessive synthesis and secretion of endogenous or exogenous thyroid hormones by the thyroid.

Common causes of hyperthyroidism:

- Graves' disease,
- toxic multinodular goiter, and
- Toxic adenoma;

Other causes include: thyroiditis (inflammation of the thyroid gland) and excessive ingestion of thyroid hormone.



Graves'disease: Epidemiology

Most common cause of hyperthyroidism,

Female/Male ~8/1


Peak onset 20 –40 decade, but can occur at any age.

an Autoimmune disorder:

Results from an excessive output of thyroid hormones caused by abnormal stimulation of the thyroid gland by circulating immunoglobulins.



Common symptoms:

1. Nervousness
 2. Anxiety
 3. Increased perspiration
 4. Heat intolerance
 5. Tremor
 6. Hyperactivity
 7. Palpitations
 8. Weight loss despite increased appetite
 9. Reduction in menstrual flow or oligo-menorrhea
- 

Common signs:

1. Hyperactivity, Hyper kinesis
2. Sinus tachycardia or atrial arrhythmia, AF, CHF
3. Systolic hypertension, wide pulse pressure
4. Warm, moist, soft and smooth skin- warm handshake
5. Excessive perspiration, palmar erythema, Onycholysis
6. Lid lag and stare (sympathetic over activity)
7. Fine tremor of out stretched hands – format's sign
8. Large muscle weakness, Diarrhea, Gynecomastia



Signs and symptoms specific for Graves' hyperthyroidism:

- Graves' ophthalmopathy
- Graves' dermopathy (pretibial myxedema)
- Thyroid thrills or bruits
 - Increased thyroid blood flow causes Turbulence.



Thyroid Ophthalmopathy

Proptosis



Lid lag



Ophthalmopathy in Graves



Periorbital edema and chemosis

Ophthalmopathy in Graves



Ocular muscle palsy



Laka Laka Laka

Severe Exophthalmia



Thyroid Dermopathy



Pink and skin coloured papules, plaques on the shin

Graves' Disease - Localized Myxedema



Margins sharply demarcated

Nodularity

Thickened skin

Margins sharply demarcated



Graves with Acropathy



Graves Goiter



Acropathy

Thyroid Acropathy



Clubbing and
Osteoarthritis



Onycholysis



Grade IV Toxic MNG



Huge Toxic MNG



Huge Toxic MNG

MNG and Graves



Huge Toxic MNG

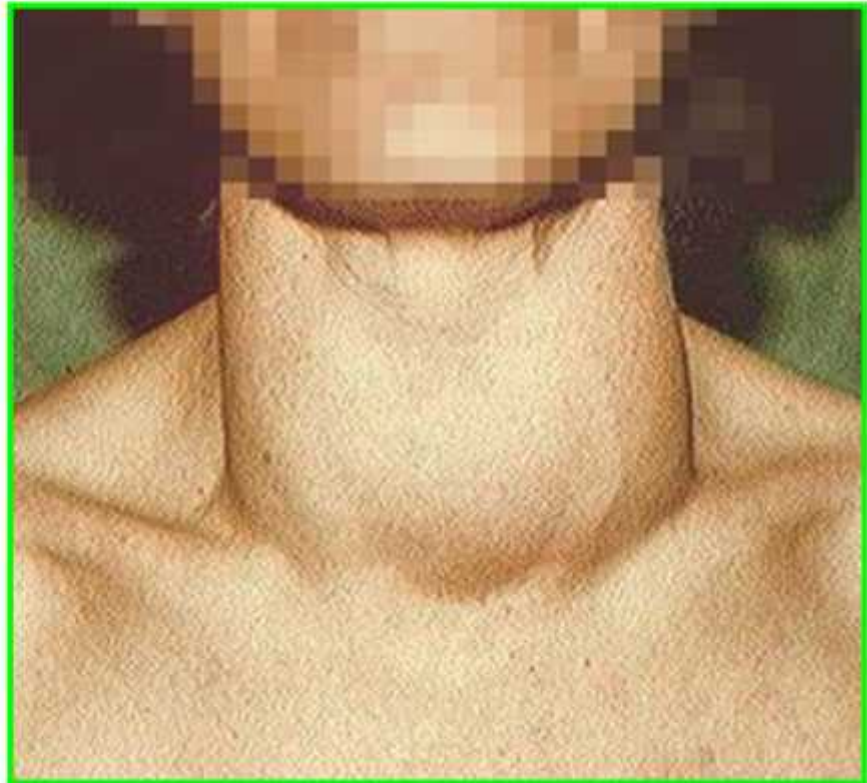


Diffuse Graves Thyroid

Higher grades of Goiter



Toxic MNG



(Diffuse) Graves

Assessment and Diagnosis

- Thyroid thrill and bruit may be present
- Thyroid may be enlarged
- Decreased TSH, increased free T4 and an increased radioactive iodine uptake



Management

- Reduce thyroid hyperactivity—usually use radioactive iodine, antithyroid meds or surgery)
- Beta blockers
- Can be relapse with antithyroid meds



Pharmacologic Therapy

- Irradiation with administration of radioisotope iodine 131—initially may cause an acute release of thyroid hormones. Should monitor for **thyroid storm**
- S/S of thyroid storm—high fever, Tachycardia, delirium, chest pain, dyspnea, palpitations, weight loss, diarrhea, abdominal pain
- Management of thyroid storm—oxygen, IV fluids with dextrose, hypothermic measures, steroids to treat shock or adrenal deficiency, iodine to decrease output of T₄, beta blockers, PTU or Tapazole impedes formation of thyroid hormone and blocks conversion of T₄ to T₃.



Antithyroid Medications

- PTU—propylthiouracil—blocks synthesis of hormones
- Tapazole (methimazole)—blocks synthesis of hormones. More toxic than PTU.
- Sodium Iodide—suppresses release of thyroid hormone
- SSKI (saturated solution of potassium chloride)— suppresses release of hormones and decreases vascularity of thyroid. Can stain teeth
- Dexamethazone—suppresses release of thyroid hormones



Surgical Management

- Reserved for special circumstances, e.g. large goiters, those who cannot take antithyroid meds, or who need rapid normalization
- Subtotal thyroidectomy
- Before surgery, give PTU until s/s of hyperthyroidism have disappeared
- Iodine may be used to decrease vascularity



Complications:

- Hemorrhage,
- Hematoma formation,
- edema of the glottis and,
- Injury to the recurrent laryngeal nerve.



Nursing care

- Reassurance r/t the emotional reactions experienced
- May need eye care if has exophthalmos
- Maintain normal body temperature
- Adequate caloric intake
- Managing potential complications such as dysrhythmias and tachycardias
- Educate about potential s/s of hypothyroidism following any antithyroid tx.



Preoperative care:

- Instructs the p.t about the importance of eating a diet high in carbohydrates and proteins.
- A high daily caloric intake because of the increased metabolic activity and rapid depletion of glycogen reserves.
- Supplementary vitamins, particularly thiamine and ascorbic acid, may be prescribed.
- The patient is reminded to avoid tea, coffee, cola, and other stimulants.
- Informs the patient about the purpose of preoperative test, if they are to be performed, and explains what preoperative preparations to expect.
- Provide good night's rest before surgery by made special efforts.
- **Preoperative education includes:**
 - Demonstrating to the patient how to support the neck with the hands after surgery to prevent stress on the incision, this involves raising the elbows and placing the hands behind the neck to provide support and reduce strain and tension on the neck muscles and the surgical incision.

Postoperative care:

Every 2 hours for 24 hours

- Assess for signs of hemorrhage
- Assess for tracheal compression
 - Irregular breathing, neck swelling, frequent swallowing, choking

Semi-Fowler's position

- Support head with pillows
- Avoid flexion of neck
- Tension on suture lines



Postoperative care:

- Monitor vitals
- Control pain
- Check for tetany
 - Muscle cramps or laryngeal stridor – treat with calcium gluconate.
 - Trousseau's and Chvostek sign should be monitored.
 - Monitor for 72 hours
- Evaluate difficulty in speaking/hoarseness
 - Some hoarseness for 3 to 4 days is expected



Ambulatory and home care

Discharge teaching

- Monitor hormone balance periodically
- Decrease caloric intake to prevent weight gain
 - Adequate iodine
- Regular exercise
- Avoid ↑environmental temperature



Think of this when comparing Hyper vs Hypo thyroidism



VS.



Hyperthyroidism

Hypothyroidism

Hyperthyroidism

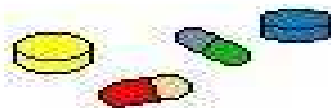
Easy to diagnose and treat -- if you think of it.



Graves'



Hot adenoma



Factitious

Rapid I⁻ replacement
Ectopic TSH
Other



Secondary



sweating

"lid lag"

"neurotic anxiety"

Fine tremor
(paper test)

strong,
rapid
pulse

wide pulse pressure

brisk reflexes

low LDL
diarrhea

weight loss despite
increased appetite

osteoporosis??
atrial fibrillation

"Depression?" "Dementia?"
Rule out "apathetic" hyperthyroidism!



Hypothyroidism

Easy to diagnose and treat -- if you think of it.

slowing of mind and body

weak heartbeat

constipation

myxedema

high LDL

slow reflexes



hair thinning

depression
"schizophrenia"
irritability

big tongue

croaky voice

dry skin

cold skin

cold intolerance



Good luck

