CHAPTER-II
Thyroid Diseases

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Aspects That Will Be Addressed

- Hyperthyroidism
- Hypothyroidism
- Thyroiditis
Hyperthyroidism
Hyperthyroidism Symptoms

- Hyperactivity/ irritability/ dysphoria
- Heat intolerance and sweating
- Palpitations
- Fatigue and weakness
- Weight loss with increase of appetite
- Diarrhoea
- Polyuria
- Oligomenorrhoea, loss of libido
Hyperthyroidism Signs

- Tachycardia (AF)
- Tremor
- Goiter
- Warm moist skin
- Proximal muscle weakness
- Lid retraction or lag
- Gynecomastia
Causes of Hyperthyroidism

Most common causes
- Graves disease
- Toxic multinodular goiter
- Autonomously functioning nodule

Rarer causes
- Thyroiditis or other causes of destruction
- Thyrotoxicosis factitia
- Iodine excess (Jod-Basedow phenomenon)
- Struma ovarii
- Secondary causes (TSH or βHCG)
Graves Disease

- Autoimmune disorder
- Ab$^a$ directed against TSH receptor with intrinsic activity. Thyroid and fibroblasts
- Responsible for 60-80% of Thyrotoxicosis
- More common in women
Graves Disease Eye Signs

N - no signs or symptoms
O – only signs (lid retraction or lag) no symptoms
S – soft tissue involvement (peri-orbital oedema)
P – proptosis (>22 mm)(Hertl’s test)
E – extra ocular muscle involvement (diplopia)
C – corneal involvement (keratitis)
S – sight loss (compression of the optic nerve)
Graves Disease Other Manifestations

- Pretibial mixoedema
- Thyroid acropachy
- Onycholysis
- Thyroid enlargement with a bruit frequently the thyroid audible over
Diagnosis of Graves Disease

- TSH ↓, free T4 ↑
- Thyroid auto antibodies
- Nuclear thyroid scintigraphy (I\textsubscript{123}, Te\textsubscript{99})
Treatment of Graves Disease

- Reduce thyroid hormone production or reduce the amount of thyroid tissue
  - Antithyroid drugs: propyl-thiouracil, carbimazole
  - Radioiodine
  - Subtotal thyroidectomy – relapse after antithyroid therapy, pregnancy, young people

- Symptomatic treatment
  - Propranolol
Hypothyroidism
Hypothyroidism Symptoms

- Tiredness and weakness
- Dry skin
- Feeling cold
- Hair loss
- Difficulty in concentrating and poor memory
- Constipation
- Weight gain with poor appetite
- Hoarse voice
- Menorrhagia, later oligo and amenorrhoea
- Paresthesias
- Impaired hearing
Hypothyroidism Signs

- Dry skin, cool extremities
- Puffy face, hands and feet
- Delayed tendon reflex relaxation
- Carpal tunnel syndrome
- Bradycardia
- Diffuse alopecia
- Serous cavity effusions
Causes of Hypothyroidism

- Autoimmune hypothyroidism (Hashimoto’s, atrophic thyroiditis)
- Iatrogenic ($I_{123}$ treatment, thyroidectomy, external irradiation of the neck)
- Drugs: iodine excess, lithium, antithyroid drugs, etc
- Iodine deficiency
- Infiltrative disorders of the thyroid: amyloidosis, sarcoidosis, haemochromatosis, scleroderma
Lab Investigations of Hypothyroidism

- TSH ↑, free T4 ↓
- Ultrasound of thyroid – little value
- Thyroid scintigraphy – little value
- Anti thyroid antibodies – anti-TPO
- S-CK ↑, s-Chol ↑, s-Trigliseride
Treatment of Hypothyroidism

- Levothyroxine
  - If no residual thyroid function 1.5 μg/kg/day
  - Patients under age 60, without cardiac disease can be started on 50 – 100 μg/day. Dose adjusted according to TSH levels
  - In elderly especially those with CAD the starting dose should be much less (12.5 – 25 μg/day)
Thyroiditis
Thyroiditis

- Acute: rare and due to suppurative infection of the thyroid
- Sub acute: also termed de Quervains thyroiditis/ granulomatous thyroiditis – mostly viral origin
- Chronic thyroiditis: mostly autoimmune (Hashimoto’s)
Acute Thyroiditis

- Bacterial – Staph, Strep
- Fungal – Aspergillus, Candida, Histoplasma, Pneumocystis
- Radiation thyroiditis
- Amiodarone (acute/sub acute)

Painful thyroid, ESR usually elevated, thyroid function normal
Sub Acute Thyroiditis

**Viral** (granulomatous) – Mumps, coxsackie, influenza, adeno and echoviruses

 Mostly affects middle aged women, Three phases, painful enlarged thyroid, usually complete resolution

Rx: NSAIDS and glucocorticoids if necessary
Sub Acute Thyroiditis (cont)

**Silent thyroiditis**

No tenderness of thyroid

Occur mostly 3 – 6 months after pregnancy

3 phases: hyper⇒hypo⇒resolution, last 12 to 20 weeks

ESR normal, TPO Ab$^s$ present

Usually no treatment necessary
Clinical Course of Sub Acute Thyroiditis

![Graph showing clinical phases of sub acute thyroiditis with measures like thyroid pain, serum thyroxine, PBI levels, thyroid I^1^3^1^ uptake, and serum TSH levels.](image)
Chronic Thyroiditis

Hashimoto’s

- Autoimmune
- Initially goiter later very little thyroid tissue
- Rarely associated with pain
- Insidious onset and progression
- TPO ab\(^s\) present (90 – 95%)
Chronic Thyroiditis

Reidel’s
- Rare
- Middle aged women
- Insidious painless
- Symptoms due to compression
- Dense fibrosis develop
- Usually no thyroid function impairment
Thyroiditis

- The most common form of thyroiditis is Hashimoto thyroiditis, this is also the most common cause of long term hypothyroidism.

- The outcome of all other types of thyroiditis is good with eventual return to normal thyroid function.
THANK YOU