Clinical examination of Thyroid
Inspection

• Routine
• Pizzilolo’s Method
Palpation

- Crile’s Method: Standard method of examination from Behind
- Lahey’s Method: useful for small nodules
Thyroid examination
Special test

• Kochar’s Test
• Beri’s Sign
• Pemberton’s Sign
Clinical Goitre

• Goiter is any swelling of Thyroid
• Clinically two types of goiter
• Diffuse or Nodular
• Involving one lobe or both the lobes
• If nodular
  – Solitary thyroid nodule
  – Multi nodular
Thyroid function status

- All clinical types of conditions, whether diffuse or nodular, solitary thyroid nodule or multinodular goiter, whether benign or malignant, inflammatory can exist functionally as:
  - Euthyroid
  - Hyperthyroid
  - Hypothyroid
ENDEMIC CRETINISM

- Intra uterine source of iodine
- 1st TRIMESTER: MATERNAL T 4
- 2nd TRIMESTER: DIETERY IODINE
- Thyroxin is essential for neurological development.
- Deficiency will lead to
- Impairment of Neurological development

NEUROGENIC FORM OF CRETINISM

Mental retardation, Spastic gait
Hearing defect, Stunted growth

NEURO-CRETINISM IS NOT CURABLE BUT ENTIRELY PREVENTABLE
Aetiology of simple Goiter

- Iodine Deficiency
  - Absolute
  - Relative: physiological
- Defect in synthesis of thyroid hormone.
  - Enzyme deficiency
  - Goitrogens
Iodine Deficiency

- Daily requirement 100-125 mg
- Relative: physiological
- Absolute
  - Endemic - Geochemical deficiency
- Sporoidic
- Calcium. Chalk and stone areas
- Increase calcium content in water
- Abnormal intake of fluorine
- E.Coli position of water
Defect in synthesis of thyroid hormone.

• Enzyme deficiency
  Responsible for sporiodic cases in non endemic areas
  – Pendred syndrome – Peroxidase deficiency
  – Dehalogenase deficiency

• Goitrogens
GOITROGENS

• GROUP I:
  • Cynides and Cynates
  • Competitive inhibition of Iodine
  • Reversible with large intake of Iodine

GROUP II
  • Sulphur containing drugs
  • sulfonamides and thiourea

NONCOMPETITIVE INHIBITION OF IODINE
Action prevented by Thyroxin not by Iodine
Goitrogen may aggravate environmental iodine deficiency

- Zaire Lake Kiwu and Island of Idjiwi
- Staple food is Casava
- Cyno-glucoside $\rightarrow$ Thiocynate
- Western sudan
- Staple food Millet
- Goiter only in Rural area
Natural history of Simple goiter

- Stage of Simple parenchymatous Goiter
- Stage of Diffuse Colloid Goiter
- Stage of Multi nodular goiter
- Stage of Complications
Aetiology of multi nodular goiter

Circulating T4 Low → TSH High → New Follicles

Simple Parenchymatous Goiter

Active Follicles → Inactive Follicles → T4, T3 High, TSH Low → Fluctuating TSH → Abnormal Hyperplasia Involution Cycles

Excess T4T3 → Diffuse colloid Goiter Constipation Goitre

Focal Thrombosis → Necrotic Follicles → Scarring → Periacinar Fibrosis → Rupture Of Follicles → Multi Nodular Goiter
Stage of Complications

- Cystic generation
- Hemorrhage in Cyst
- Toxic Change
- Malignant change
- Tracheomalacia
- Pressure symptoms
  - Dysphagia
  - Dyspnoea
  - Hoarseness of voice
  - dysphonia
IODINE DEFICIENCY GOITER
Clinical presentation

1. Asymptomatic: silent
2. Solitary thyroid nodule: Dominant palpable Nodule nodule in otherwise normal parenchyma
3. Goiter: Enlarged Thyroid Gland with multiple Nodules
4. Pressure symptoms:
   - Dysphagia, dyspnoea, strider
   - Husky Voice
   - Complications: cystic generation: large size gland
   - Hemorrhage in the cyst: sudden increase in size of swelling
   - Additional features of Thyrotoxicosis, malignancy
MULTI NODULAR GOITRE
SIGNs of MNG

1. Goiter of various sizes depending upon stage and duration of pathology
2. Solitary nodule in thyroid
3. Goiter with multiple nodules
4. Pressure symptoms Kochar's Test
5. See for retrosternal Extension
Investigations

Thyroid function test to declare

- Euthyroid State: T3, T4, and TSH levels Serum Cholesterol and Serum Creatinine
- X ray Neck - Calcification of nodules
- X ray Chest – Mediastanal widening
- ENT examination For Recurrent Laryngeal Nerve Palsy
- I 131 scintiscan in case of solitary nodule or suspicion of malignancy
- USG to find out nodule single or Multiple
- Investigation to rule out retrosternal / intrathoracic extension/
Management

1. Iodine Orally: Lugols Iodine or Crooks Collassol Iodine
2. Thyroxin or Thyroid Extract
3. Surgical Exploration and sub total thyroidectomy
Indication for surgery

1. Multinodular Goiter: cystic degeneration. Hemorrhage in the cyst, sudden increase in the size in ant compartment of neck leading to acute respiratory obstruction

2. Suspicion of malignancy

3. Pressure symptoms

4. Cosmetic reasons

5. Substernal extension
Endemic Goitre

- If the incidence of goitre is > 10% in a defined geographic area
- Iodine excretion in urine < 100 mg /day
- Normal thyroid volume on USG
  - Male : 12.7 + 4.4 ml
  - Female : 8.7 + 3.9 ml
W.H.O. Grading system

- **State 0**: No goiter
- **Stage IA**: Goiter delectable only by palpation and not visible even on full extension of neck
- **Stage IB**: Palpable and visible
- **Stage II**: Visible with neck in normal position
- **Stage III**: Very large goiters recognized at a considerable distance.