Investigations of Esophagus

(1) Barium Swallow / Upper GI Radiography:
- Non invasive X-ray of Esophagus, stomach & Duodenum.
- Using Barium Ingested as Contrast.

(2) Upper Endoscopy:
- Minimal Invasive procedure.
- Flexible tube with camera to see Esophagus, stomach, duodenum.
-

(3) Esophageal manometry:
- 24 hrs PH monitoring
- A catheter with sensitive pressure through nose.
- Diagnose Functional disorders.
  (1) Measuring the strength of peristaltic contractions.
  (2) Pressure at Upper and Lower Esophageal sphincter
  (3) PH monitoring.
- 2 Types - Classical - ∧— ∧~ ∧~
  - High Resolution manometry → with colour code.

Gastro-Esophageal Reflux Disease (GERD)

- Reflux of gastric acid contents into the esophagus
- It is not a disease, until it causes symptoms like heartburn or histopathological changes in Oesophagus.

Lower Esophageal Sphincter (Pathophysiology)

- Closes between the meals to prevent acid reflux
- Resting pressure is usually 15-45 mm of Hg.
  When becomes less than 15
  ↓
  Gastric Acid reaches Esophagus → pH ↓ from 7 to 4
  ↓
  Esophageal lesions ← Acid reflux.

Cause and pathophysiology (Etiopathology)

From above downwards.

1) Dietary Factors:
   → Dietary Fat, chocolate, Tea, coffee relax LES for a long time but vary from person to person.
2) Defective oesophageal clearance
   → Cockscrew oesophagus (Diffuse Esophageal spasm)
   → Disordered peristalsis causing multiple contractions
   → Due to primary or secondary to oesophagitis or Carcinoma.
   → Lower esophageal sphincter is normal
   → Poor clearance leads to prolonged acid exposure.

→ Barium Swallow - Irregular peristalsis (Cockscrew appearance)
Endoscopy → Rule out Carcinoma.
Esophageal manometry → Gold standard.

3) Hiatus Hernia

- More common in obese females.
- Two types — i) Sliding → Esophagogastric junction
  ii) Paraesophageal → Fundus of stomach pass alongside esophagus
- Usually asymptomatic but always associating with esophagitis, Barrett's Esophagus, peptic stricture.

4) Barium Enema, Endoscopy, Manometry:

- It causes loss in the pressure gradient
- Volvulus may occur.

4) Abnormality of lower Esophageal sphincter:

→ Reduced LES tone causing relaxation when intra abdominal pressure increases.

→ Inappropriate relaxation of sphincter.

5) Gastric Contents

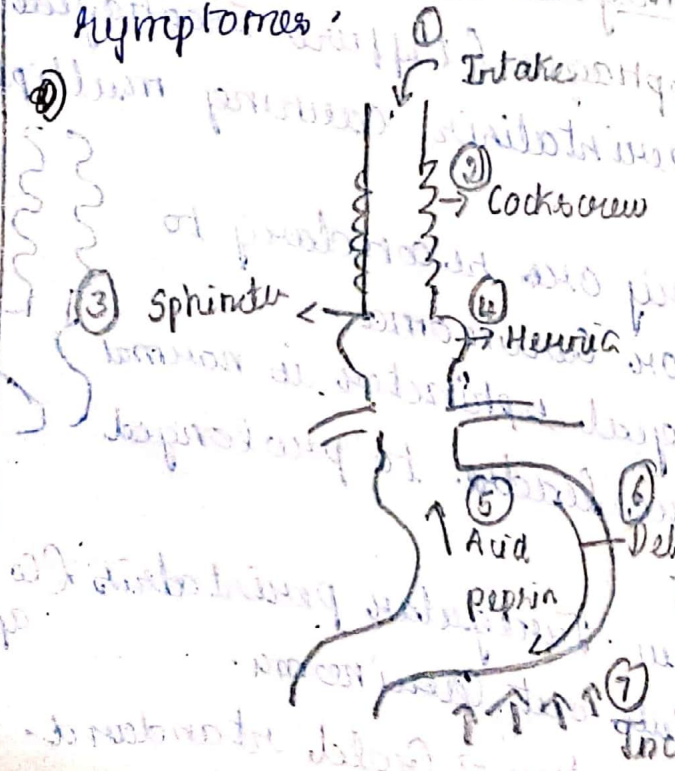
→ Causes irritant by Gastric acid, pepsin, bile.

6) Defective gastric emptying is usually seen.

7) Increased abdominal pressure.

Pregnancy, obesity., weight loss decreases the symptoms.

4)



Clinical Features

1. Heartburn and Regurgitation.
2. Retrosternal chest pain should be differentiated by Angina.
3. Waterbrash which is due to stimulation of salivary gland by acid enter the mouth.
4. Persistent Cough, chest infection.
5. Laryngitis, Voice changes.
6. Nocturnal asthma.
7. Halitosis, Dental erosions.
8. Dysphagia and odynophagia.

Complication:

- Signs and symptom may seem like Esophageal cancer.
  - → Unintended Weight loss.
  - → Iron Deficiency anemia
  - → Anorexia
  - → odynophagia
  - → Upper Gastrointestinal bleeding.

1. **Reflux Esophagitis:**
   - Most common complication.
   - Upper Endoscopy shows signs of erosion and small ulcers.
   - Los Angeles system is used to grade I to IV from mild to severe.
2. **Peptic stricture (Benign)**
   - → Esophageal erosions & Ulcer Heal → Fibrosis
   - → Narrowing of lumen
   - → Dysphagia < Solid, meat >, liquid.
   - → Chew food thoroughly to stop blockage,
   - → Endoscopic baloon dilatation is used.

3) Barrett's Esophagus

→ Pre malignant condition.
→ Metaplasia of stratified squamous epithelium by columnar epithelium of the distal oesophagus which is found in intestine.

Risk Factors

→ Male sex, 50 years, White race, Obesity, Tobacco use, Having Hiatus Hernia, Having a 1st Degree relative of Oesophageal cancer.

Investigation:

- Endoscopy → change in the epithelium at least 1cm above the GE Junction.
- Biopsy → Abnormally shaped cells with Goblet cells.

4) Anemia: → Iron deficiency
→ Due to Oesophagitis, Hiatus Hernia.

Investigation:

① Esophageal manometry → Effect of peristalsis contraction and Sphincter pressure.
↳ Achlasia, Cockscrew Esophagus

② 24 hrs pH Monitoring.
↳ How many times pH < 4, Number of episodes, How long the longest refluxe

③ Endoscopy for biopsy and diagnosis.

Treatment: & Management.

- Weight loosing in obese, Eating before 2hrs of bed.
→ Rising the head of 6 inches in bed.
→ Not taking the food increasing Gastric juice Secretion.
→ Avoid Tea, coffee, citrus fruit, spices, canned food, tobacco.

Achalasia Cardia (Cardiospasm)

- Failure in the relaxation of lower esophageal sphincter causing the food not to reach down.

Causes:

- Unknown Usually.
→ Degeneration of Auerbach's plexus and vagal fibres after HSV latent on brainstem nuclei.
→ Chagas disease.

Clinical Features

→ Dysphagia, usually solids and also liquids
→ At the end of meal the patient exerts pressure (standing or moving) after a meal which makes the food to pass down with a gurgling sound.
→ Food collected in oesophagus causes fermentation.
→ Recurrent respiratory infection are common.
→ Squamous cell carcinoma is more common
→ Vigorous contraction of oesophagus causes chest pain. (Vigorous achalasia)
→ Patient may lose weight. No heartburn.

Investigation:

→ Barium Meal → Bird Beak appearance.
→ Manometry → Gold standard. High pressure in LES, and absence of contraction.

Management:

→ Endoscopy → Forceful pneumatic dilation, Injection of Botulinum toxin.