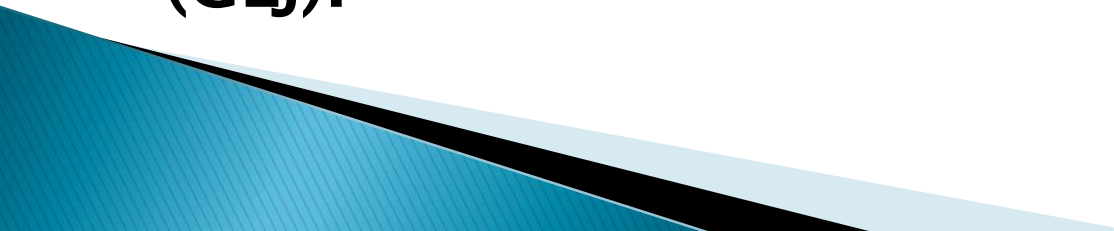


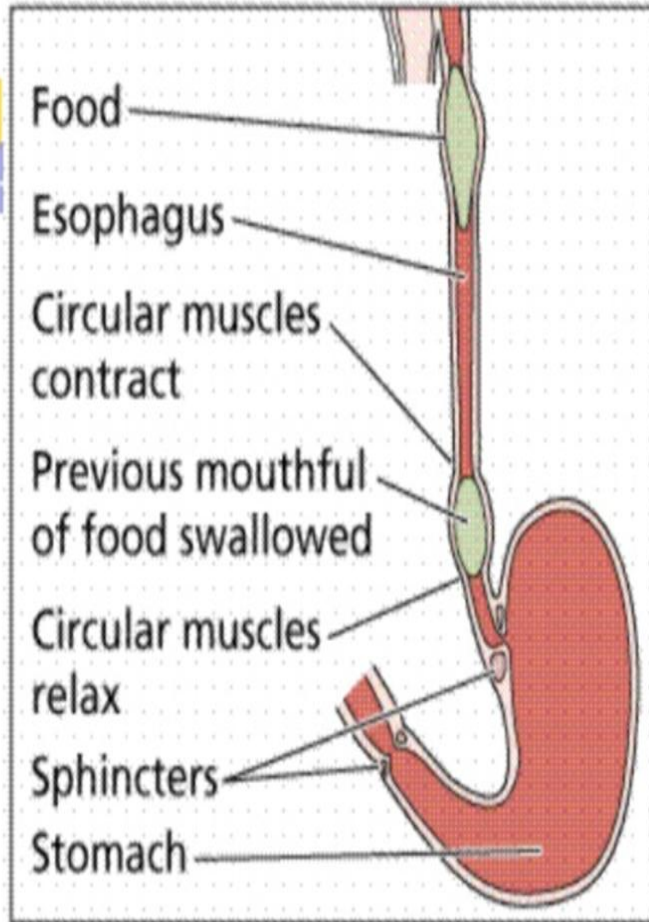
ACHALASIA

Dr : Ali Hussein Mohammed ,MD
Lecturer Of Internal Medicine &
Gastroenterology

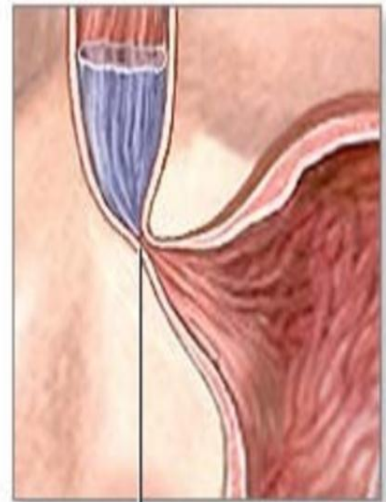
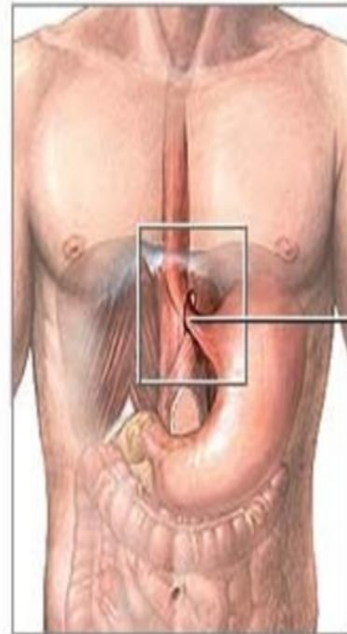
Def.:

- ▶ Achalasia is a primary esophageal motility disorder characterized by the absence of esophageal peristalsis and impaired relaxation of the lower esophageal sphincter (LES) in response to swallowing.
 - ▶ These abnormalities cause a functional obstruction at the gastro esophageal junction (GEJ).
- 

Peristalsis



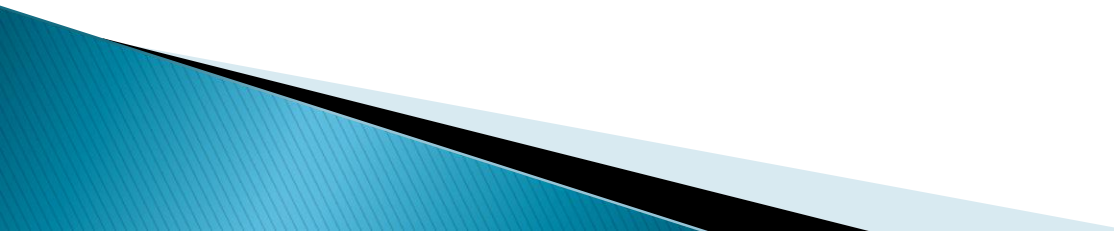
Lower esophageal sphincter fails to relax



Lower esophageal sphincter

Pathophysiology

- ▶ LES pressure and relaxation are regulated by **excitatory** (eg, acetylcholine, substance P) and **inhibitory** (eg, nitric oxide, vasoactive intestinal peptide) neurotransmitters.
- ▶ Persons with achalasia; lack nonadrenergic, noncholinergic, inhibitory ganglion cells, causing an **imbalance** in excitatory and inhibitory neurotransmission (myenteric plexus).
- ▶ The result is a hypertensive nonrelaxed esophageal sphincter.
- ▶ Aetiology : unknown (autoimmune , viral , degenerative)

- ▶ The male-to-female ratio of achalasia is 1:1.
 - ▶ Achalasia typically occurs in adults aged 25–60 years.
 - ▶ Less than 5% of cases occur in children.
- 

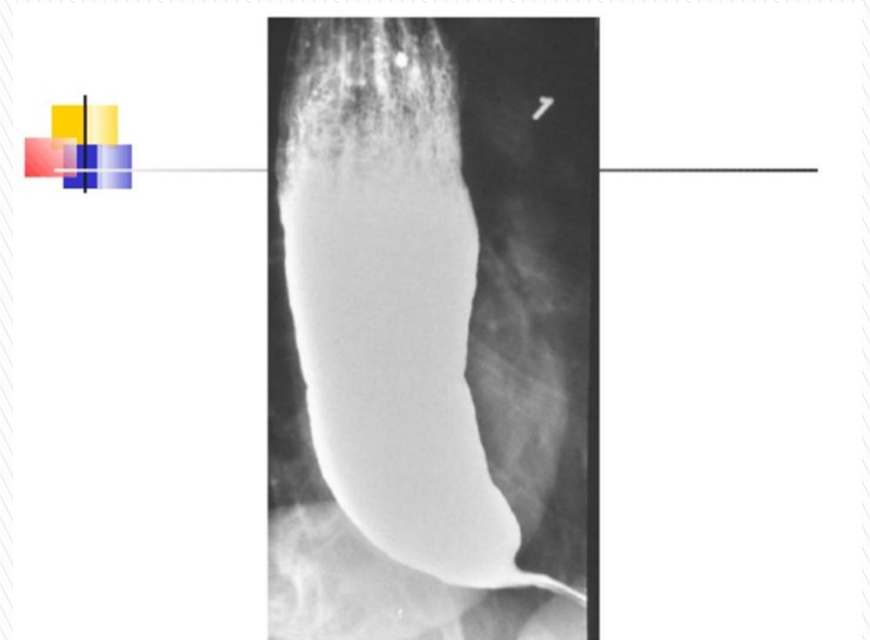
Clinical picture :

- ▶ Achalasia is characterized by the following symptoms and signs :
 - ❑ **Dysphagia** (most common)
 - ❑ **Regurgitation** (undigested food)
 - ❑ **Chest pain** (retrosternal)
 - ❑ **Heartburn.**
 - ❑ **Weight loss.**
 - ❑ **Nocturnal cough** , inhalation of refluxed content >> pneumonia .

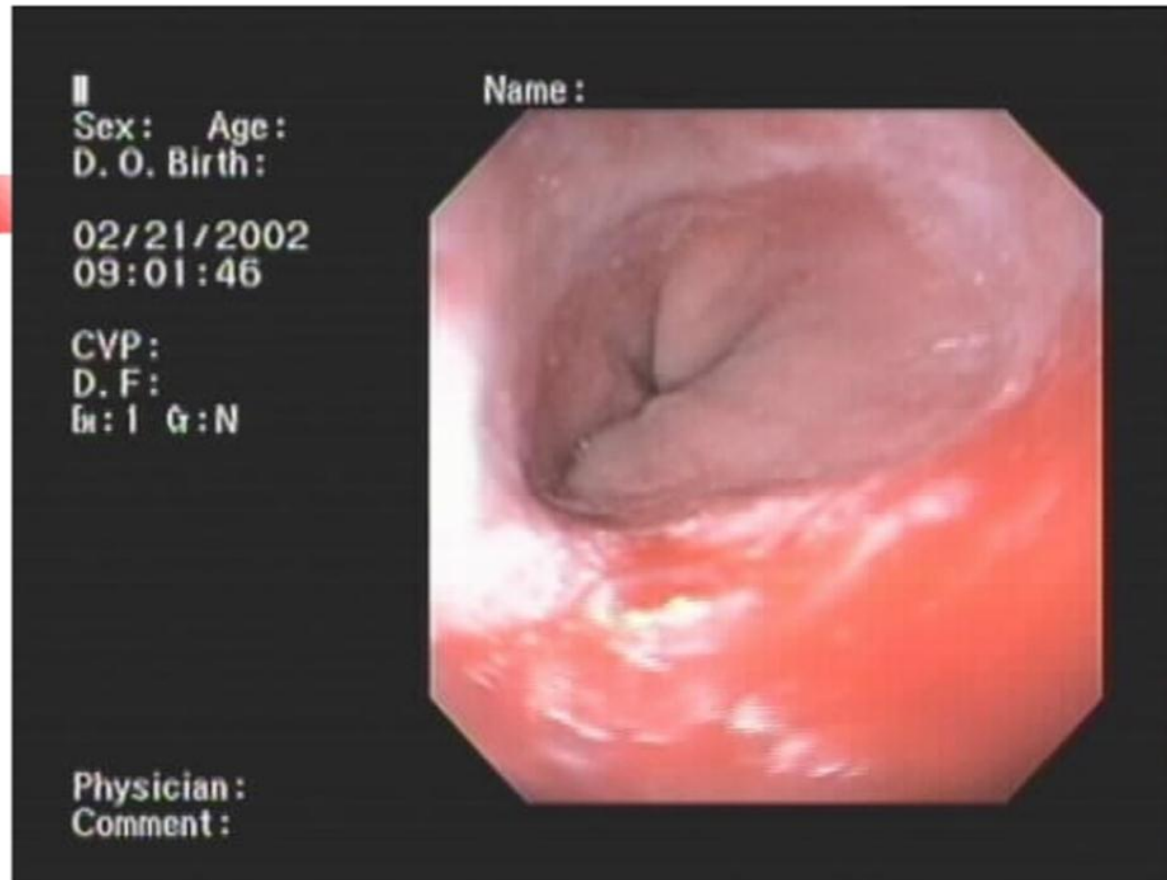
Investigations:

- ❑ Chest x ray : dilated esophagus , air fluid level in distal part.
- ❑ Barium swallow:(dilated esophagus ,bird beak appearance)
- ❑ Esophagogastroduodenoscopy (EGD), to exclude malignancy .(pseudo achalasia).
- ❑ CT scan : exclude distal esophageal cancer.
- ❑ Esophageal Manometry.
 - ▶ Incomplete relaxation of the LES in response to swallowing.
 - ▶ High resting LES pressure.
 - ▶ Absent esophageal peristalsis.

Barium swallow ,bird beak appearance

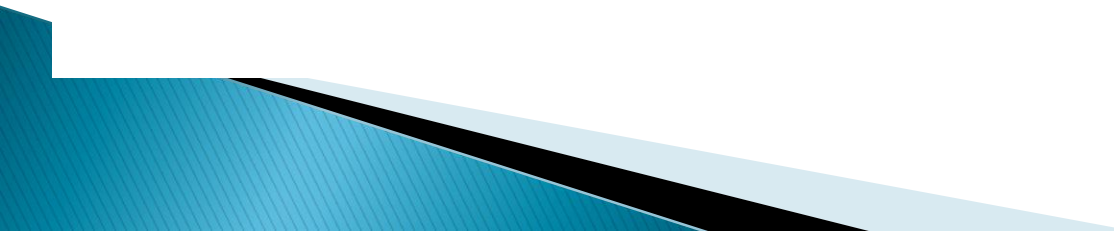


Endoscopic picture, achalasia.





COMPLICATIONS OF ACHALASIA

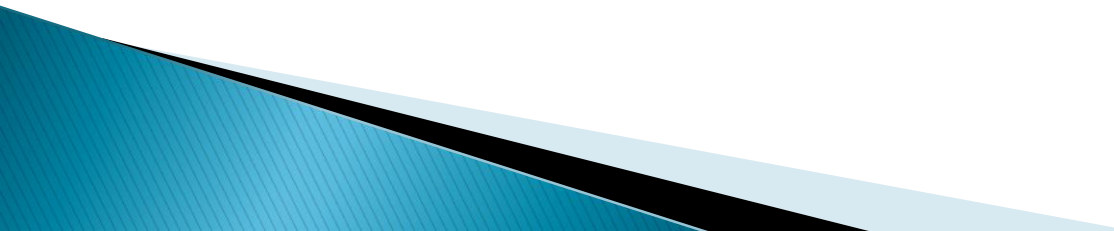
- WEIGHT LOSS.
 - MALNUTRITION.
 - BREATHLESNESS.
 - PNEUMONIA.
 - CARCINOMA.
- 



TREATMENT

- THERE ARE FOUR TREATMENT OPTIONS;
 1. PHARMACOLOGICAL.
 2. FORCEFUL DILATATION.
 3. BOTULINUM TOXIN.
 4. OESOPHAGEAL MYOTOMY.

PHARMACOLOGICAL :

- ▶ The goal of therapy for achalasia is to relieve symptoms by eliminating the outflow resistance caused by the hypertensive and non relaxing LES.
 - ▶ Once the obstruction is relieved, the food bolus can travel through the aperistaltic body of the esophagus by gravity.
 - ▶ This line is used primarily in elderly patients who have contraindications to either pneumatic dilatation or surgery.
- 



PHARMACOLOGICAL TX

- CALCIUM CHANNEL BLOCKERS LIKE NIFEDIPINE AND NITRATES LIKE ISOSORBIDE DINITRATE;
- AS CALCIUM IONS ARE RESPONSIBLE FOR ACTIVITY OF MYOFIBRILS AND TENSION GENERATION.
- C.C.B ACT BY DECREASING CALCIUM ENTRY AND REDUCING THE PRESSURE IN LOWER ESOPHAGEAL SPHINCTER.
- THESE BRING ONLY SHORT TERM RELIEF.
- SIDE EFFECTS ARE LOW BLOOD PRESSRE AND HEADACHE.



FORCEFUL DILATATION

- IT IS THE TREATMENT OF CHOICE IN ADULTS.

- PROCEDURE

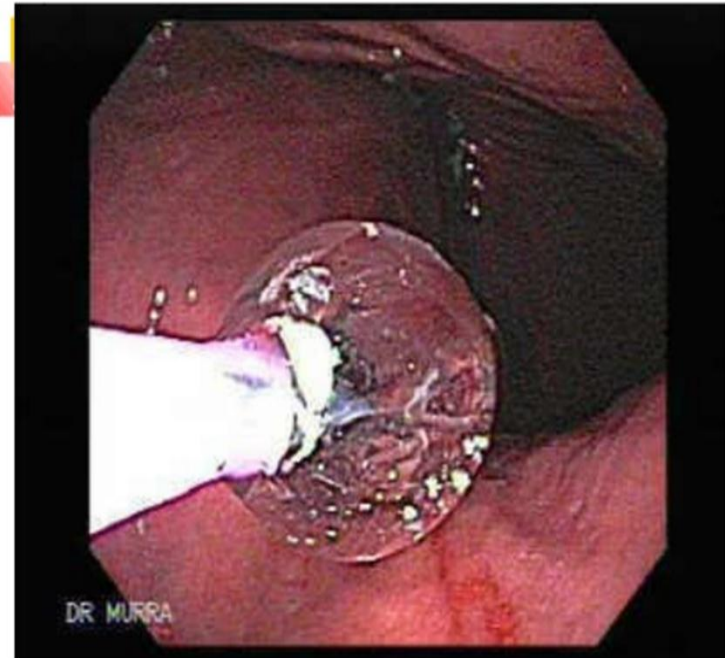
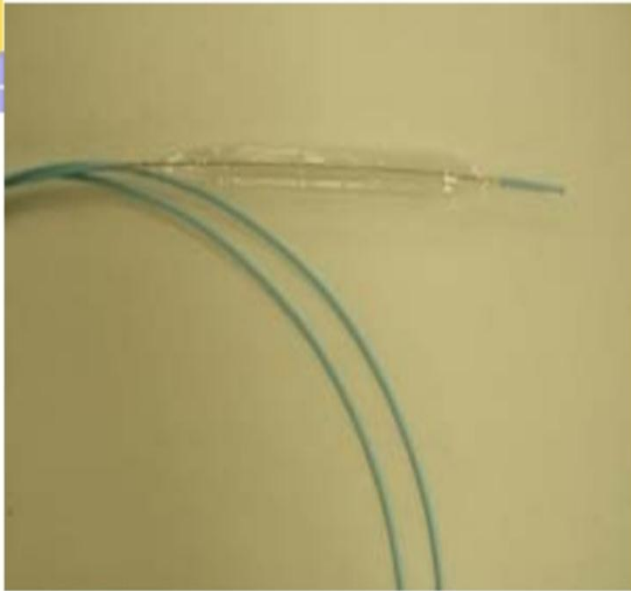
A **BALLOON CATHETER** IS PLACED INTO THE ESOPHAGUS AND FORCEFULLY INFLATING IT WITHIN THE LOWER ESOPHAGEAL SPHINCTER.

TEAR IS PRODUCED IN LES WHICH BECOME RELAX AND ALLOW THE FOOD TO PASS INTO STOMACH.



-
- IT HAS SUCCESS RATE OF 60-90 %.
 - THE ADVANTAGE OF DILATATION IS THAT IT CAN BE REPEATED IF SYMPTOMS RETURN.
 - INCIDENCE OF PERFORATION VARIES FROM 1 TO 5 PERCENT.

Balloon catheter dilatation .





BOTULINUM TOXIN

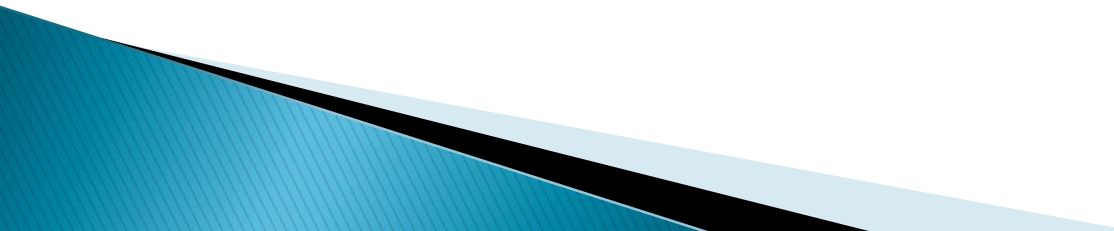
- BOTULINUM TOXIN IS INJECTED INTO THE LOWER ESOPHAGEAL SPHINCTER USING ENDOSCOPE AND CAUSES LOCAL RELAXATION.
- IT IS EFFECTIVE IN 90% BUT EFFECT WEARS OFF AFTER SEVERAL MONTHS.
- 50% OF PATIENTS WILL REQUIRE ANOTHER TX WITHIN A YEAR.
- SIDE EFFECT IS CHEST PAIN AFTER INJECTION.



SURGICAL PROCEDURE

- MYOTOMY
- THIS INVOLVES A CONTROLLED INCISION INTO THE MUSCLE OF LES TO CAUSE IT TO RELAX.
- IT HAS A SUCCESS RATE OF UPTO 90%.

□ **HELLER MYOTOMY :**

- ▶ Open procedure (thoracotomy ,laparotomy)
 - ▶ Endoscopic procedure .
- 

ESOPHAGEAL TUMOURS

Benign

❑ LEIOMYOMA :

- ▶ Asymptomatic
- ▶ May cause bleeding or dysphagia

Malignant

❑ SQUAMOUS CELL CARCINOMA (SCC)

❑ ADENOCARCINOMA

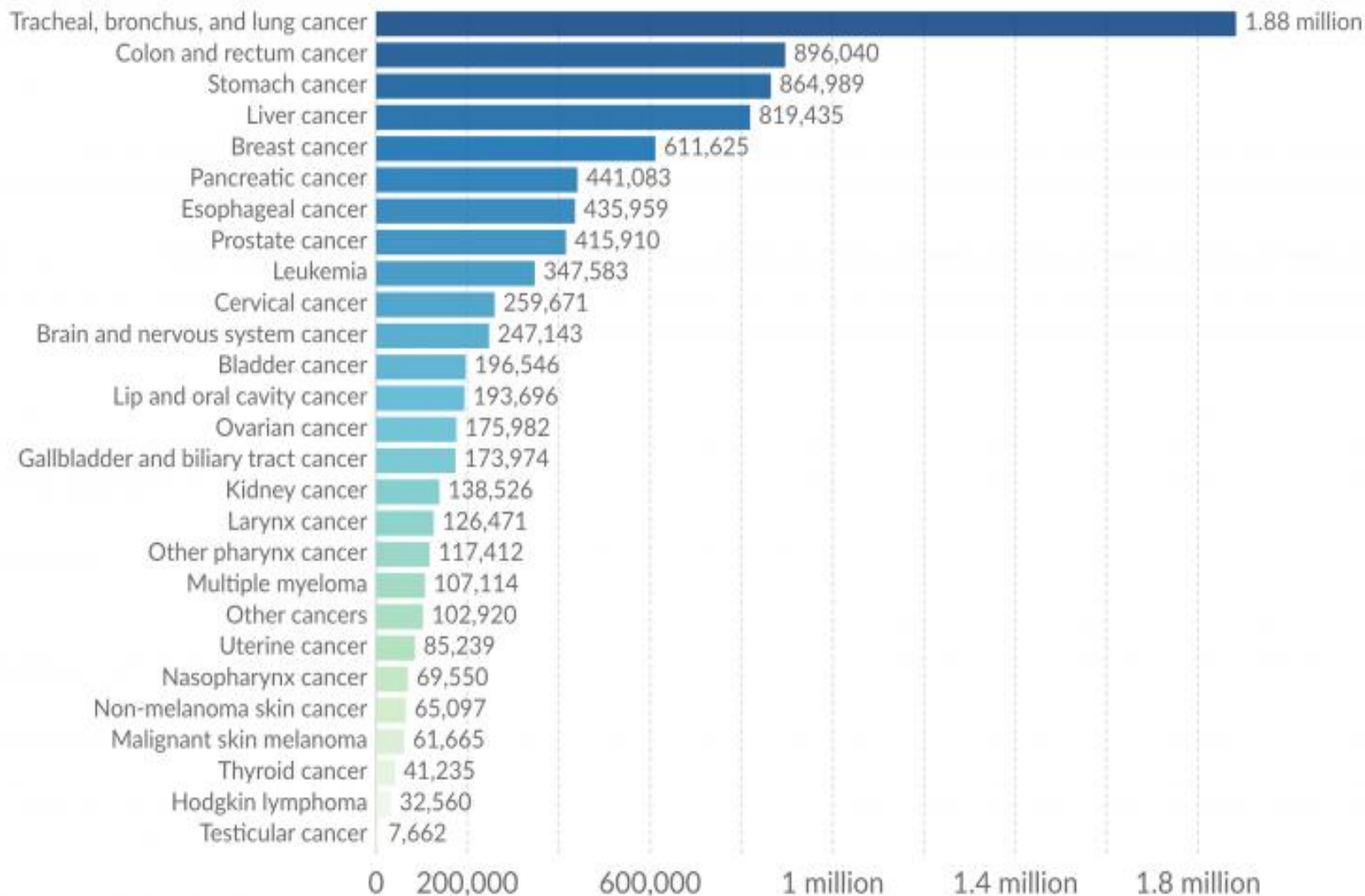
Esophageal carcinoma

Epidemiology

- Esophageal cancer is the 7th leading cause of cancer deaths.
- accounts for 1% of all malignancy & 6% of all GI malignancy.
- Most common in China, Iran, South Africa, India and the former Soviet Union.
- The incidence rises steadily with age, reaching a peak in the 6th to 7th decade of life.
- Male : Female = 3.5 : 1
- African-American males : White males = 5:1

Cancer deaths by type, World, 2017

Total annual number of deaths from cancers across all ages and both sexes, broken down by cancer type.

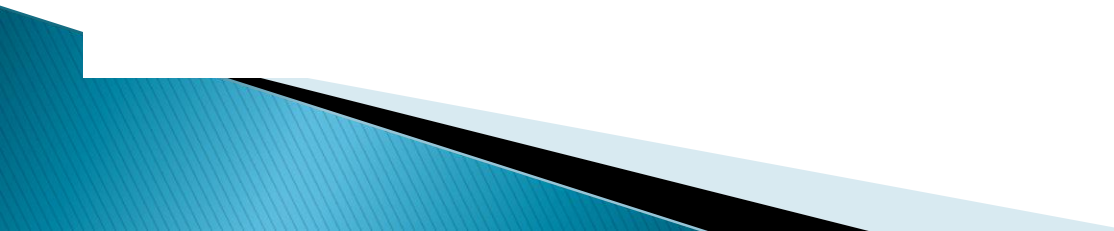


Source: IHME, Global Burden of Disease (GBD)

CC BY

Contd...



- Worldwide SCC responsible for most of the cases.
 - Adenocarcinoma now accounts for over 50% of esophageal cancer in the USA, due to association with GERD , Barretts's esophagus & obesity.
 - SCC usually occurs in the middle 3rd of the esophagus (the ratio of upper : middle : lower is **15 : 50 : 35**).
 - Adenocarcinoma is most common in the lower 3rd of the esophagus, accounting for over 65% of cases.
- 

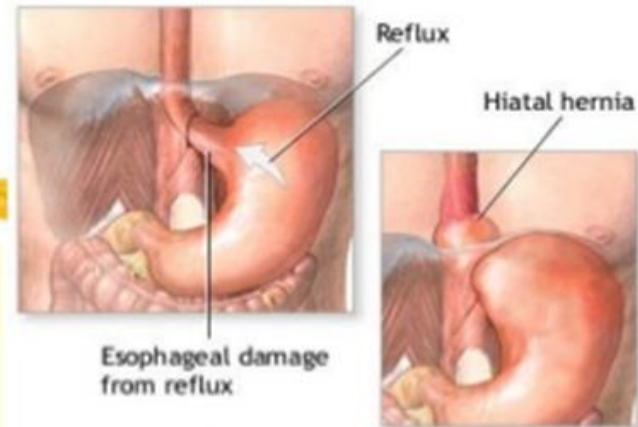
Risk Factors : Squamous Cell Carcinoma

- ☐ Smoking and alcohol (80% - 90%)
- ☐ Dietary factors
 - ☐ N-nitroso compounds (animal carcinogens)
 - ☐ Pickled vegetables and other food-products
 - ☐ Toxin-producing fungi
 - ☐ Betel nut chewing
 - ☐ Ingestion of very hot foods and beverages (such as tea)
- ☐ Underlying esophageal disease (such as **achalasia** and caustic strictures, Tylosis)
- ☐ Genetic abnormalities:
 - ☐ p53 mutation, loss of 3p and 9q alleli, amp. Cyclin D1 & amp. EGFR



Risk Factors: Adenocarcinoma

- Associated with **Barrett's esophagus**, GERD & **hiatal** hernia.
- Obesity (3 to 4 fold risk)
- Smoking (2 to 3 fold risk)
- Increased esophageal acid exposure such as Zollinger-Ellison syndrome.



Barrett's esophagus is a

metaplasia of the esophageal epithelial lining. The squamous epithelium is replaced by columnar epithelium, with 0.5% annual rate of neoplastic transformation.

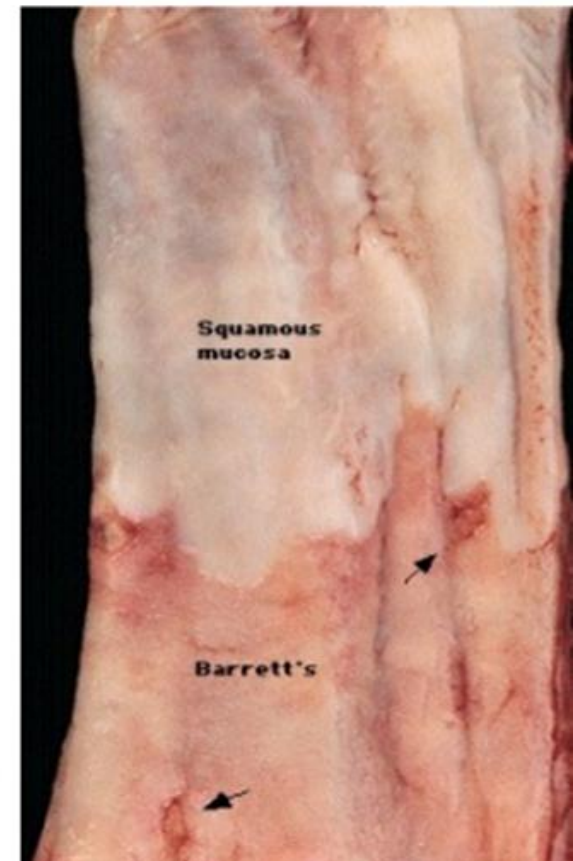


Fig. Barretts's esophagus

Normal epithelium



Esophagitis



Metaplasia/Barrett's esophagus



Low-grade dysplasia



High-grade dysplasia



Adenocarcinoma

Pathological Classification

Preinvasive Neoplasia

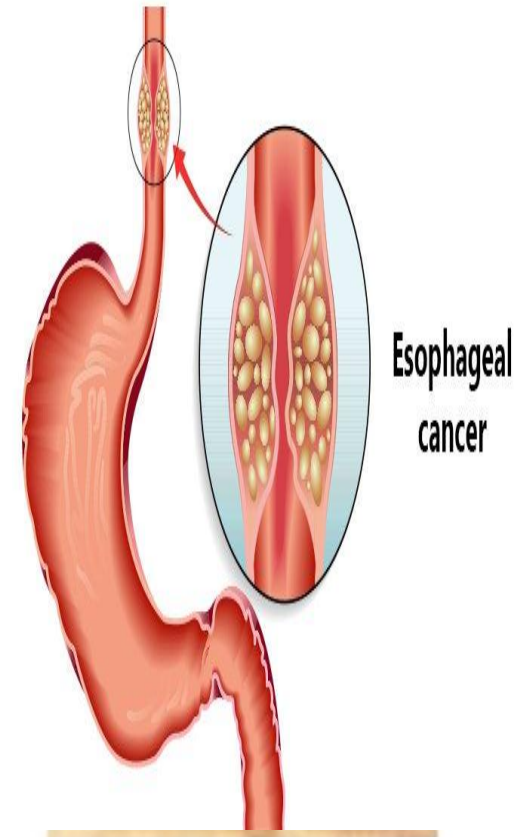
- Esophageal intraepithelial neoplasia
- Glandular epithelial dysplasia/adenocarcinoma in situ in Barrett's mucosa

Invasive Malignant Neoplasia

- Squamous cell carcinoma
 - Adenocarcinoma,
 - Adenoid cystic carcinoma
 - Mucoepidermoid carcinoma
 - Adenosquamous carcinoma
 - Small cell carcinoma
 - Carcinoid tumor
 - Malignant melanoma
 - Sarcomas
- } 95%

Clinical Features

- It is commonly associated with the symptoms of dysphagia, wt. loss, pain, anorexia, and vomiting
- Symptoms often start 3 to 4 months before diagnosis
- Dysphagia - in more than 90% pt.
Odynophagia - in 50% of pt.
- Wt. loss – more than 5 % of total body wt. in 40 – 70% pt. associated with worst prognosis.



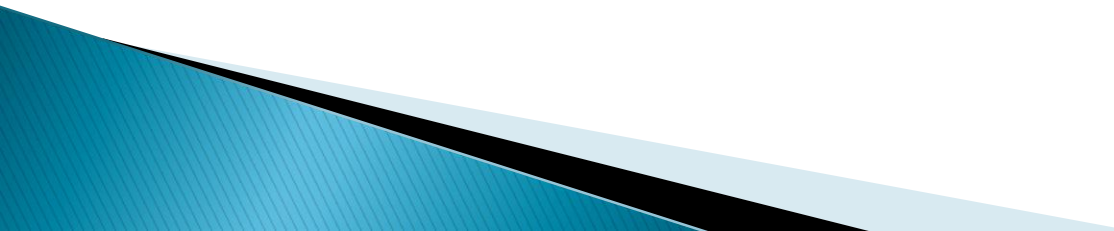
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Complications:

- Cachexia, Malnutrition, dehydration, anaemia,.
- Aspiration pneumonia.
- Distant metastasis.
- Invasion of near by structures: e.g.
 - Recurrent laryngeal nerve → Hoarseness of voice
 - Trachea → Stridor & TOF→ cough, choking & cyanosis
 - Perforation into the pleural cavity → Empyema
 - back pain in celiac axis node involvement



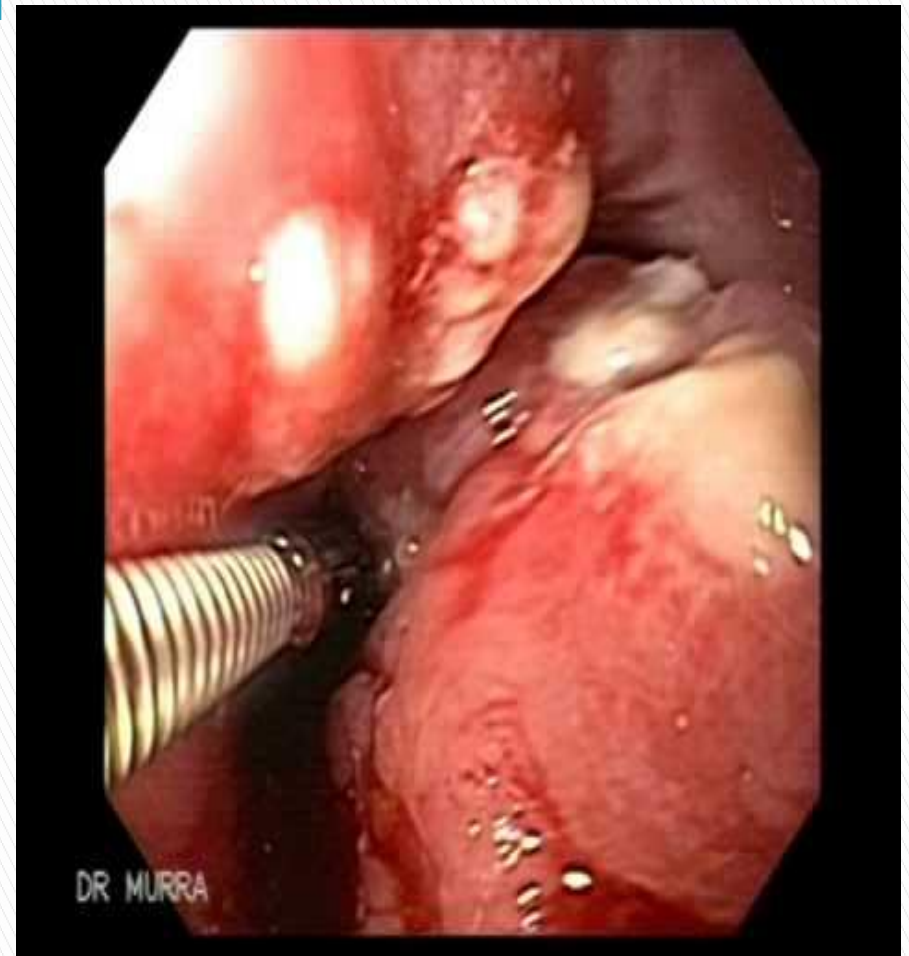
Investigations :

- ❑ Barium swallow :
 - ❑ Upper endoscopy :
 - ❑ CT scan (abdomen & chest) : for staging ,LN involvement ,metastasis .
 - ❑ Endoscopic ultrasound :
 - ❑ Positron emission tomography (PET scan) :
- 

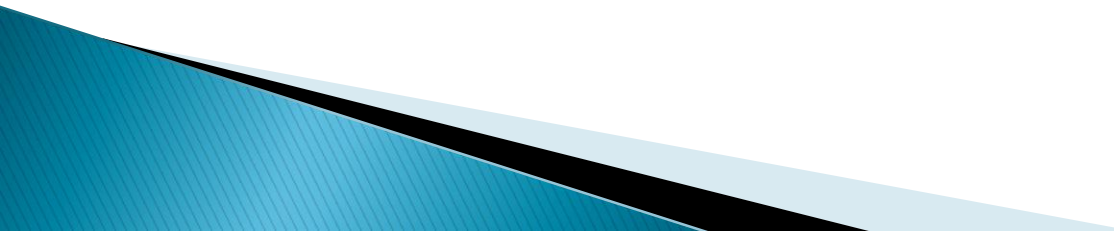
Barium swallow
in cancer
esophagus:
Filling defect, rat
tail appearance,
shouldering,
irregular
eccentric
stricture.



Esophageal cancer , biopsy



Management

- ❑ **Endoscopic therapy**: (endoscopic mucosal resection, endoscopic submucosal dissection and/or ablation in early cases.
 - ❑ **Surgery** : Esophagectomy ,feeding jejenostomy.
 - ❑ **Chemo radiation**: pre & post surgery.
 - ❑ **Palliative therapy** : dilatation ,metallic stent, nutritional support.
- 

HIATUS HERNIA

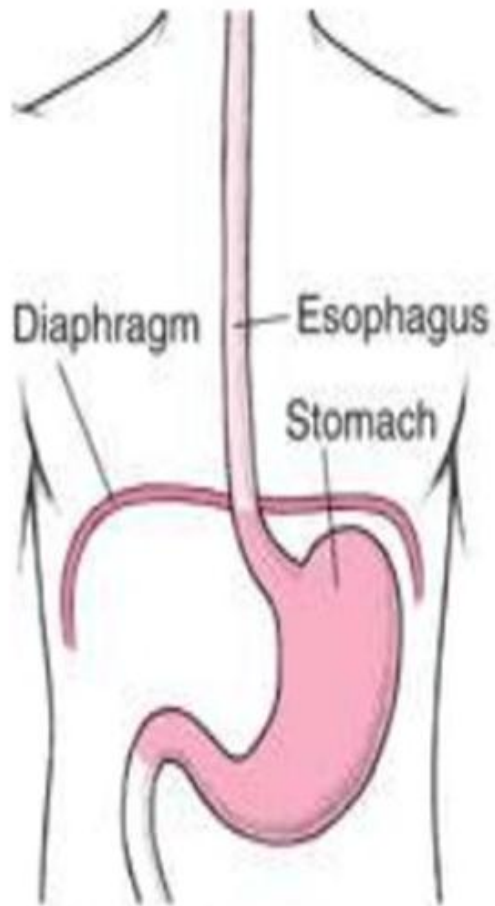
Types of Hiatal Hernia

1. Sliding hiatal hernia:

- Herniation of both the stomach and the gastroesophageal(GE) junction into the thorax.
- 90% of esophageal hernias

2. Paraesophageal hiatal hernia:

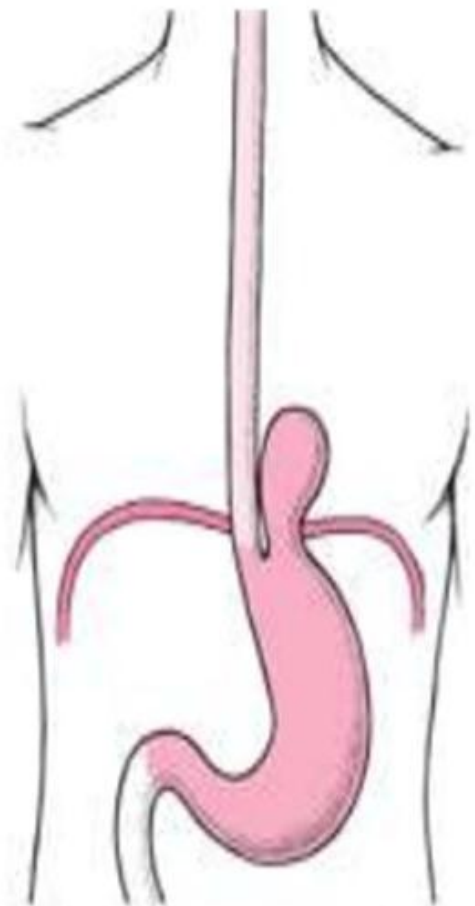
- Herniation of all or part of the stomach through the esophageal hiatus into the thorax with an undisplaced GE junction
- Least common esophageal hernia (<10%)



**Normal Esophagus
and Stomach**



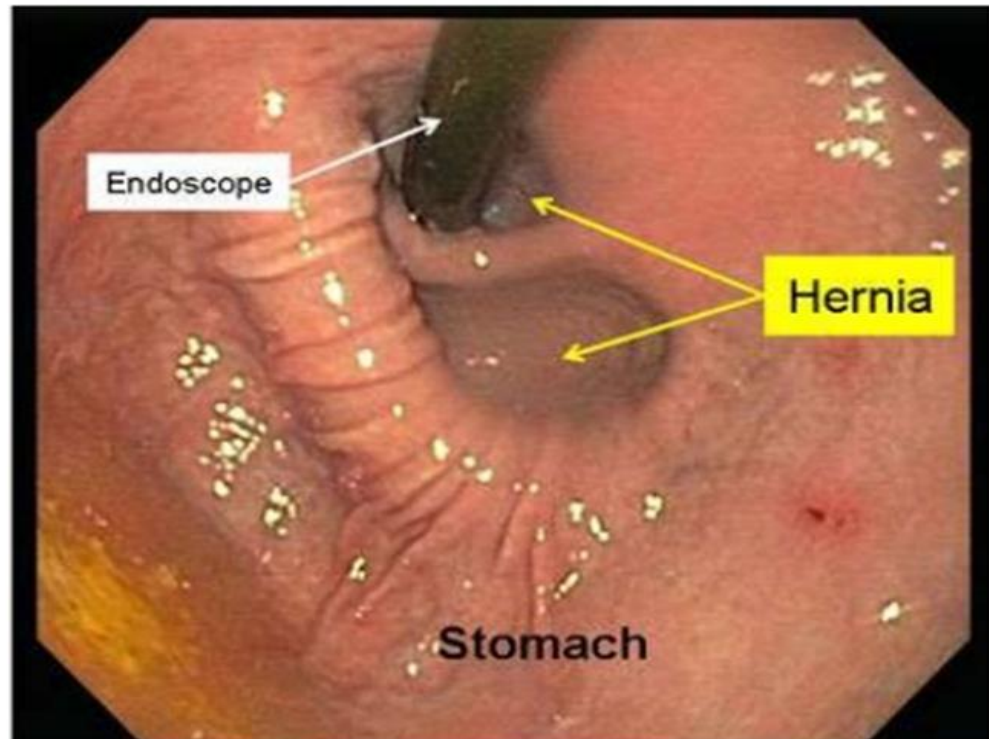
**Sliding
Hiatus Hernia**



**Paraesophageal
Hiatus Hernia**

Hiatus hernia

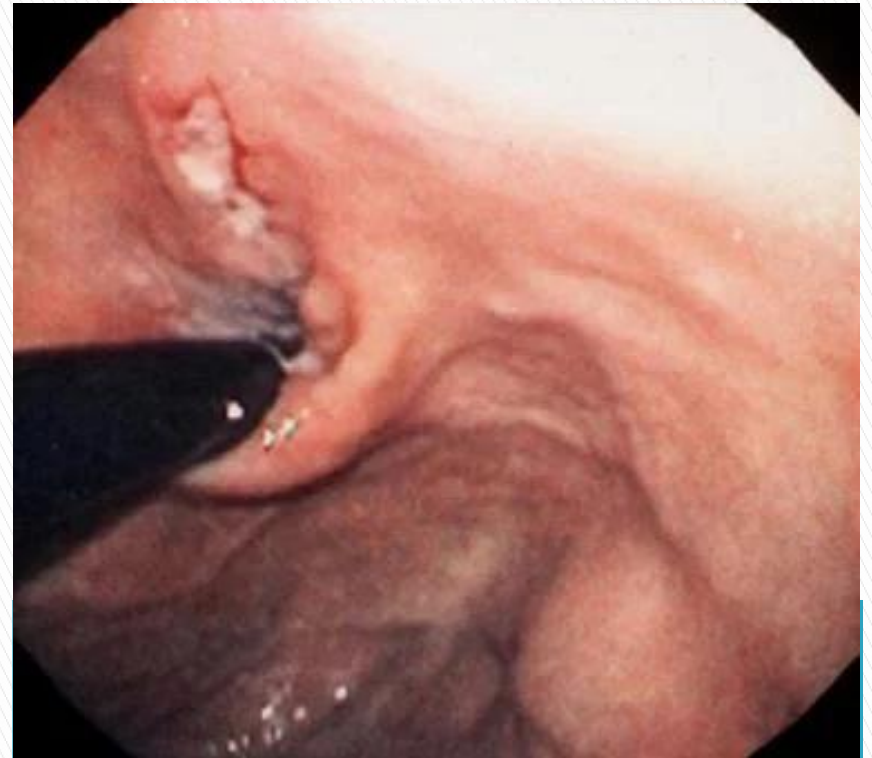
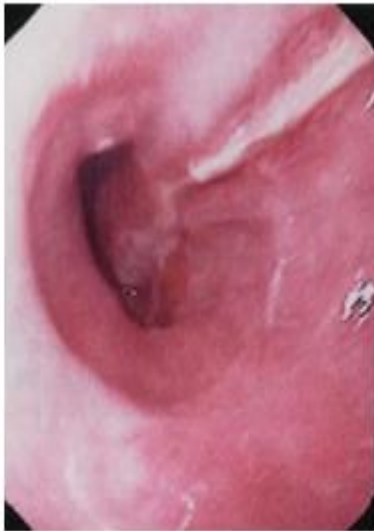
Endoscopic view:



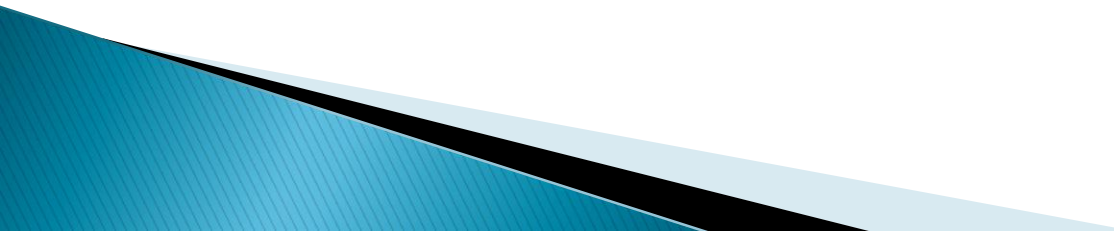
MALLORY WEISS SYNDROME

- ▶ Mallory-Weiss syndrome is characterized by upper gastrointestinal bleeding secondary to longitudinal mucosal lacerations (**known as Mallory-Weiss tears**) at the gastro esophageal junction or gastric cardia.

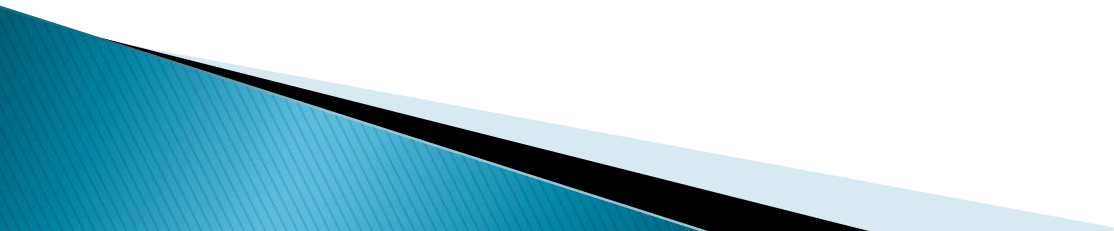
Mallory weiss tear ;endoscopic picture



Risk Factors for Mallory–Weiss Tears

- ▶ Precipitating factors include retching, vomiting, straining, hiccupping, coughing.
 - ▶ In some cases no apparent precipitating factor can be identified.
- 

Management :

- **Upper endoscopy , lab investigations.**
 - **Medications** : PPI , antiemetic .
 - **local therapy** .(endoscopic ,hemostatic)
 - **Follow up.**
- 

Thank You!