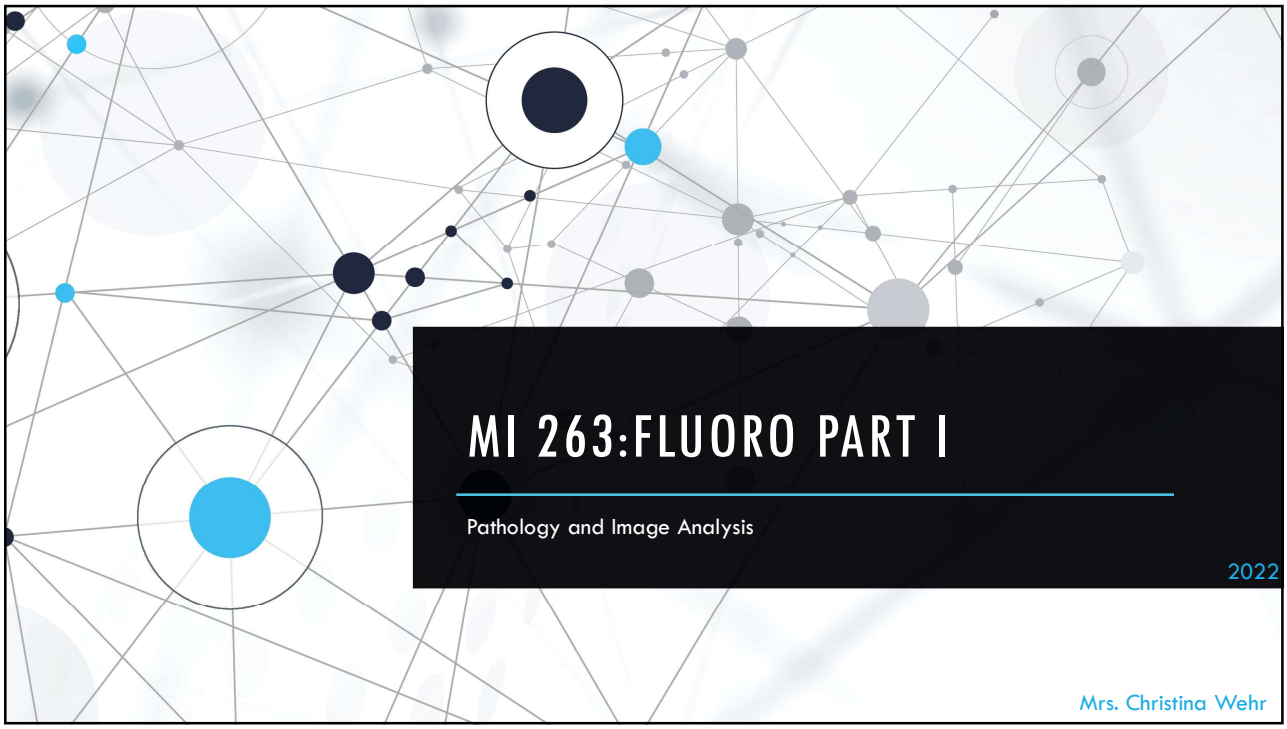


1

PATHOLOGIES

- Reflux
- Esophagitis
- Barrett's Esophagus
- Achalasia
- Diverticula
- Varices
- Foreign bodies
- Perforation
- Gastritis
- Gastric Ulcer
- Hiatal Hernia
- Pyloric Stenosis
- Diabetes

2

REFLUX (GASTROESOPHAGEAL REFLUX DISEASE)

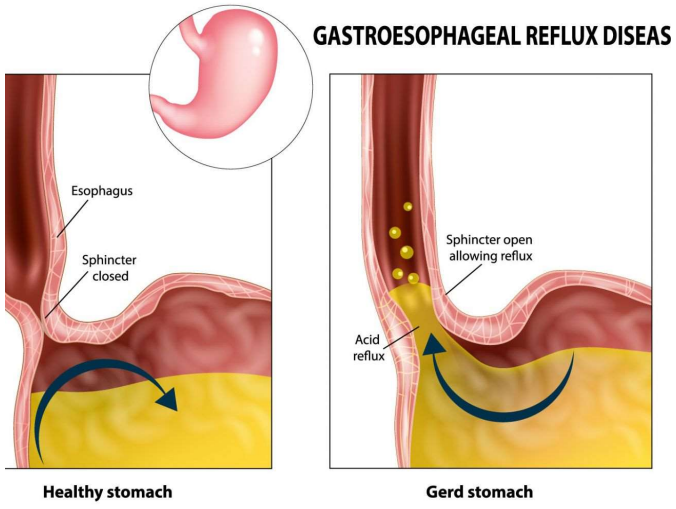
Stomach contents leak backwards from the stomach into the esophagus

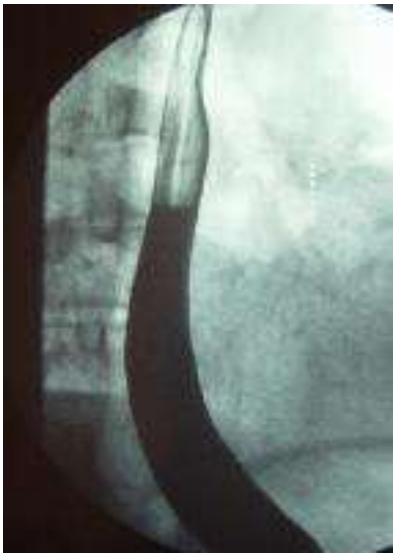
Cause: idiopathic
Complications: A change in the lining of the esophagus that can increase the risk of cancer, dental problems, ulcers, strictures
Radiographic Appearance: esophagitis, aspiration

Technical: No manual exposure factor change
Prognosis: Most people respond to lifestyle changes and medicines. However, many patients need to continue taking drugs to control their symptoms

http://www.nlm.nih.gov/medlineplus/ency/article/000265.htm

3





4

ESOPHAGITIS

Inflammation of the esophagus

Cause: idiopathic, iatrogenic
Examples: GERD, infection, irritants, radiation therapy

Complications: change in structure and function of esophagus

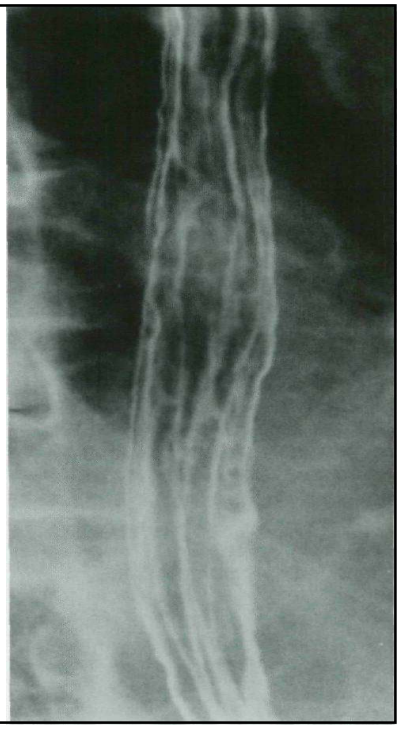
Radiographic Appearance: Superficial ulcers and erosions
- Streaks or dots of barium superimposed on distal esophagus

Technical: No manual exposure factor change

Prognosis: Good if treated, if not treated turns into Barrett's Esophagus

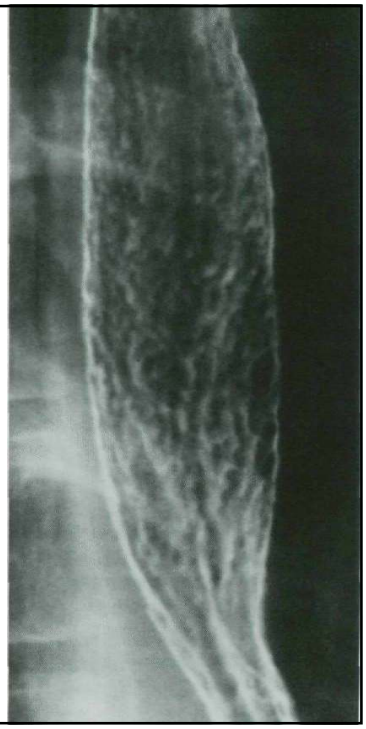
5

Reflux esophagitis with thickened, irregular folds in the esophagus due to submucosal edema and inflammation.



6

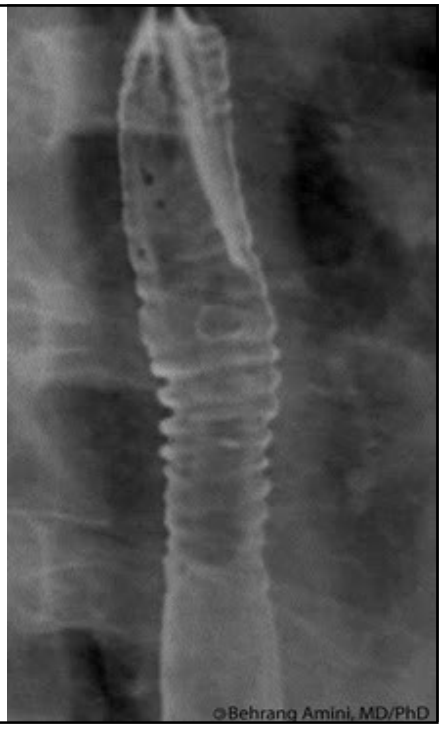
Reflux esophagitis with a finely nodular or granular mucosa in the distal half of the esophagus. This appearance is caused by mucosal edema and inflammation.



7

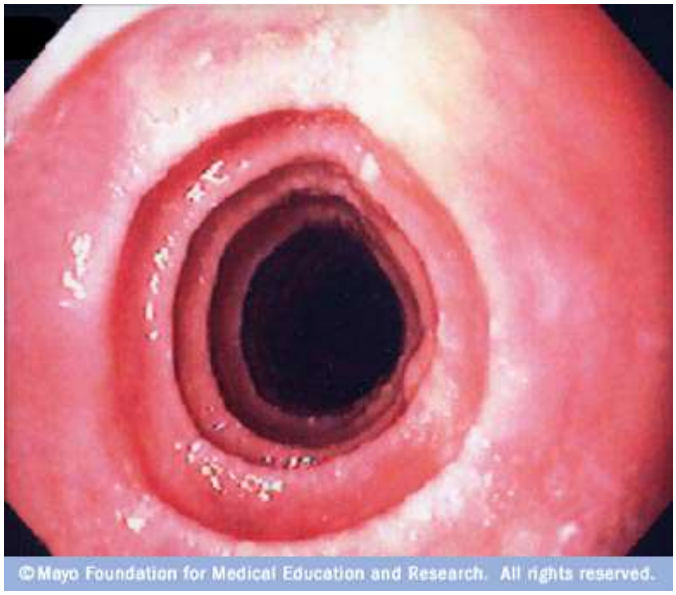
Idiopathic eosinophilic esophagitis is thought to develop as an inflammatory response to ingested food allergens. Patients are usually young men (20-40) who present with dysphagia and recurrent food impaction.

The typical fluoroscopic appearance of a ringed esophagus that of multiple, fixed, closely spaced, concentric rings that traverse an area of esophageal stricture. Not all patients, however, have this typical ringed esophagus appearance, which may be a late complication of eosinophilic esophagitis.



8

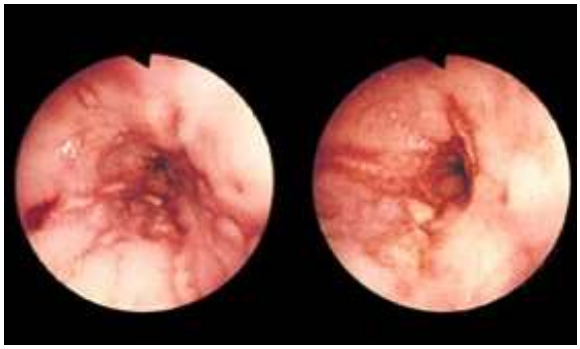
EOSINOPHILIC ESOPHAGITIS ENDOSCOPE



9

GRADE II ESOPHAGITIS

There is evidence of significant inflammation and ulceration at the lower end or the esophagus. The ulcers are beginning to coelesce. If the inflammation continues, stricturing will occur.



10

BARRETT'S ESOPHAGUS

Cell lining of the lower esophagus is replaced by columnar epithelium

Cause: Idiopathic
- Examples: severe reflux

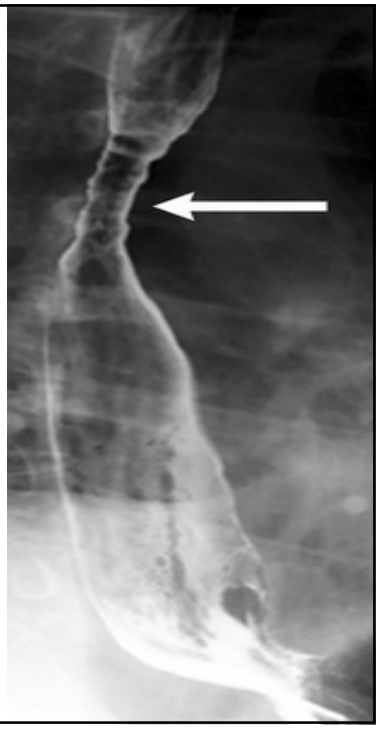
Complications: precancerous changes

Radiographic Appearance: Proximal esoph is usually dilated, next ulcerated, then normal, ending with a hiatal hernia

Technical: No manual exposure factor change
Prognosis: Good, treatable. Only 0.5% will develop cancer/year

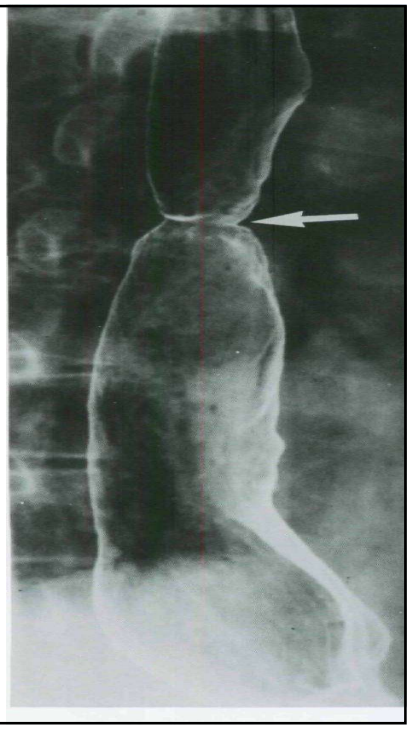
11

Barrett esophagus. Double-contrast radiograph shows a circumferential stricture in the midesophagus (arrow) with reticular mucosa, findings that are not often seen in Barrett esophagus.



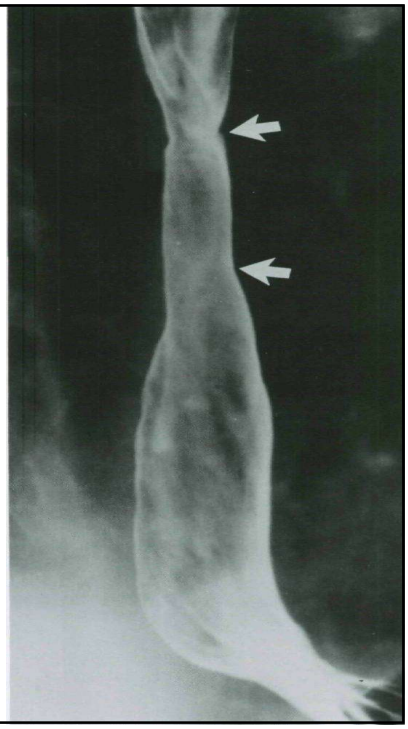
12

Barrett's esophagus with a midesophageal stricture. A focal ring-like constriction (arrow) is seen in the midesophagus. In the presence of a hiatal hernia and gastroesophageal reflux, a high stricture should be virtually diagnostic of Barrett's esophagus.



13

Barrett's esophagus with a midesophageal stricture. A relatively smooth, tapered area of narrowing (arrows) is present in the midesophagus.



14

ACHALASIA

Inability of the lower esophageal sphincter to open and let food pass into the stomach

Cause: Idiopathic, hereditary

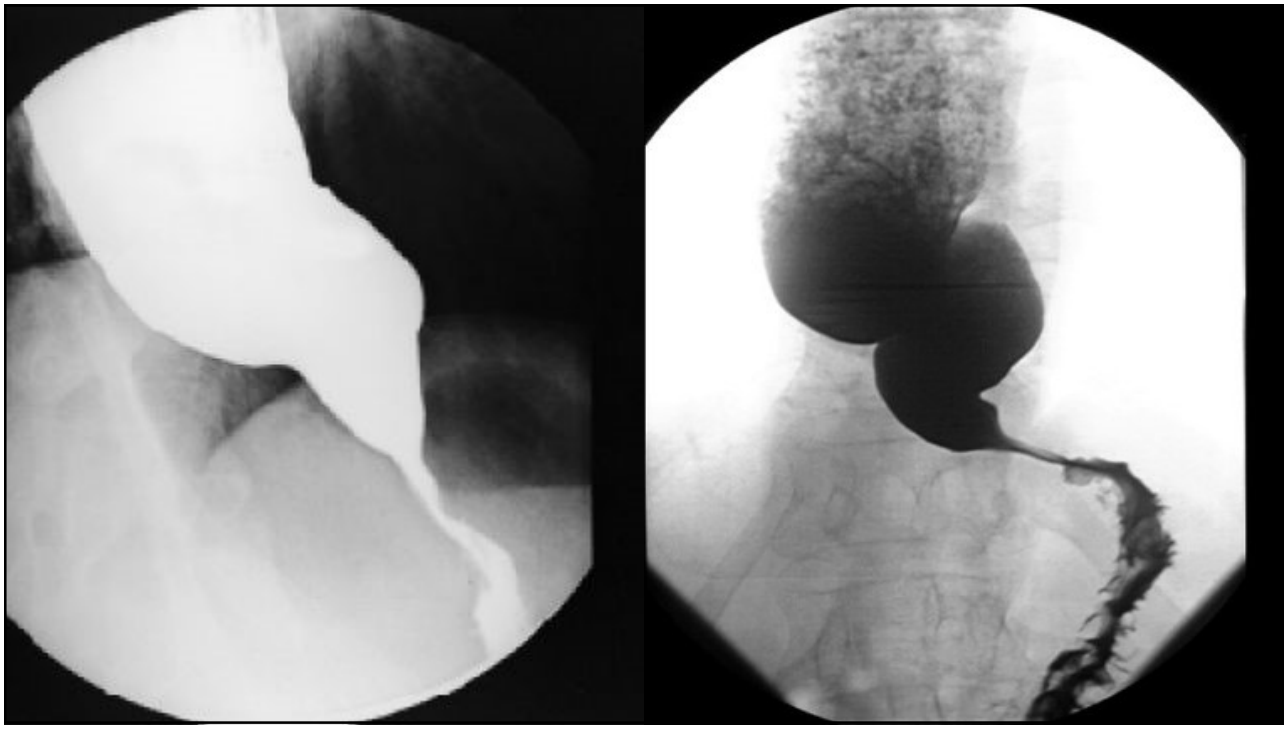
Complications: Tearing (perforation) of the esophagus, reflux, aspiration of food contents into the lung that can cause pneumonia

Radiographic Appearance: Rat tail or break appearance

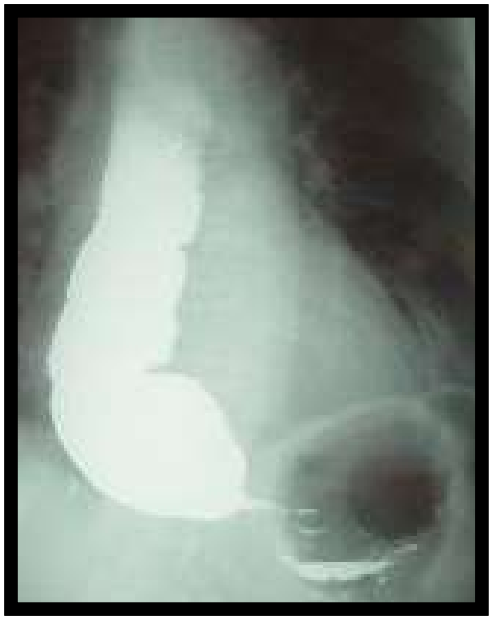
Technical: No manual exposure factor change

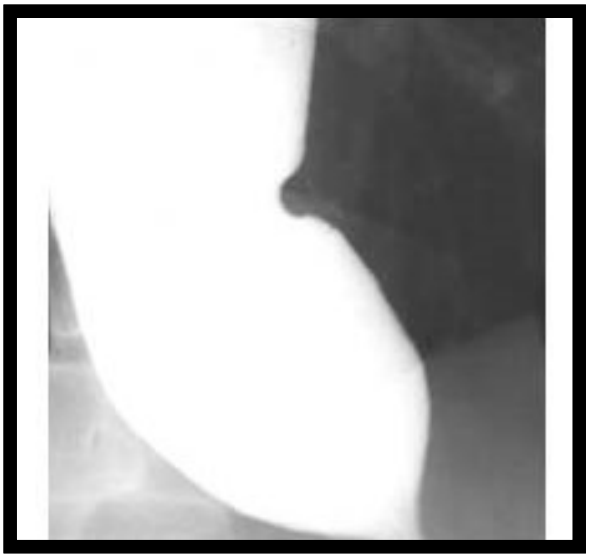
Prognosis: Surgical outcomes are good -- dilation alone often results in only temporary improvement in symptoms

15



16





17

DIVERTICULA

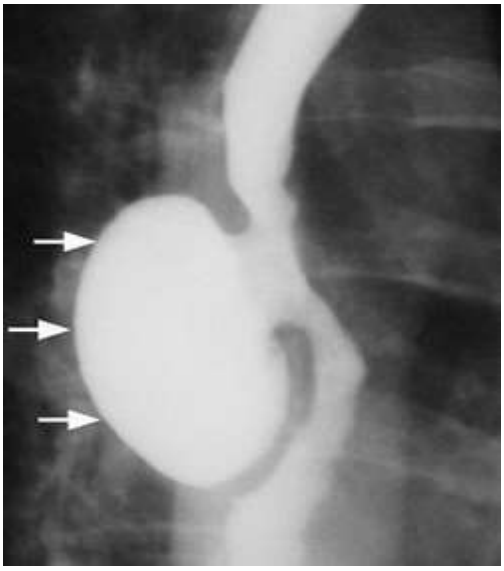
Outpouching of the esophagus

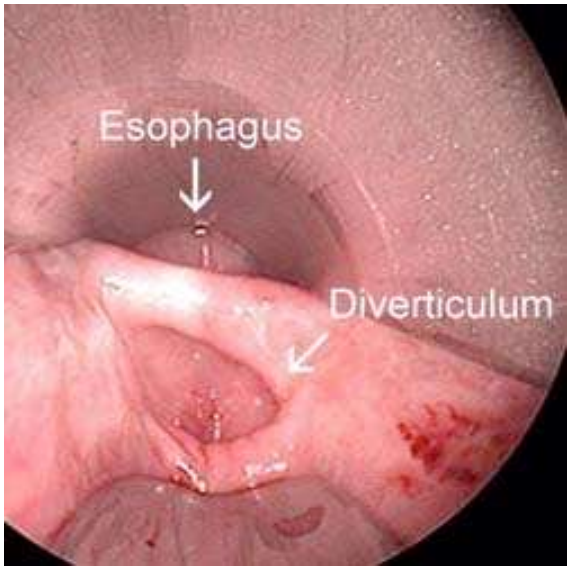
Cause: Idiopathic
- Examples: motility disorder, strictures, inflammatory process

Complications: vary rare, possible ulcerations
Radiographic Appearance: collection of barium in a pouch

Technical: No manual exposure factor change
Prognosis: Good, Mortality from surgery is 1.5%, and the rate of recurrence of the condition is 4% (Wachtel 934).

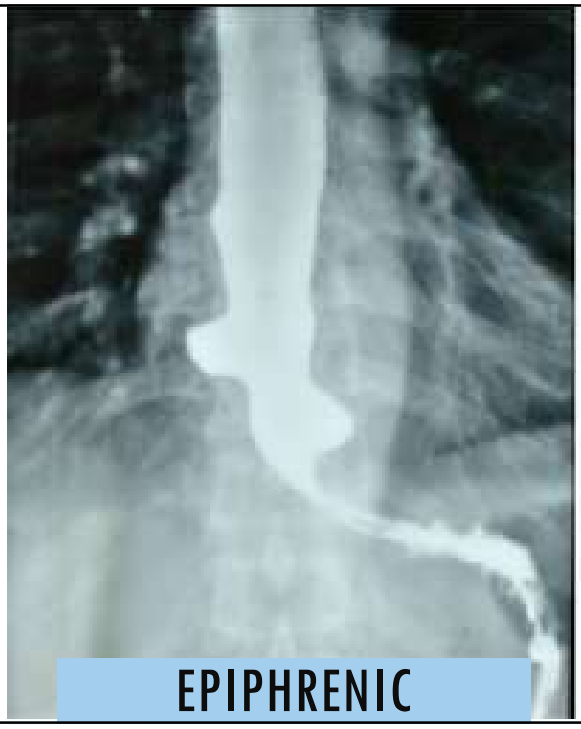
18

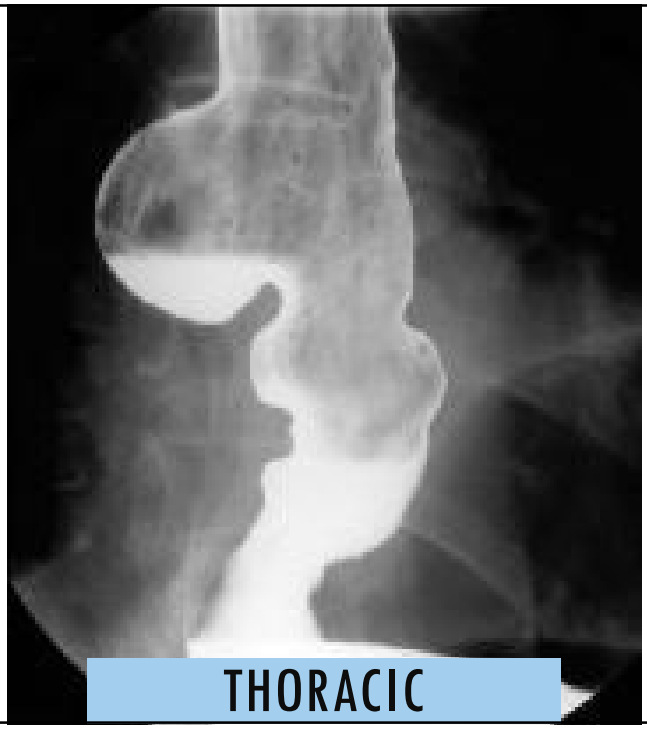




Arrows point to the small, wide mouth pouch located at the tracheal bifurcation. (*Source:* Courtesy of John M. Braver, Brigham and Women's Hospital.)

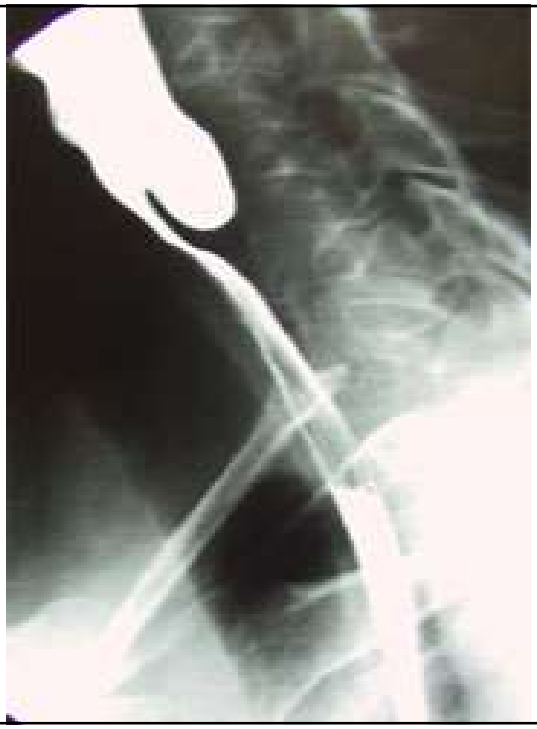
19



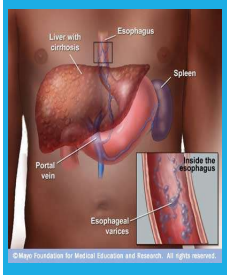


20

ZENKERS



21



VARICES

Dilated veins in the wall that may lead to bleeding

Causes: Idiopathic
- Examples: normal blood flow to liver is blocked

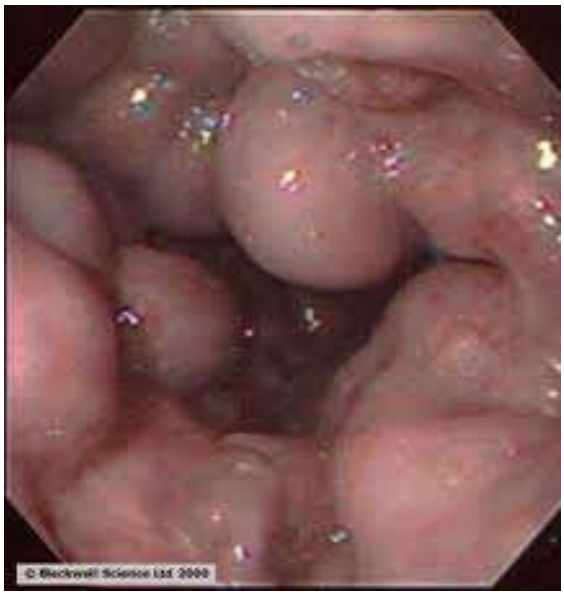
Complications: rupture of veins (bleeding) and cirrhosis

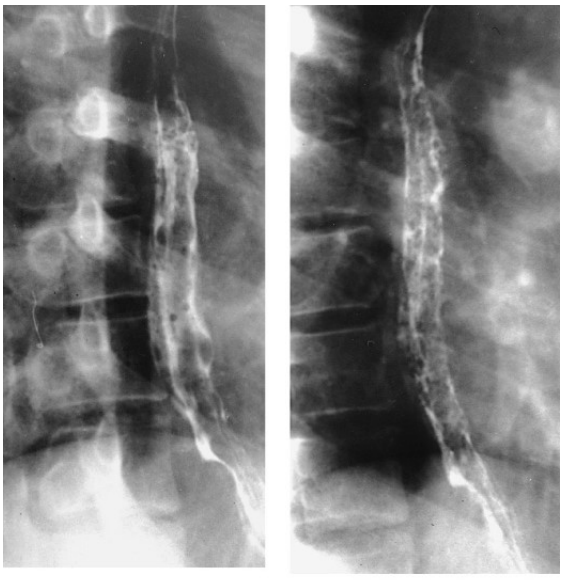
Radiographic appearance: Dilation of lower esophagus and inflammation

Technical: No manual exposure factor change

Prognosis: Poor with continue use of alcohol
- Good with banding or scleropathy and abstinence from alcohol

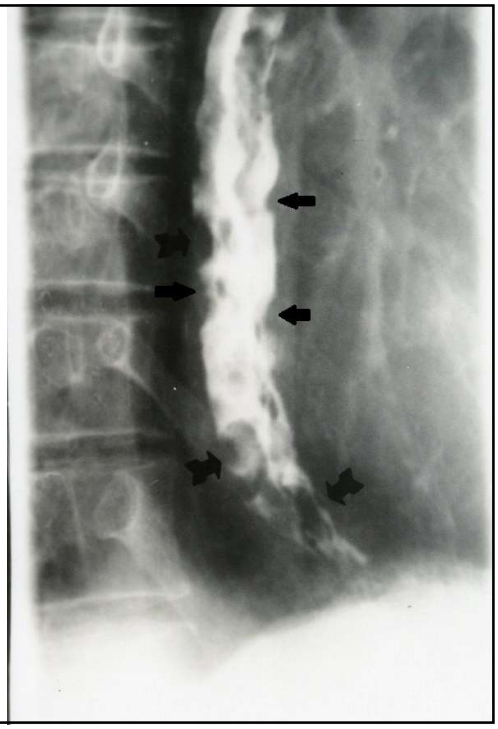
22



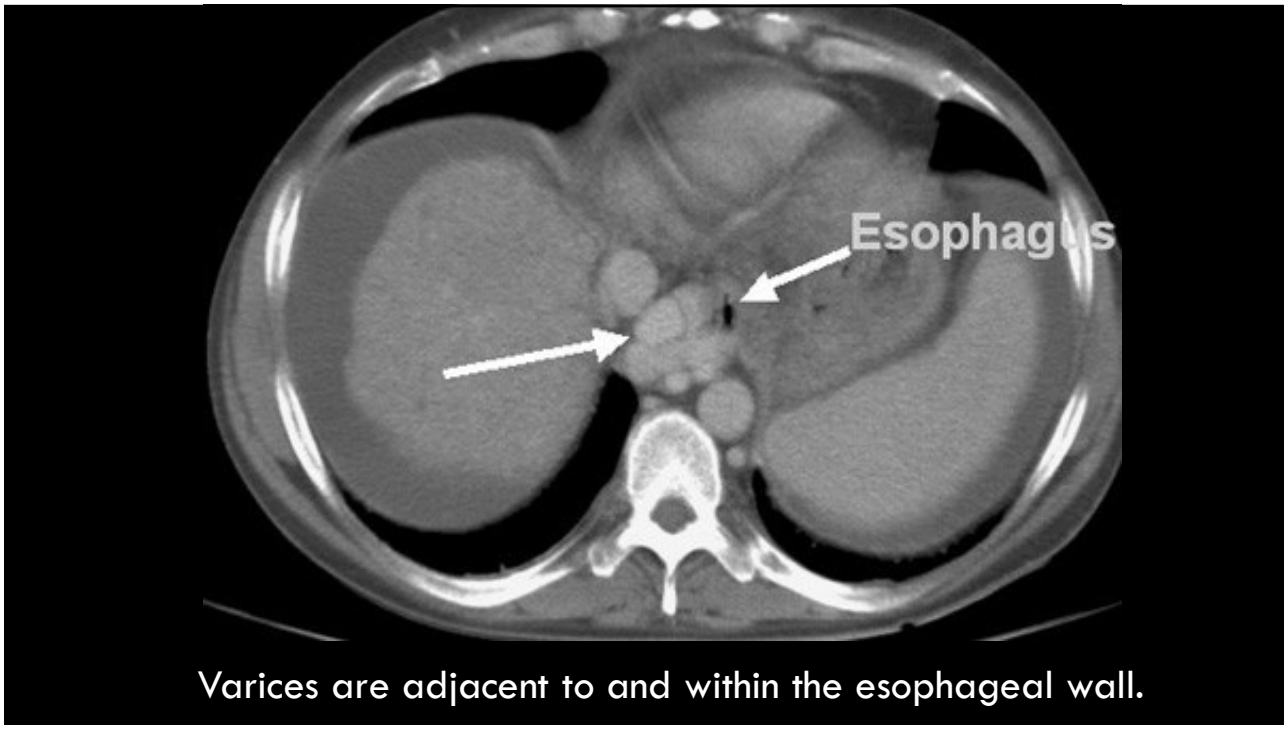


23

Esophagogram shows multiple tortuous filling defects in the lower esophageal segment, representing varicose veins.



24



Varices are adjacent to and within the esophageal wall.

25

FOREIGN BODIES

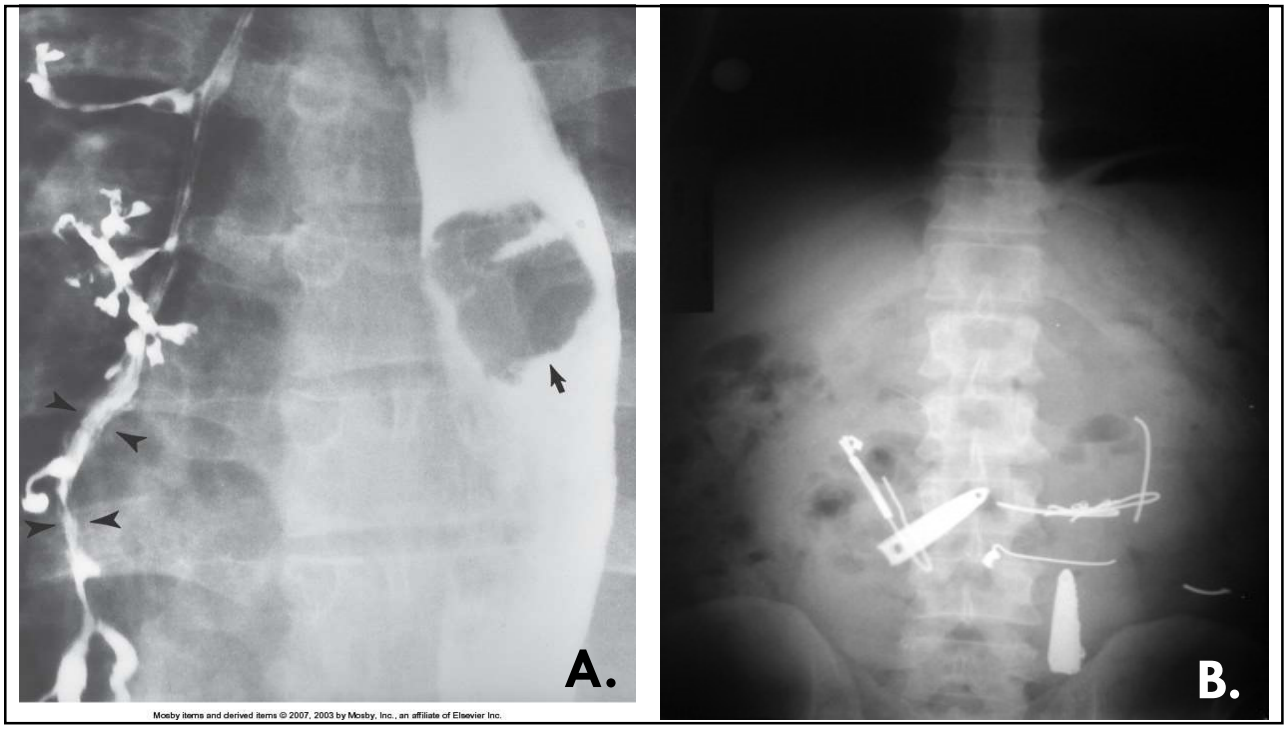
Causes: Self Induced, Iatrogenic

Complications: necrosis, perforation, obstruction

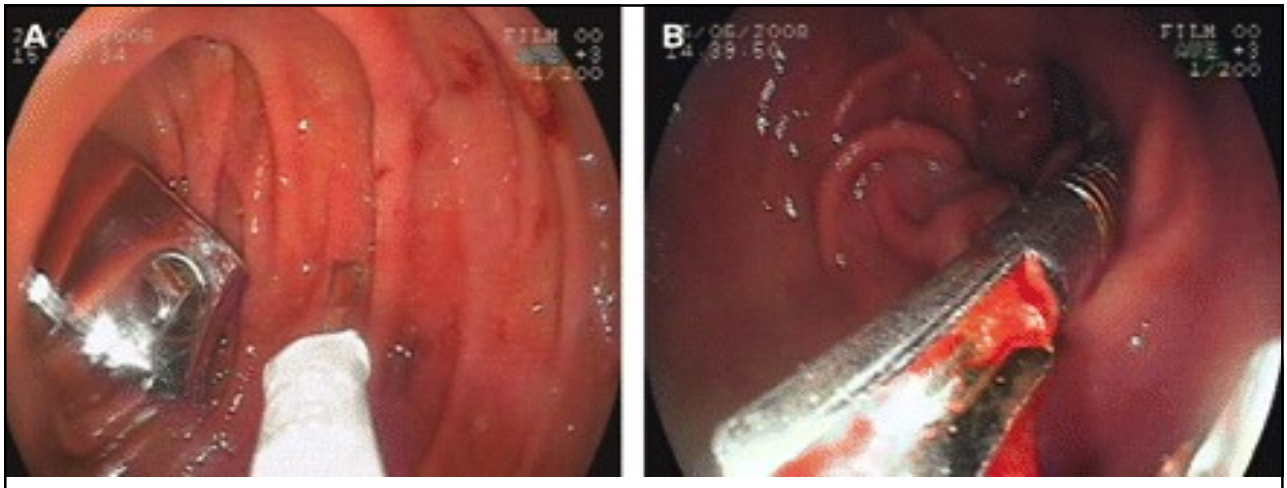
Radiographic appearance:
- Decrease flow of barium
- Opaque object

Prognosis: dependent on severity and what was swallowed

26

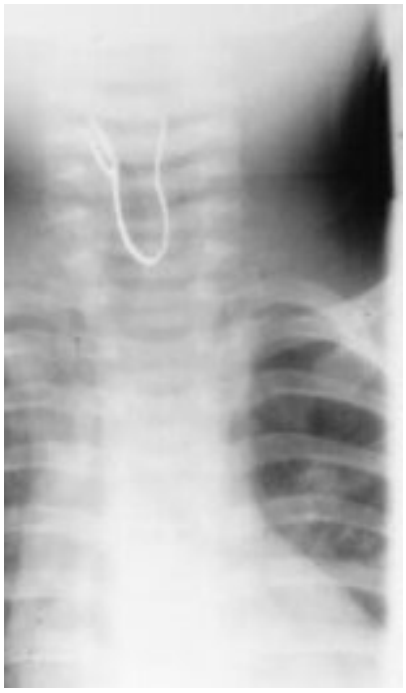


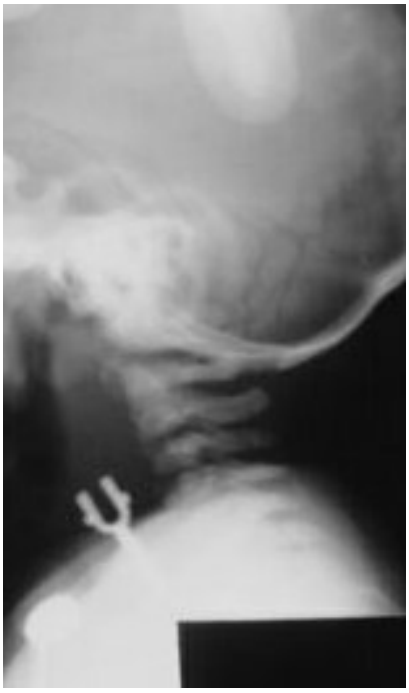
27



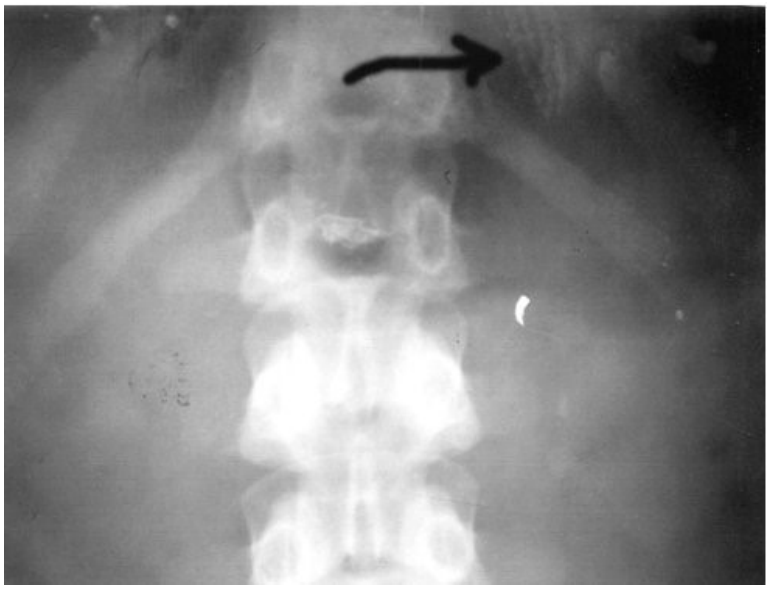
A) Endoscopic view of the impacted nail clipper in the duodenum. (B) Endoscopic removal of the tie clip.

28





29



30

PERFORATION

Hole or punctured area

Causes: Idiopathic, Iatrogenic, Traumatic
- Examples: peptic ulcers, instrumentation, severe vomiting

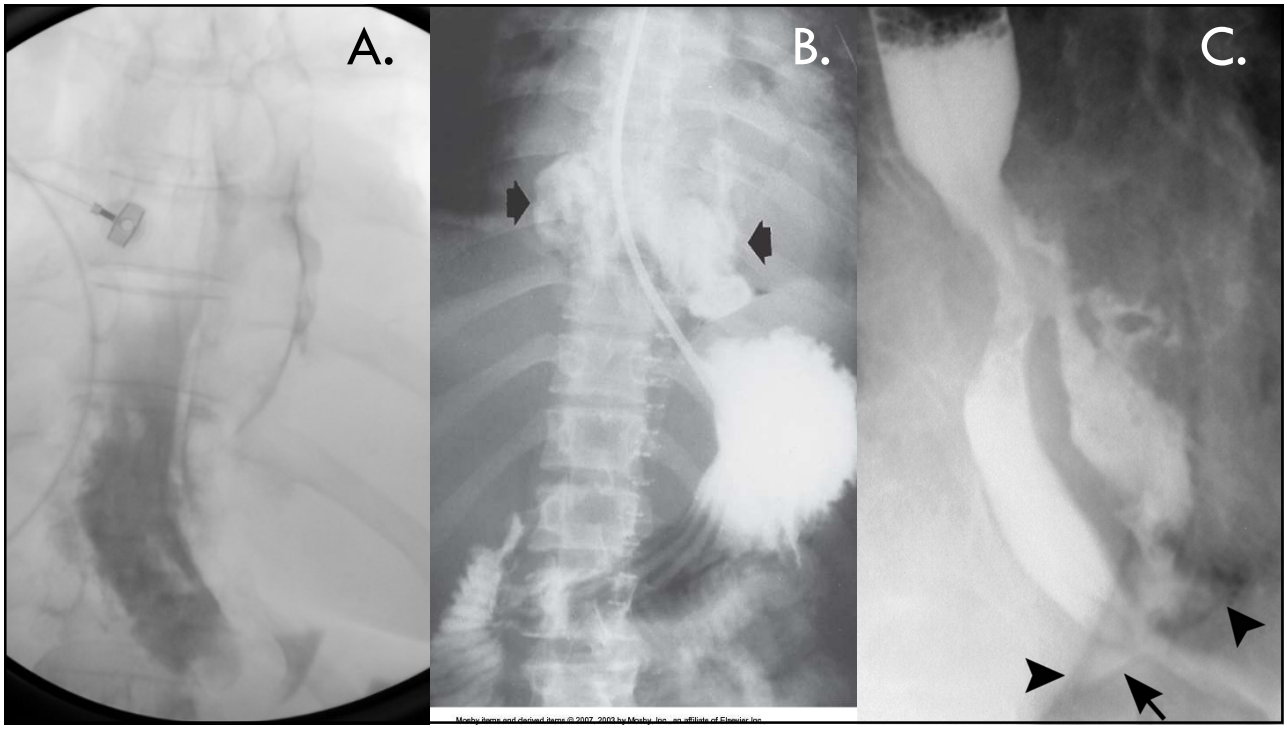
Complications: permanent damage, abscess, infection in and around lungs

Radiographic appearance:
- Leakage of barium
- Air/fluid in lungs and around them

Technical: No manual exposure factor change

Prognosis: For patients with an early diagnosis (less than 24 hours), the outlook is good. The survival rate is 90% when surgery is performed within 24 hours. However, this rate drops to about 50% when treatment is delayed.

31



32

GASTRITIS

Inflammation of the stomach

Causes: Idiopathic
- Examples: alcohol, corrosive agents, infection

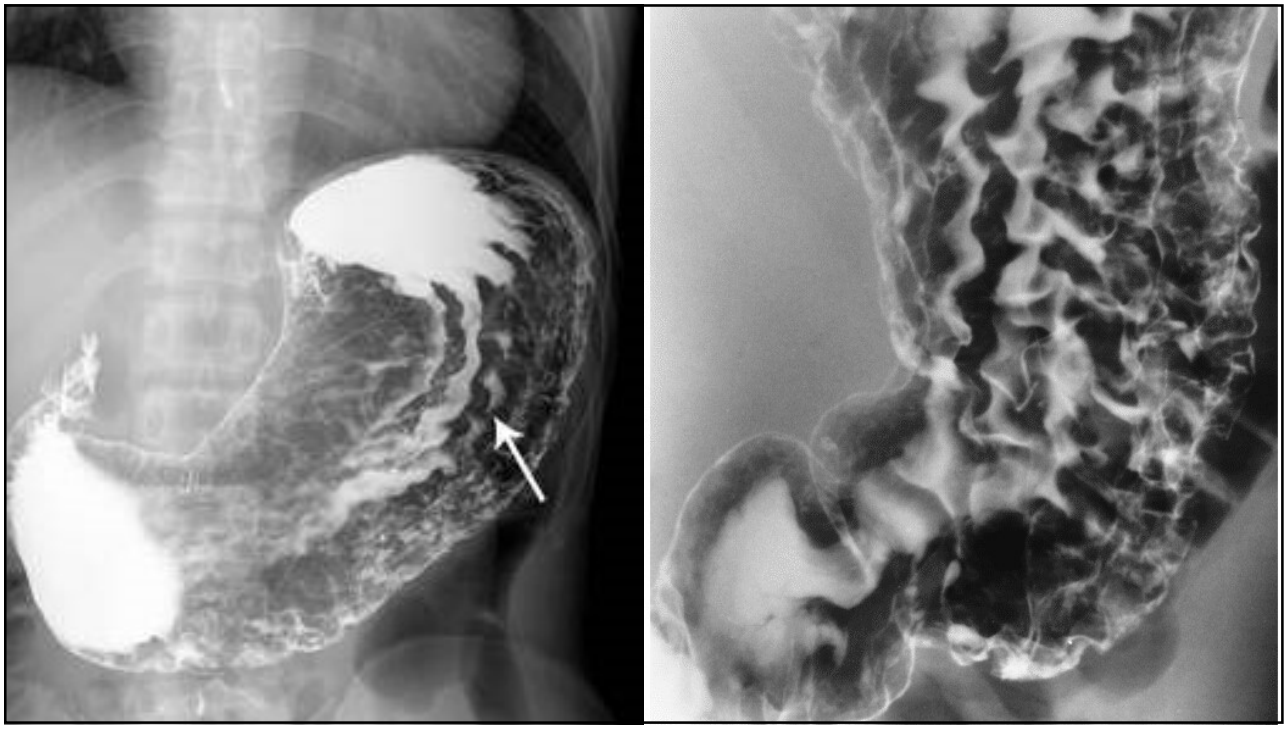
Complications: ulcers and bleeding

Radiographic appearance: Thickening gastric folds, multiple superficial erosions, narrowing stomach

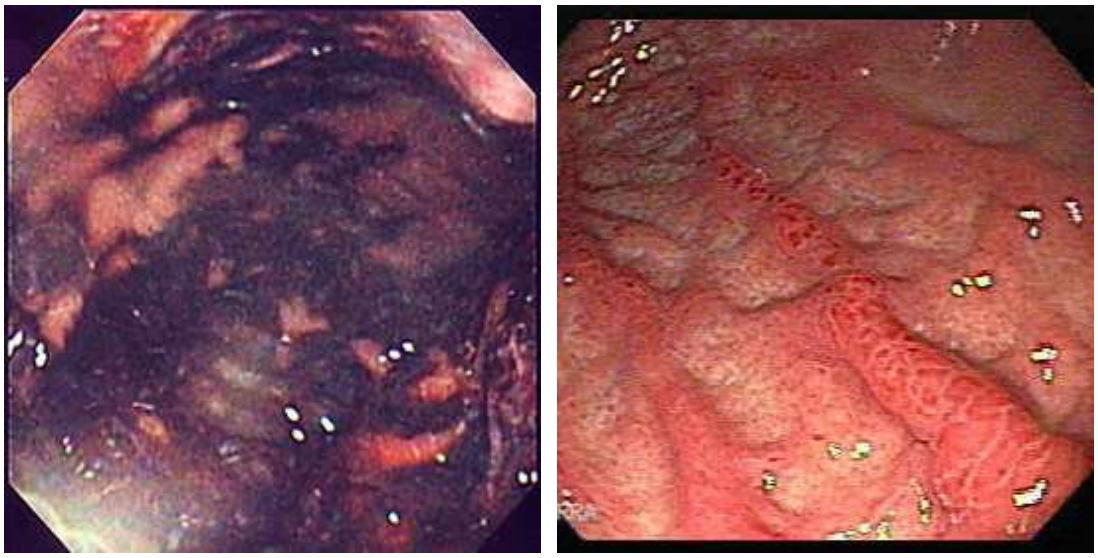
Technical: No manual exposure factor change

Prognosis: acute gastritis recover completely within 48 hours of starting treatment.

33

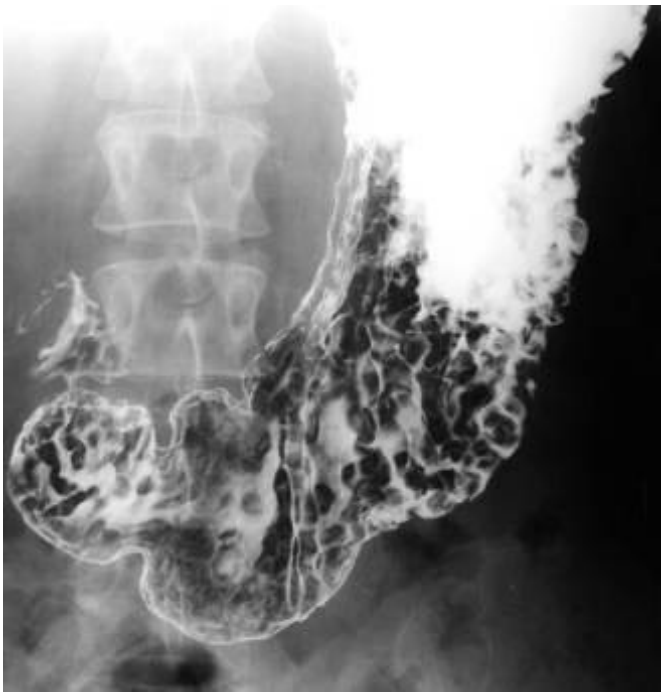


34



35

Erosive Gastritis



36

GASTRIC ULCER

Localized area of erosion in the stomach lining

Causes: Idiopathic
Examples: excessive acid, bacteria, chronic use of anti-inflammatory meds

Complications: internal hemorrhaging, perforation of ulcer

Radiographic appearance:

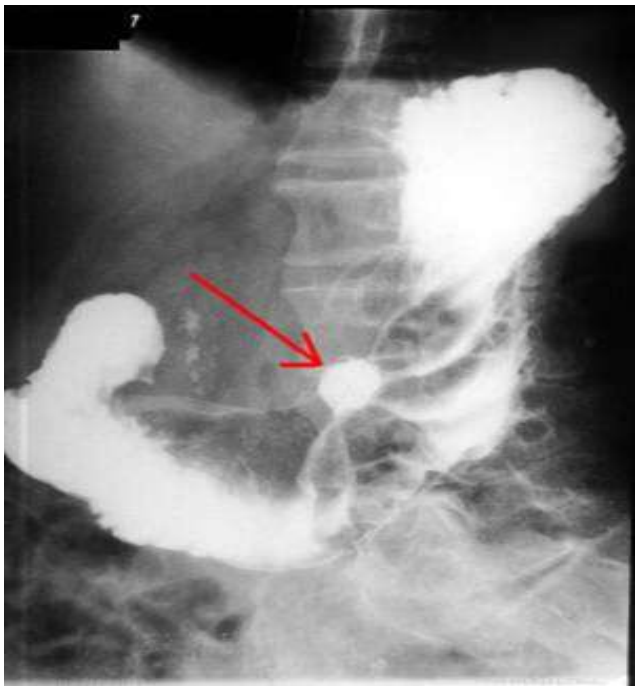
Benign – radiation of mucosal folds (smooth and slender) to the edge of the crater

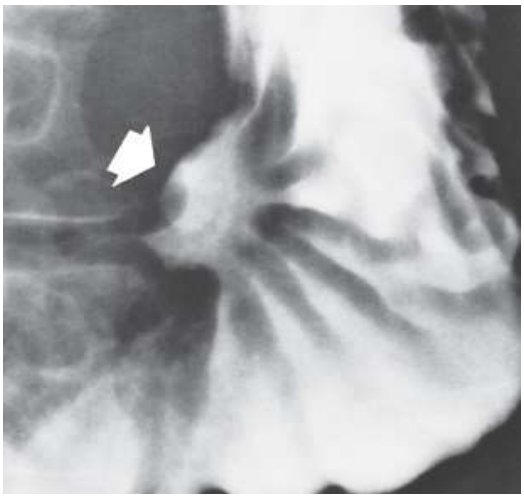
Malignant – irregular folds that merge into a mound of polypoid tissue around the crater

Technical: No manual exposure factor change

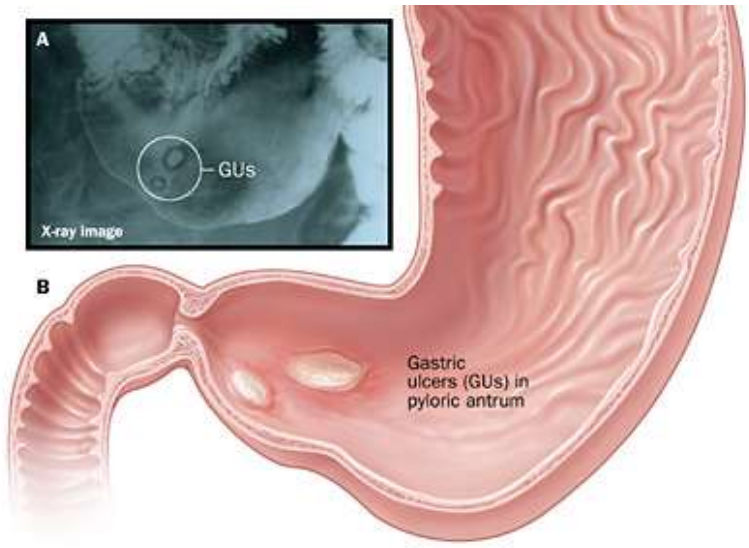
Prognosis: drug therapy provides healing of the ulcer in 6 to 8 weeks.

37





38



39

HIATAL HERNIA

Part of the stomach protrudes through the diaphragm and up into the chest

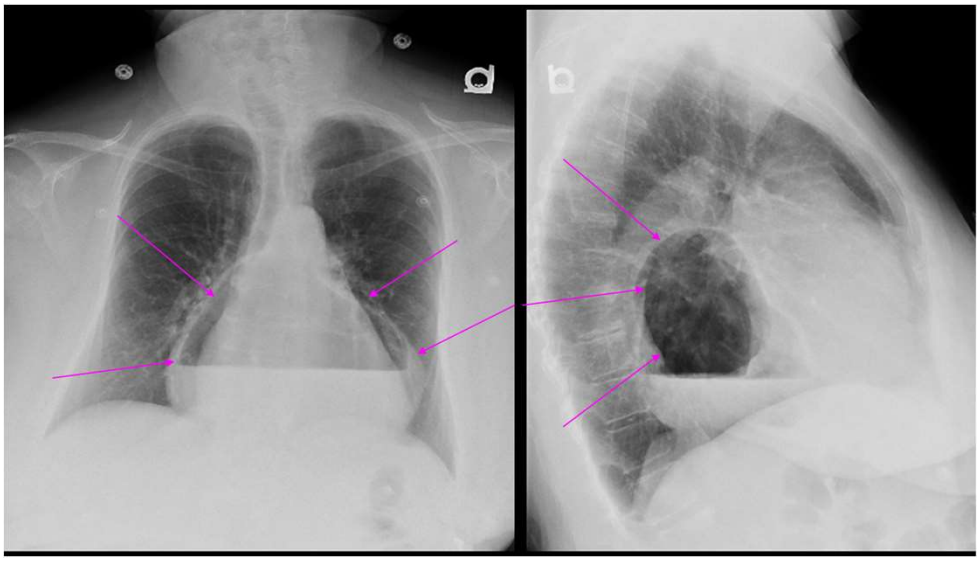
Causes: Idiopathic

Complications: Food and acid will back up in esophagus (heartburn)
Radiographic appearance: Fundus of stomach in lung cavity

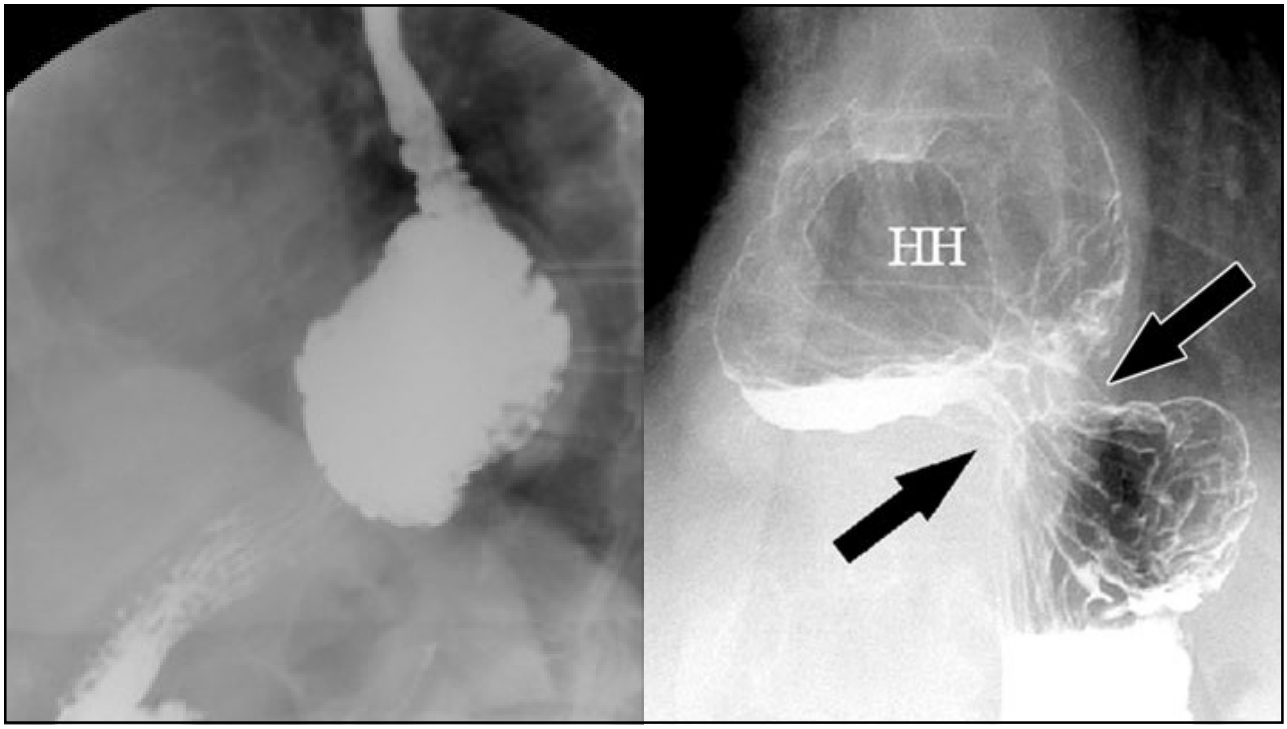
Technical: No manual exposure factor change

Prognosis: Excellent

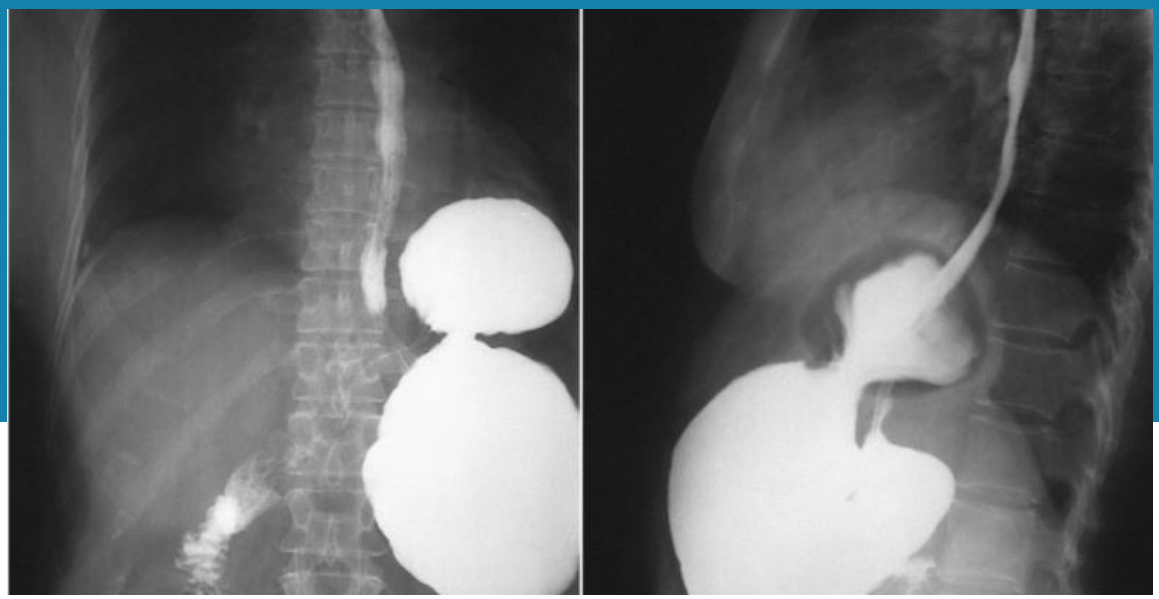
40



41



42



43

PYLORIC STENOSIS

The pylorus muscles thicken, blocking food from entering the baby's small intestine

Causes: Idiopathic
- genetic and environmental factors probably play a role.

Complications: forceful vomiting, dehydration, jaundice and weight loss

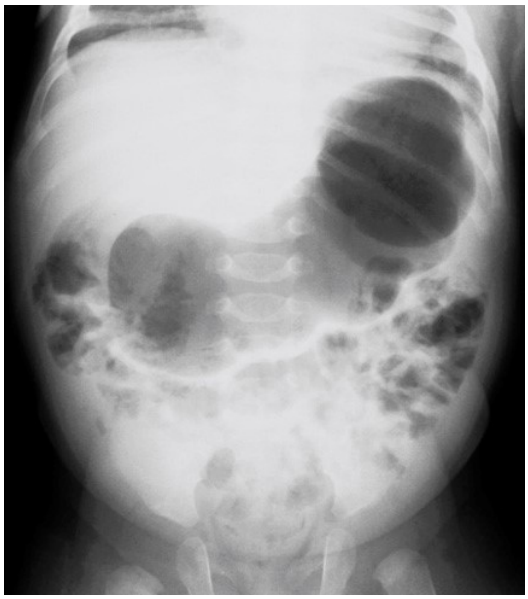
Radiographic appearance:
- fluid-filled or air-distended stomach
- markedly dilated stomach with exaggerated incisura (caterpillar sign)
- Delayed gastric emptying

Technical: No manual exposure factor change

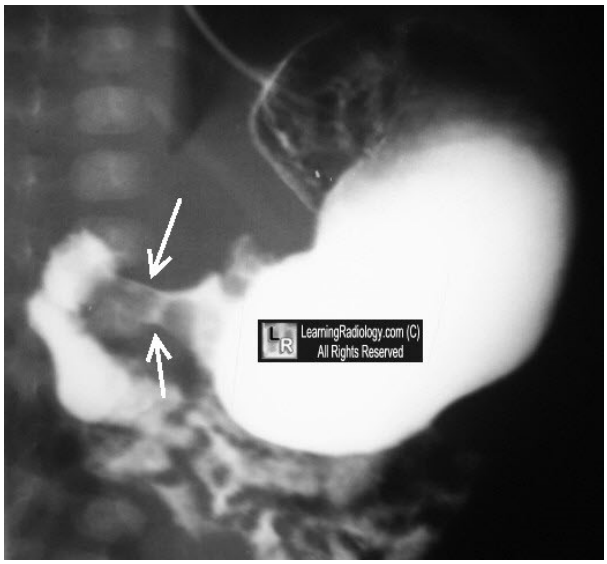
Prognosis: Surgery usually relieves all symptoms. As soon as several hours after surgery, the infant can start small, frequent feedings

http://www.nlm.nih.gov/medlineplus/ency/article/000970.htm http://www.mayoclinic.org/diseases-conditions/pyloric-stenosis/basics/risk-factors/con-20027251 http://emedicine.medscape.com/article/409621-overview#a19

44



Supine radiograph in an infant with vomiting demonstrates the caterpillar sign of active gastric hyperperistalsis



Double track sign – redundant mucosa separates barium into two columns in pyloric channel

45

DIABETES (COMMON ENDOCRINE DISORDER)

Failure to secrete insulin from the pancreas

Causes: Idiopathic

Complications: polyuria, polydipsia, fatty deposits in the walls of vessels, poor circulation, kidney failure

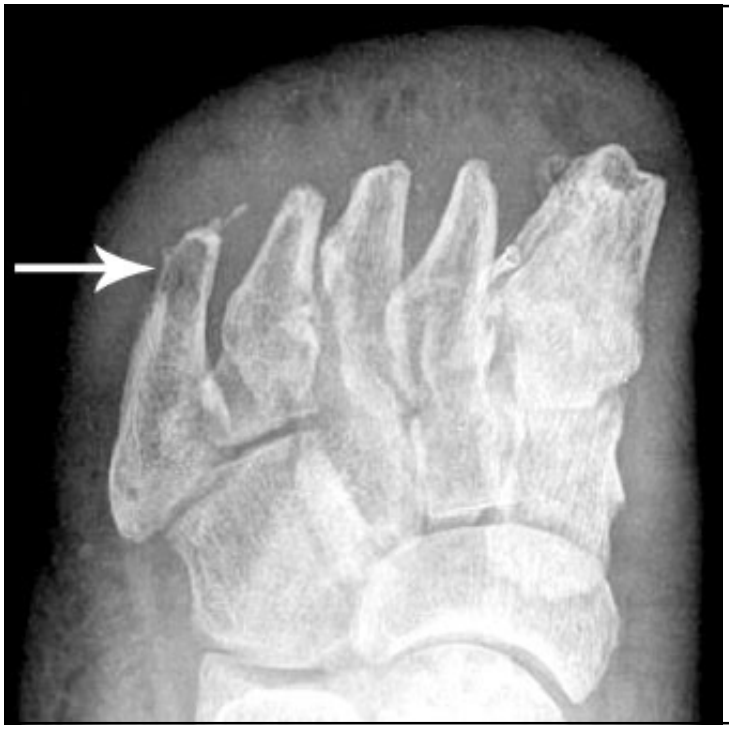
Radiographic appearance:

- Calcifications, atherosclerosis
- Decrease in blood supply, especially in smokers
- May lead to osteomyelitis
- Degeneration of cartilage and recurrent fractures
- Problems in the GI system

Destructive pathology to bone

Prognosis: dependent on patient education

46

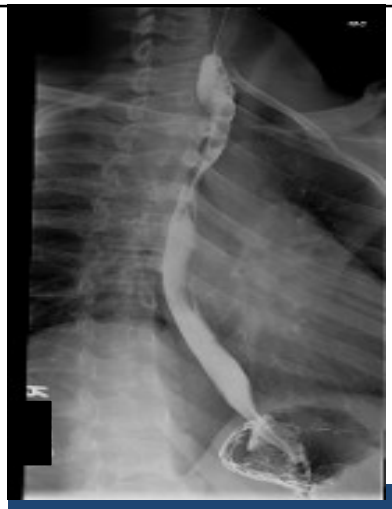


Radiographic image of a diabetic patient who previously underwent a transmetatarsal amputation shows lucency in the distal fifth metatarsal (arrow), suggestive of osteomyelitis.

47

IMAGE ANALYSIS

48

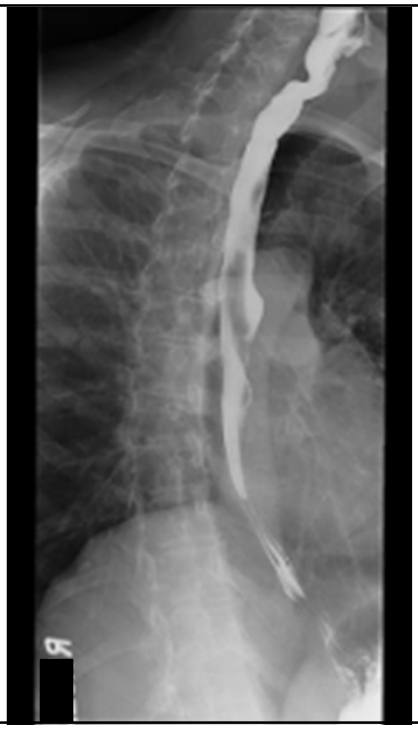


RAO ESOPHAGUS
(RIGHT ANTERIOR OBLIQUE 35-40 DEGREES)

- Evidence of proper collimation and presence of side marker placed clear of anatomy of interest
- Esophagus from the lower part of the neck to its entrance into the stomach
- Esophagus filled with barium
- Penetration of the barium
- Esophagus between the vertebrae and the heart

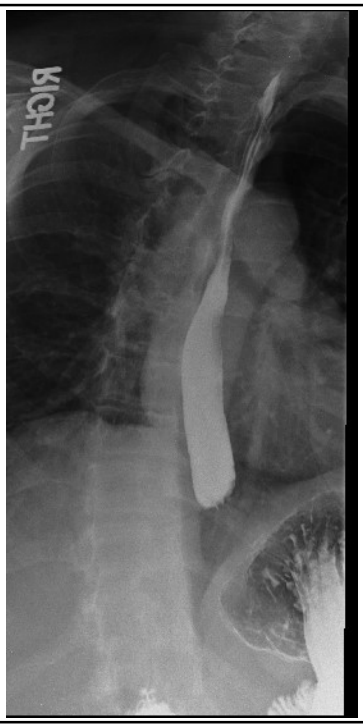
49

A.
EI: 250



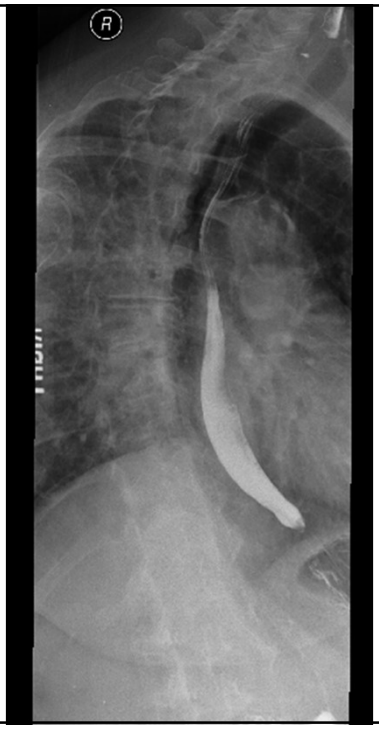
50

B.
EI: 325

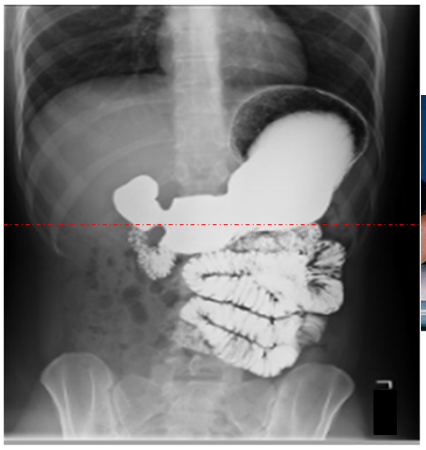


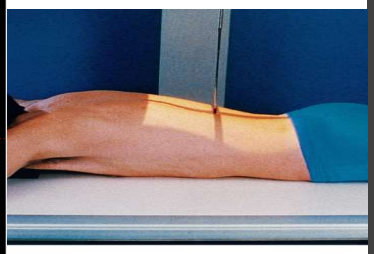
51

C.
EI: 200



52



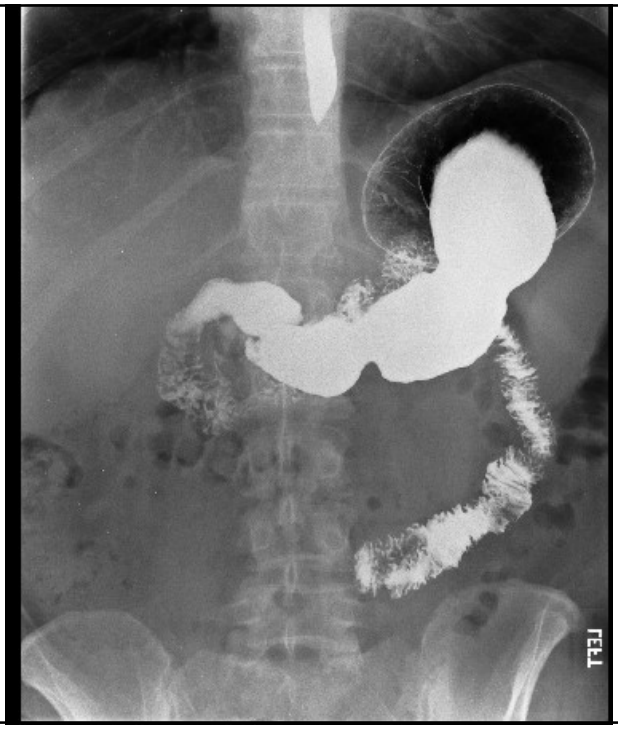


PA-UGI

- Evidence of proper collimation and presence of side marker placed clear of anatomy of interest
- Entire stomach and duodenal loop
- Stomach centered at the level of the pylorus
- No rotation of the patient
- Penetration of the contrast medium
- Surrounding anatomy
- Best to see **body** of stomach; **medial, lateral margins**

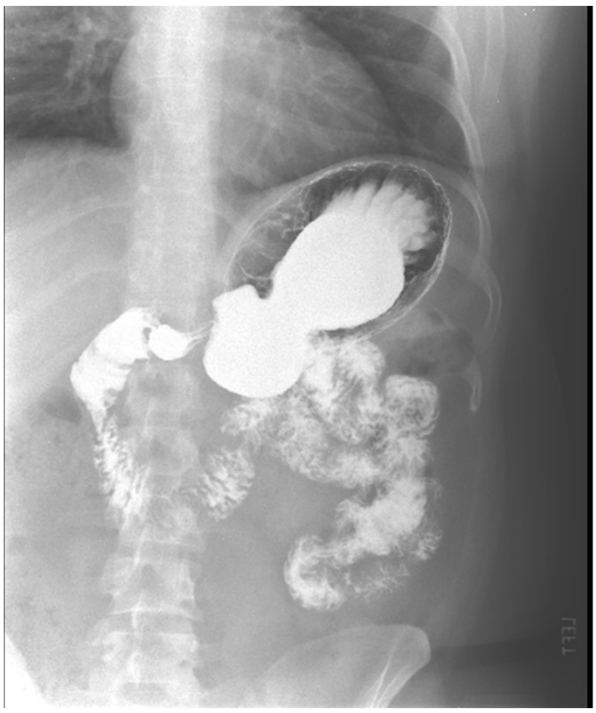
53

D.
EI: 100

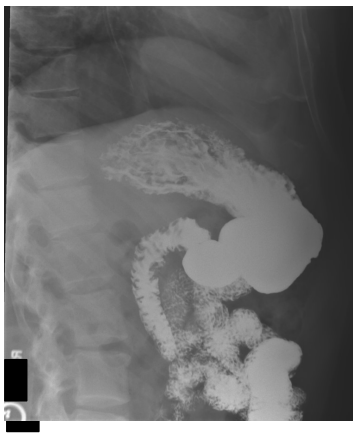


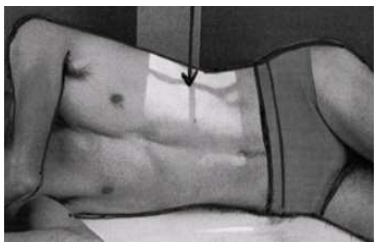
54

E.
EI: 150



55



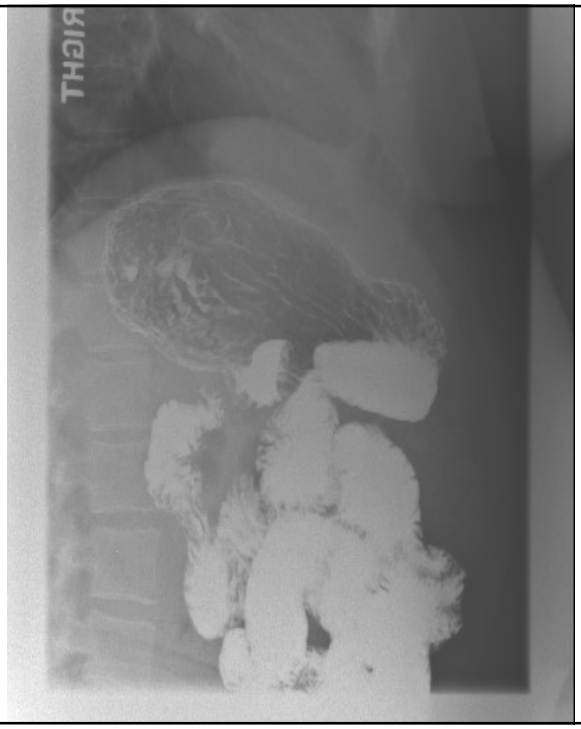


RIGHT LATERAL -UGI

- Evidence of proper collimation and presence of side marker placed clear of anatomy of interest
- Entire stomach and duodenal loop
- No rotation of the patient, as shown by the vertebrae
- Stomach centered at the level of the pylorus
- Penetration of the contrast medium
- Surrounding anatomy
- Best to see the **retrogastric area and loop in profile; anterior, posterior margins.**

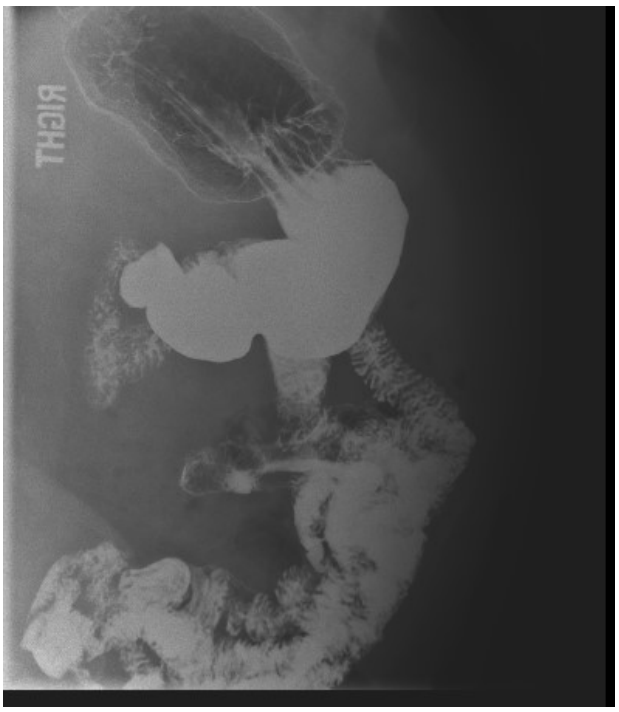
56

F.
EI: 75



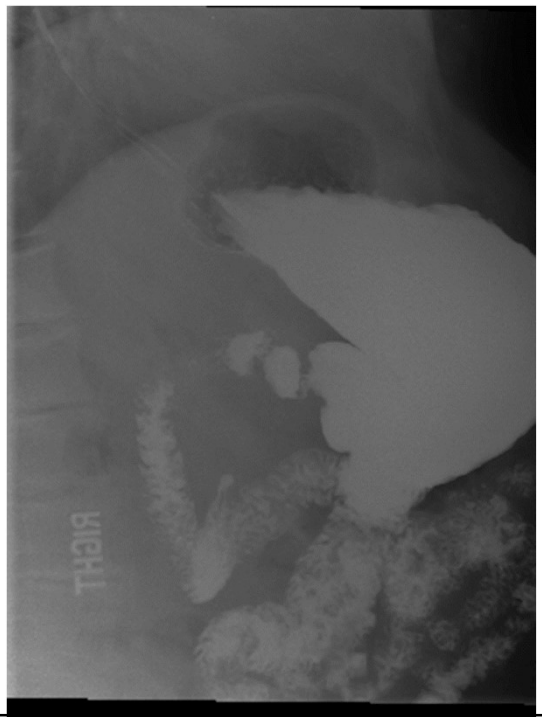
57

G.
EI: 400

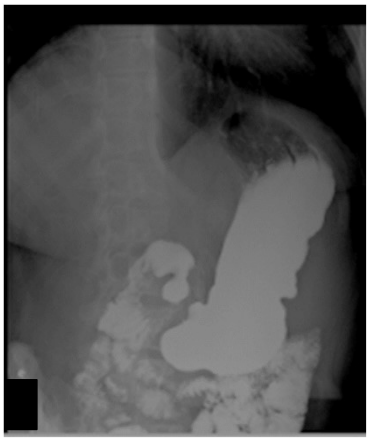


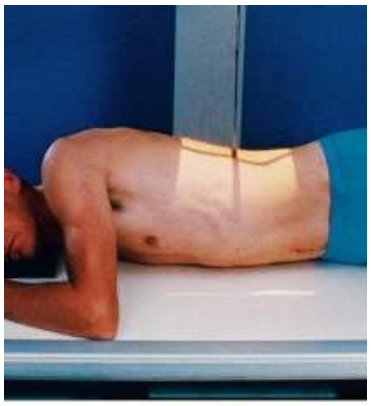
58

H.
EI: 300



59



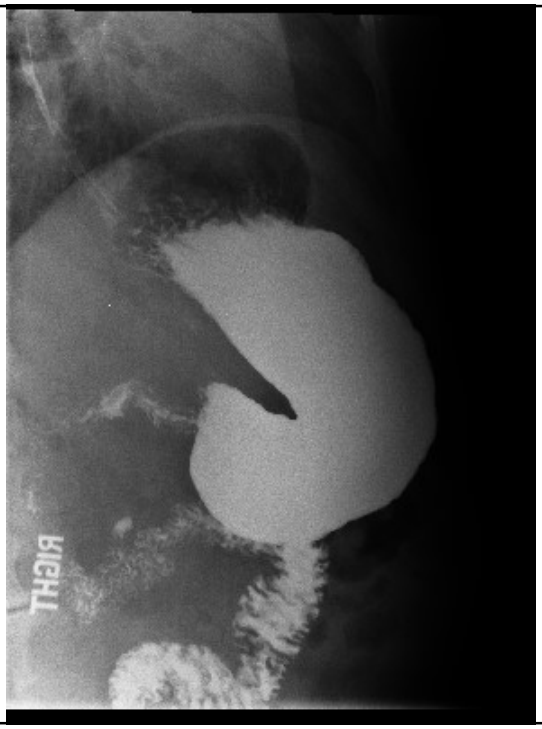


PA OBLIQUE STOMACH- UGI (RAO 40-70 DEGREES)

- Evidence of proper collimation and presence of side marker placed clear of anatomy of interest
- Entire stomach and duodenal loop
- No superimposition of the pylorus and duodenal bulb
- Duodenal bulb and loop in profile
- Stomach centered at the level of the pylorus
- Penetration of the contrast medium
- Surrounding anatomy
- **Best view to see the duodenal bulb filled with barium.**

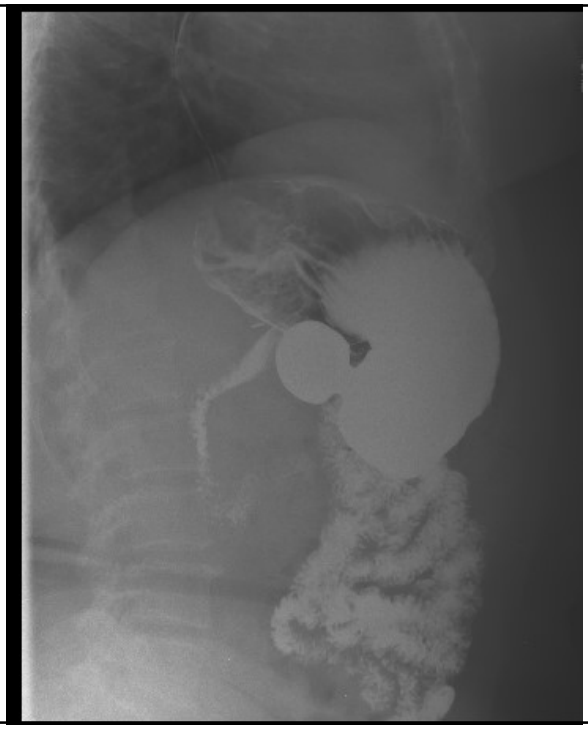
60

I.
EI: 125



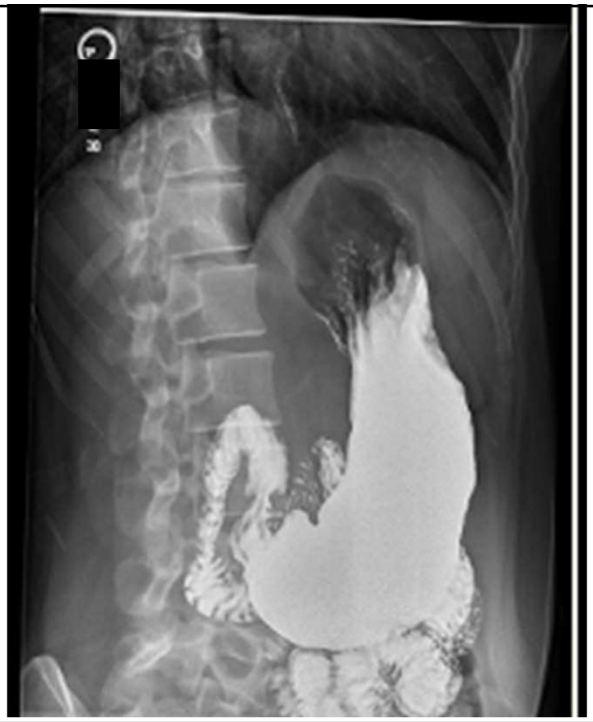
61

J.
EI: 80



62

K.
EI: 225



63