

THE GASTRO-INTESTINAL TRACT

Radiological functional abnormalities of DT

Muscular abnormalities

- Dystonia
 - Hypertonia
 - Atonia
 - Hypotonia
- Diskinesia
- Spasm
- Evacuation disturbances

Mucosal abnormalities

- Hypersecretion

Radiological morphological abnormalities of DT

- **Abnormalities of position and shape**
 - Ptosis
 - Volvulus
 - Dislocation
- **Disturbances of mobility** of mobile segments (fixing) and fixed segments (abnormal mobility)
- **Volume abnormalities**
 - Dilations
 - Diffuse
 - Local
 - Stenosis
 - Diffuse
 - Local
 - Diverticulum (protrusion of the inner lining of the intestine through the outer muscular coat to form a small pouch with a narrow neck)

Radiological morphological abnormalities of DT

- **Lacuna (defect of filling, “gap”)**
 - Solitary
 - Multiple
- **Niche**
- **Mucosal abnormalities**
 - Hypertrophy
 - Atrophy
 - Diversion of plica gastrica
 - Interruption of plica gastrica
- **Pathological presence of gas and liquid in intestine**
- **Pathological presence of gas** in peritoneal cavity, retroperitoneal space, or intramural (in the wall of intestine)

Simple abdominal radiograph



Upright abdominal radiography demonstrating a bowel obstruction. Note multiple air fluid levels

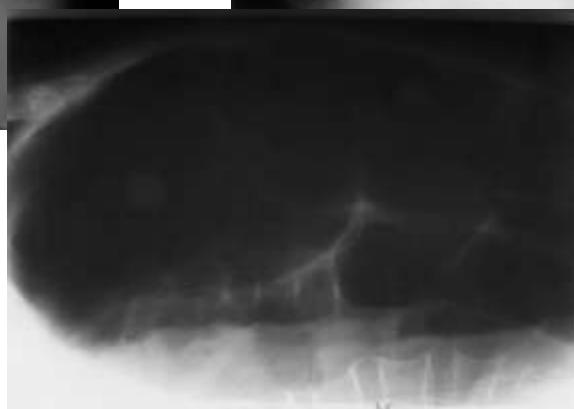
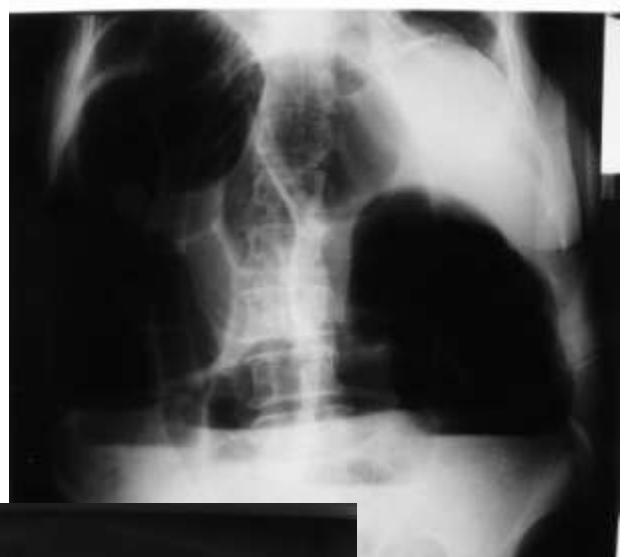
ABDOMINAL X-RAY

Hydroaeric levels

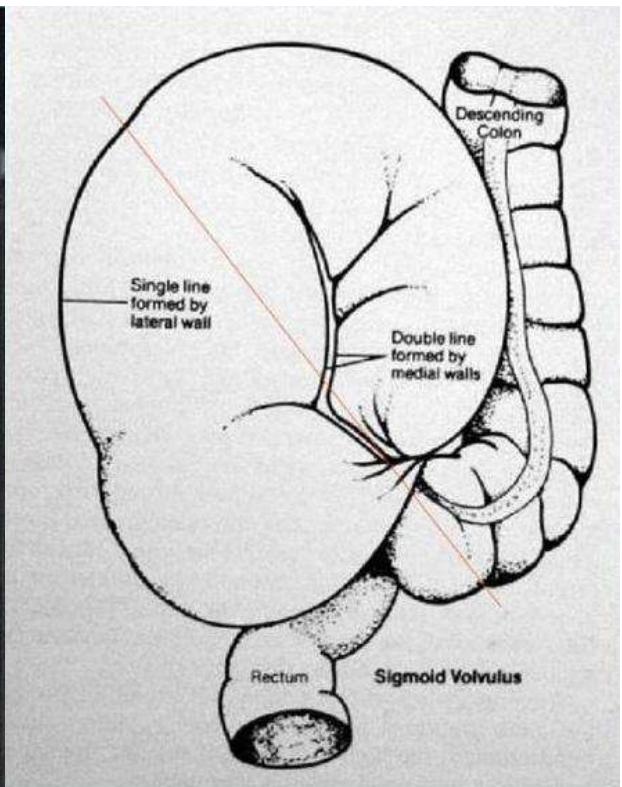








Sigmoid volvulus





Crescentic gaz under the right hemidiaphragm → visceral perforation



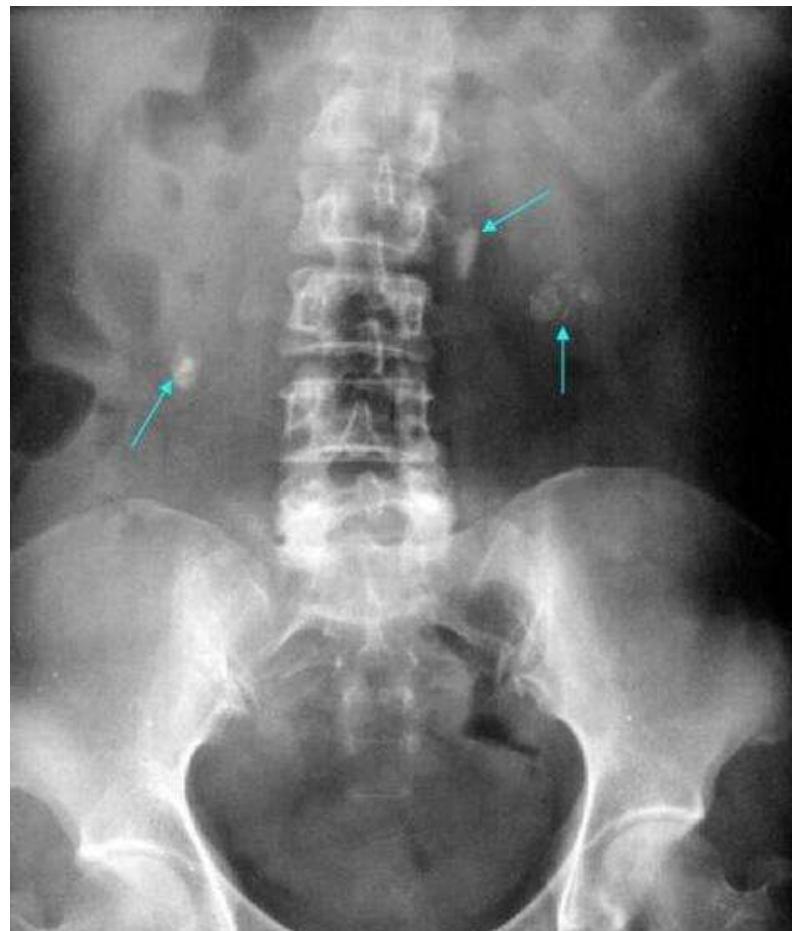
Free air under the diaphragm → visceral perforation

Calcifications:



Chronic calculous pancreatitis

**Calcifications,
stones**

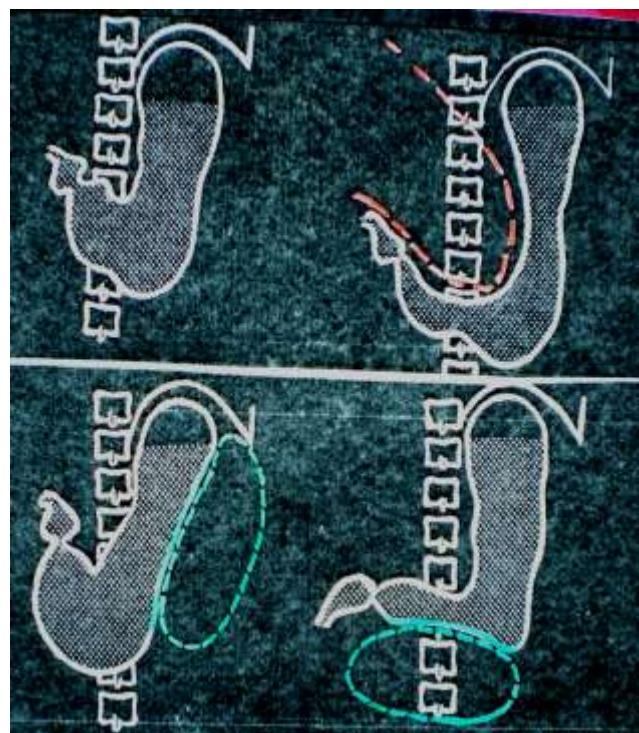


Metallic foreign body

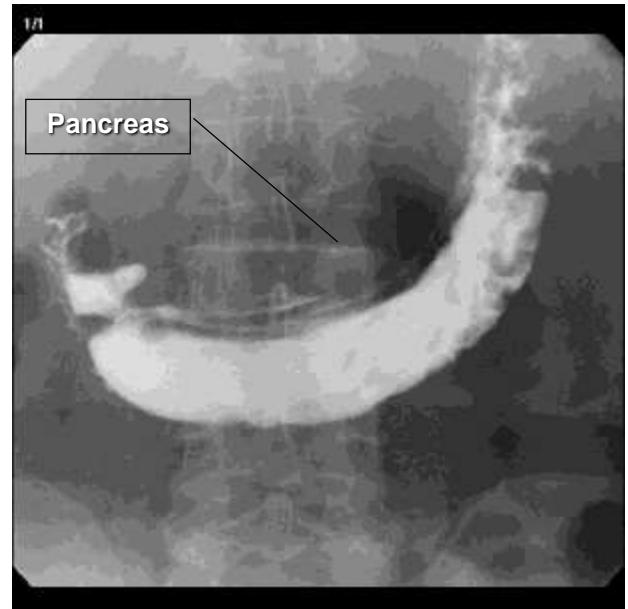
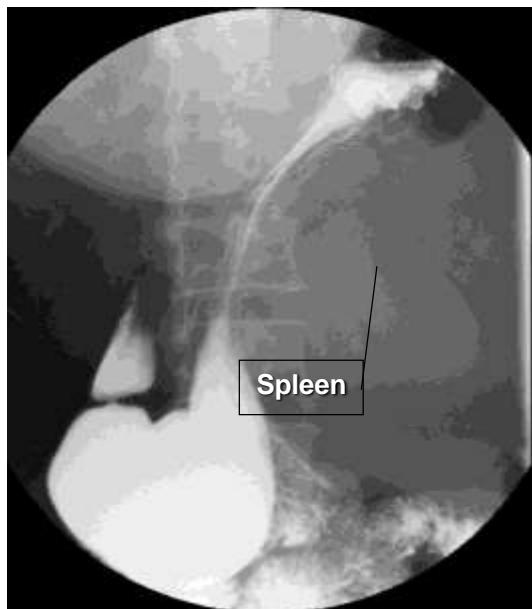


STOMACH DISPLACEMENT IN VISCERO-ABDOMINAL PATHOLOGIES

- Normal
- Hepatomegaly
- Splenomegaly
- Pancreatic pathology

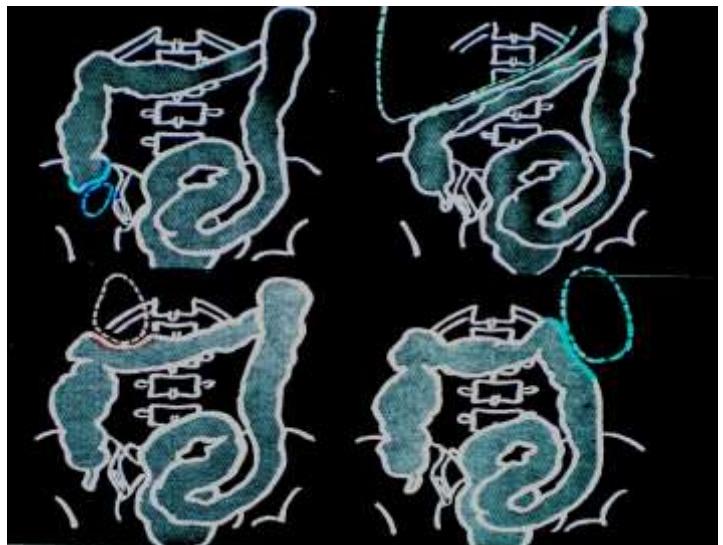


Stomach compression



COLON DISPLACEMENT IN VISCERO-ABDOMINAL PATHOLOGIES

1. Appendicular plastron
2. Hepatomegaly
3. Gallbladder pathology
4. Splenomegaly



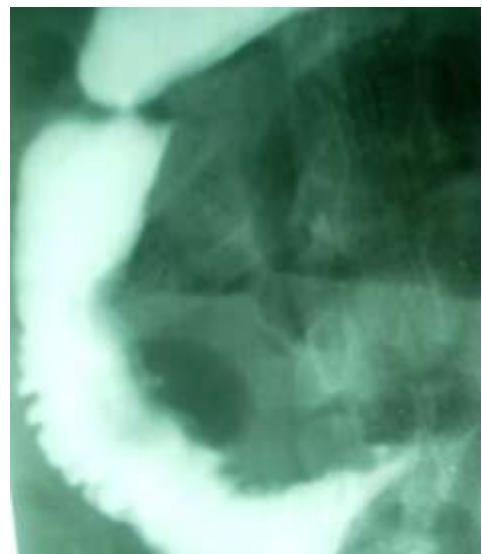


An enlarged liver (*) displacing the ascending and transverse colon downward.



A large soft tissue mass in the right abdomen

Chronic pancreatitis



Cephalic pancreatic tumor



Intestinal malrotation

- the duodenum is placed retroperitoneally on the right, the duodenoejunal flexure with the entire small intestine are also placed on the right side, the colon is placed on the left.



Esophageal diverticula

- Diverticulum (protrusion of the inner lining of the intestine through the outer muscular coat to form a small pouch with a narrow neck)
- **True diverticula** involve all layers, including muscularis propria and adventitia.
- **False diverticula** involve only the submucosa and mucosa without affecting the muscular layers or adventitia.
- **Traction esophageal diverticula** usually occur due to scarring from mediastinal or pulmonary tuberculosis



CERVICAL ESOPHAGEAL DIVERTICULUM



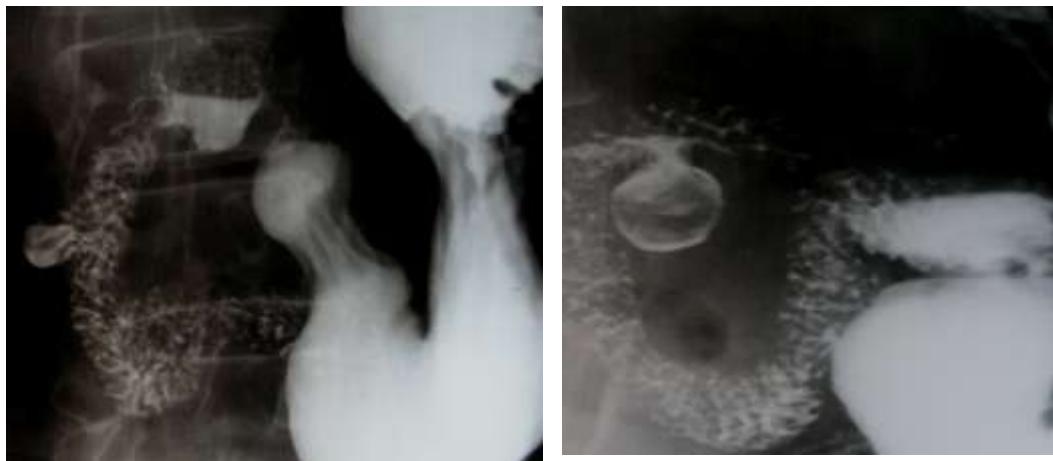
ESOPHAGEAL DIVERTICULUM



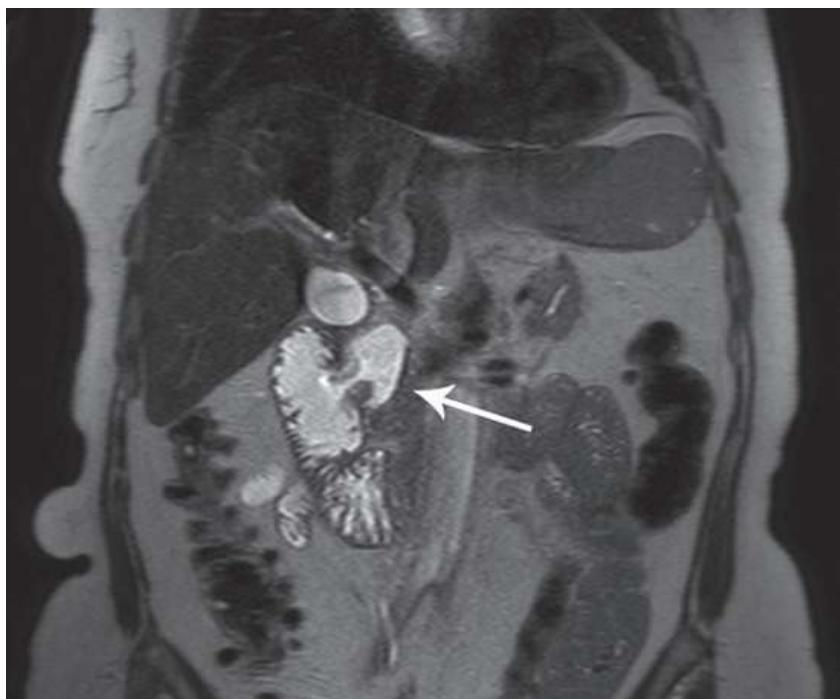
EPIPHRENIC ESOPHAGEAL DIVERTICULUM



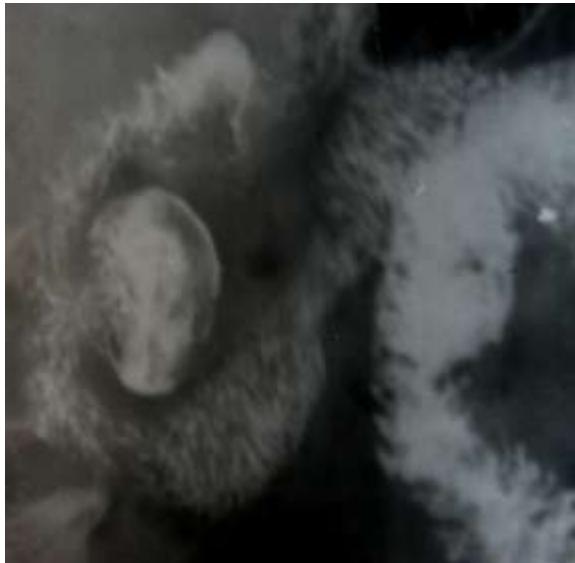
DUODENAL DIVERTICULUM



DUODENAL DIVERTICULUM



DUODENAL DIVERTICULUM



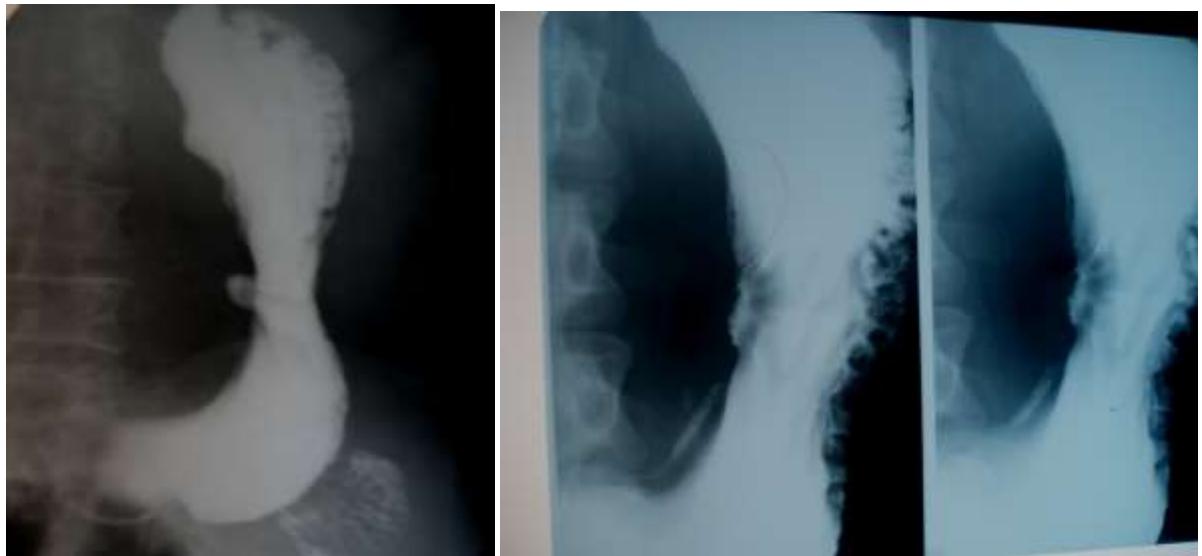
Colon diverticulosis



GASTRIC ULCER

Radiological morphological sings

- Niche
- Marginal edema
- Convergence of plica gastrica

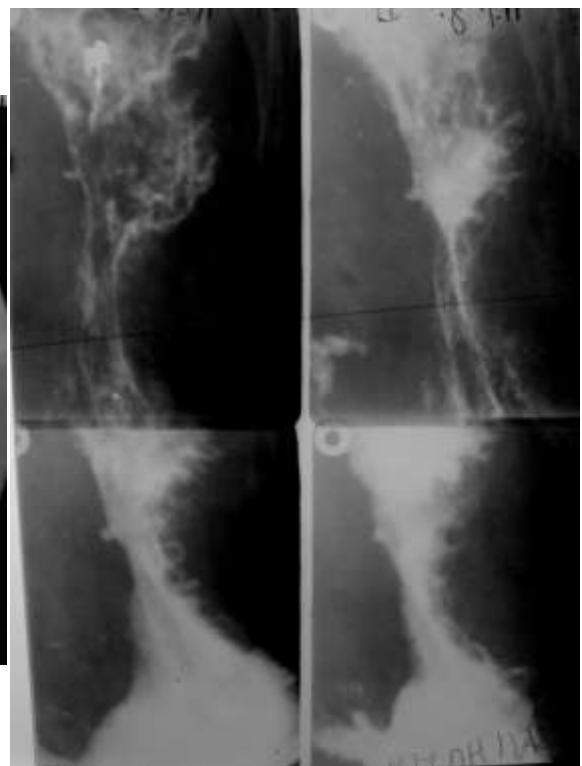




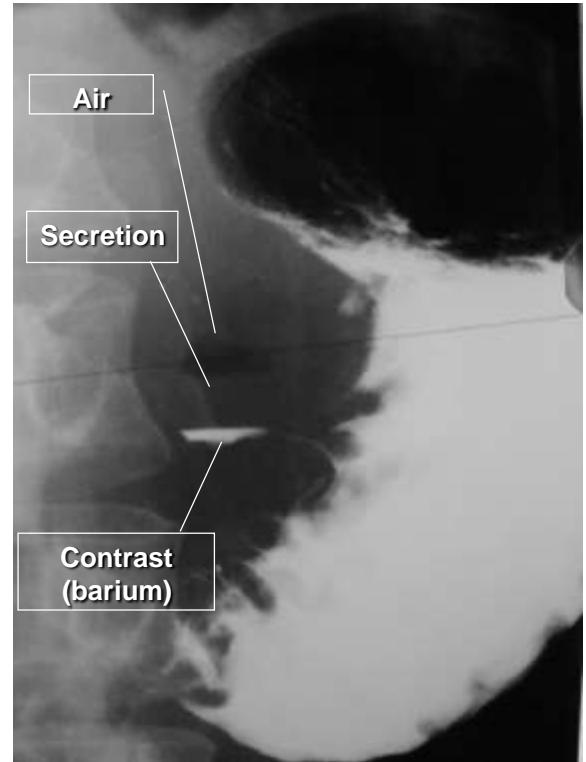
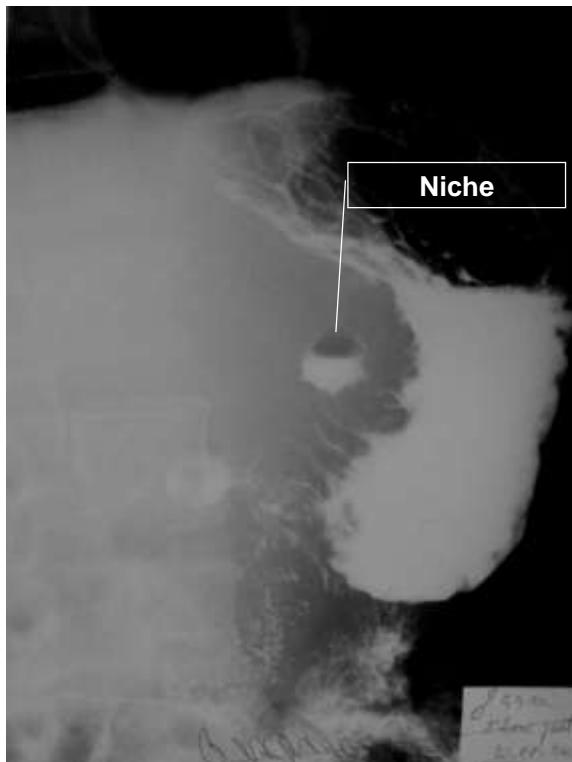
Gastric ulcer on the vertical
segment of the lesser curvature



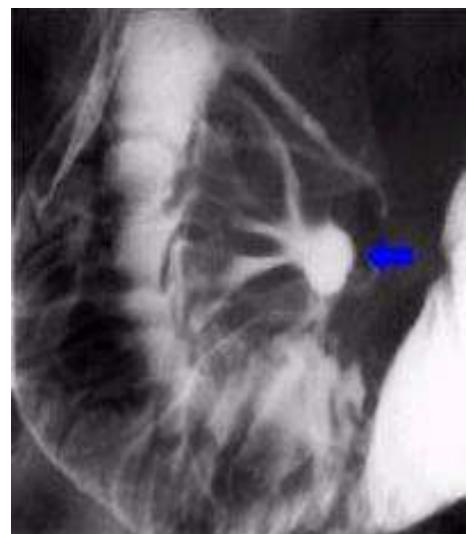
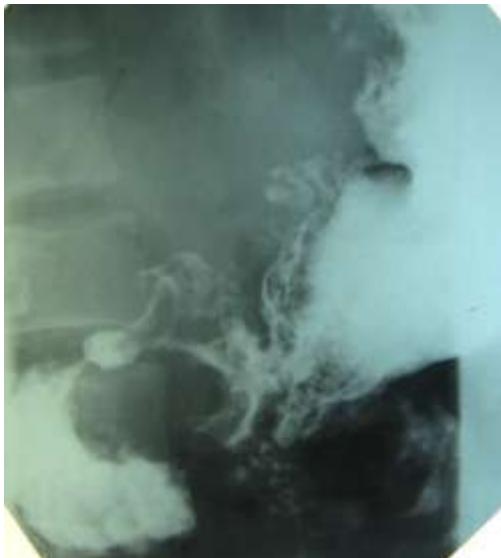
Gastric ulcer
Niche, marginal edema



Niche

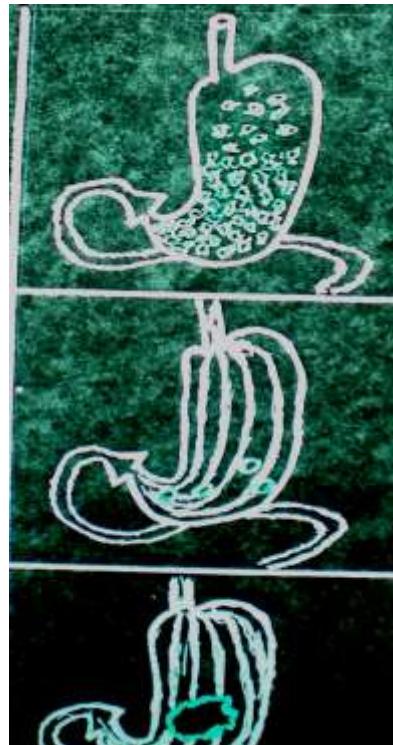


Duodenal Ulcer



GASTRIC MUCOSAL ABNORMALITIES

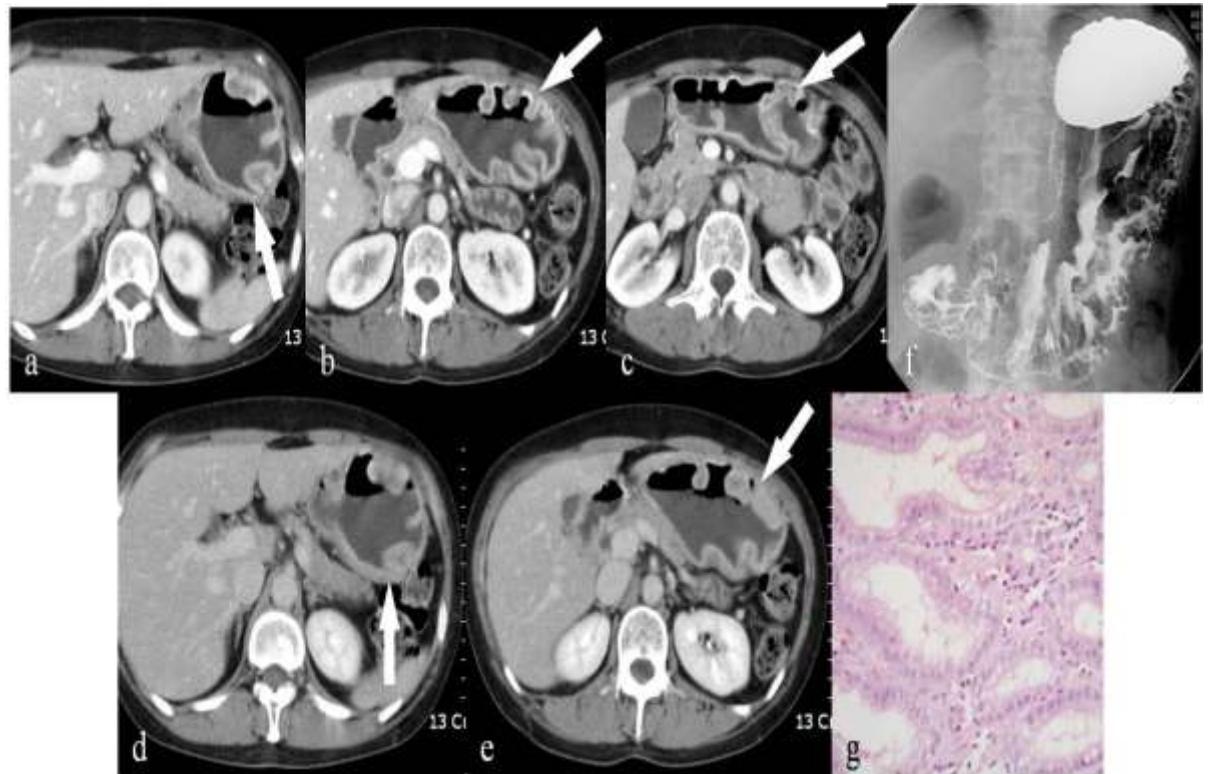
- Enlarged area gastrica
- Ovoid lacunar defect of mucosa
- Interruption of plica gastrica



- Chronic gastritis
- Gastric polip
- Gastric tumor

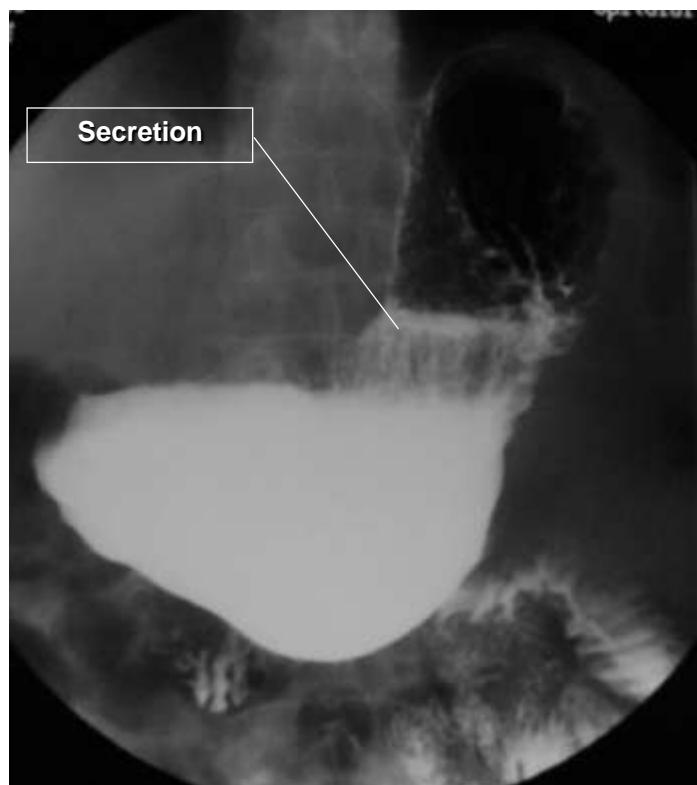
Hypertrophic gastric folds / normal folds





Hypertrophic gastritis.

Gastric Stasis



HEMORRHAGIC RECTOCOLITIS



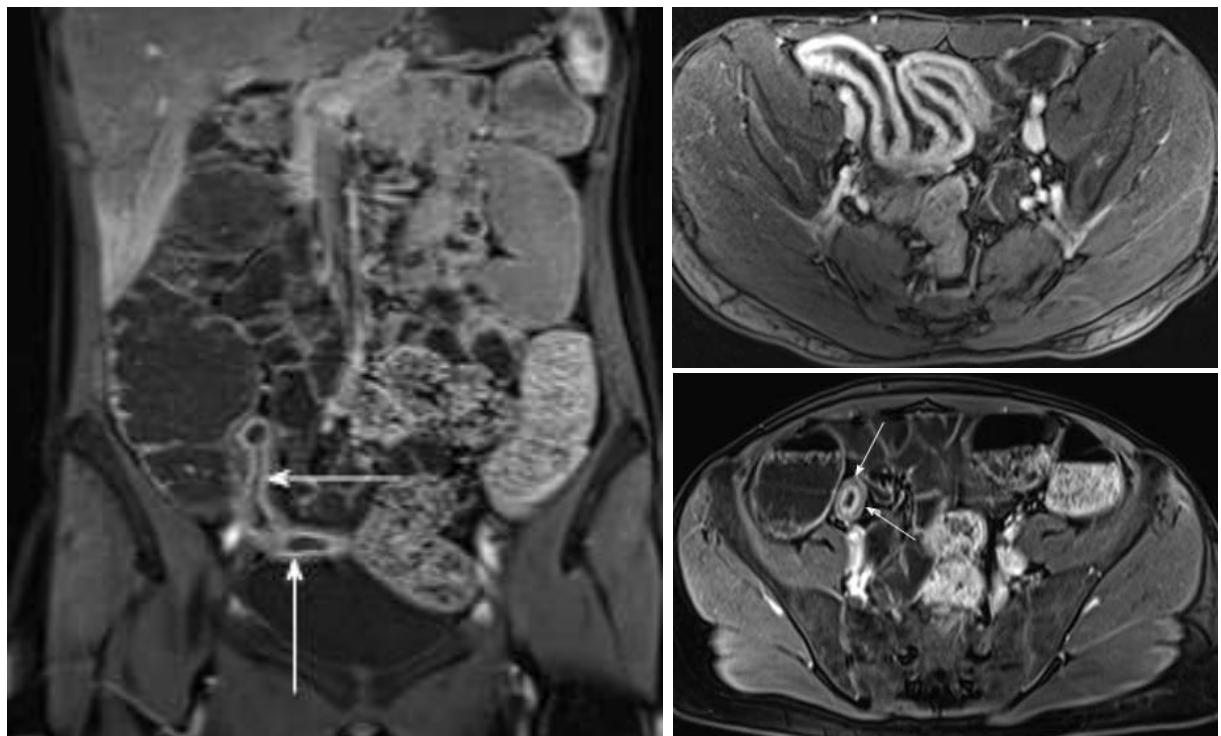
Dissapear the hastration

Crohn's disease

also known as regional enteritis, is an idiopathic inflammatory bowel disease characterized by widespread discontinuous gastrointestinal tract inflammation. The terminal ileum and proximal colon are most often affected. Extraintestinal disease is common.

- mucosal ulcers
- thickened folds due to edema
- string sign - tubular narrowing due to spasm or stricture
- partial obstruction

Crohn's disease



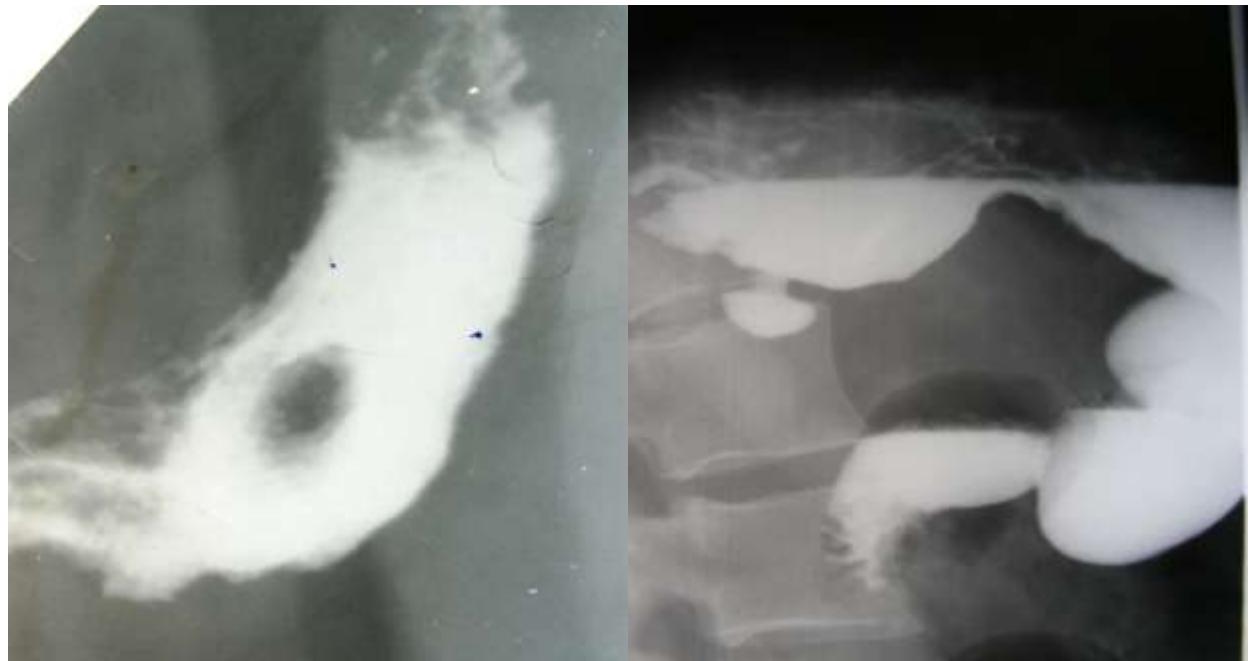




Pseudolacuna (mucus, pus)
Mucosal edema
Granulation
Mucosal hyperplasia and regeneration

Acute appendicitis



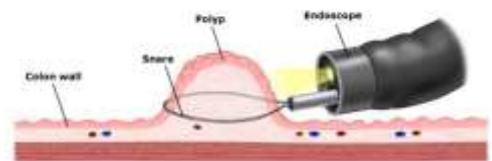
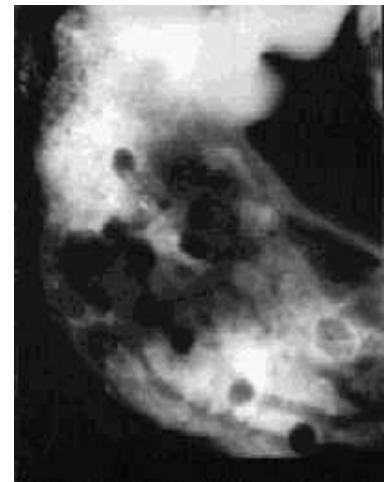


Gastric polyp

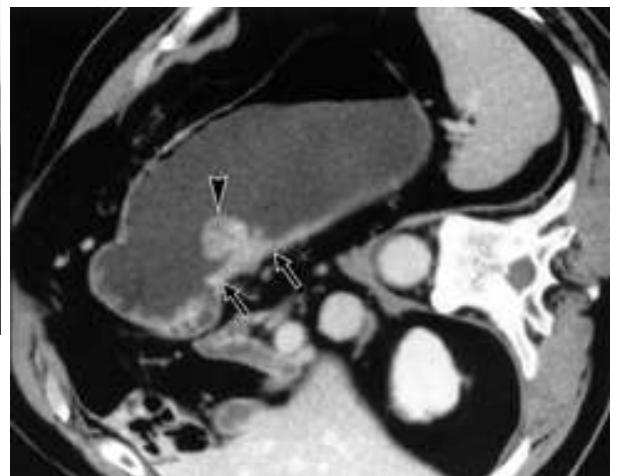
Gastric diverticulum

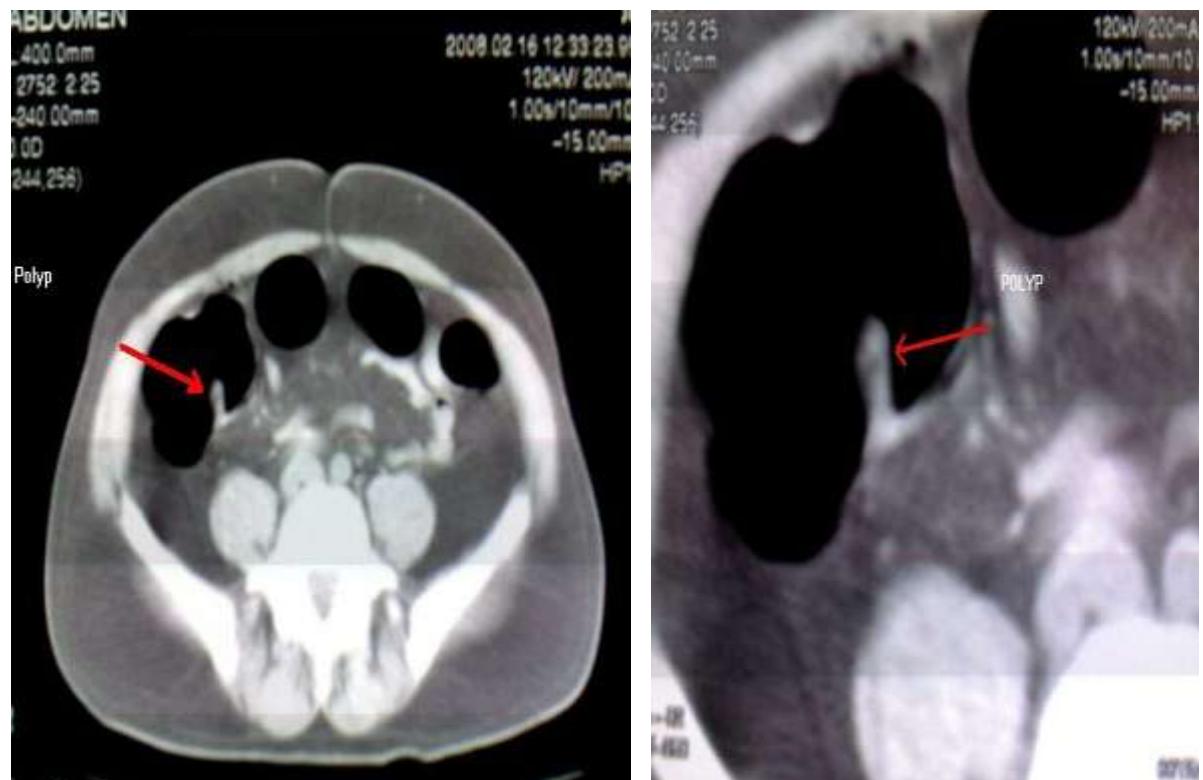
Gastric polyp

Lacunar image (defect of filling, gap -image „minus filling”,) with regular borders



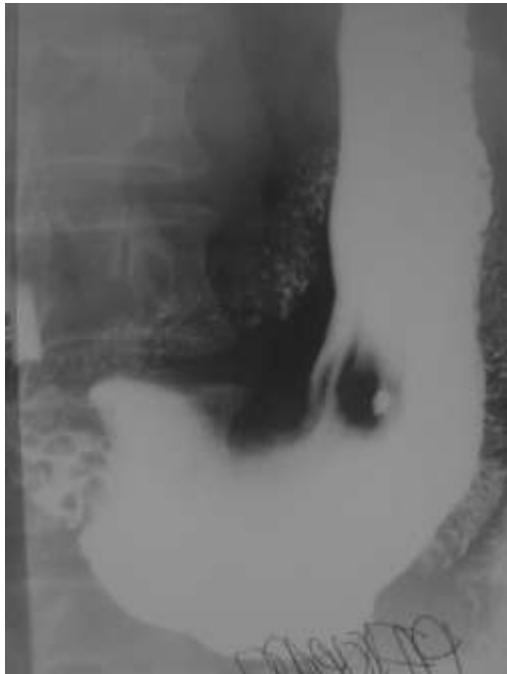
Gastric polyp





Colonic polyp

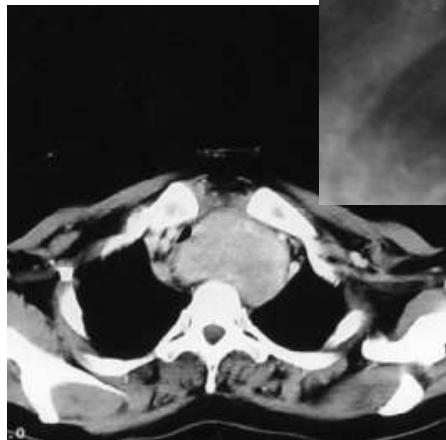
Gastric polyp



Gastric polyposis



Leiomyoma



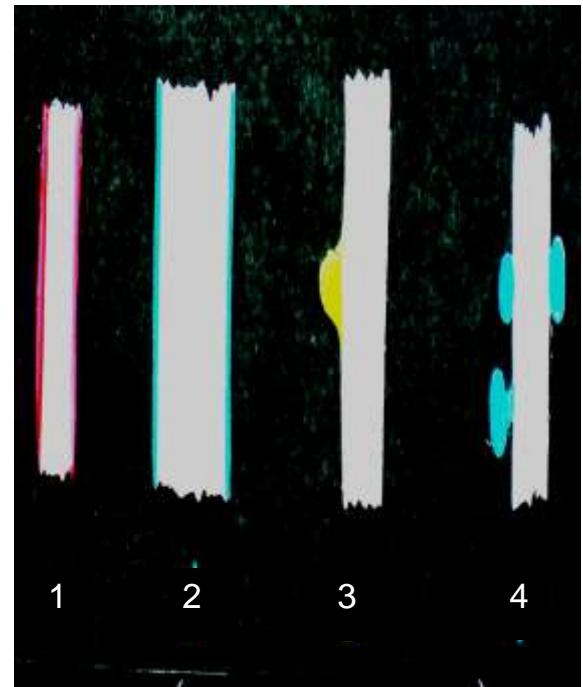
ESOPHAGEAL VARICES

- describe dilated submucosal veins of the esophagus, and are an important portosystemic collateral pathway
- longitudinal esophageal luminal filling defects



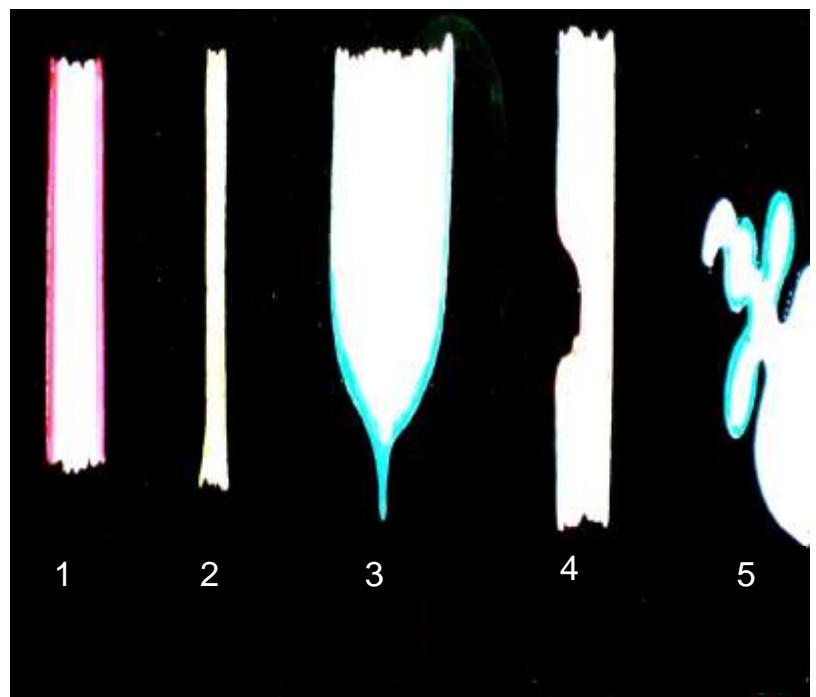
Types of DT dilations

1. Normal
2. Diffuse dilation
- 3,4. Local dilaton



Types of DT stenosis

1. Normal
2. Diffuse stenosis
3. Local stenosis
with
suprastenotic
dilation
4. Local stenosis by
defect of filling
(eccentric)
5. Local stenosis
with
deformation



ACHALASIA

Esophageal achalasia, (achalasia

**cardiae, cardiospasm, esophageal
aperistalsis)** is an esophageal
motility disorder involving the smooth
muscle layer of the lower esophageal
sphincter, and characterized by:

- incomplete lower esophageal sphincter relaxation,
- increased tonus,
- aperistalsis.
- functional obstruction of the esophagus

1. Stenosis of cardia
2. Absence of air in fundus of stomach
3. Suprastenotic expansion of the esophagus



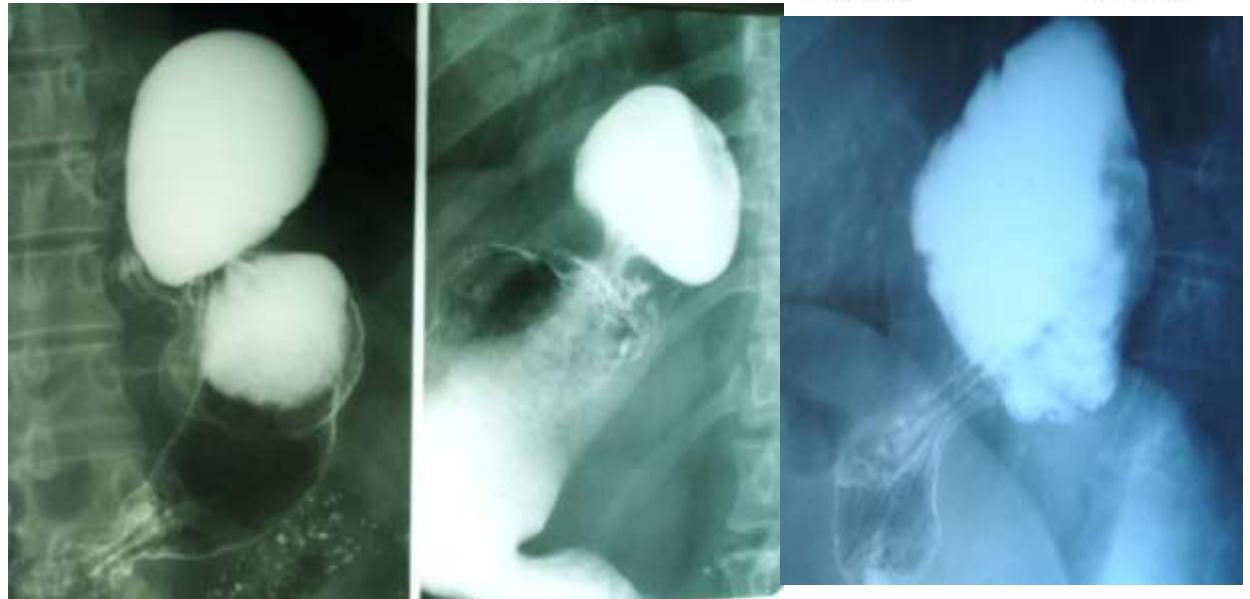
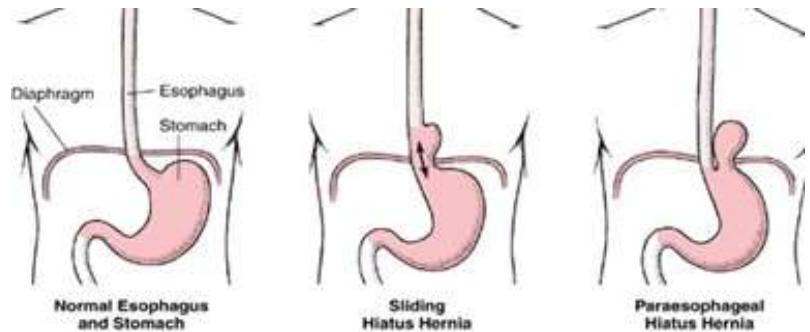
ACHALASIA

- Acute tapering at the lower esophageal sphincter and narrowing at the gastro-esophageal junction, producing a "bird's beak" or "rat's tail" appearance.
- Dilatation of the esophagus above the narrowing is also present



HIATAL HERNIA

Protrusion (or herniation) of the upper part of the stomach into the chest cavity through the esophageal hiatus because of a weakness in the diaphragm



HIATAL HERNIA



Postcaustic stenosis

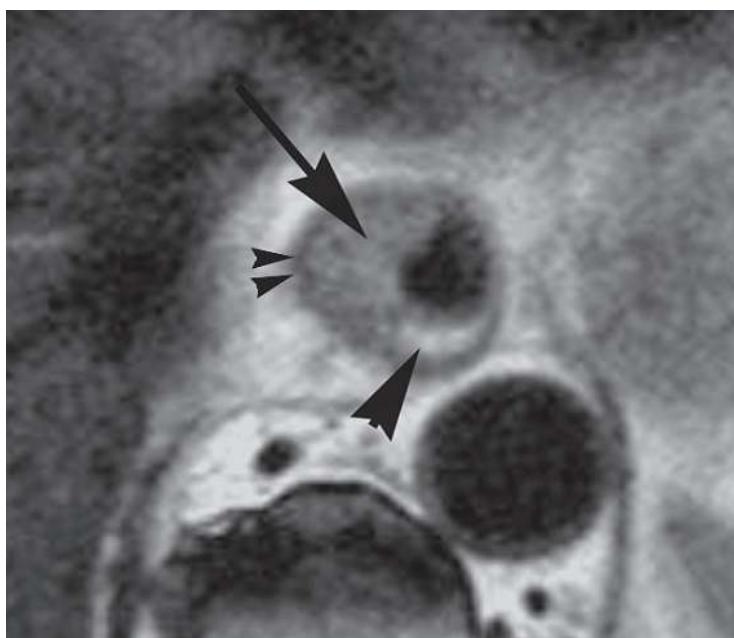


ESOPHAGEAL MALIGNANT TUMOR

- Stenosis
- Irregular contour
- Rigid walls
- Suprastenotic dilation



Esophageal cancer



Benign tumor vs malignant stenosis



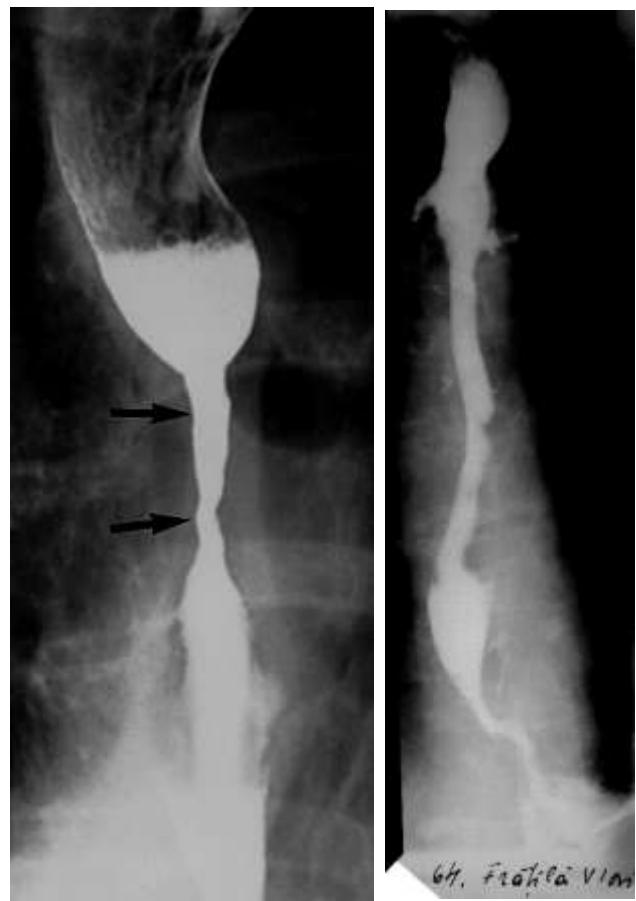
Esophageal carcinoma – infiltrative



Stenosis – infiltrative carcinoma



Infiltrative carcinoma

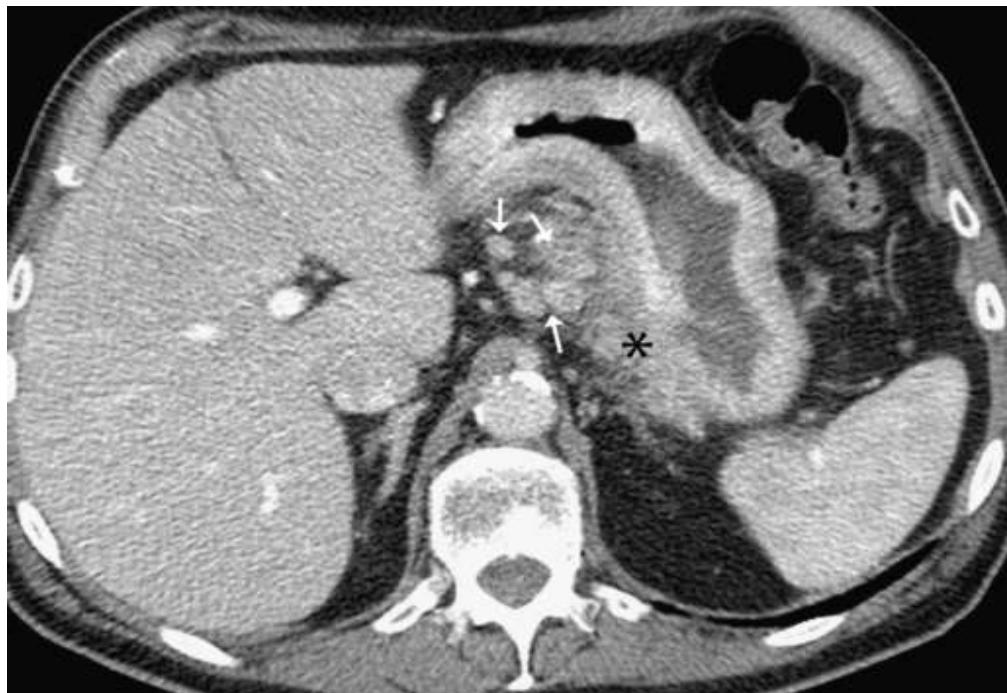


64. Fröhla Vian

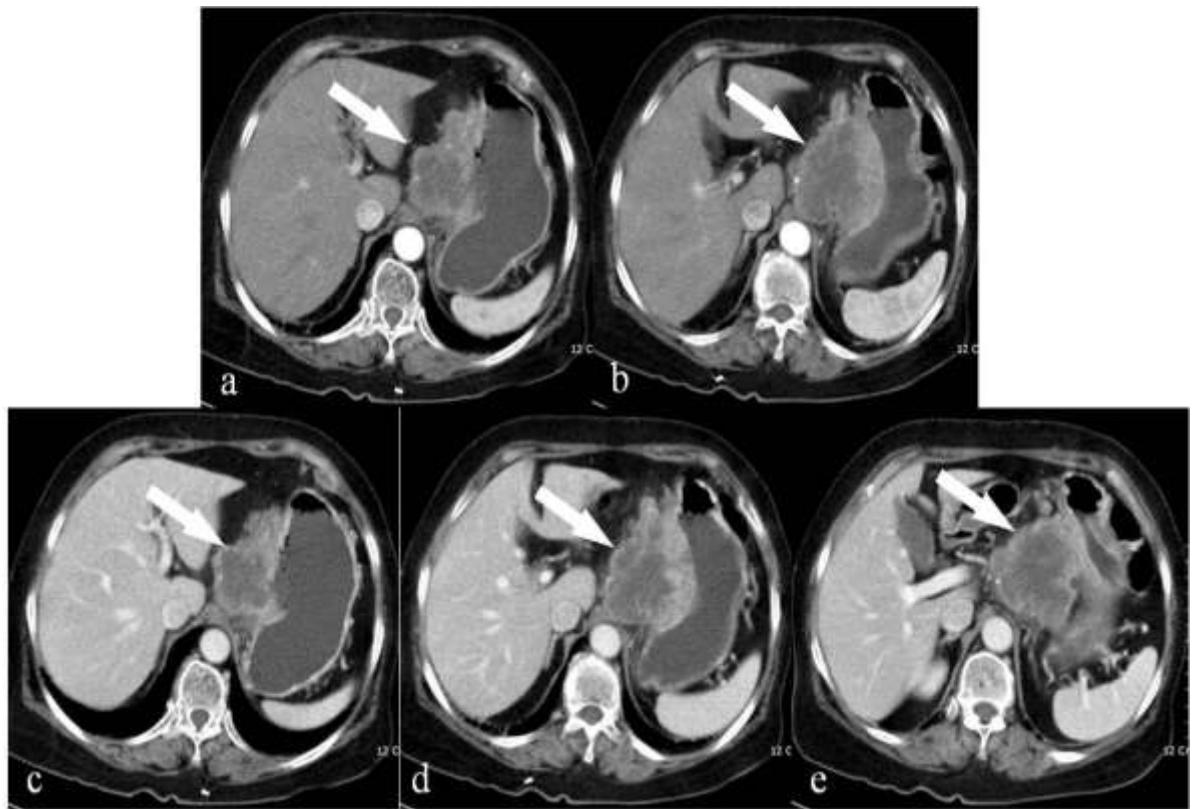
GASTRIC MALIGNANT TUMOR

- Lacunar image
(defect of filling)
with irregular
borders





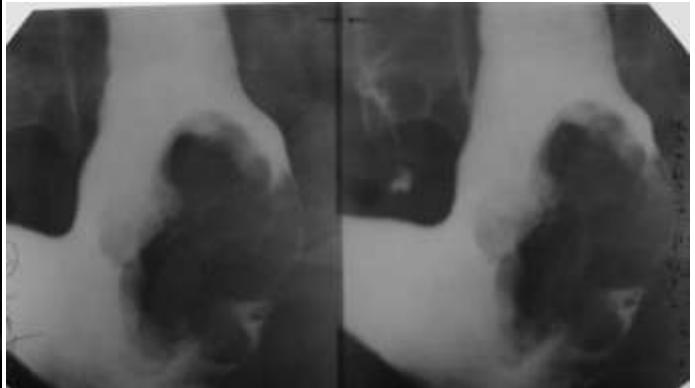
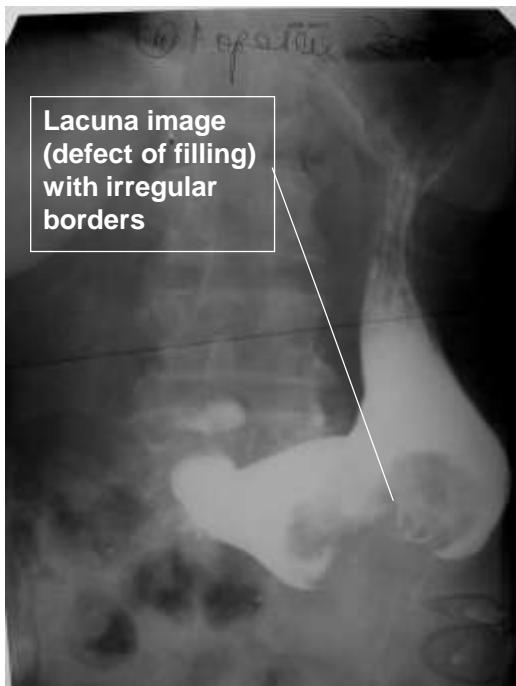
Gastric adenocarcinoma: axial contrast-enhanced CT (CECT) showing tumour arising from the lesser curvature of the stomach (asterisk) associated with enlarged regional gastrohepatic nodes



Exophytic adenocarcinoma.



adenocarcinoma

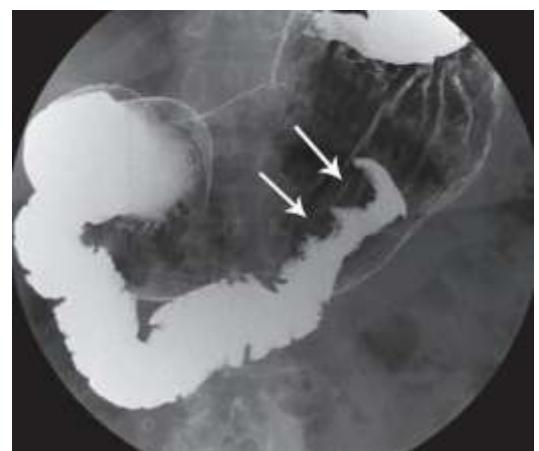
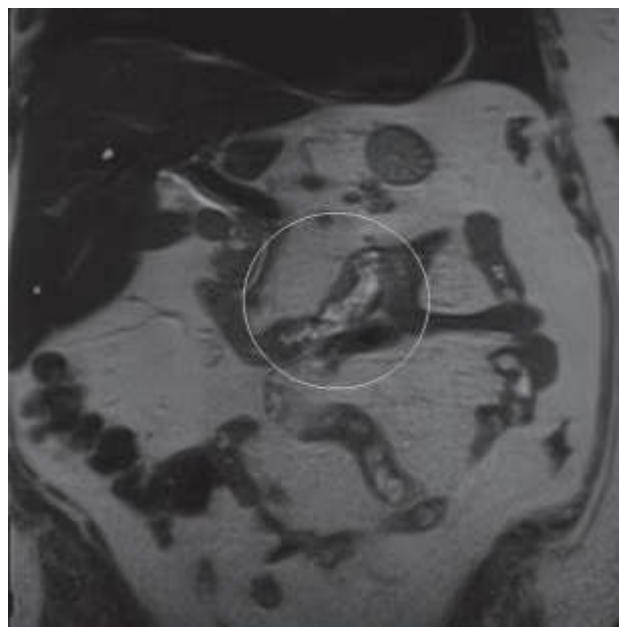




Gastric linitis plastica



Adenocarcinoma of the fourth portion of the duodenum



COLON CANCER

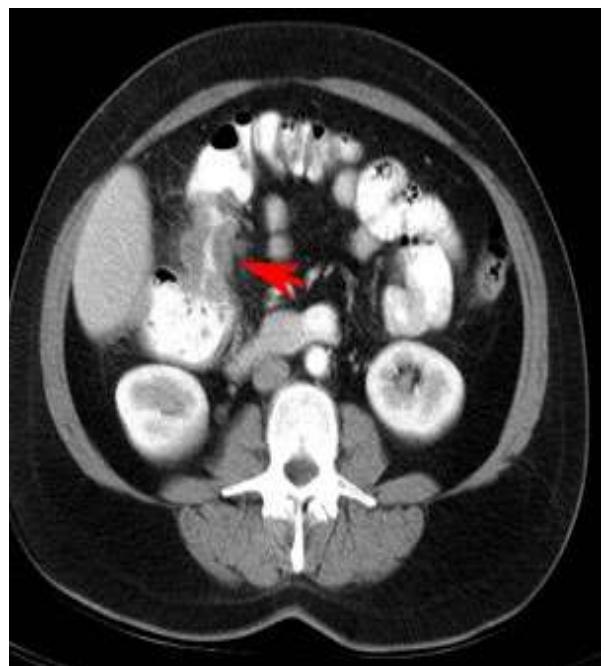
- Concentric local stenosis with irregular contours - „apple core” sign
- Wall rigidity



Colon Adenocarcinoma



- local stenosis with irregular borders - „apple core“ sign



- thick irregular walls with local stenosis



Carcinoma of the ascending colon.

Colon vegetative cancer



SIGMOID COLON CANCER



Colorectal tumor

