



SPECIAL RADIOLOGICAL PROCEDURES

CONTRAST MEDIA

Sawa University

جامعة ساوة الاهلية

College of health and medical techniques

كلية التقنيات الصحية والطبية

Department of Radiology Tech.

قسم تقنيات الاشعة والسونار

Stage second

المرحلة الثانية

محاضرة رقم 5

الجانب النظري

Lecture No.5

Theoretical

تدريسي المادة : سهى رحيم هلال

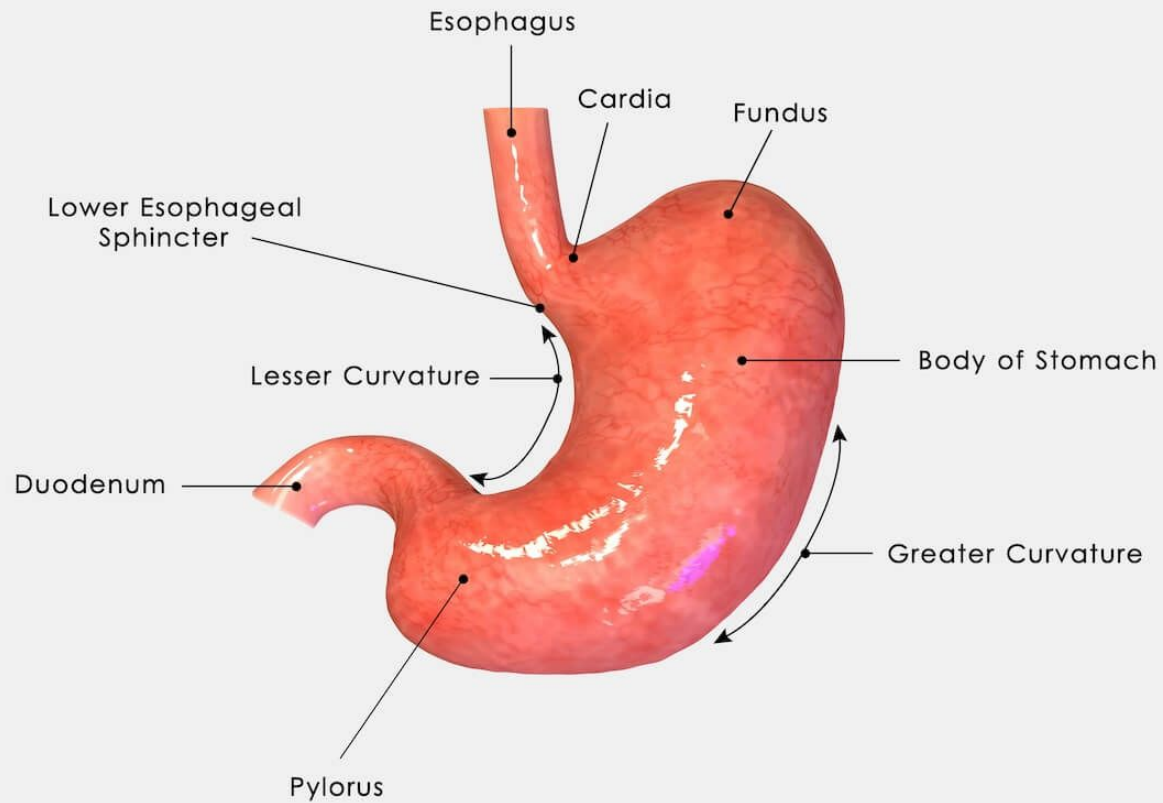
Barium meal



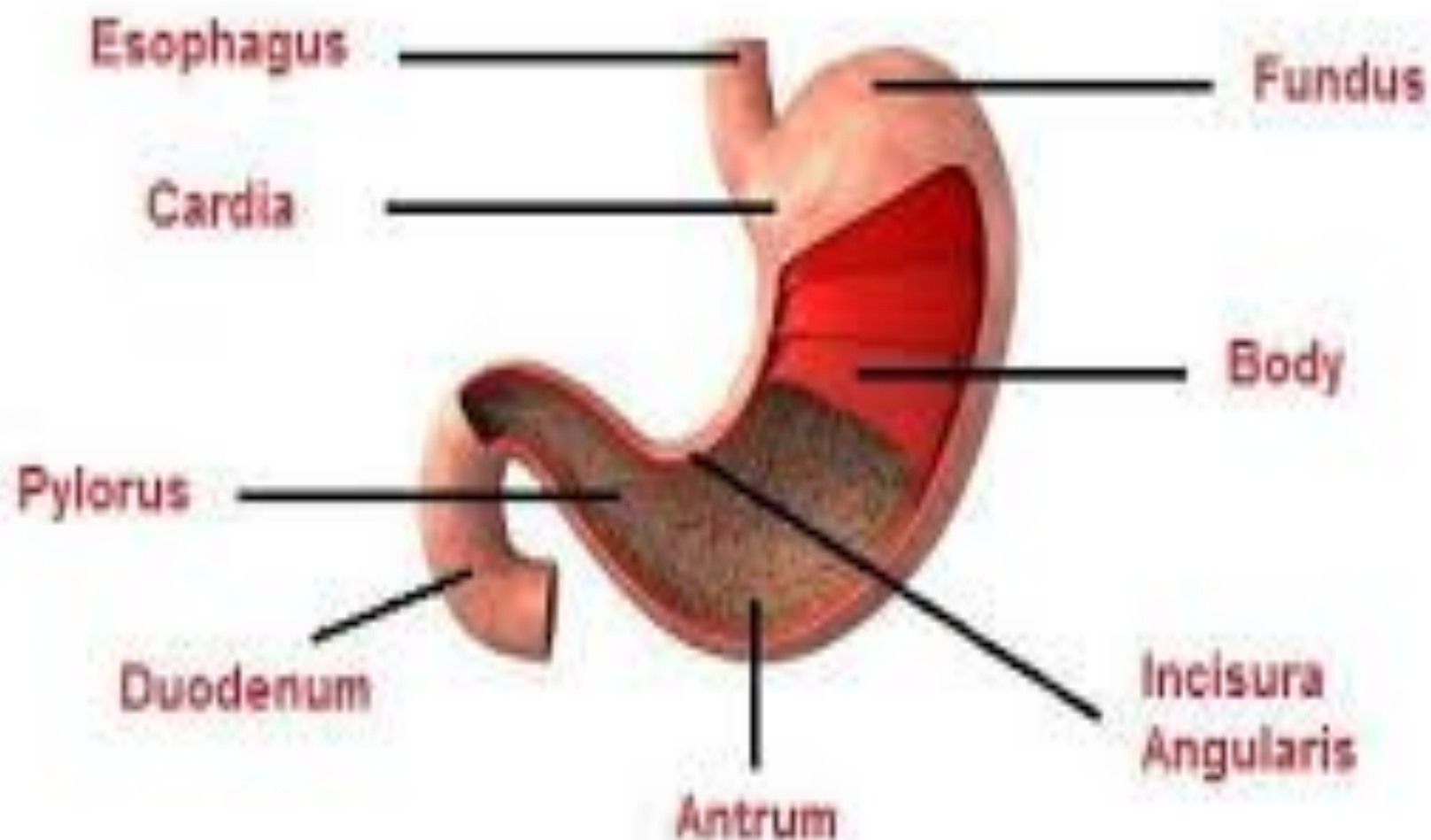
Defination

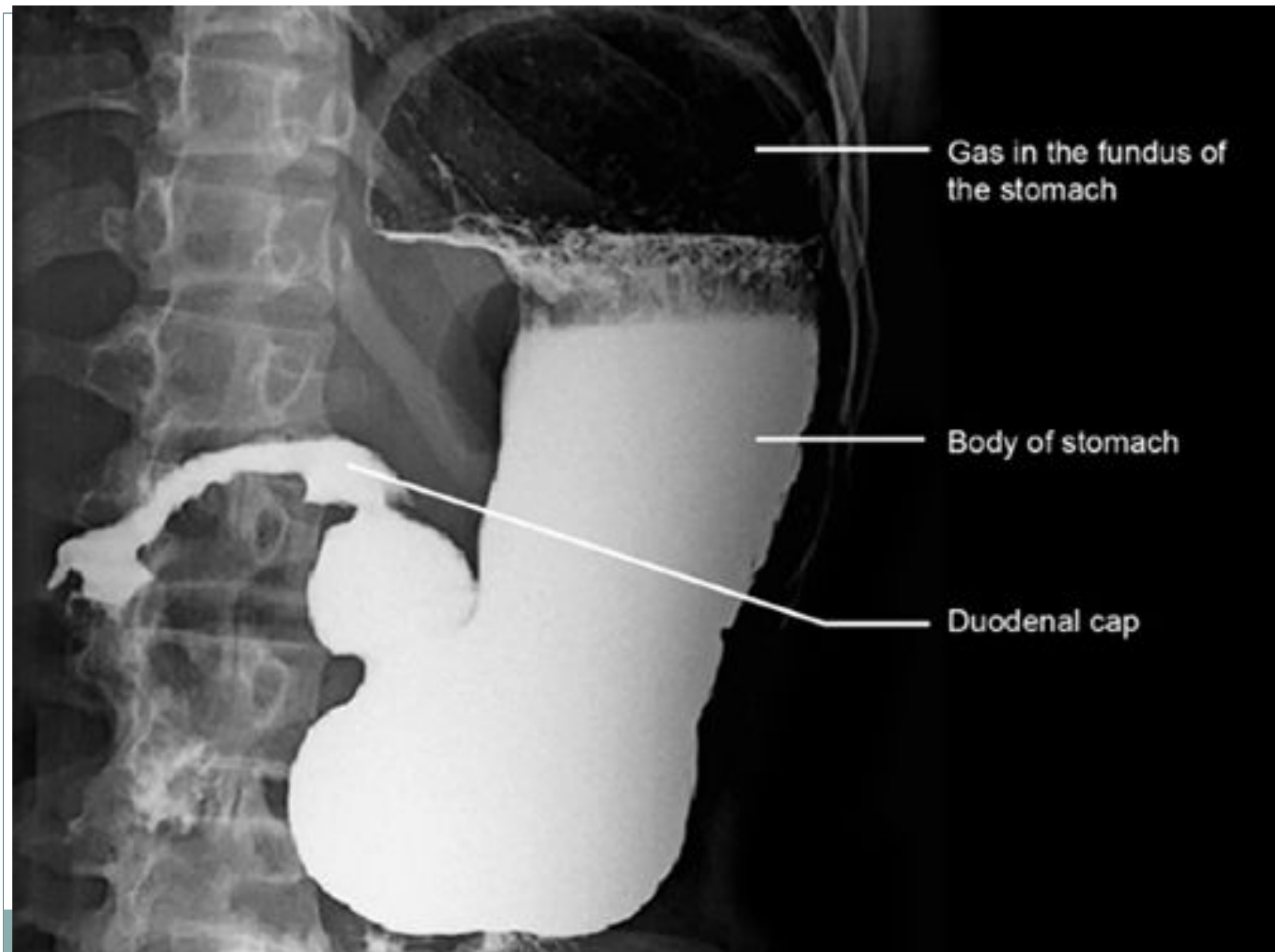
- 1- It is a type of x-ray fluoroscopy study of gastroesophageal junction, stomach and duodenum abnormalities.
- 2- To look for problems in the stomach and duodenum by drinking barium sulfate suspension, then X-ray series of images are taken

Anatomy of stomach



Regions Of The Stomach





Gas in the fundus of the stomach

Body of stomach

Duodenal cap



The duodenum is shaped like the letter “C” and consists of 4 parts

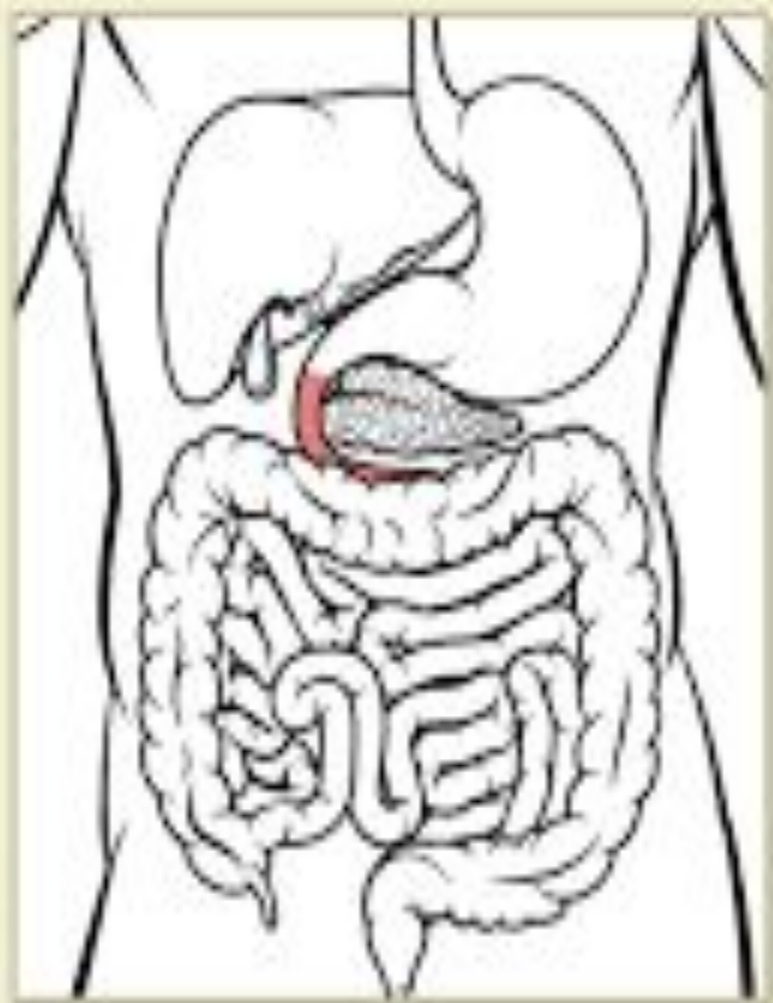
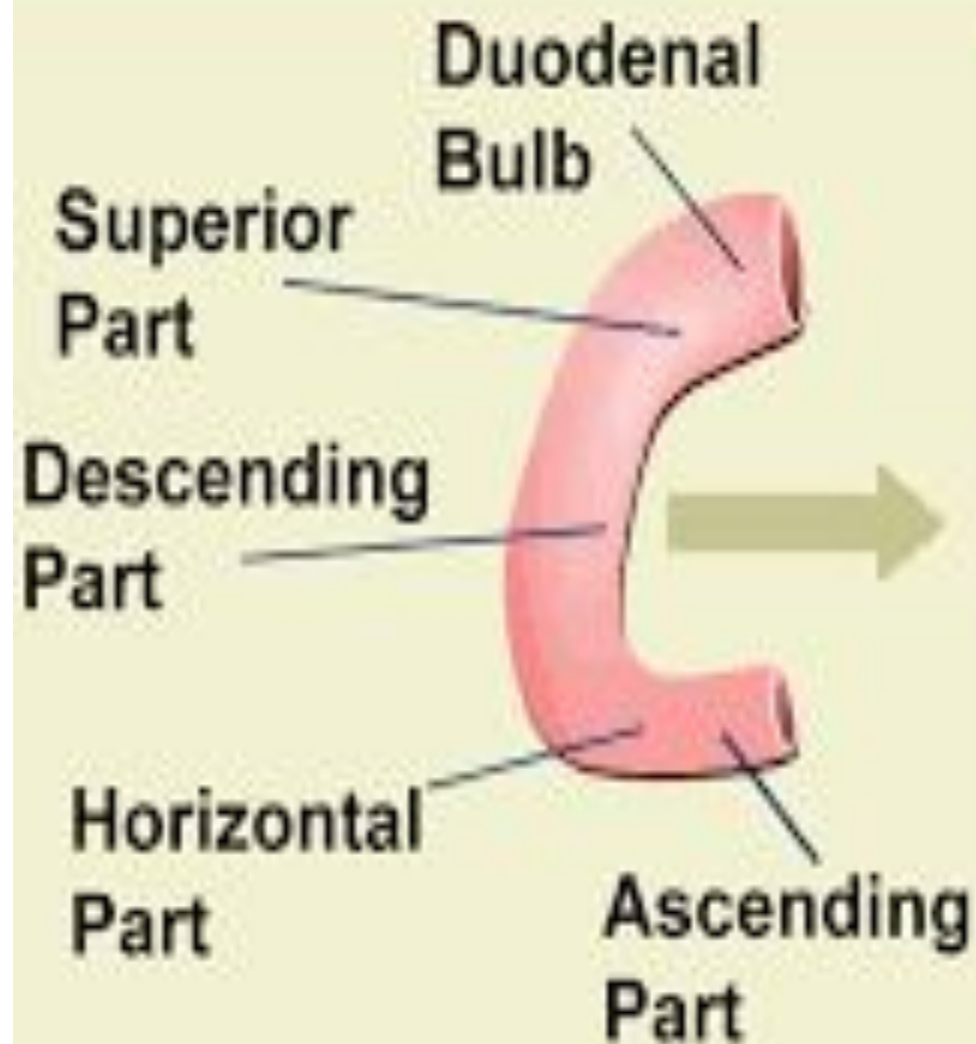
1st part:- named duodenal bulb or cap
(common site for ulcers)

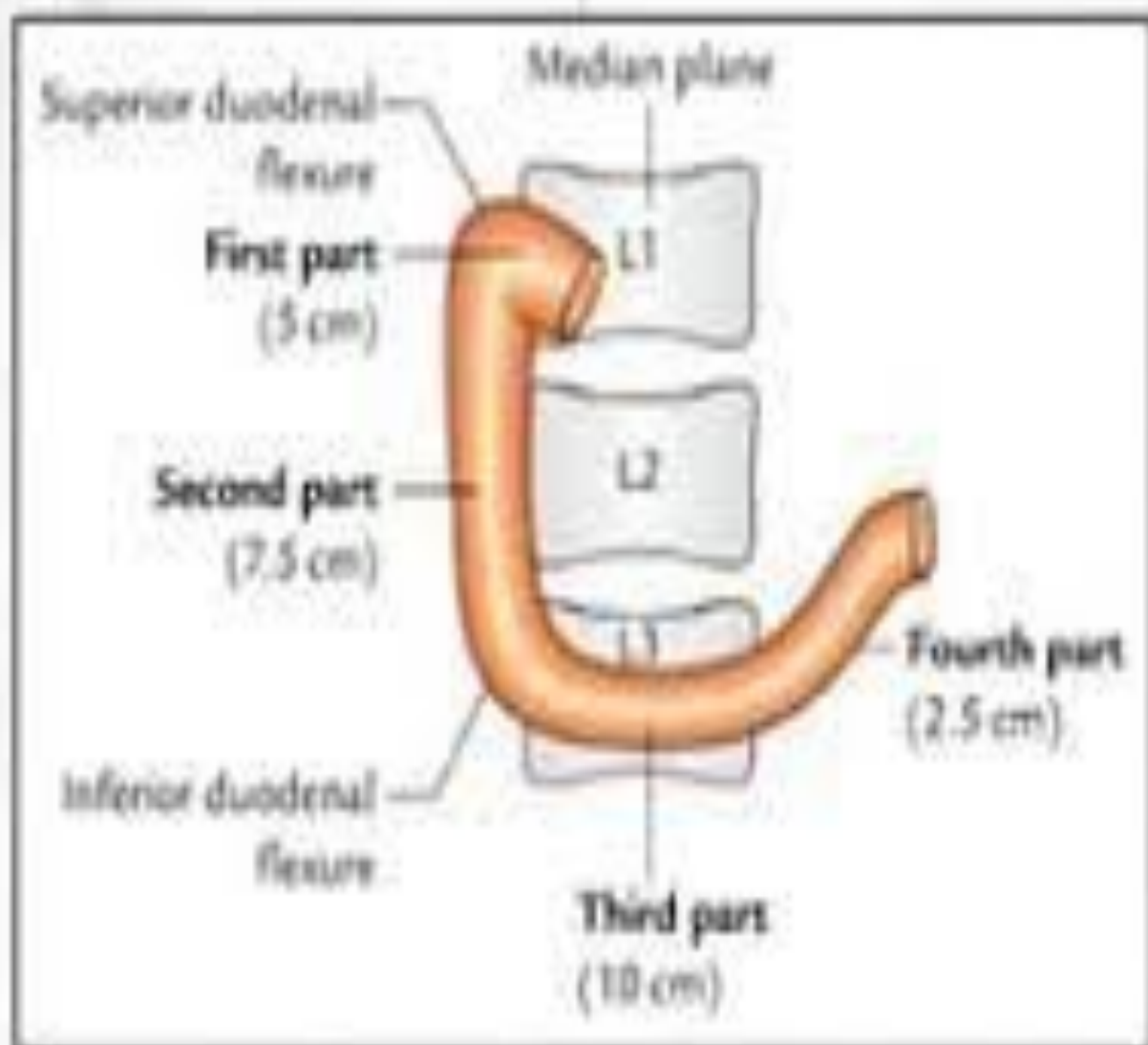
2nd part:- descending part and the longest part which contain the openings of common Bile duct and pancreatic duct

3rd part :- the horizontal portion

4th part:- the ascending part that will join the jejunum

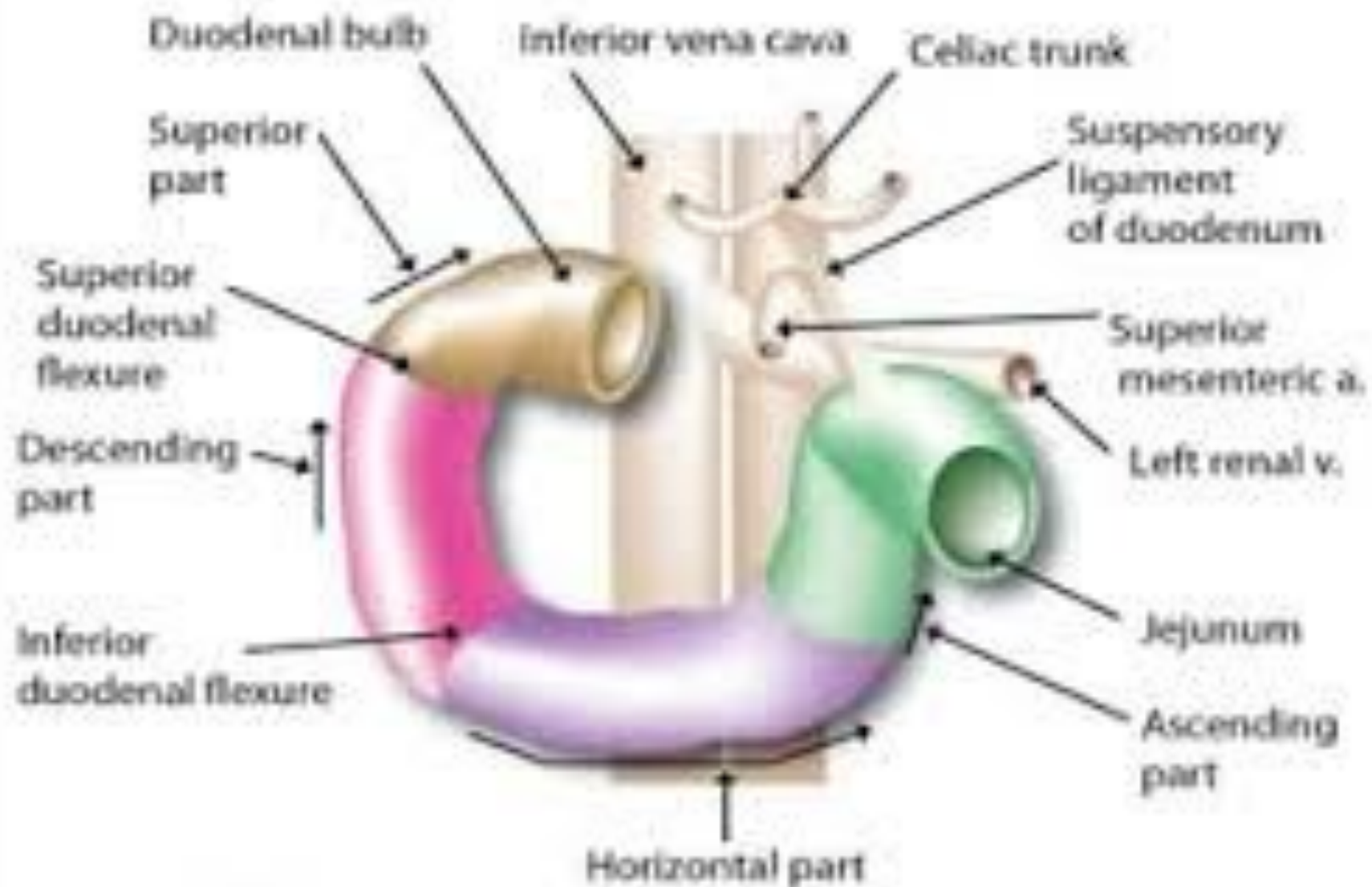
Duodenum



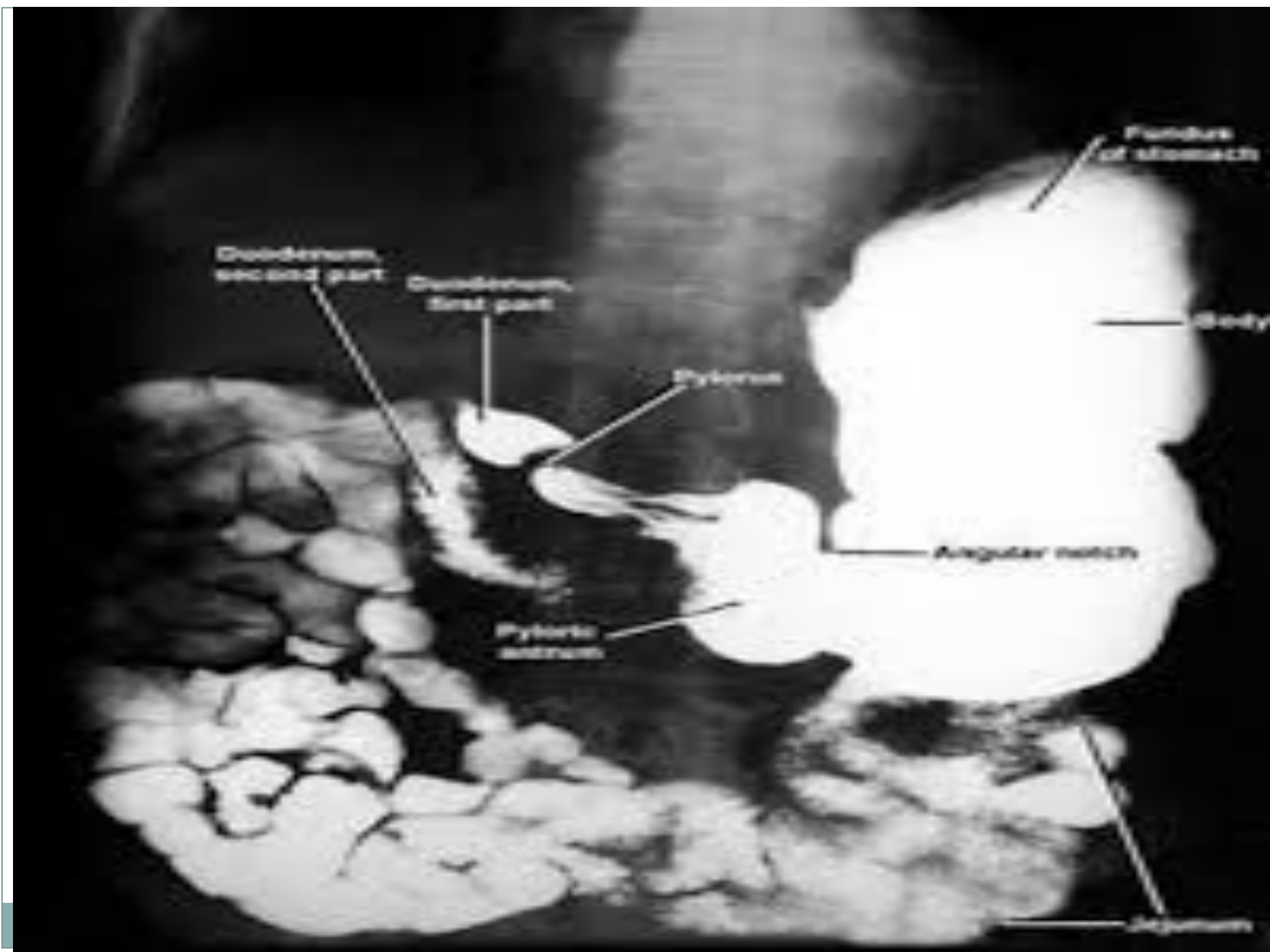


PARTS OF DUODENUM

Duodenum







Methods



Double contrast. The method of choice to demonstrate mucosal pattern.

Single contrast. Uses include the following:

Children—since it usually is not necessary to demonstrate mucosal pattern

To demonstrate gross pathology only, typically very frail patients unable to swallow gas granules

indications



- Failed upper gastrointestinal endoscopy or patient unwilling to undergo endoscopy.
- Gastro-oesophageal reflux disease where lifestyle changes and empirical therapies are ineffective.
- Partial obstruction.

Contraindications



1. Complete bowel obstruction

2. Suspected perforation

(it is essential that a water soluble contrast medium, e.g. Gastrografin or LOCM, is used instead of barium in case of suspected bowel perforation)

Types of barium meal



1- SINGLE contrast :- Using low concentration (100 % w/v) BIG amount of BARIUM suspension alone to fill the stomach and duodenum

2- DOUBLE contrast :- Using high concentration (250 % w/v) SMALL amount of BARIUM suspension with AIR to coat the wall of stomach and duodenum

Compare Single and Double Contrast:-



Patient preparation



- 1- Nil orally for 6 h prior to the examination
- 2- Assess contraindications to the pharmacological agents used
- 3- Preliminary Image
- 4- None

Contraindications



Complete large-bowel obstruction.

Contrast Medium

1. E-Z HD 250% w/v 135 mL
2. Carbex granules (double contrast technique)

Technique of DC



1. A gas-producing agent is swallowed .

(Commercially available powders like gastrovision, Eno, fruit salt)

2. The patient then drinks the barium while lying on the left side, supported by their elbow.

(This position prevents the barium from reaching the duodenum too quickly and so obscuring the greater curve of the stomach).



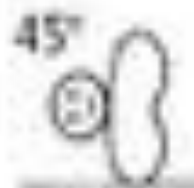
- 3.** The patient then lies supine,
(to bring the barium up against the gastro-esophageal junction)
- 4.** Patient rolled from side to side
(so barium coats mucosal surfaces by washing mucus from the gastric mucosa).



5. An i.v. injection of a smooth muscle relaxant (Buscopan 20 mg) may be given

(to better distend the stomach and to slow down the emptying of contrast into duodenum)

Sequences of films for barium meal examination

Film	RAO	Supine	LAO	Left lateral tilted head up
Position				
Image				
Demonstrates	Antrum + greater curve	Antrum + body	Lesser curve en face	Fundus



1. Spot exposures of the stomach (lying)

(a) RAO—to demonstrate the antrum and greater curve

(b) Supine—to demonstrate the antrum and body.

(c) LAO—to demonstrate the lesser curve.

(d) Left lateral tilted—to demonstrate the fundus.



Supine position and then rolls on to the left side and over into a prone position.

This sequence of movements is required to avoid barium flooding into the duodenal loop, which would occur if the patient were to roll onto the right side to achieve a prone position.

Spot images of the duodenal cap (lying)



(a) Prone

(b) RAO –the patient attains this position from the prone position by rolling first onto the left side..

(c) Supine

(d) LAO.



The duodenal cap or duodenal ampulla is the very first part of the duodenum which is slightly dilated is about 2 cm long.

Complications



- 1.** Leakage of barium from an unsuspected perforation
- 2.** Aspiration
- 3.** Conversion of a partial large bowel Obstruction into a complete obstruction by the impaction of barium
- 4.** Barium appendicitis, if barium impacts in the appendix (exceedingly rare)
- 5.** Side effects of the pharmacological agents used.

Spot film of the abdomen with the patient in prone position



Normal Barium Study



Gastric fundus

Gastric body

Gastric antrum

Duodenal cap

Pylorus

Duodenum-2nd part

**DUODENAL SWEEP
' C ' LOOP**

Bulb

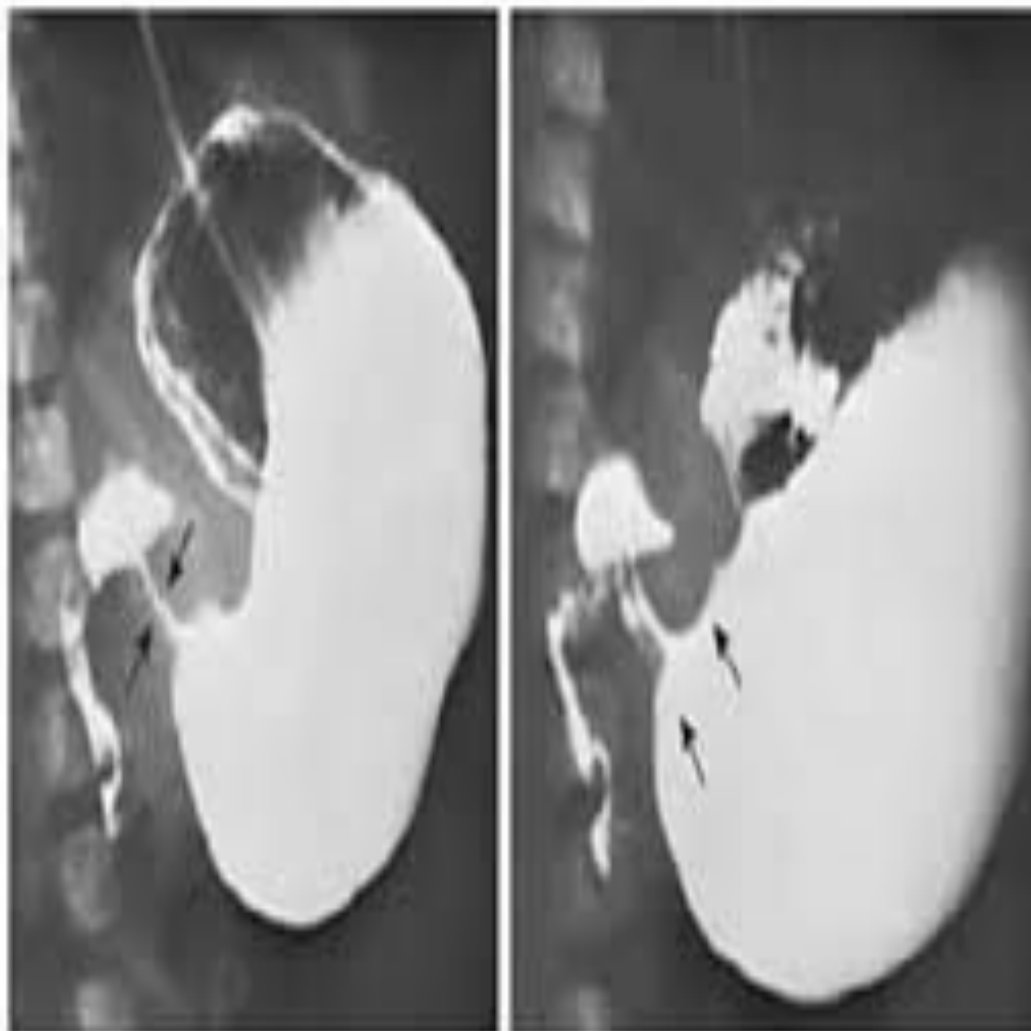
Stomach





PEPTIC ULCERS





INFANTILE HYPERTROPHIC PYLORIC STENOSIS.



Thank
you

