

Duodenum

Term

- ▶ Latin corruption of greek word, duodekadactulos, meaning twelve fingers long.

▶ Definition and Location

- ▶ Shortest, widest and most fixed part of small intestine.
- ▶ Extends from pylorus to duodenojejunal flexure.
- ▶ Lies above level of umbilicus, opposite first, second and third lumbar vertebrae.

Length, parts and peritoneal relation

- ▶ 25cm long and is divided into the following four part:
- ▶ (1) first or superior part, 5cm or 2 inches long.
- ▶ (2) second or descending part, 7.5cm or 3 inches long.
- ▶ (3) third or horizontal part, 10cm or 4 inches long.
- ▶ (4) fourth or ascending part, 2.5cm or 1 inch long.

- ▶ Mostely retroperitoneal and fixed.

First part

- ▶ Begins at pylorus.
- ▶ It passes right to meet second part at superior duodenal flexure.
- ▶ Peritoneal relation
- ▶ (1) proximal 2.5cm is movable.
- ▶ (2) Distal 2.5cm is fixed.
- ▶ Visceral relation

Duodenum 1st part

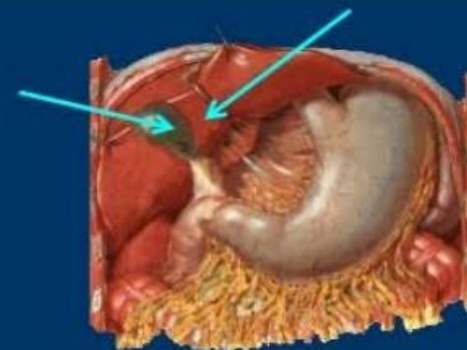
Visceral relations:

Anteriorly : Quadrate lobe of liver,
and gall bladder.

Posteriorly : Gastroduodenal art.,
bile duct, and portal vein.

Superiorly : Epiploic foramen.

Inferiorly : Head & neck of pancreas.



Second part

- ▶ Course
- ▶ Peritoneal relation
- ▶ It is retroperitoneal and fixed

Duodenum – second part (7.5 cm)

Begins at superior duodenal flexure opp. L1 vertebra
passes vertically downwards

- in front of hilum of Rt. Kidney
- along Rt. Side of vertebral column
in para vertebral gutter
- Within Rt. Lateral plane
- ends in inferior duodenal flexure
opp. Lower border of L3
- continues with 3rd part



Visceral relation

▶ Anteriorly

- ▶ Right lobe of liver
- ▶ Transverse colon
- ▶ Root of transverse mesocolon
- ▶ Small intestine

▶ Posteriorly

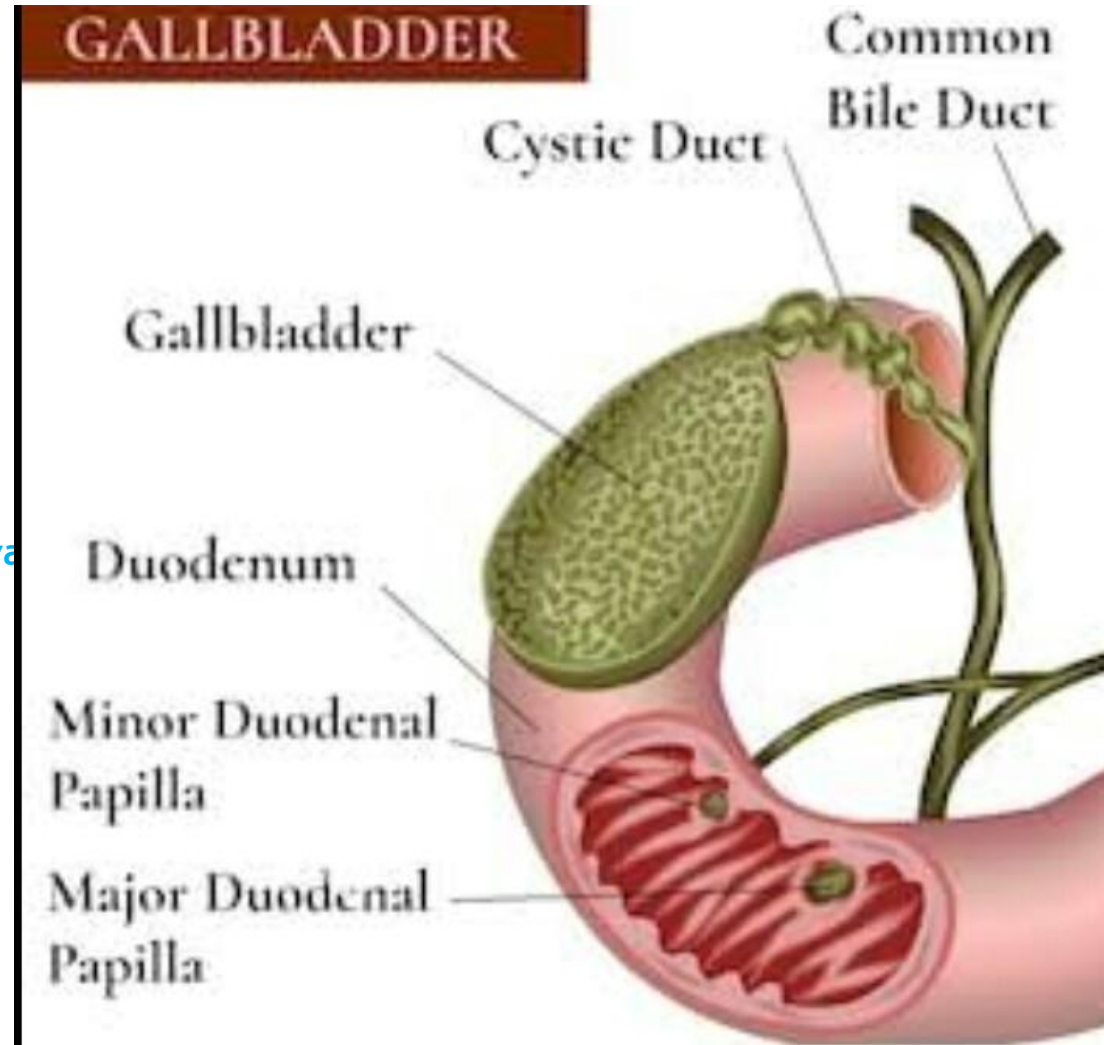
- ▶ Right kidney
- ▶ Right renal vessels
- ▶ Right edge of inferior vena cava
- ▶ Right psoas major

▶ Medially

- ▶ Head of pancreas
- ▶ Bile duct

▶ Laterally

- ▶ Right colic flexure



Third part

▶ Course

▶ 10cm long.

▶ Begins at inferior duodenal flexure, on right side of lower border of third lumbar vertebra.

▶ Peritoneal relation

▶ It is retroperitoneal and fixed.

Visceral relation

Duodenum – 3rd part (10 cm)

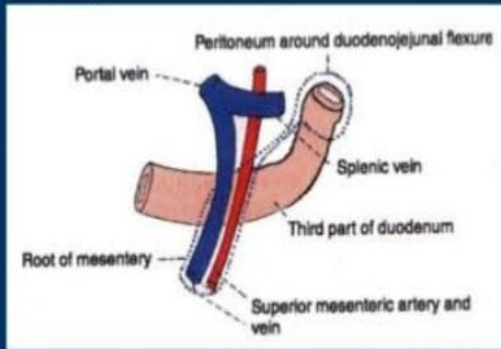
Extends from inf. Duodenal flexure to front of aorta at L3 level



Relations - Anteriorly :

Covered by peritoneum except attachment of root of mesentery

Ant. Surface crossed by Sup. Mesenteric vessels and root of mesentery

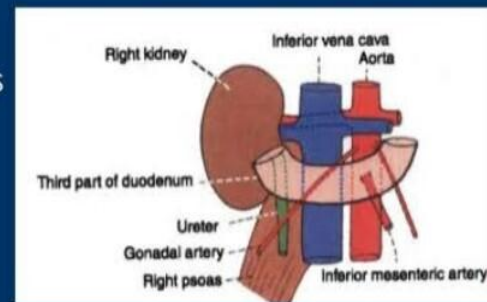


Duodenum – 3rd part

Posteriorly:

Non peritoneal

1. Rt. psoas major muscle
2. Right ureter
3. Inf. Vena cava
4. RT. Gonadal vessels
5. Abdominal aorta
6. Origin of inferior Mesenteric art.

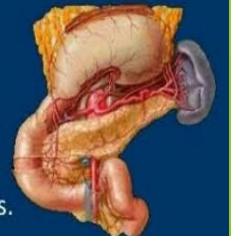


Duodenum – 3rd part (10 cm)

Extends from inf. Duodenal flexure to front of aorta at L3 level

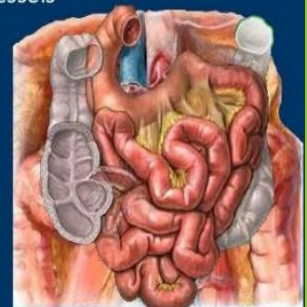
Relations – Superiorly :

Head of pancreas with uncinete process.
Inferior pancreaticoduodenal vessels



Inferiorly :

Few coils of jejunum



Fourth part

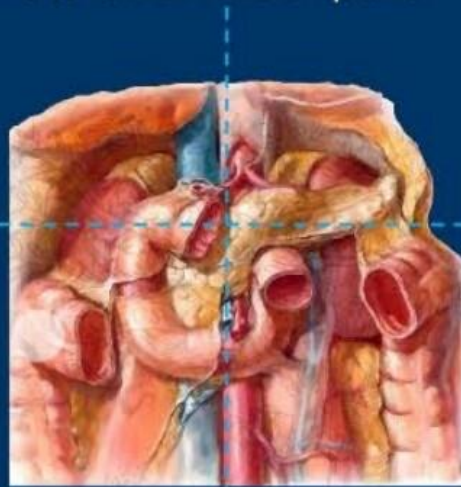
Duodenum – 4th part (2.5 cm)

Extends from front of aorta to Duodeno-jejunal flexure
DJ flexure is situated on the left side of L2 about 1.25 cm below transpyloric plan & 2.5 cms to left of median plane

Kept in position by suspensory muscle of Duodenum

Relations Anteriorly :

Covered with peritoneum.
Related to transverse colon & mesocolon
Post. Inf. Surface of stomach separated by lesser sac



Duodenum – 4th part (2.5 cm)

Right side :

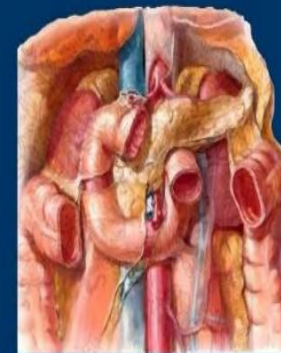
Uncinate process of pancreas

Left side :

Left kidney and ureter

Superiorly :

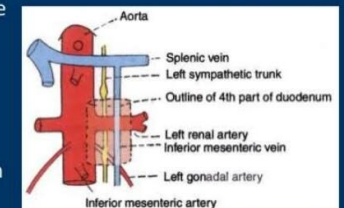
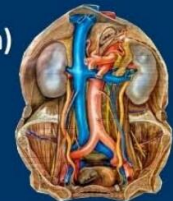
Body of pancreas



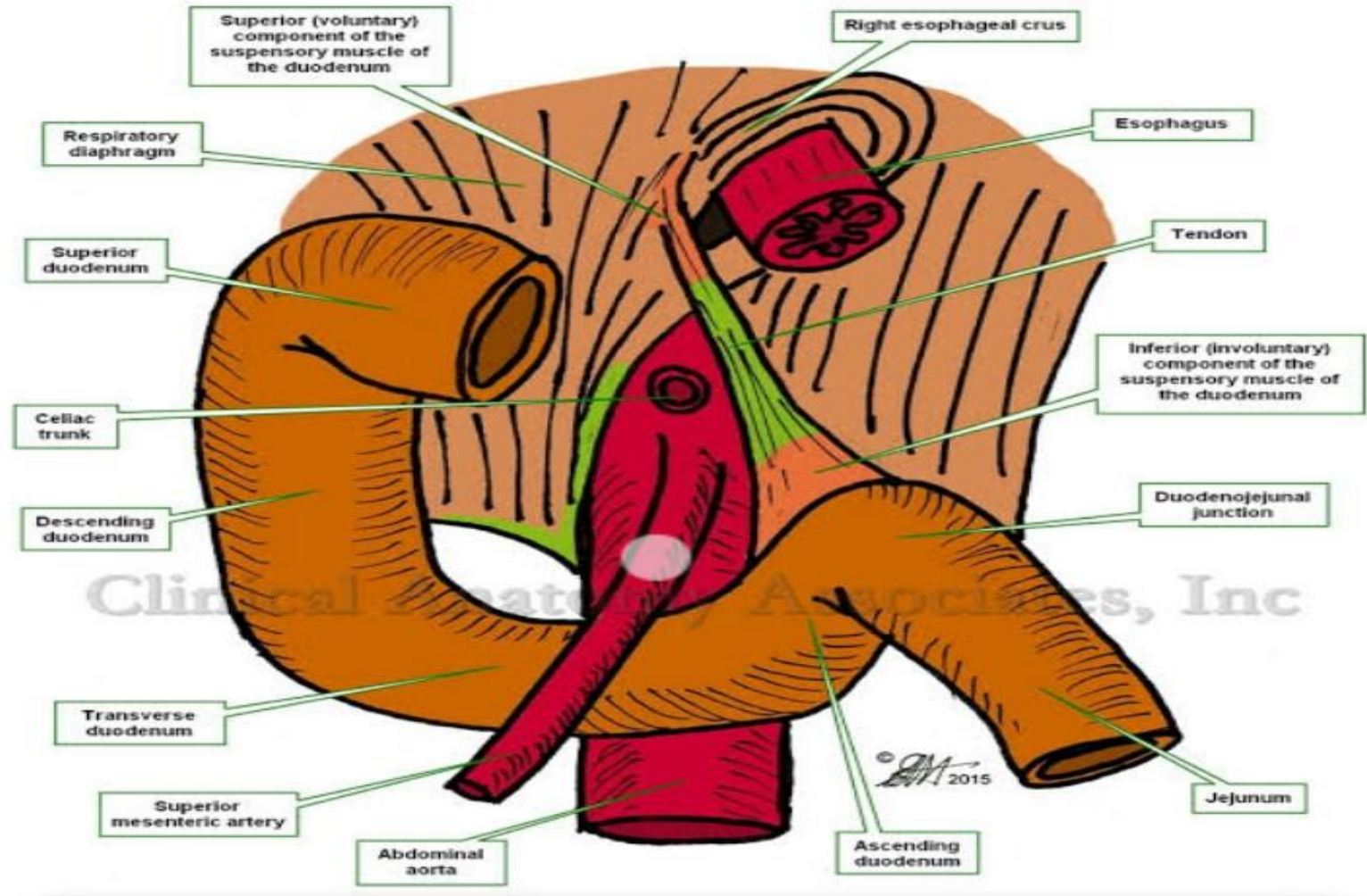
Duodenum – 4th part (2.5 cm)

Posteriorly :

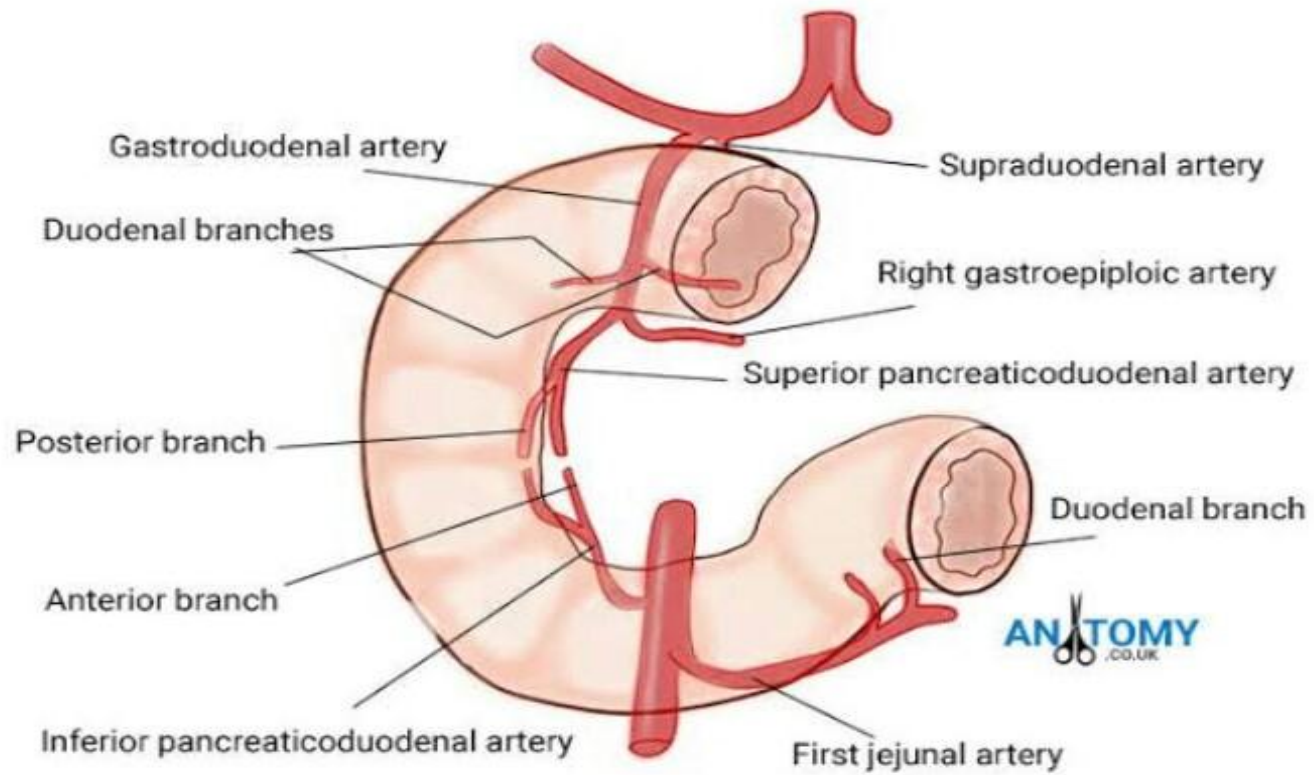
Left crus of diaphragm
Left psoas major muscle
Left sympathetic trunk
Left renal vessels
Left Gonadal vessels
Left supra renal vein
Inferior mesenteric vein



Supensory muscle of duodenum or ligament of Treitz



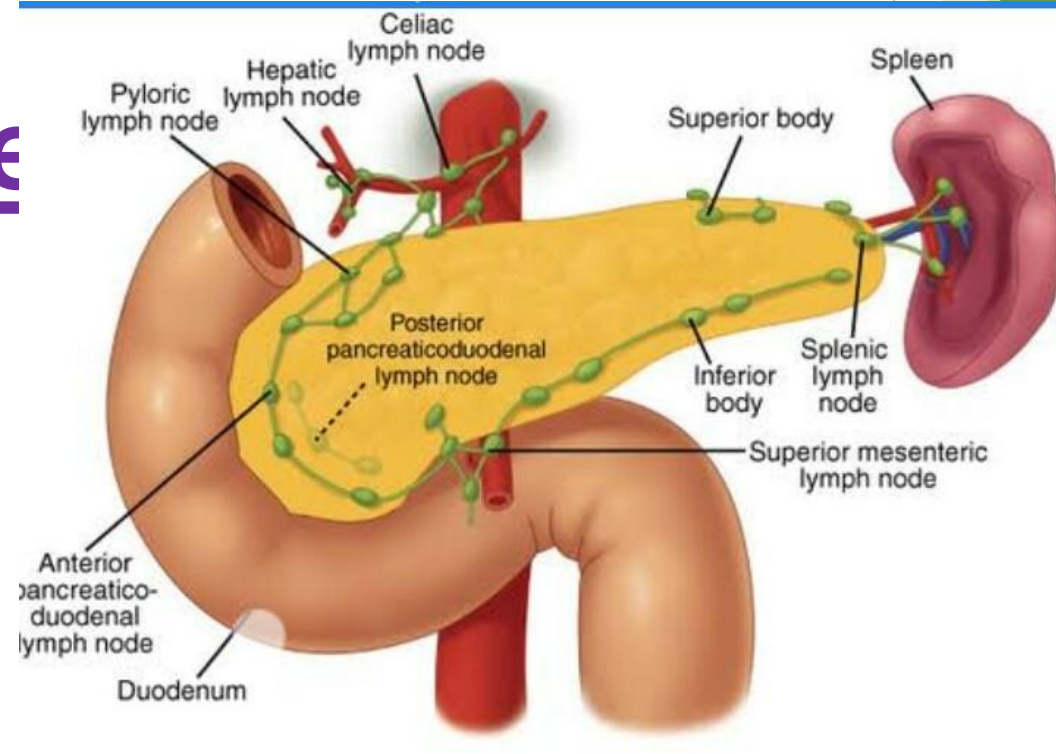
Arterial supply



Venous drainage

Splenic, superior mesenteric and portal veins..

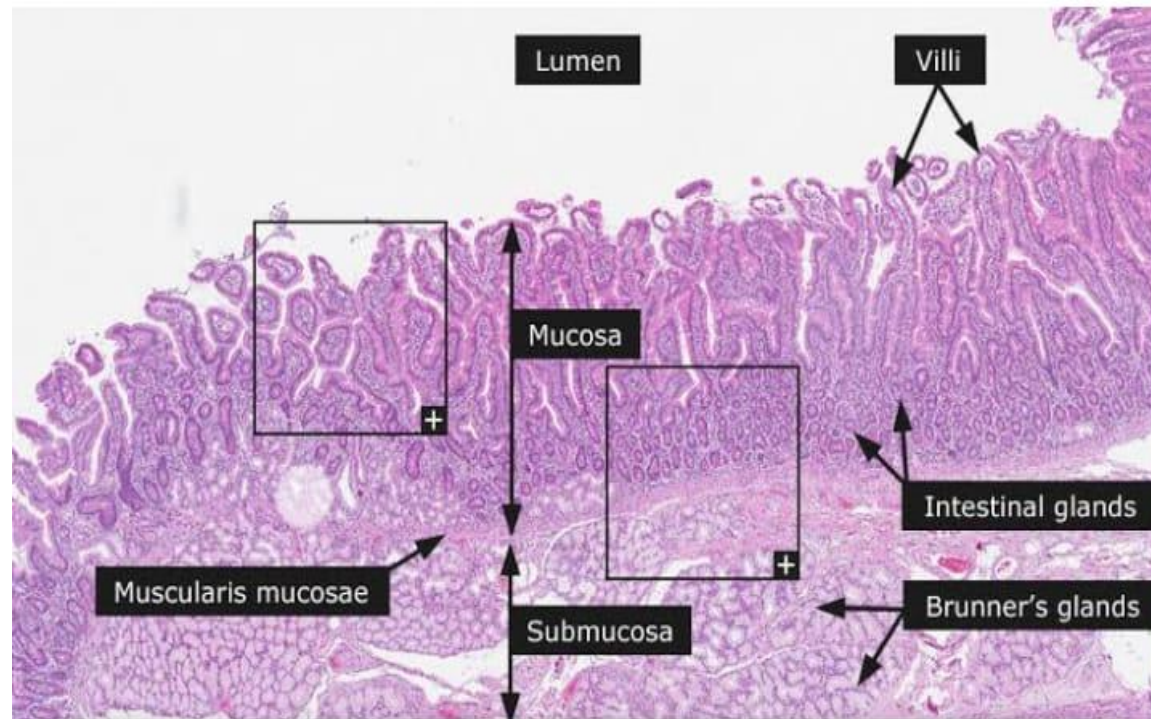
Lymphatic drainage



Nerve supply

- ▶ Sympathetic nerve: T9 and T10
- ▶ Parasympathetic nerve: vagus

▶ Histology



Clinical Anatomy

- ▶ In the skiagram taken after giving a barium meal, first psrt of duodenum is seen as triangular shadow called duodenal cap.
- ▶ Peptic ulcer
- ▶ Congenital stenosis and obstruction of second part of duodenum may occur at the site of opening of bile d
- ▶ (1) Annular pancreas
- ▶ (2) Pressure by superior mesenteric artery on third part of duodenum.
- ▶ (3) Contraction of suspensory muscle of duodenum.
- ▶ Duodenal carcinoma

