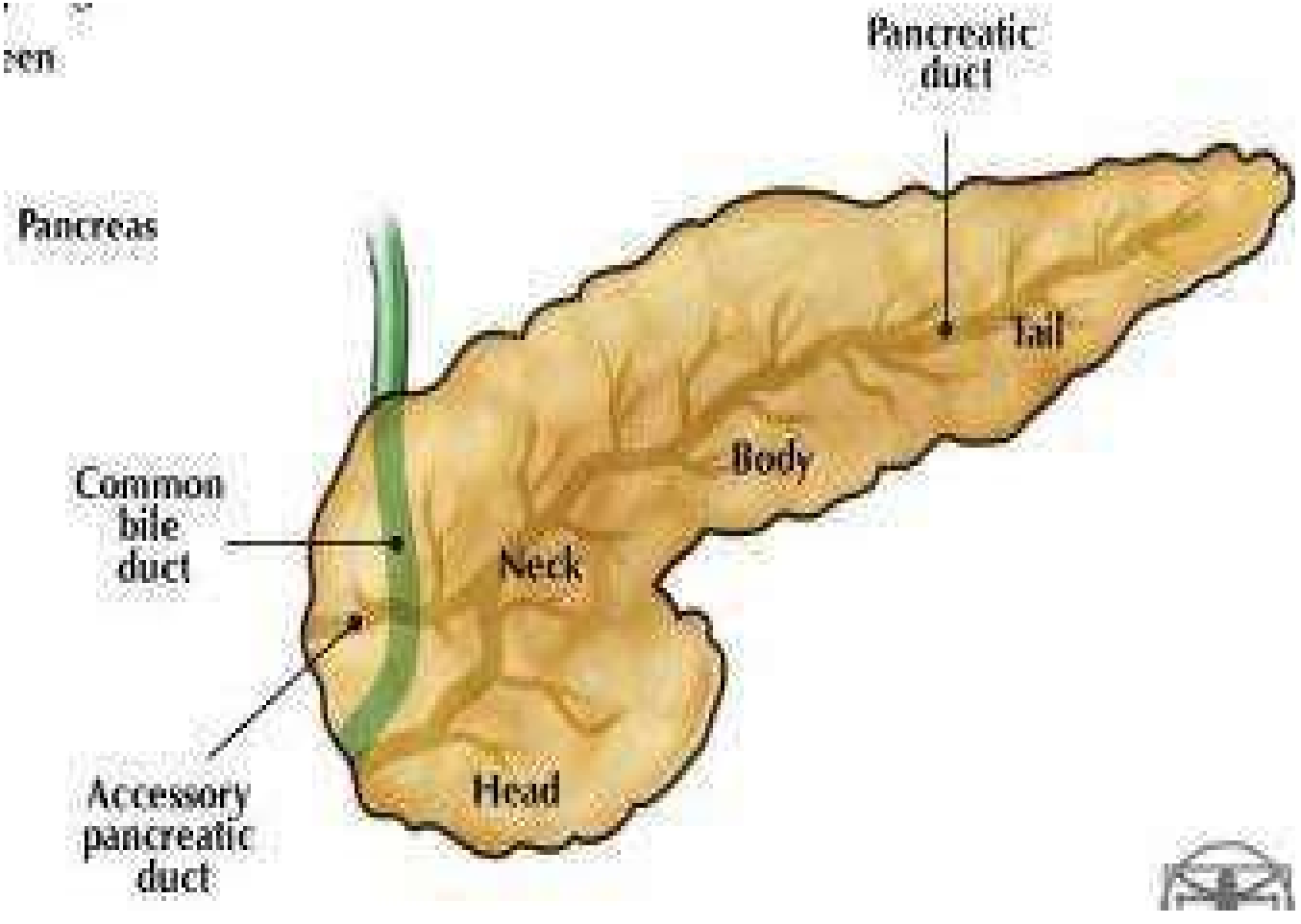
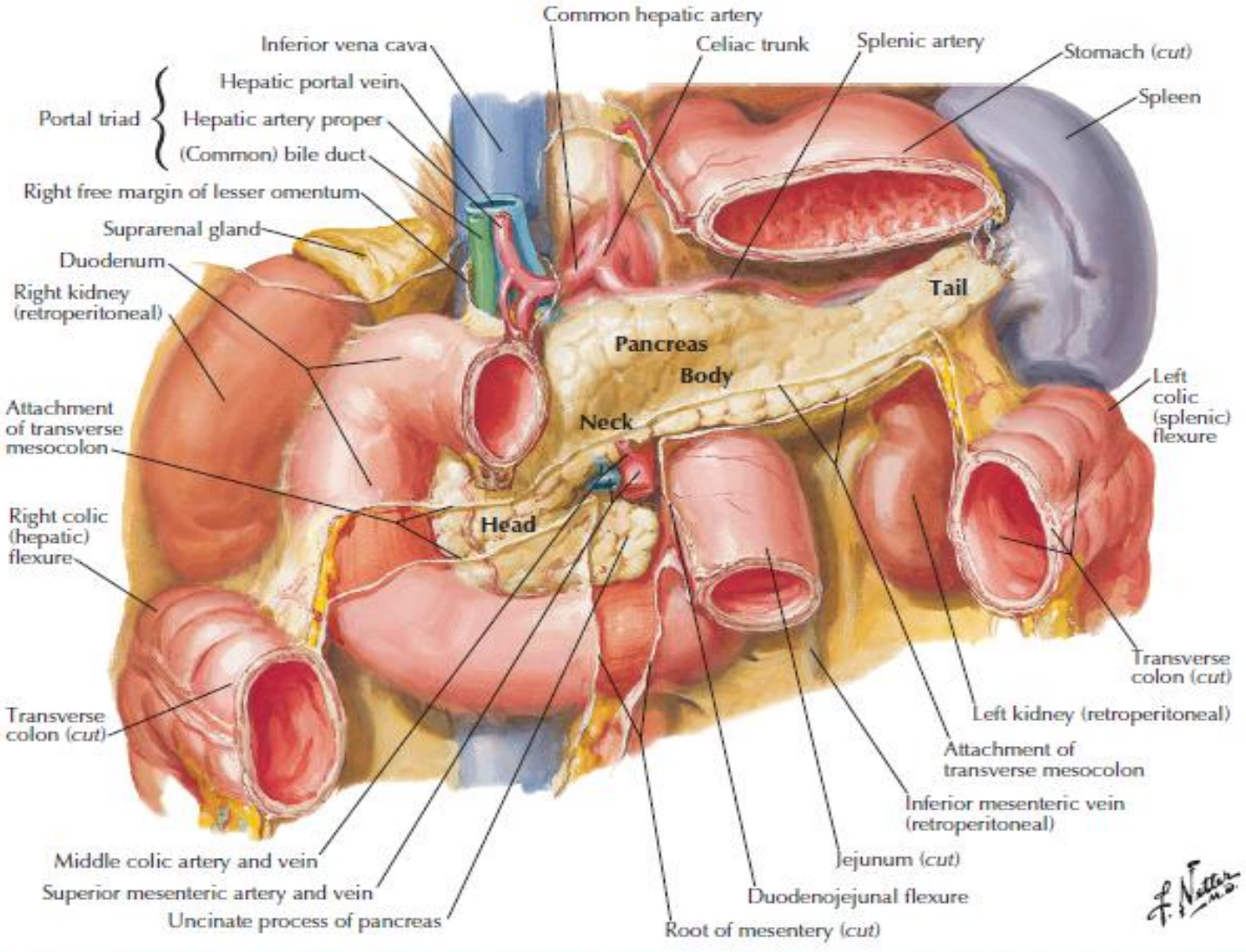
PANCREAS

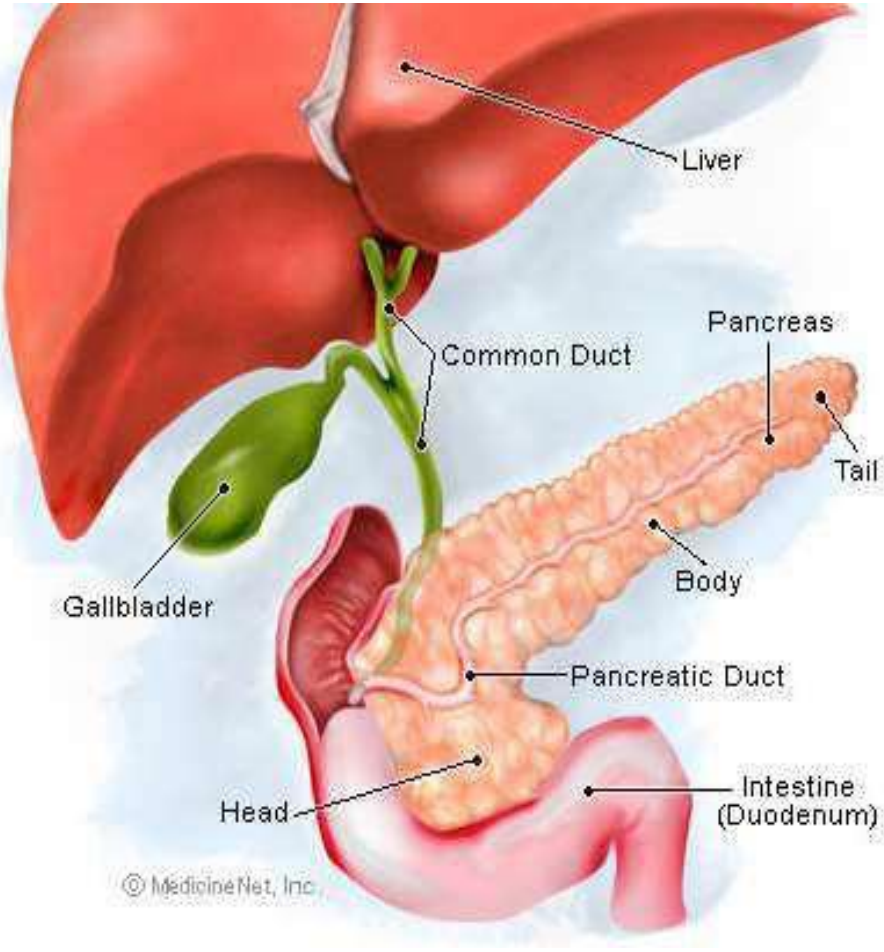




Pancreas –all flesh (pan=all and kreas=flesh)

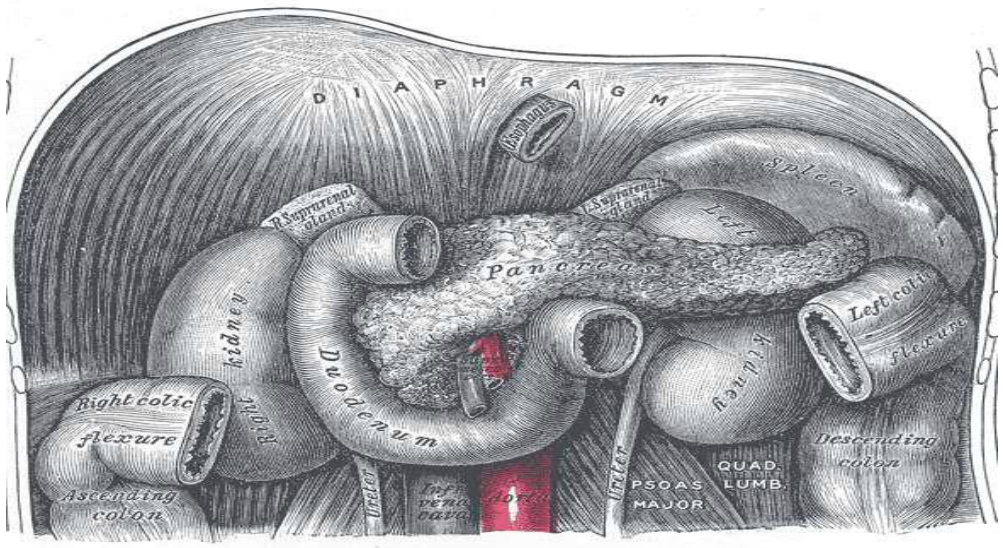
Introduction…

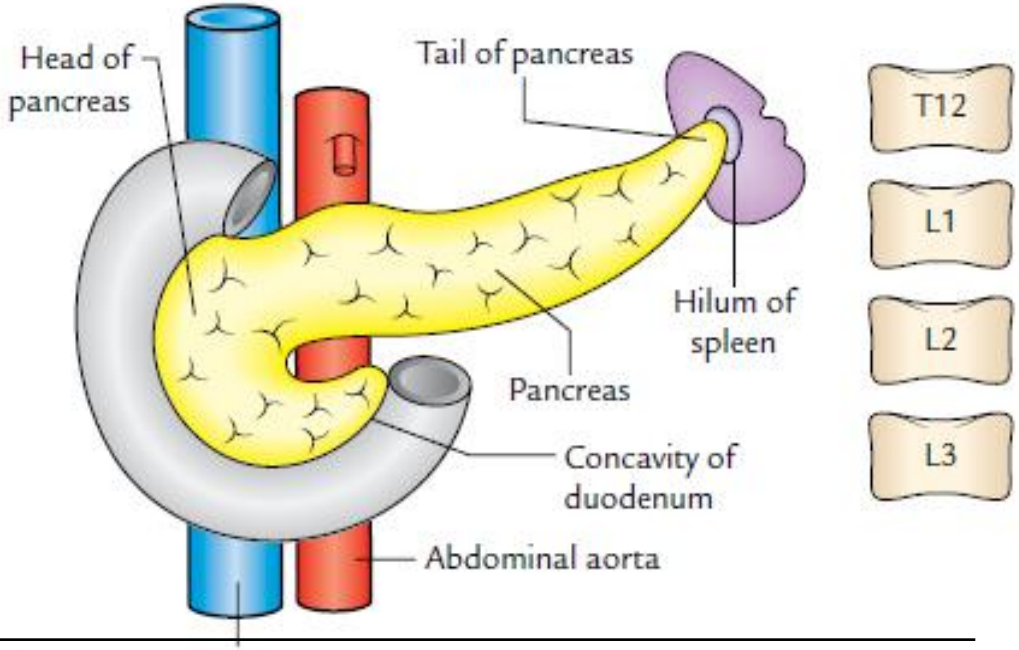
- **Soft, lobulated** elongated gland with both **exocrine and endocrine functions**
- *Exocrine – pancreatic juice*
- *Endocrine-insulin, Glucogan*



Location…

- **epigastric & left hypochondriac** regions.
- behind the **stomach** and **lesser sac**
- Transversely across the **posterior abdominal wall at** the level of **L1 - L3**

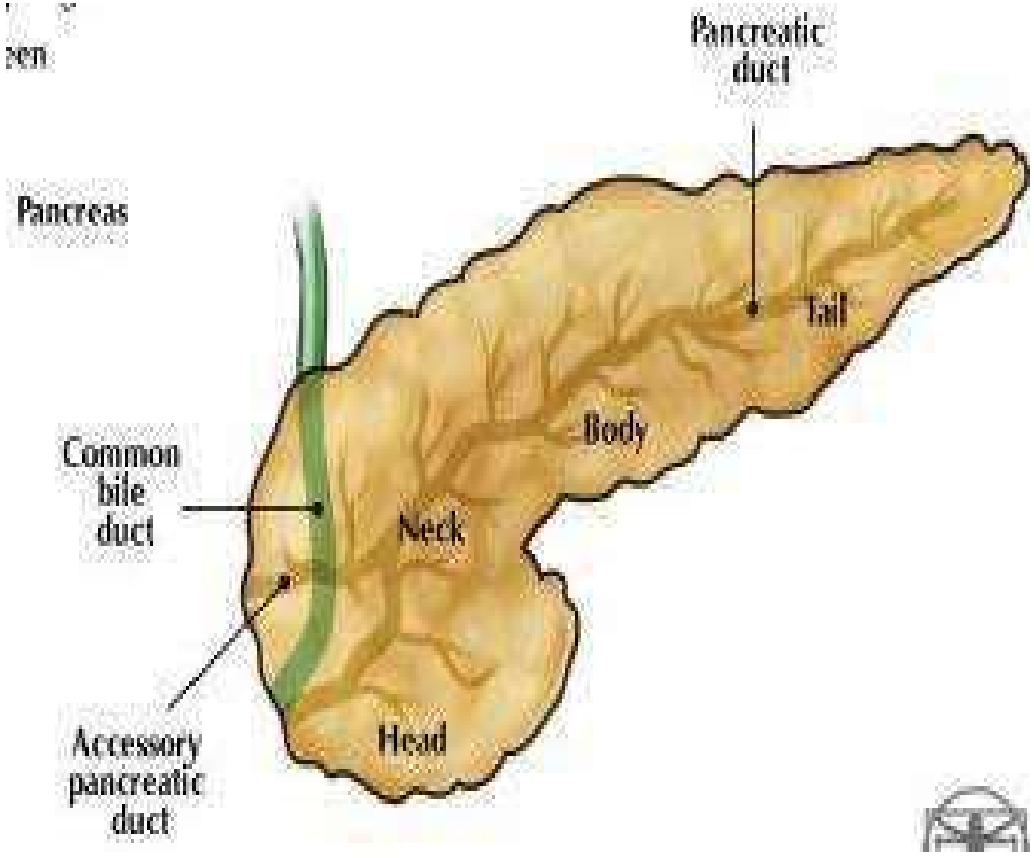




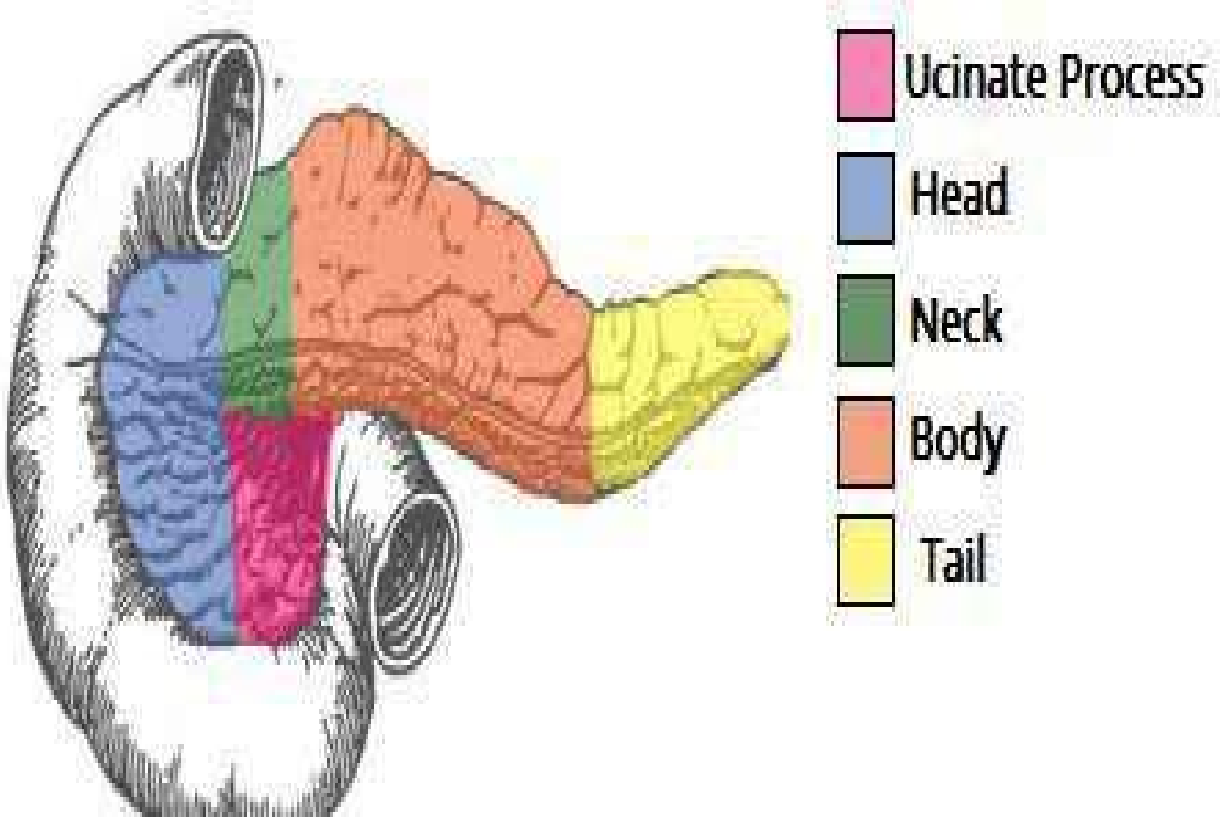
Size and shape..

- **J shaped or retort shaped.**

- **Length-15-20 cm**
- **Thickness-** 1.2-1.8 cm
- **Breadth-2.5 -3.8** cm
- **Wt- around 90** gm

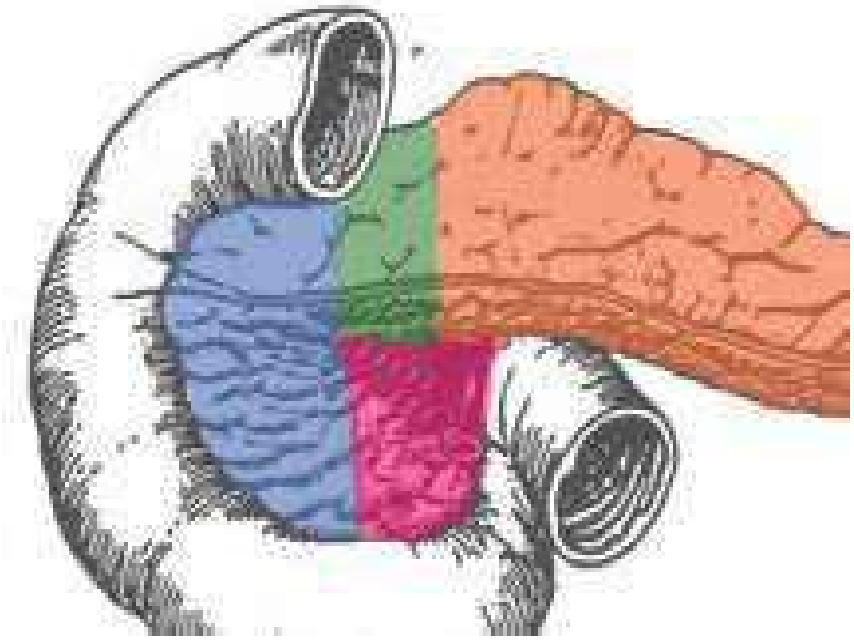


PARTS



HEAD

Enlarged part C shaped, lying within the concavity of duodenum, consist of



- **3 borders-superior** ,inferior & right lateral
- **2 surfaces-anterior &** Posterior
- **uncinate process**

HEAD...

- **Superior border-**

-1st part of duodenum

-Sup. PancreaticodudenalA.

- **Inferior border-**

-3rd part of duodenum

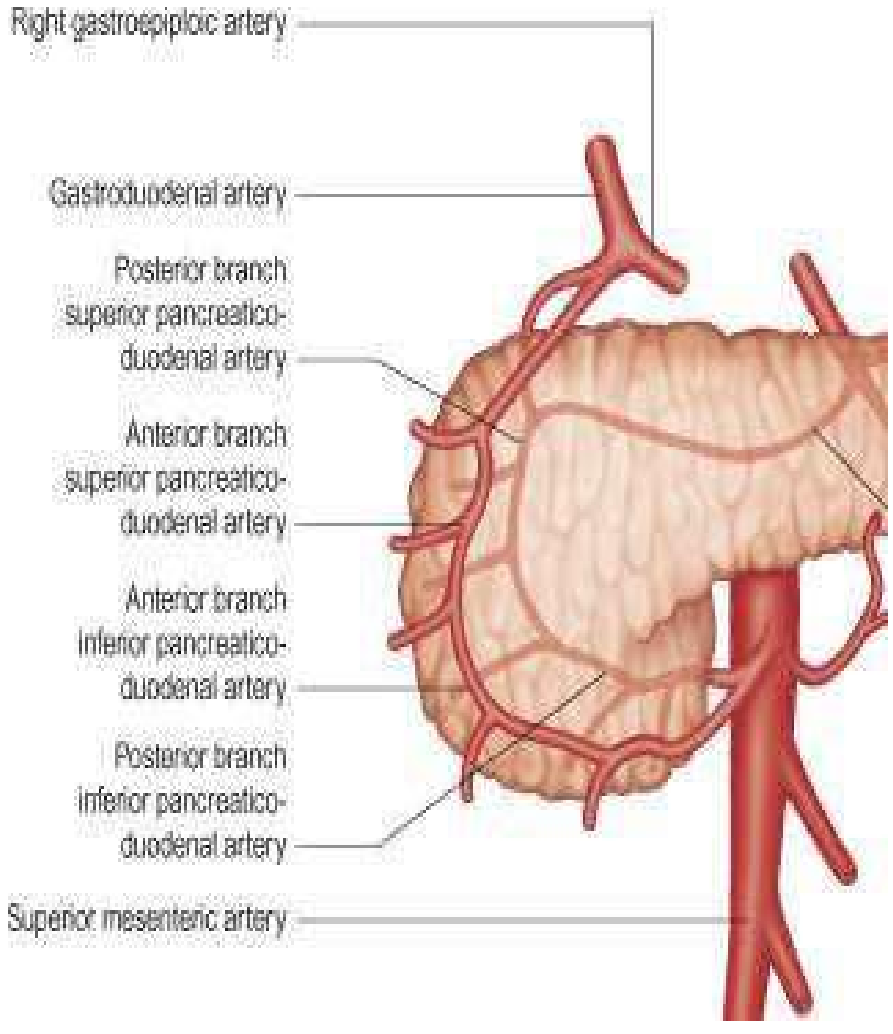
-Inf. pancreaticodudenal A.

- **Rt. lateral border-**

-2nd part of duodenum

-Terminal part of bile duct

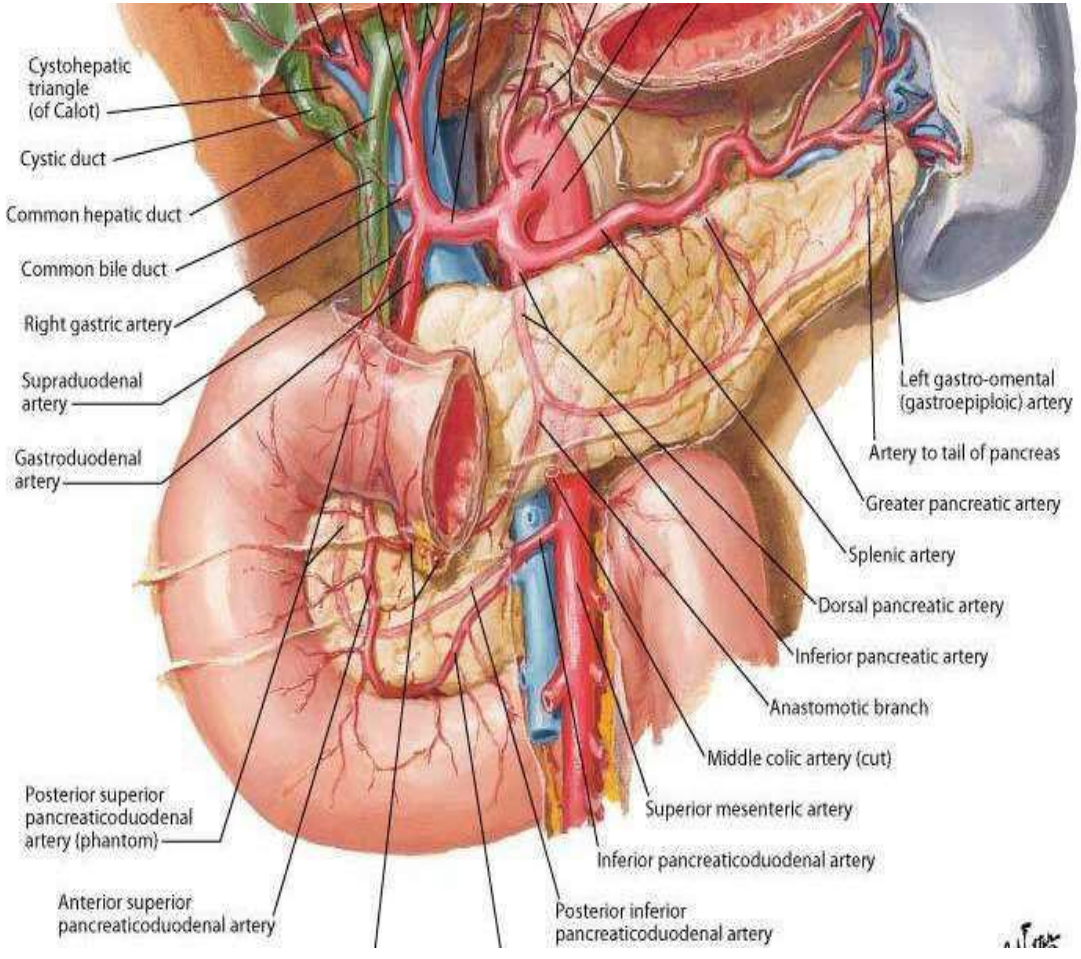
-Anastomosis betn 2 arteries.



HEAD...

Anterior surface

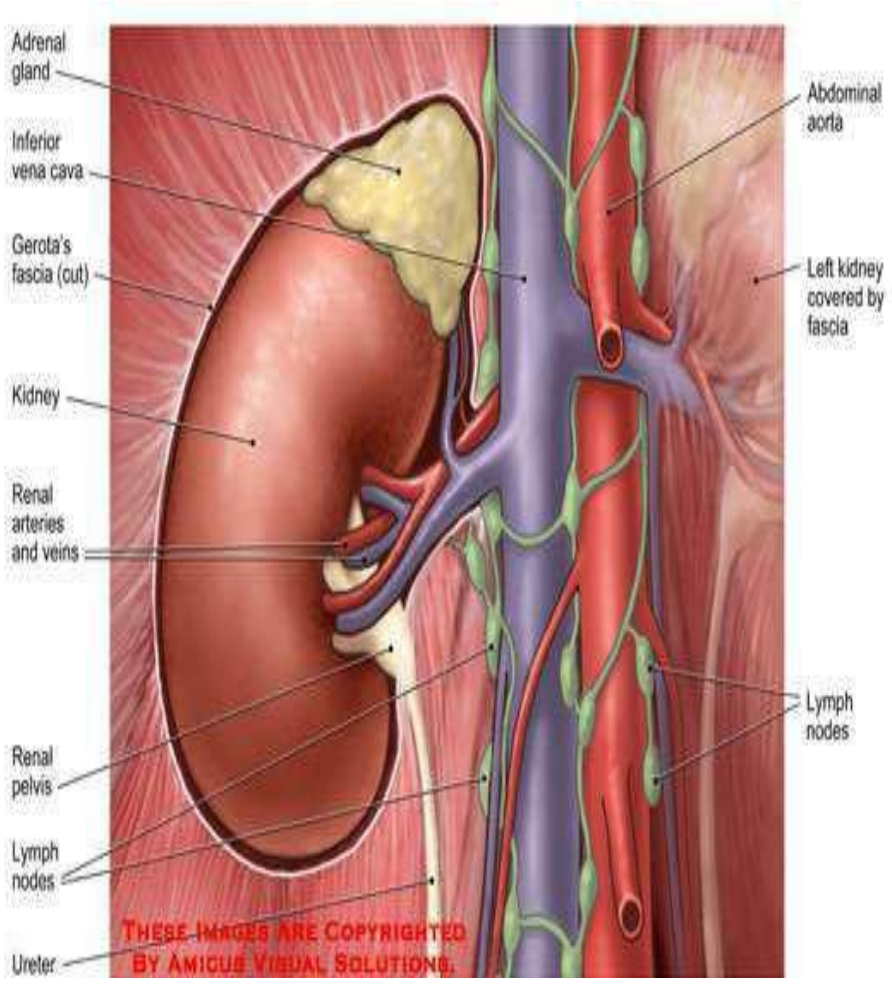
- 1st part of duodenum.
- Transverse colon
- Jejunum separated by peritotneum.



HEAD...

Posterior surface:

- IVC
- Right Renal veins
- Right crus of diaphragm
- Bile duct



UNCINATE PROCESS

Triangular projection which arises from lower and left part of the body.

Relations:

- **Anterior:**

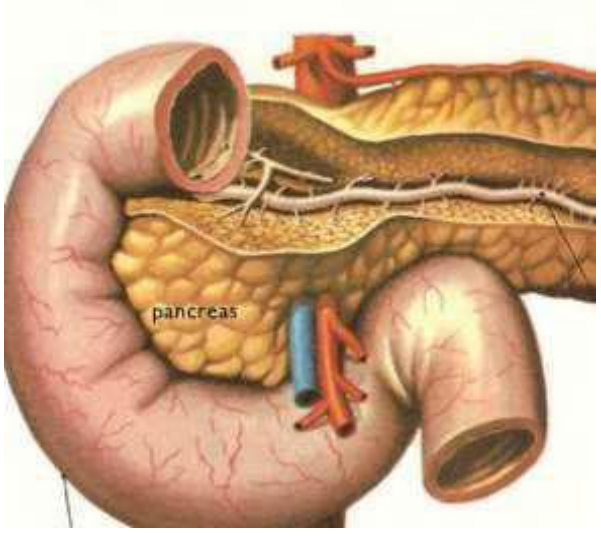
-Superior mesenteric vessels.

- **Posterior**

-Aorta

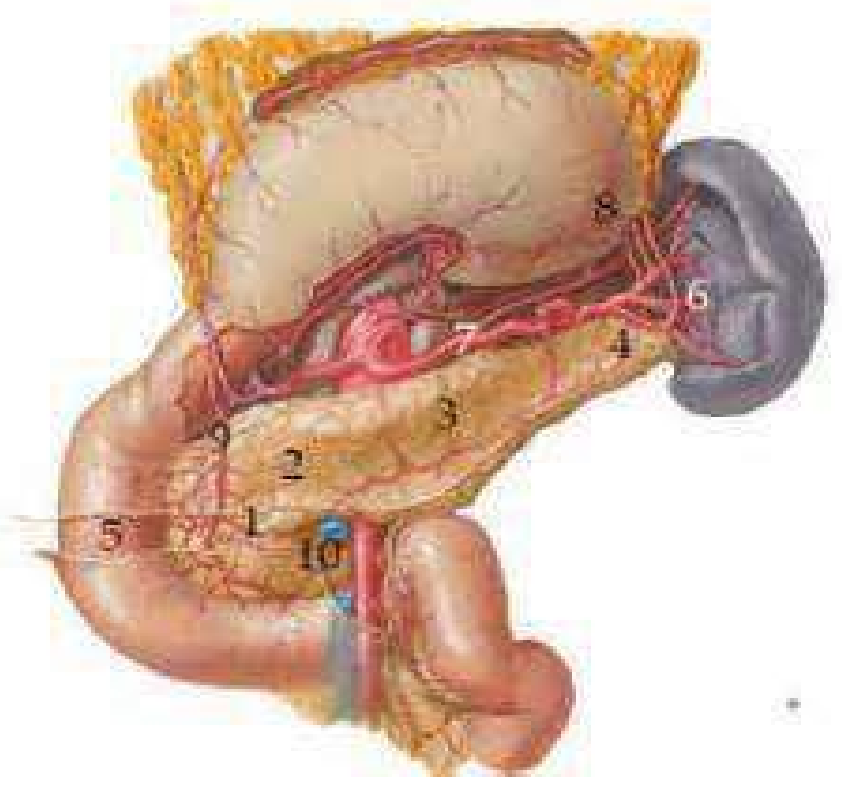
- **Above**

-Left renal vein



NECK

Relations:



Upper border:

. First part of Duodenum

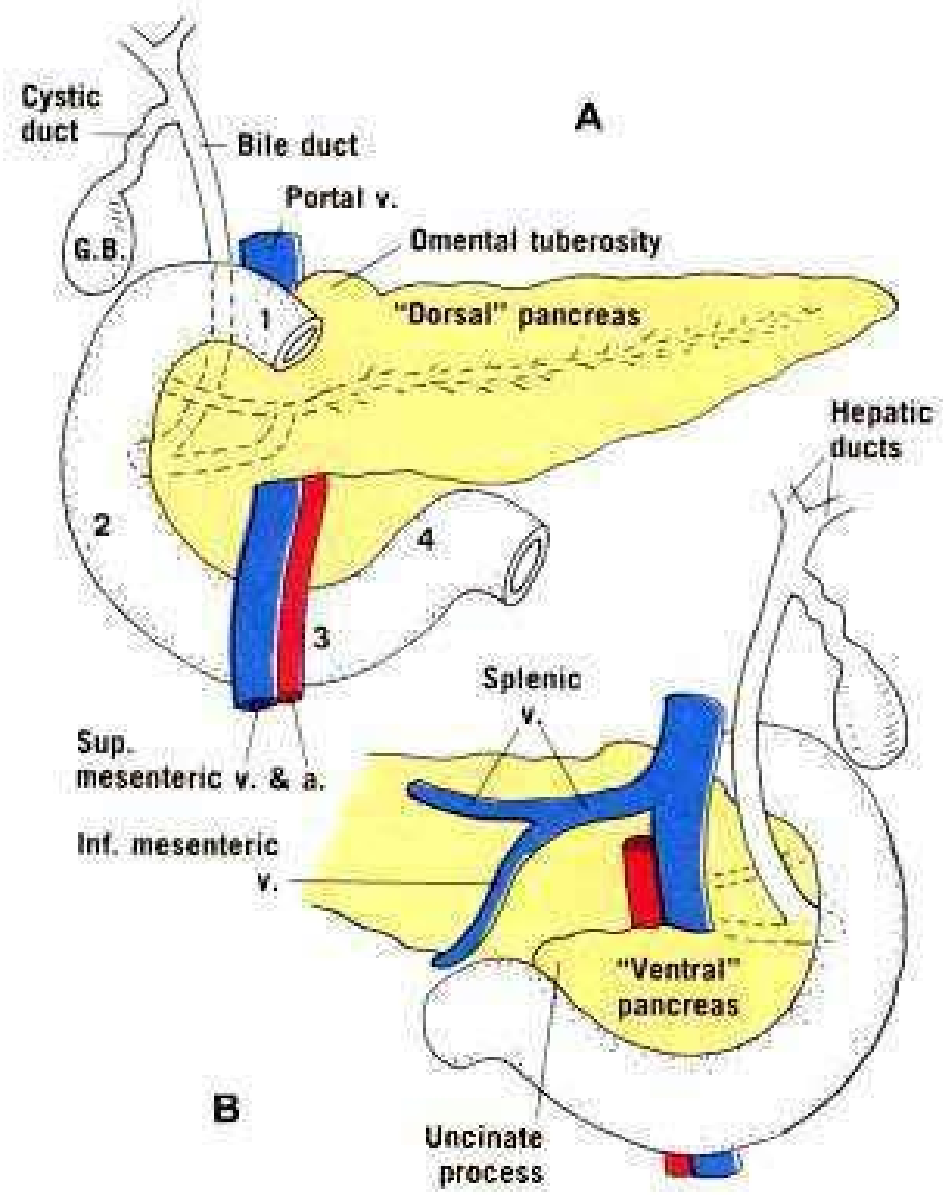
Anterior surface

- Peritoneum covering lesser sac
- Pylorus

NECK..

Posterior surface is related to

- superior mesenteric vein
- portal vein

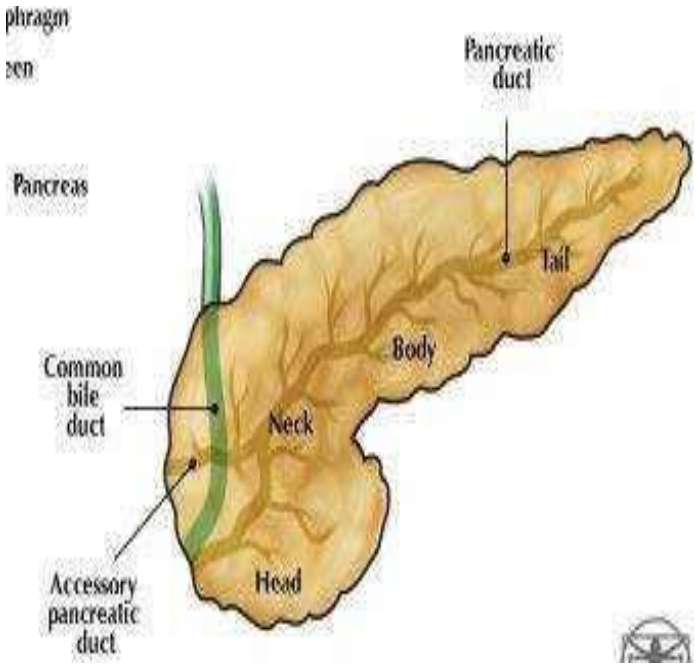


BODY

- Elongated part.

- Extends from **neck to the tail.**

- Passes toward the left with slight upward and backward inclination



BODY...

Triangular in cross section

- **3 borders-**

-Anterior

-superior

-Inferior

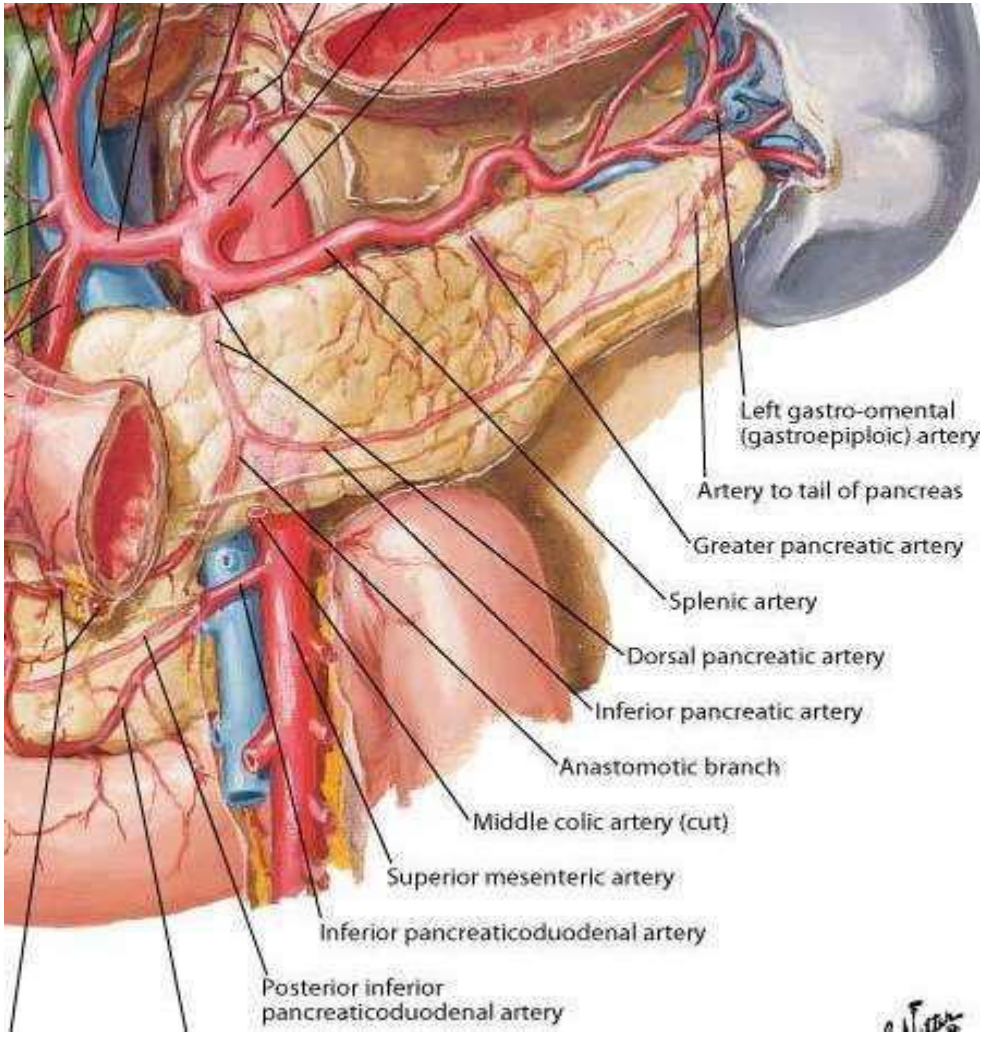
- **Tuber omentale -** small projection on superior border little to the left of the neck

BODY...

Relations...

Borders:

- **Anteriorly attach to** root of the tranverse mesocolon .
- **Superior related to** coeliac trunk, hepatic artery & splenic artery
- **Inferior is related to** superior mesenteric artery.

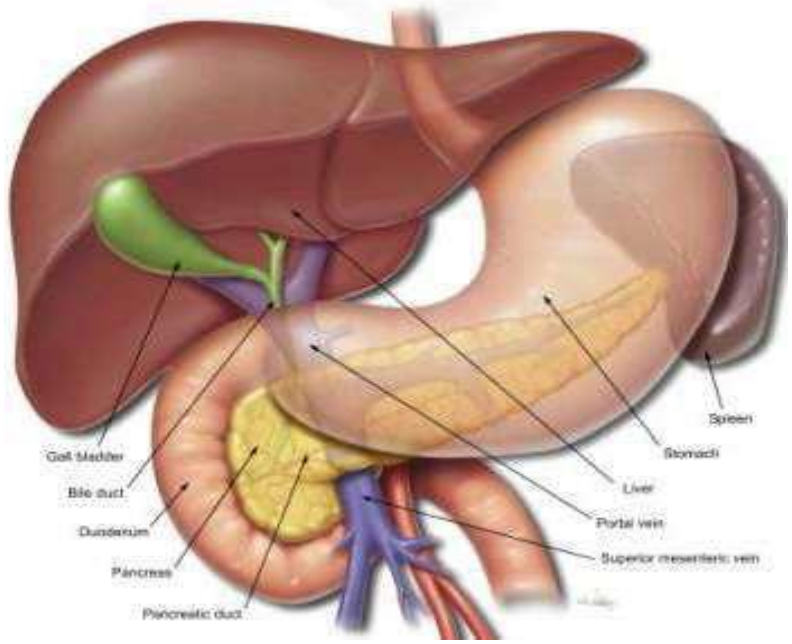


BODY..

Relations…

Surfaces:

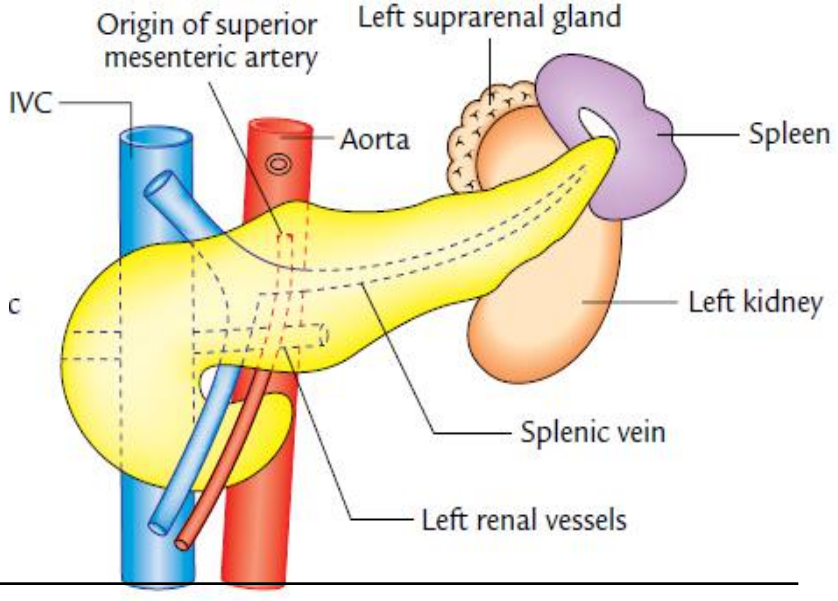
- **Anterior is convex** covered by the peritoneum related to the lesser sac & stomach.
- **Inferior surface covered** by the peritoneum related the DJ flexure coils of jejunum & Lt. colic flexure.



BODY..

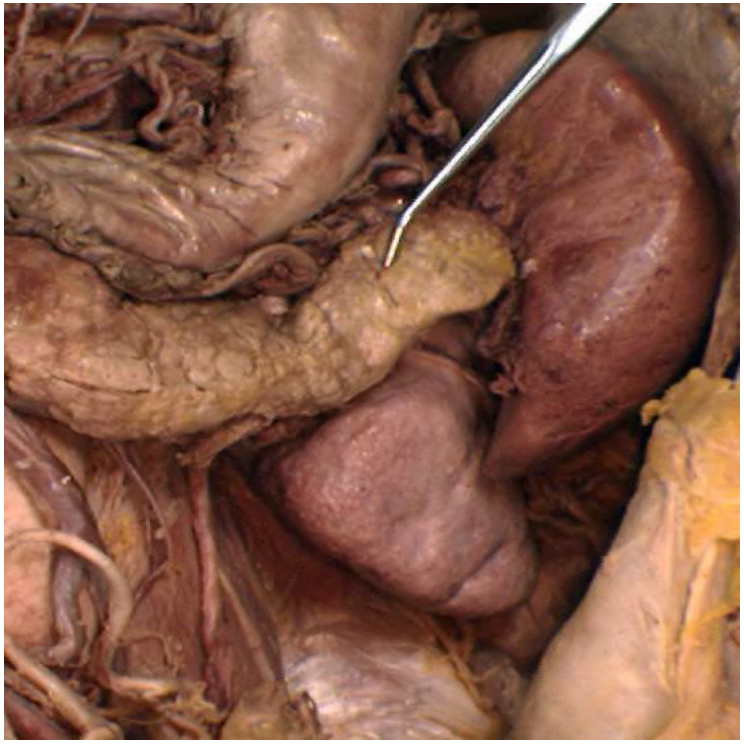
- **Posterior surface**

-Aorta
-Left crus of the diaphragm
-Left kidney
-Left Suprarenal gland
-Left renal vessels
-Splenic vein



TAIL

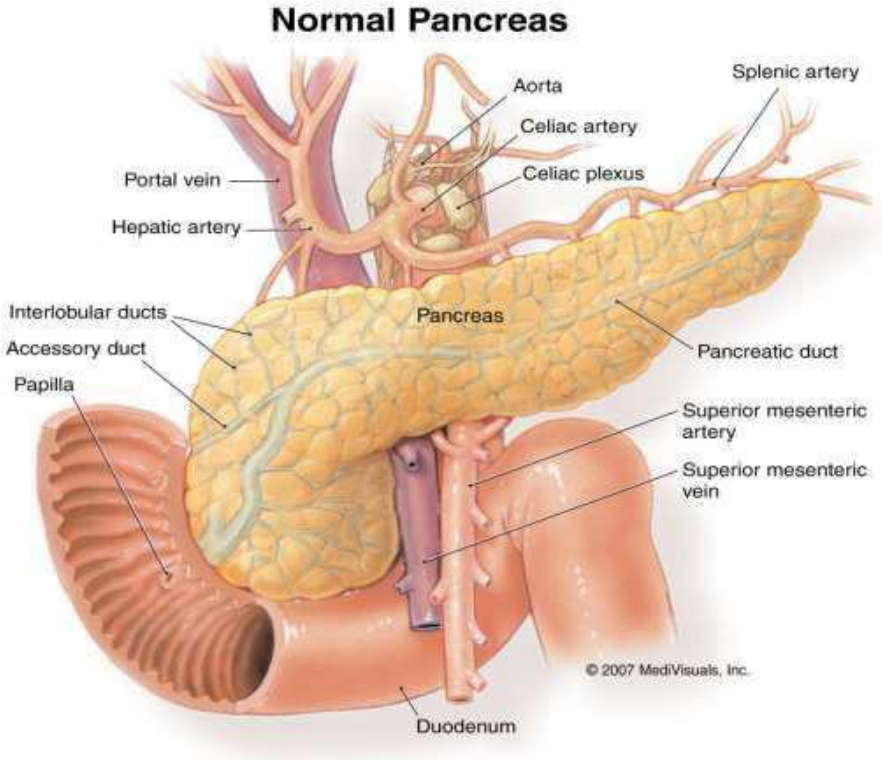
- Left end of the pancreas
- Lies in the **lienorenal ligament ,together** with the **splenic vessels**
- Related to the lower part of the **spleen (gastric surface.**



DUCT SYSTEM

Exocrine part of pancreas is drained by the 2 ducts

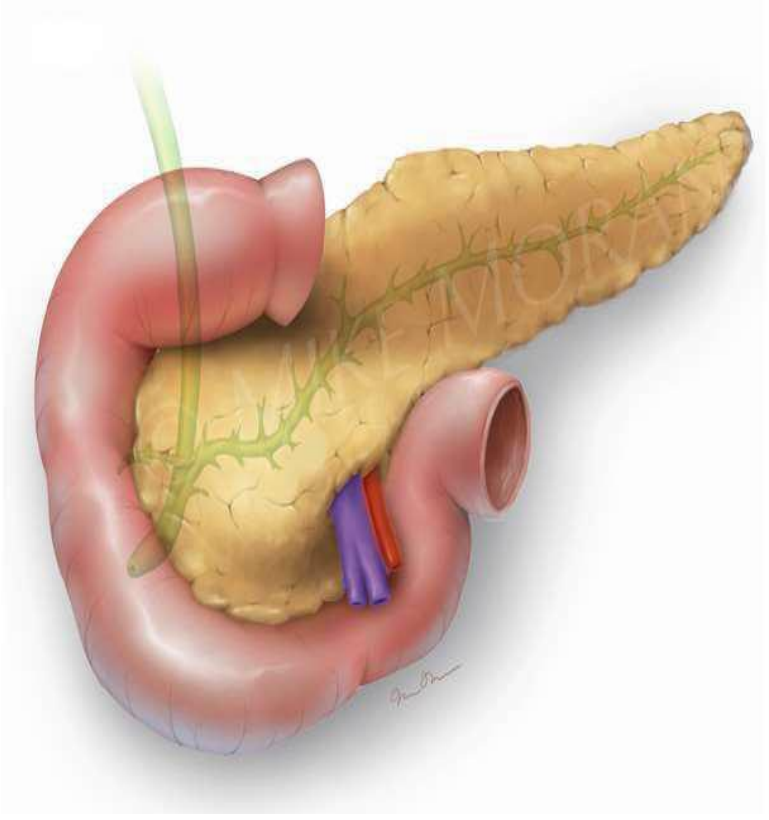
- **Main**
- **Accessory.**



Main pancreatic duct of Wirsung

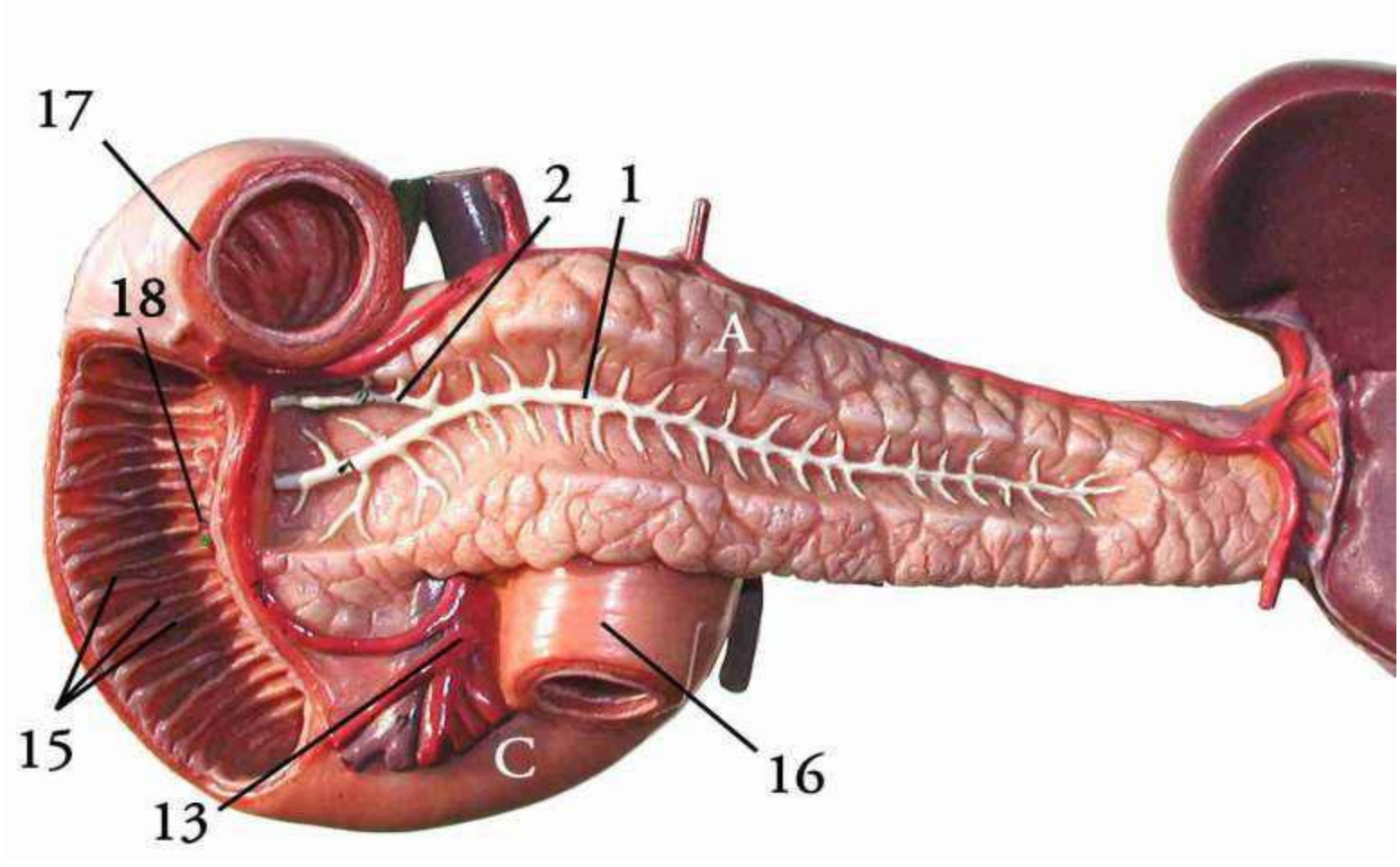
- Lies near posterior surface ,3 mm in diam.white in colour

- Begins at the tail, runs throughout the body ,bends at the neck to run downwards backwards in the head.



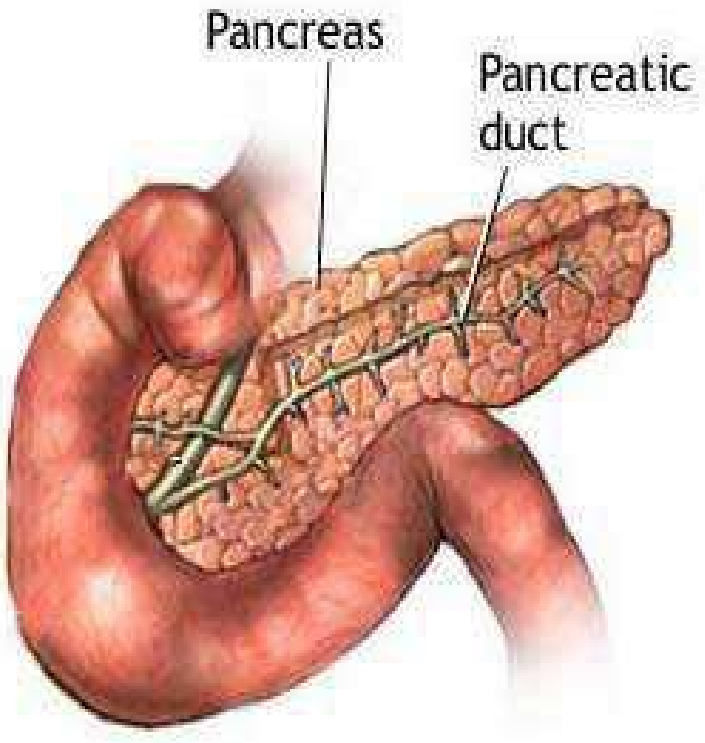
- ***Herring bone pattern***

Herring bone pattern



Main pancreatic duct of Wirsung

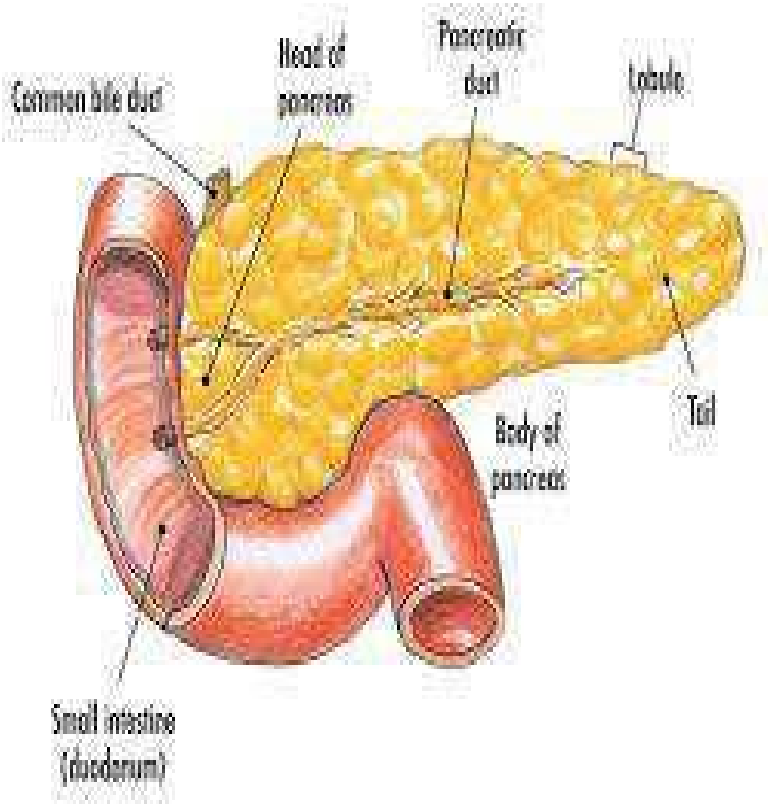
- In the head of the pancreas, it is related to the bile duct(on rt. side)
- Two ducts open in the wall of the 2nd part of the duodenum and join to form ***hepatopancreatic ampulla of vater which*** open as major duodenal papilla,8-10 cm distal to pylorus.



Accessory duct of Santorini

- Begins in the lower part of head, crosses the main duct with which it communicates

- Opens as **minor duodenal papilla in** the **2nd part of duodenum (6-8 cm** distal to pylorus)

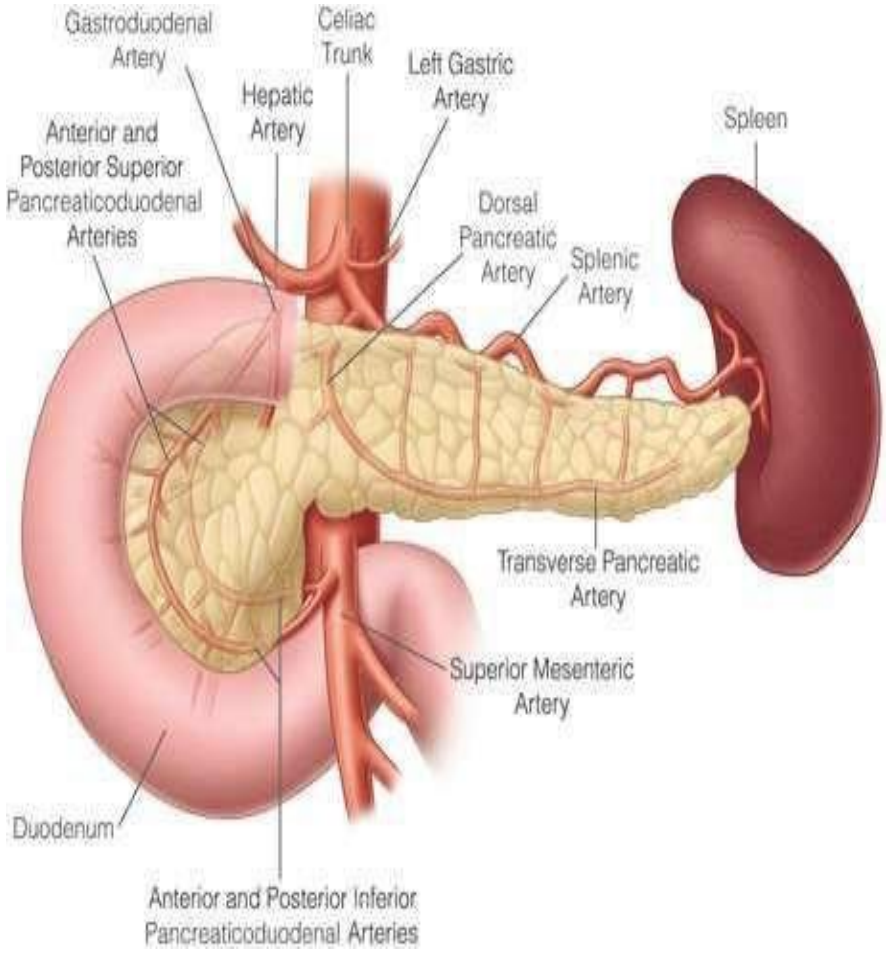


Arterial supply…

-Splenic A.

-Superior pancreaticoduodenal artery (from coeliac trunk)

-Inferior pancreaticoduodenal A.(from superior mesenteric

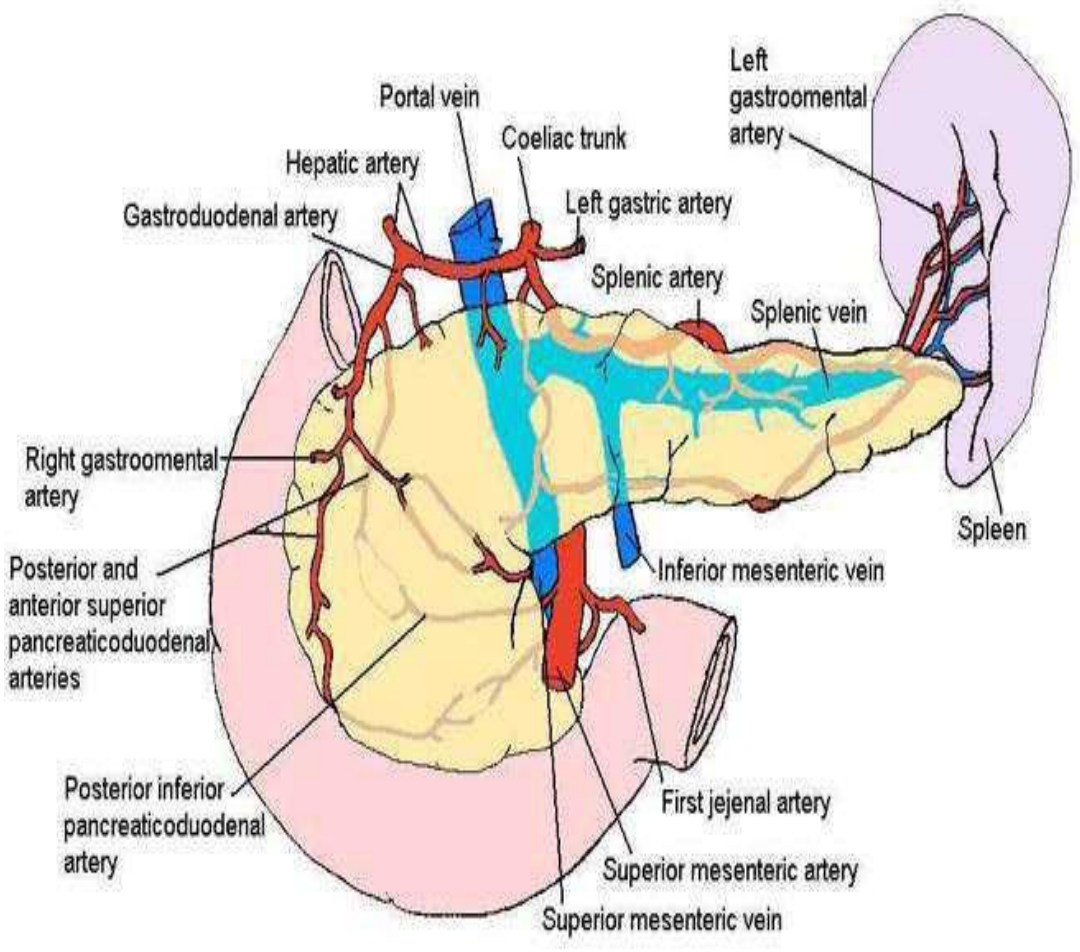


Venous drainage

-Splenic vein

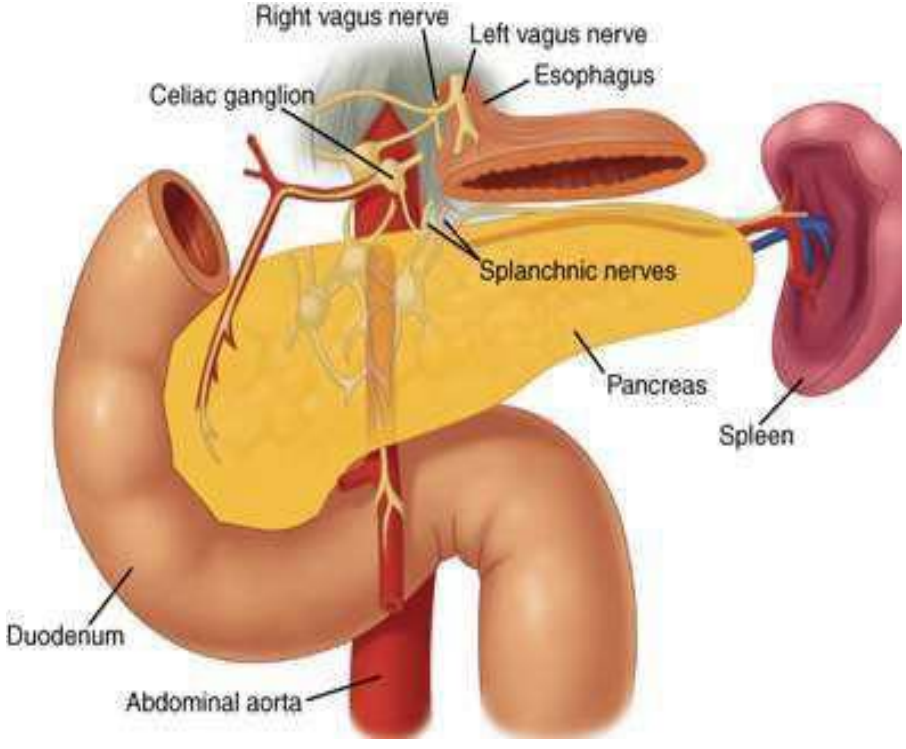
-Superior mesenteric Vein

-Portal vein



Nerve Supply

- **Parasympathetic by** the **vagus nerve** controlling secretion .



- **Sympathetic from coeliac & superior mesenteric plx.**

- Secretion is also controlled by **hormone secretinpancreozymine**

DEVELOPMENT

The pancreas develops in two parts, both of which arise from the endoderm of the primitive duodenum.

The **ventral bud develops more caudally as a** diverticulum.

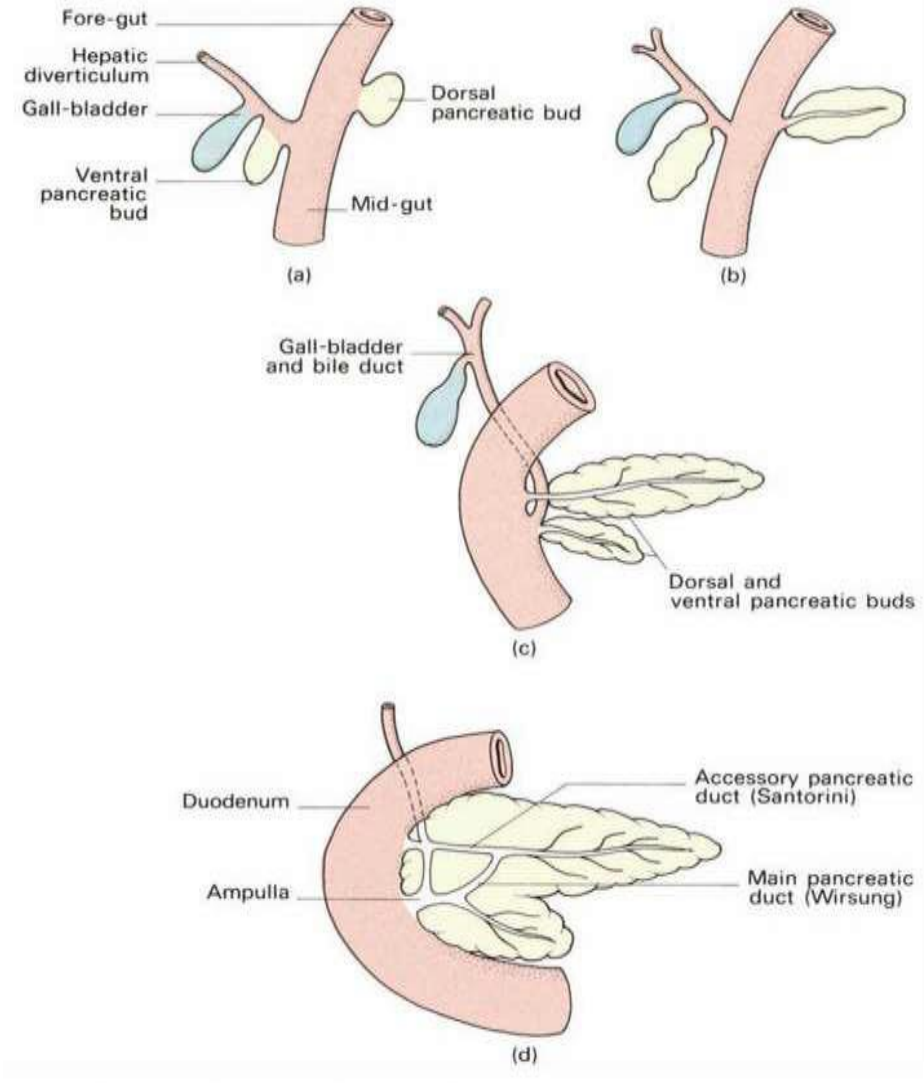


Fig. 78 Development of the intestinal adnexae.

DEVELOPMENT

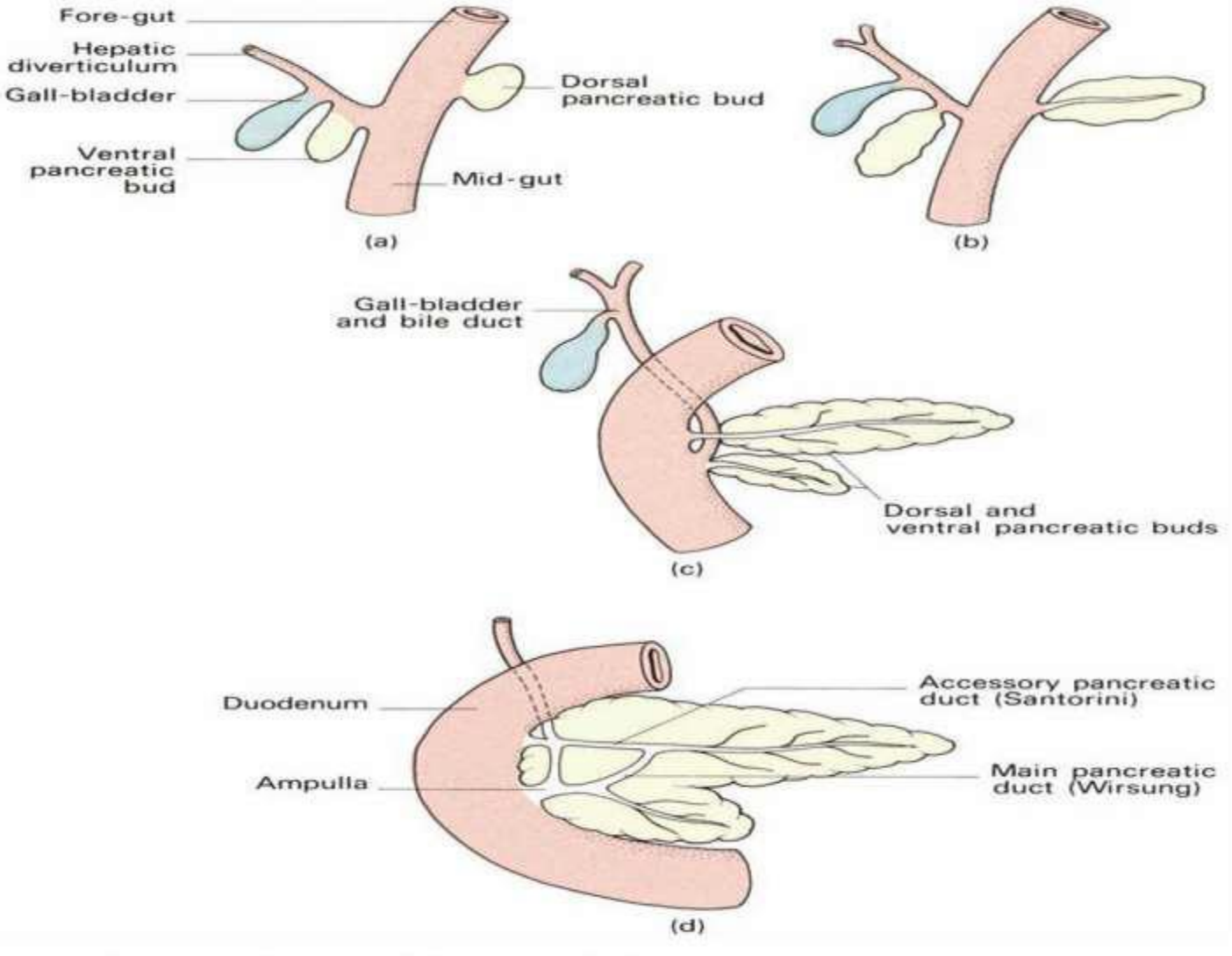


Fig. 78 Development of the intestinal adnexae.

DEVELOPMENT

The **dorsal bud** is the first to appear, as a diverticulum from the dorsal wall of the duodenum. This eventually forms the whole of the neck, body and tail of the gland, together with part of the head.

Between the fourth and eighth week, the **ventral bud** rotates posteriorly in a clockwise fashion to fuse with the dorsal bud.

DEVELOPMENTAL ANOMALIES

PANCREATIC DIVISUM

Most common congenital anomaly

Results from failure of dorsal and ventral ducts to fuse

Detected in 5% to 10% of population in autopsy studies

ANNULAR PANCREAS

Rare congenital anomaly

Ring of pancreatic tissue surrounds the duodenum

May be partial or complete

1 in every 12 000 to 15 000 live births

DEVELOPMENTAL ANOMALIES

ECTOPIC PANCREAS

Described as pancreatic tissue that lacks anatomic or vascular continuity with the normal pancreas.

Usually asymptomatic and occurs as incidental finding.

AGENESIS AND HYPOPLASIA

Total agenesis is extremely rare and incompatible with life.

Hypoplasia result from absence of ventral or dorsal pancreatic bud.

DEVELOPMENTAL ANOMALIES

ACCESSORY PANCREATIC LOBE

Extremely rare anomaly

Accessory lobe of pancreatic tissue originating from main pancreatic gland.

May contain an aberrant duct

ANSA PANCREATICA

Rare anatomical variation.

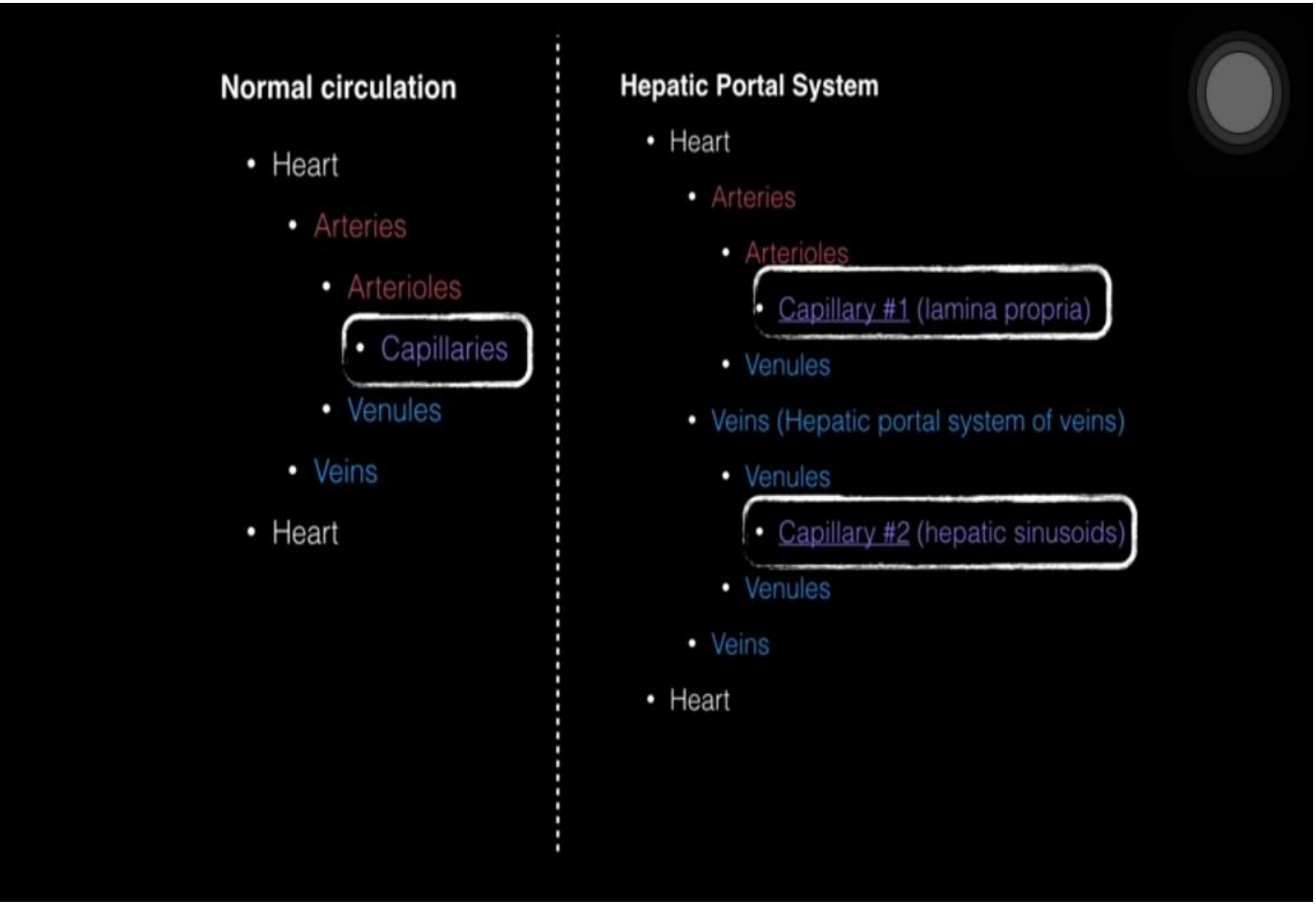
Communication between main pancreatic and accessory pancreatic duct.

Predisposing factor in patients with idiopathic acute pancreatitis.

CLINICAL CORRELATION

1. Carcinoma of the head of pancreas
2. Acute Pancreatitis

PORTAL VEIN



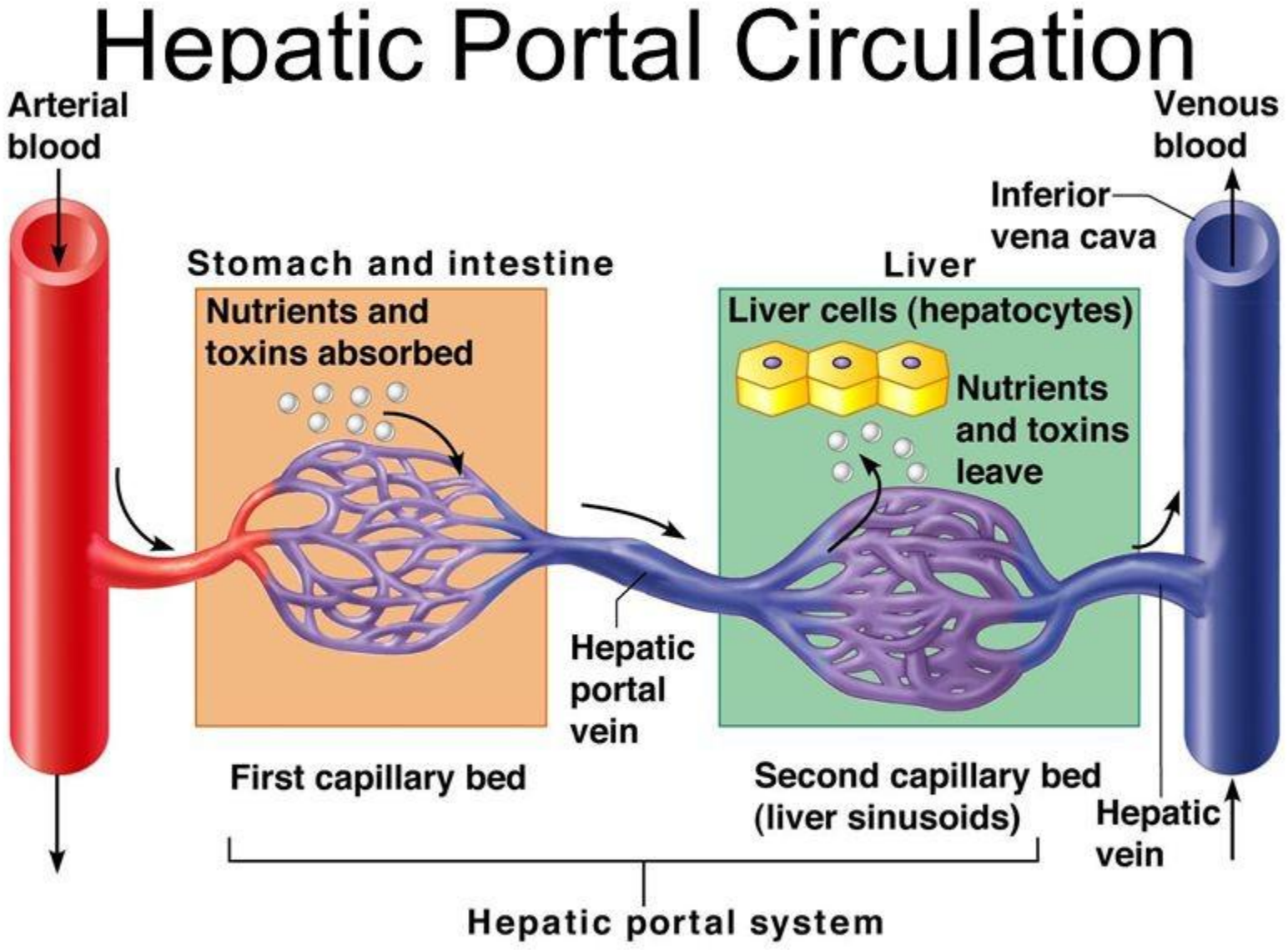


Figure 11.16

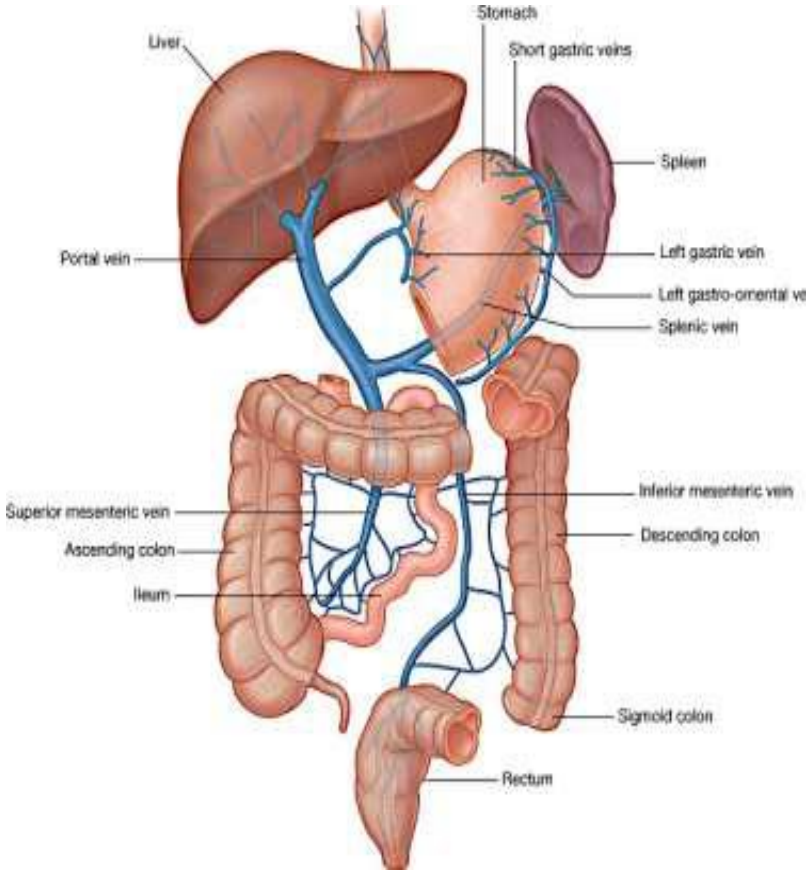
Hepatic Portal Vein

- Origin & end in capillaries / venous sinusoids
- Size: 8cm X 1 cm
- Drains

– Abdominal part of alimentary tract (except lower part of anal canal)

– Spleen & Pancreas

- Conveys absorbed products of digested food to liver
- Devoid of valves
- Reservoir of blood : 1200 ml / min



Formation

– Union of Sup mesenteric & Splenic vein
– Between neck of Pancreas & IVC at level L2