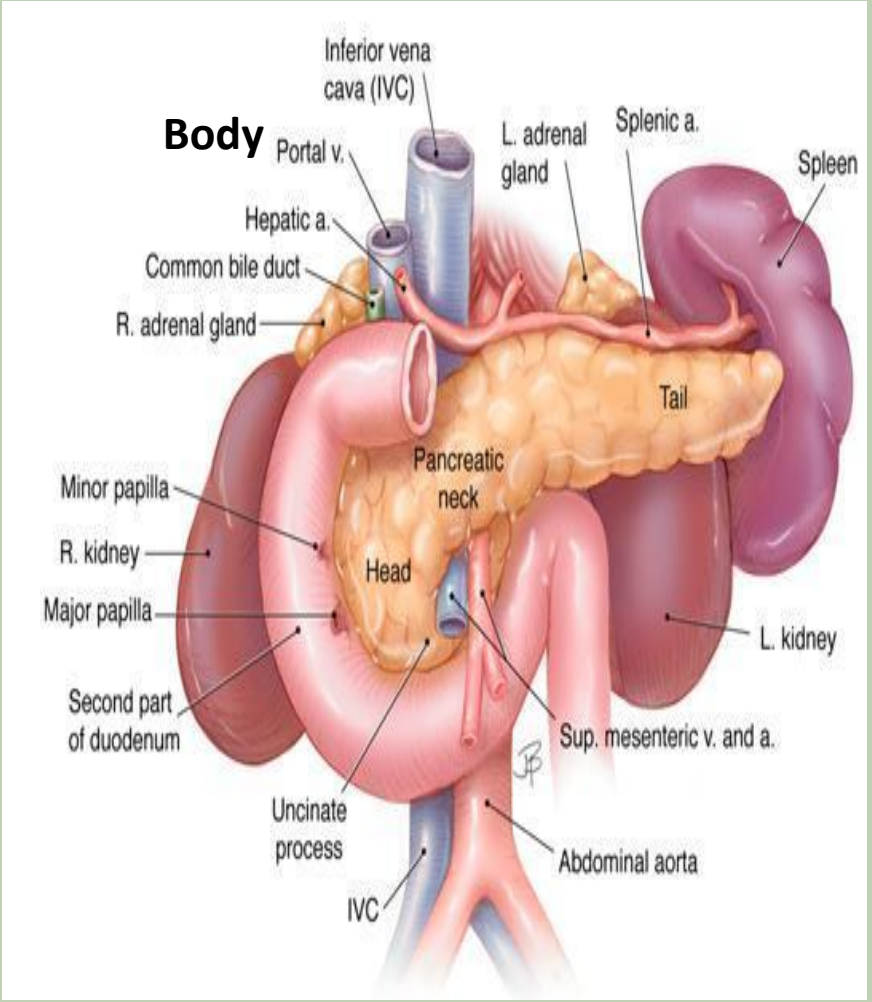
ANATOMY OF PANCREAS

BY DR. DALIA M. BIRAM

Position of pancreas

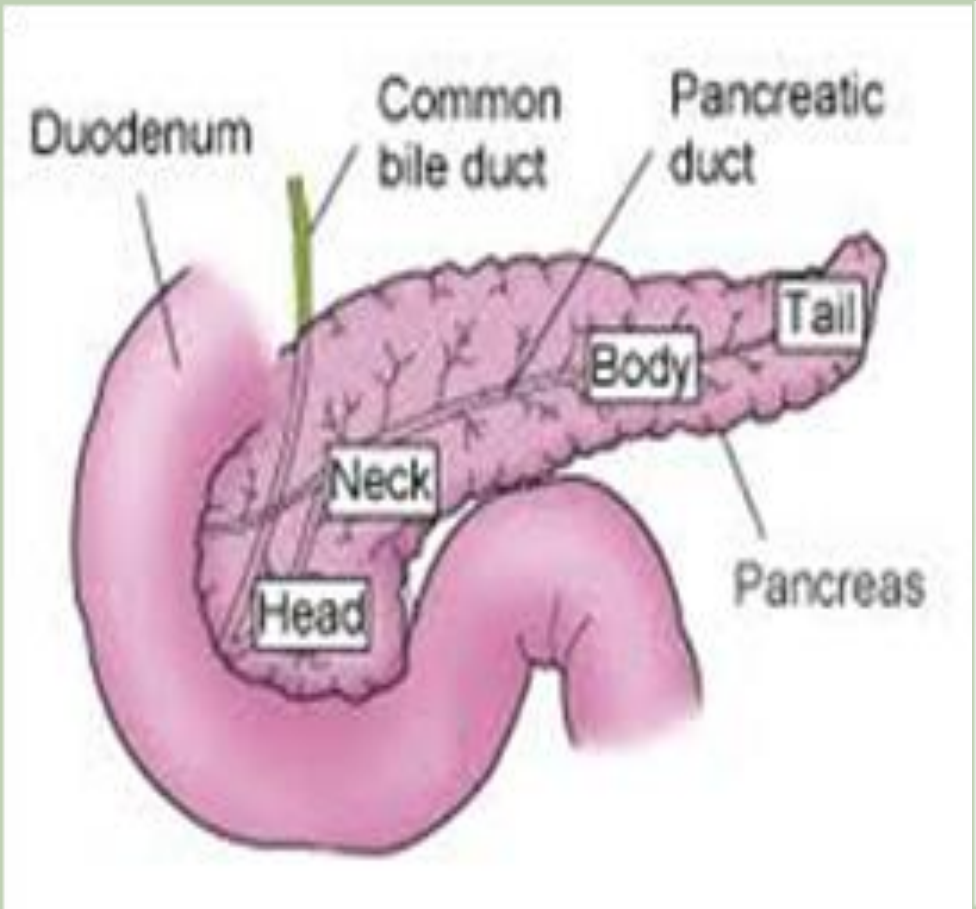
It is a combined exocrine & endocrine gland which lies transversely across the posterior abdominal wall.

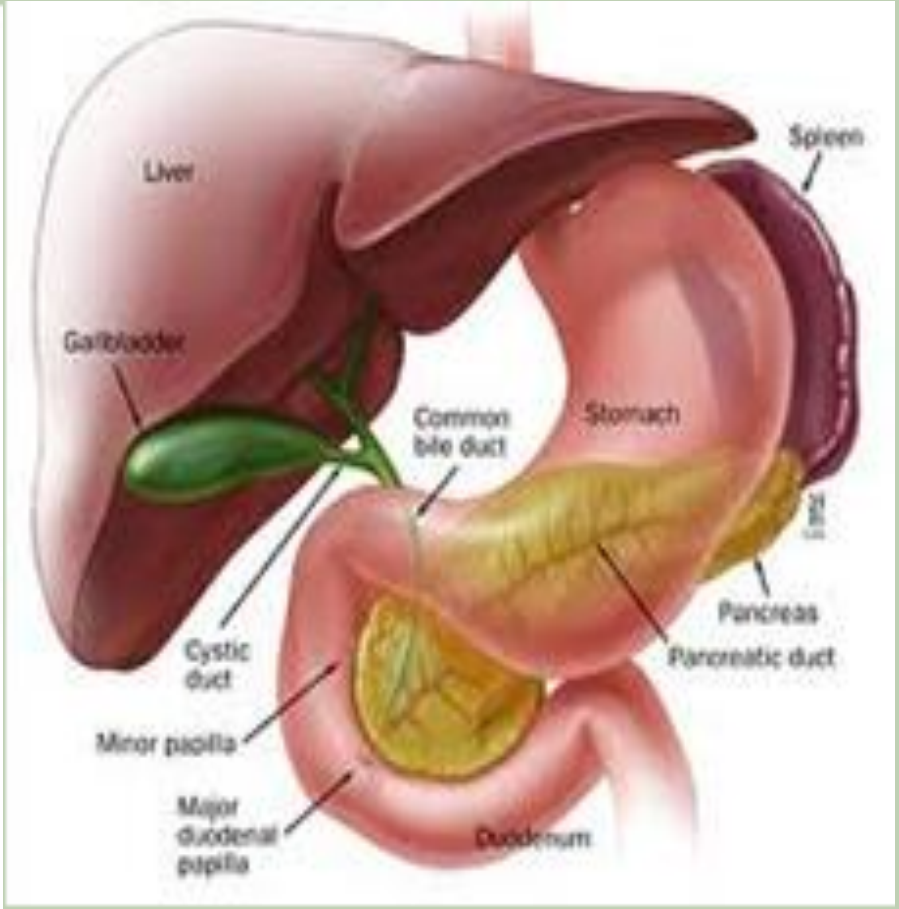
It extends from the concavity of the duodenum on the right side to the spleen on the left side.It is Retroperitoneal organ except its tail which is totally covered .It lies in the epigastric, left hypochondriac, and a portion of the umbilical abdominal regions



Parts of pancreas

It consists of head, neck, body and tail. The lower part of the head forms a projection called uncinate process.





Relations of pancreas

1-Head of pancreas:

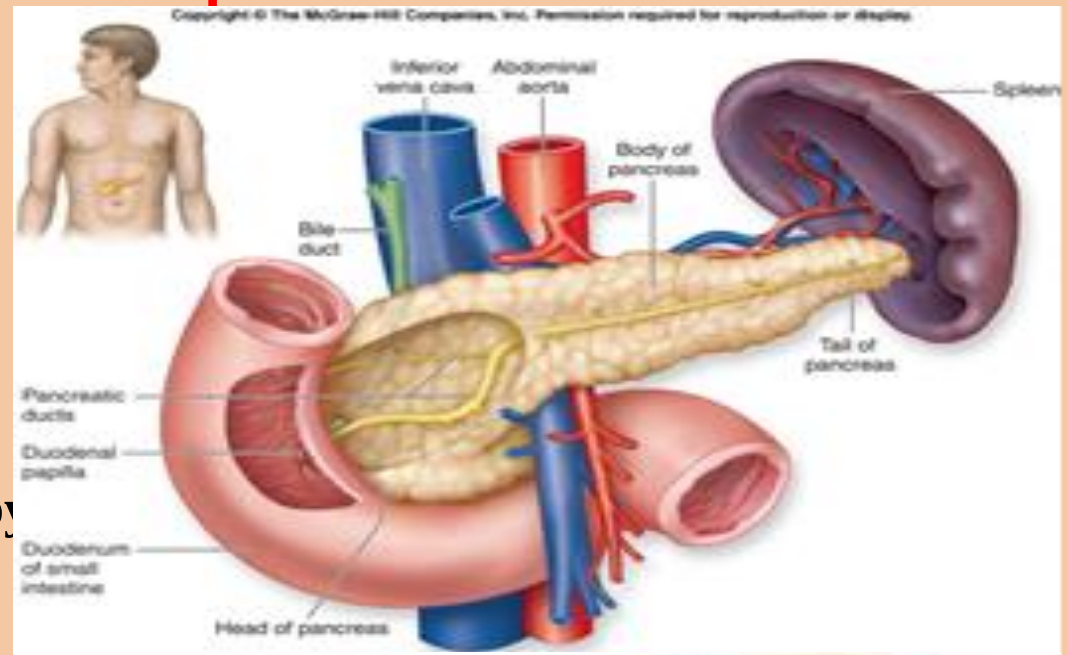
It lies in the concavity of the duodenum.

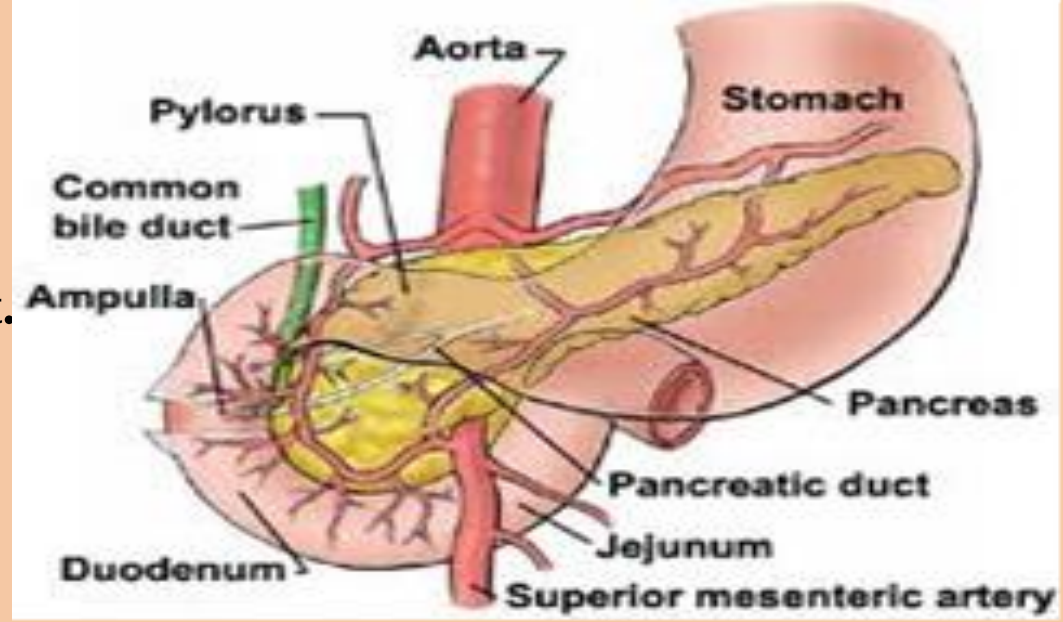
It is related to the 1st part of duodenum superiorly, 2nd part on the right side (separated from it by superior & inferior pancreatico-duodenal arteries), and 3rd part inferiorly.

Anteriorly: it is related to transverse colon.

Posteriorly: it is related to IVC, renal veins and common bile duct.

Uncinate process lies between abdominal aorta and superior mesenteric vessels.



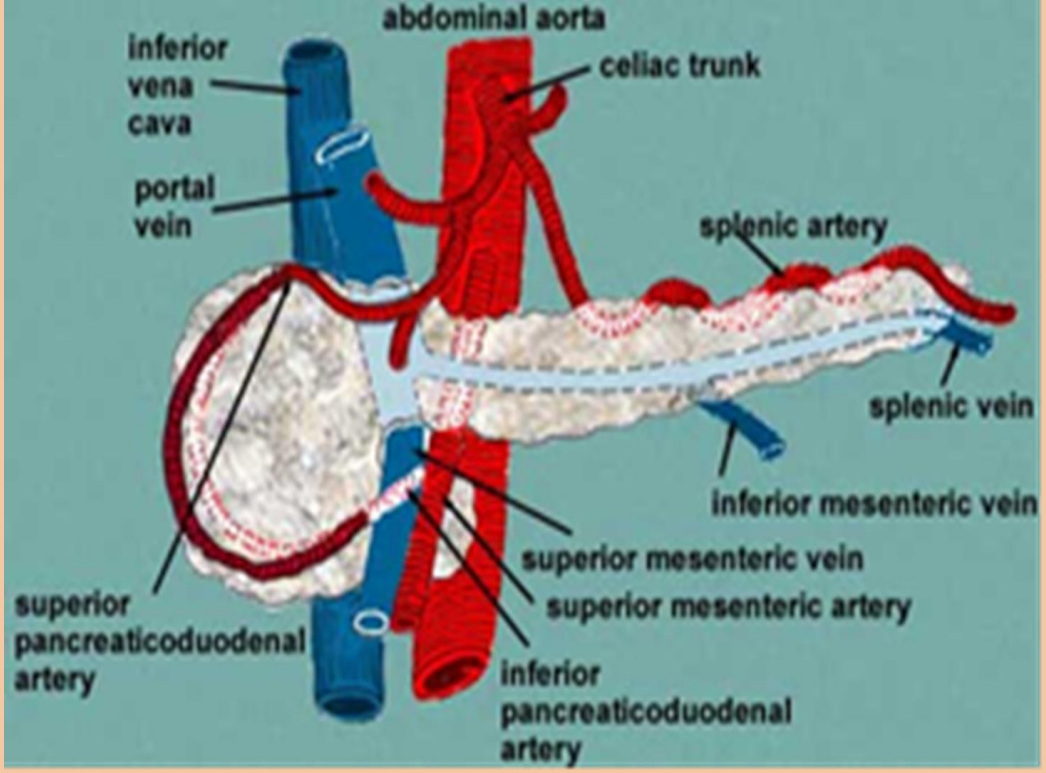


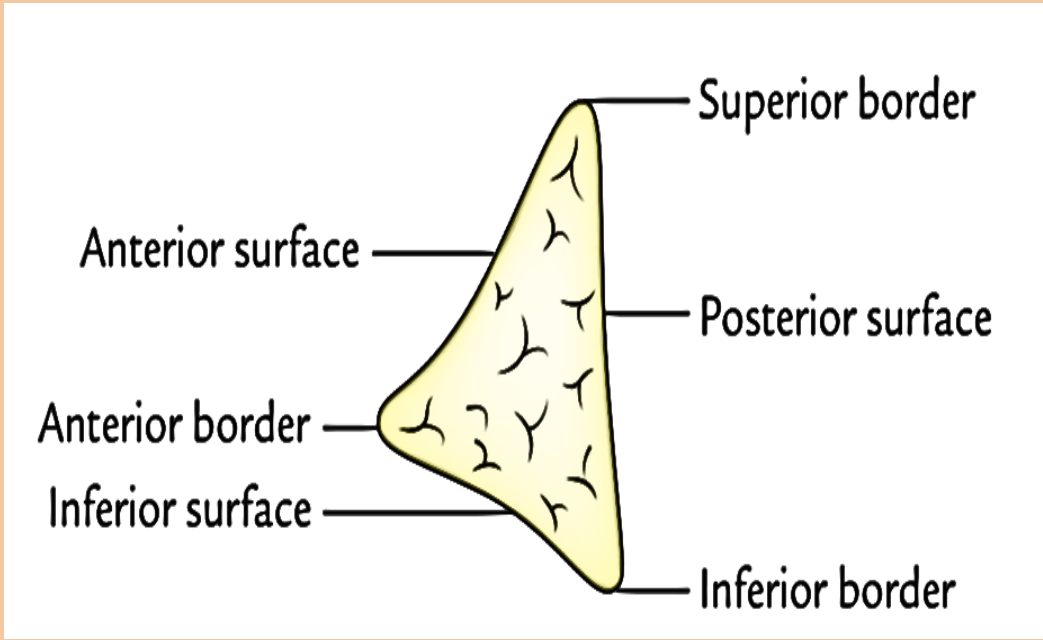
2-Neck of pancreas

Anteriorly: it is related to gastro-duodenal junction.
Posteriorly: it is related to the formation of portal vein from splenic and superior mesenteric veins.

3-Body (triangular in cross section)

It has three surfaces (anterior, posterior and inferior) and three borders (anterior, superior and inferior).





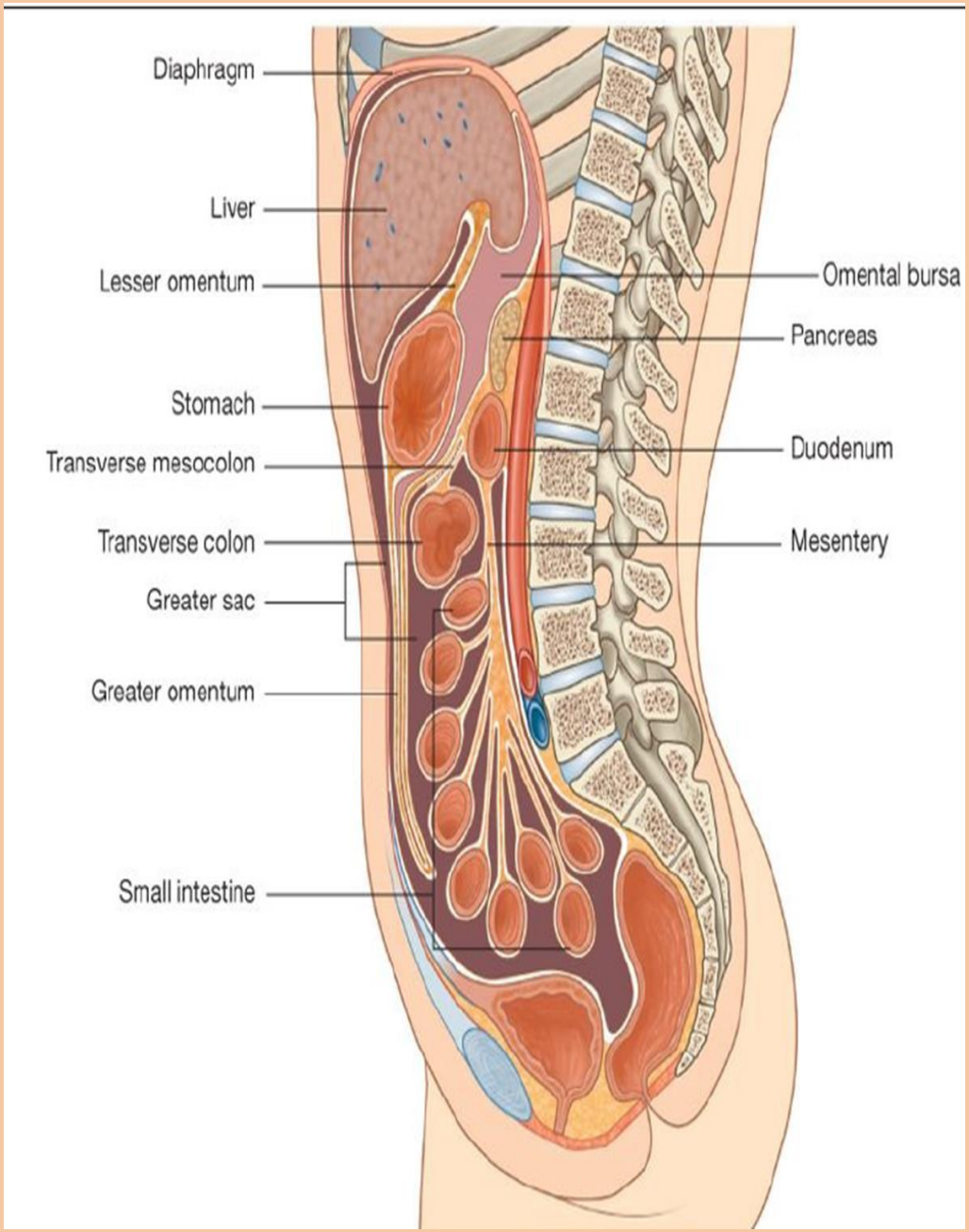
Surfaces:

1- Anterior surface:

Related to stomach, separated from it by the lesser sac.

2- Inferior surface:

Related to duodeno-jejunal flexure, loops of ileum and end of transverse colon (from right to left).



3- Posterior surface: It is related to

posterior abdominal wall

Aorta and origin of sup. mesenteric artery.

Splenic and left renal vein.

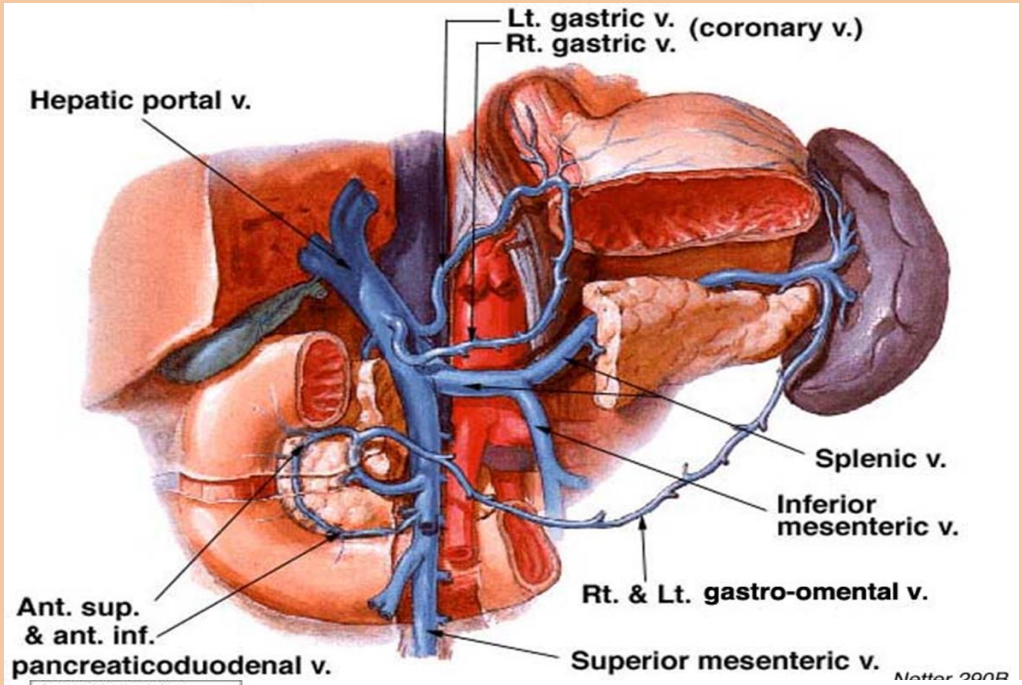
Left psoas major.

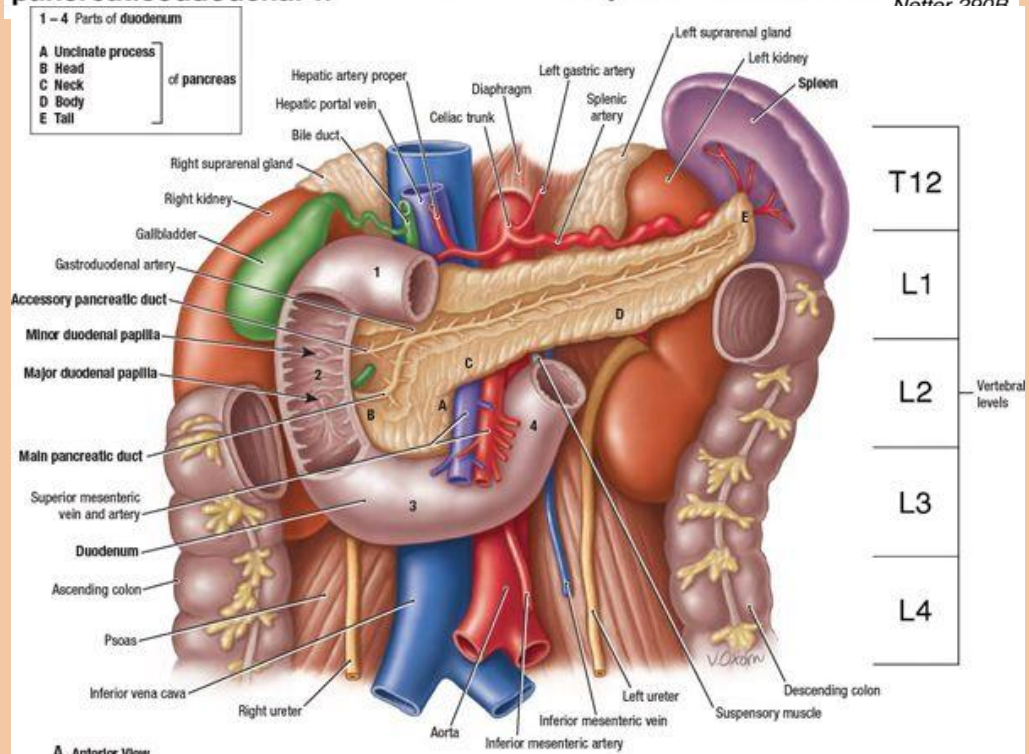
Left crus of diaphragm.

Left kidney.

Left supra renal gland.

Left sympathetic chain.





Borders:

1- Superior border: It is related to splenic artery.

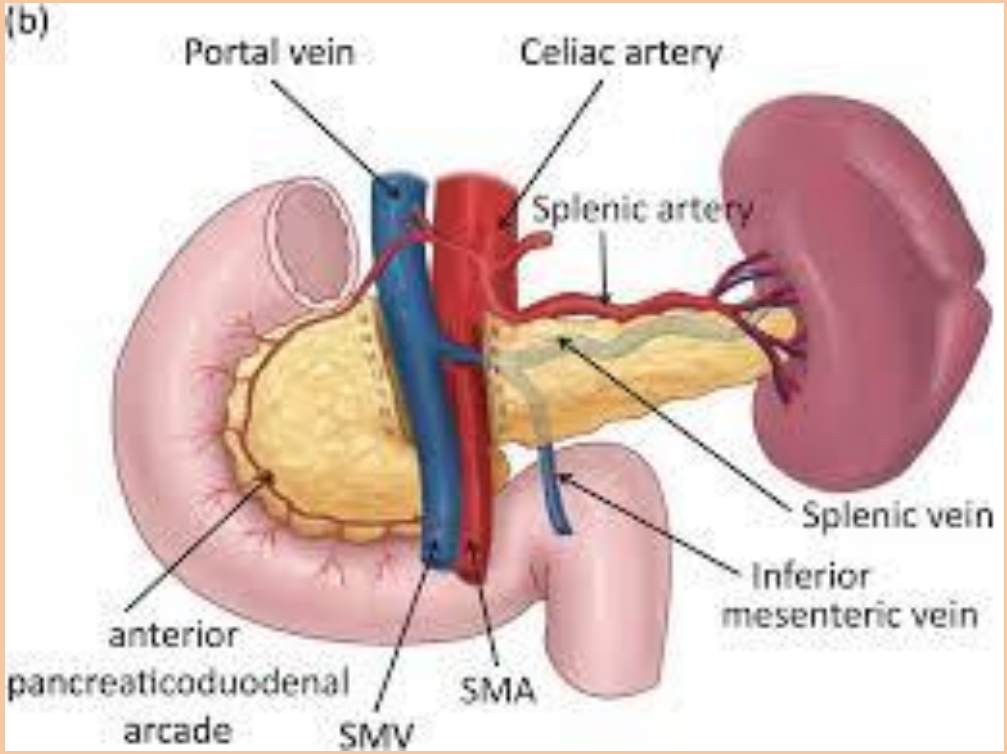
2- Anterior border: It gives attachment to transverse mesocolon and greater omentum.

3- Inferior border: It separates the inferior from the posterior surfaces.

4-Tail of the pancreas:

It is related to the visceral surface of spleen near its hilum.

It reaches the hilum via the lieno-renal ligament.



Blood supply

Arterial supply:

1- Superior, inferior pancreatico-duodenal arteries: to the head.

2- Pancreatic branches of splenic artery: to the rest of pancreas.

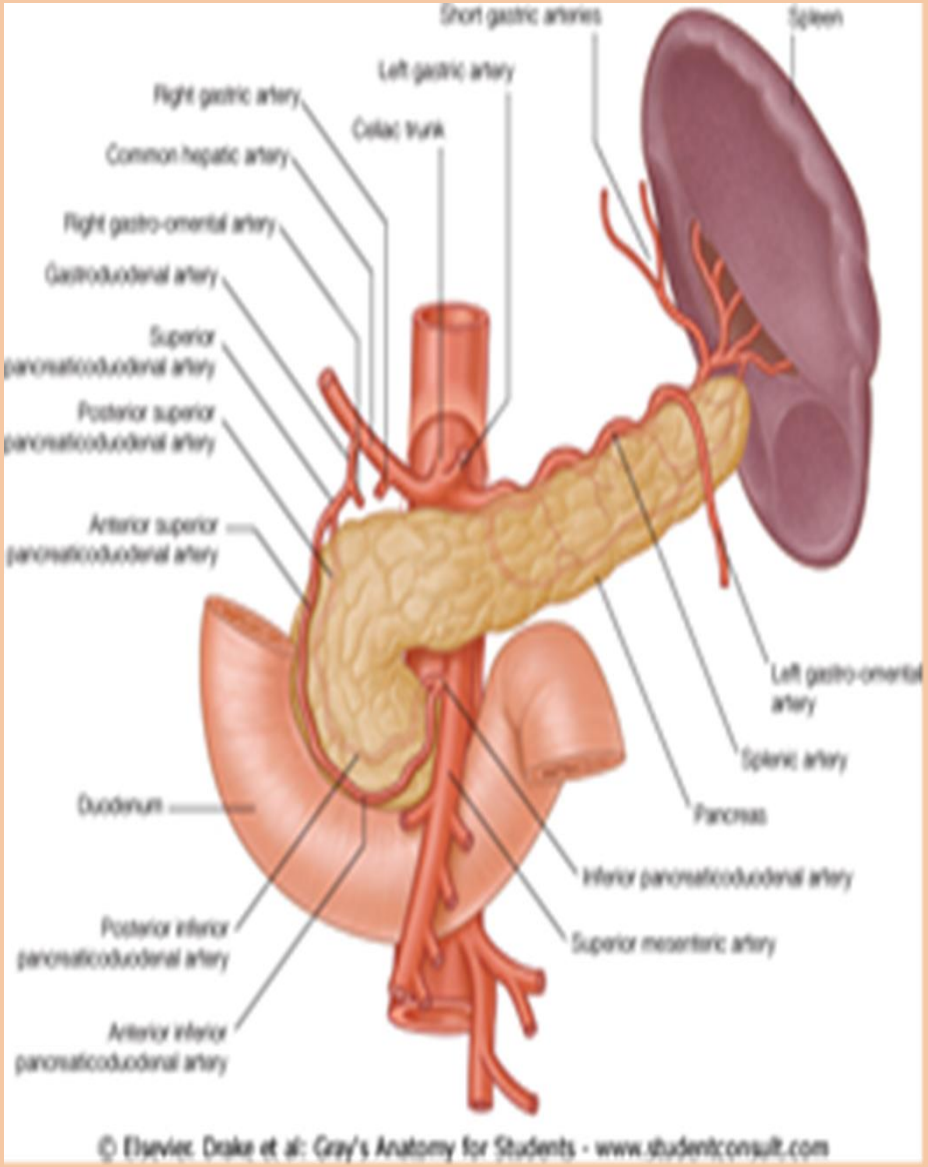
Venous drainage: To splenic vein and portal vein.

Lymphatic drainage:

1. To the left of the neck: Drains into the pancreatico-splenic lymph nodes.

2. The upper part of the head: Drains into the coeliac lymph nodes.

3. The lower part of the head: Drains into the superior mesenteric lymph nodes



Ducts of pancreas:

It has two ducts:

1- Main pancreatic duct:

It drains the upper part of the head, all the body and tail of pancreas.

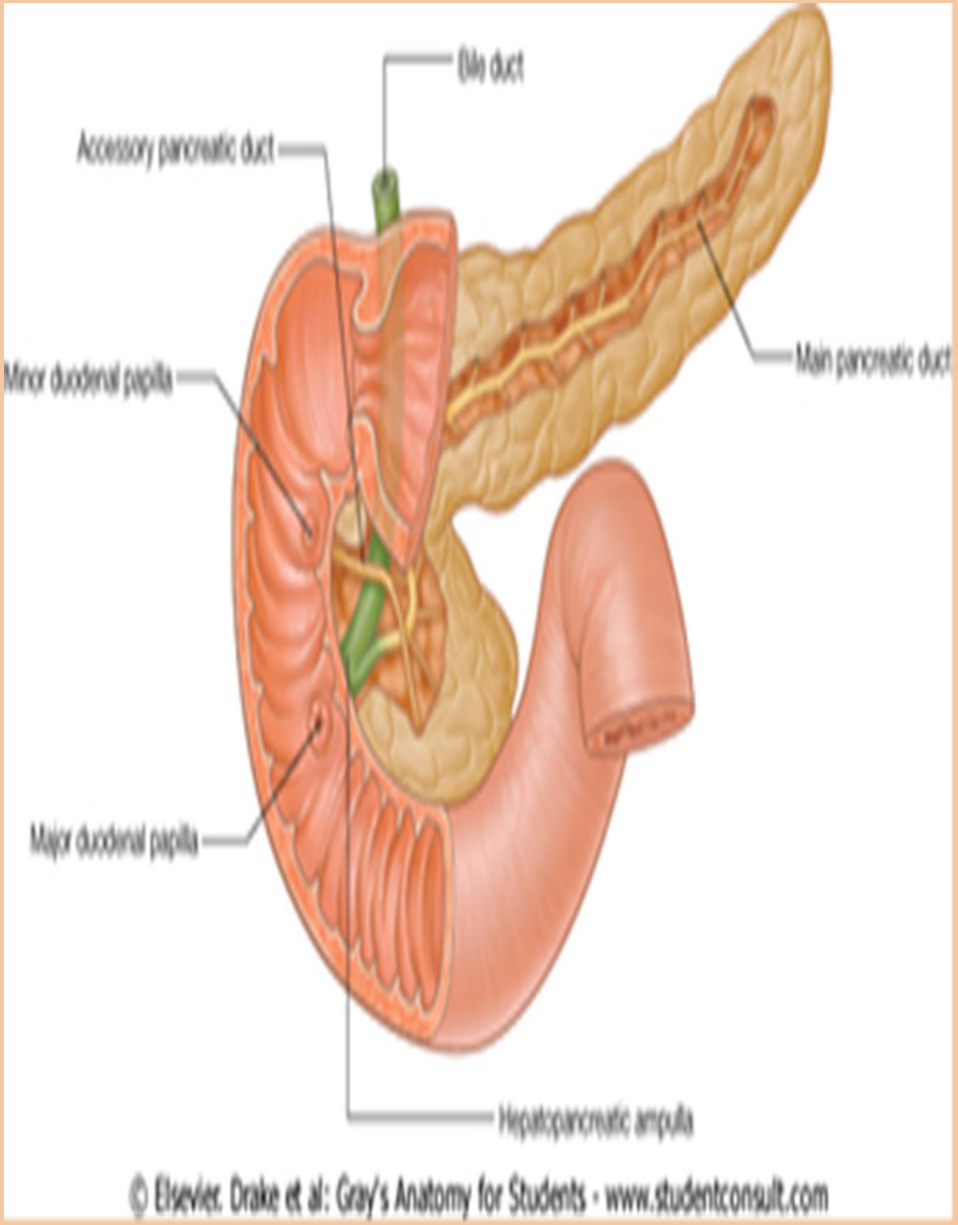
It runs from the tail to the head, then it unites with common bile duct to form ampulla of Vater which opens in the 2nd part of duodenum.

The ampulla of vater opens into the apex of a mucosal elevation in the second part of the duodenum called the major duodenal papilla.

2- Accessory pancreatic duct:

It drains the uncinate process and lower part of head.

It open in the 2nd part of duodenum above the ampulla of Vater.



ANATOMY OF THE PITUITARY GLAND

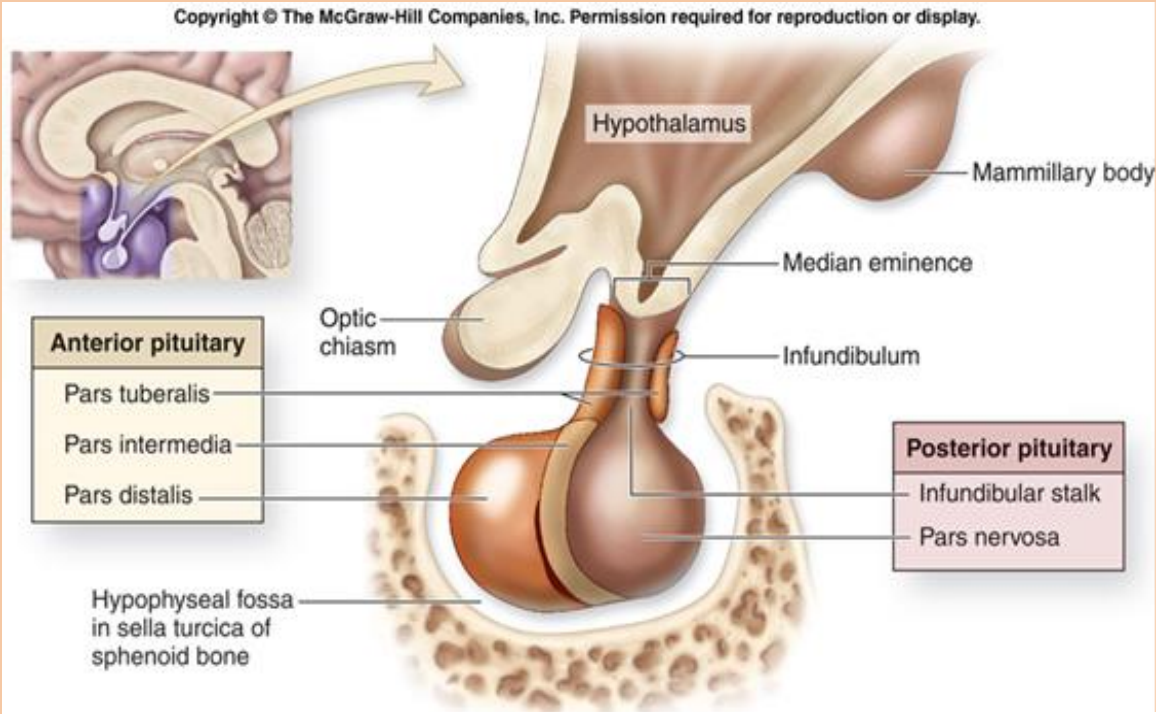
Who suffer (s) from pituitary disturbances?

1) Soldier # 1
2) Soldier # 2 ⟵
3) Soldier # 3
4) Soldiers # 1 & 3

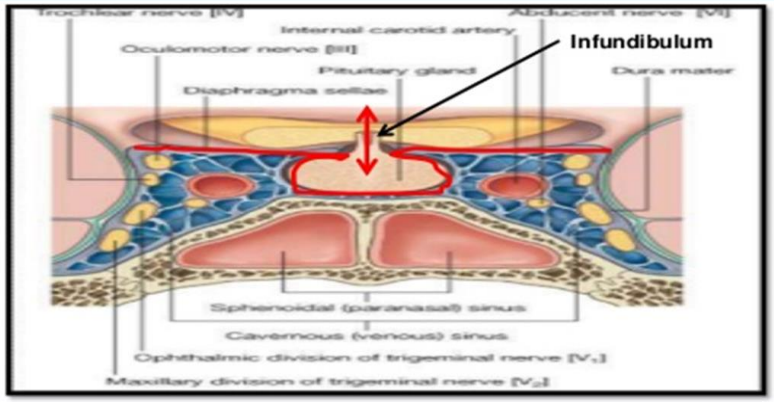
Site:

The pituitary gland is a small ovoid body which is lodged in the hypophyseal fossa (sella turcica) of the sphenoid bone.

It is connected to the tuber cinereum of the brain by a hollow conical stalk called the infundibulum. It is roofed by the diaphragma sellae.



PITUITARY GLAND (POSITION)



A fold of dura mater (Diaphragma sellae) covers the pituitary gland & has an opening for passage of infundibulum (pituitary stalk) connecting the gland to hypothalamus.

Relations

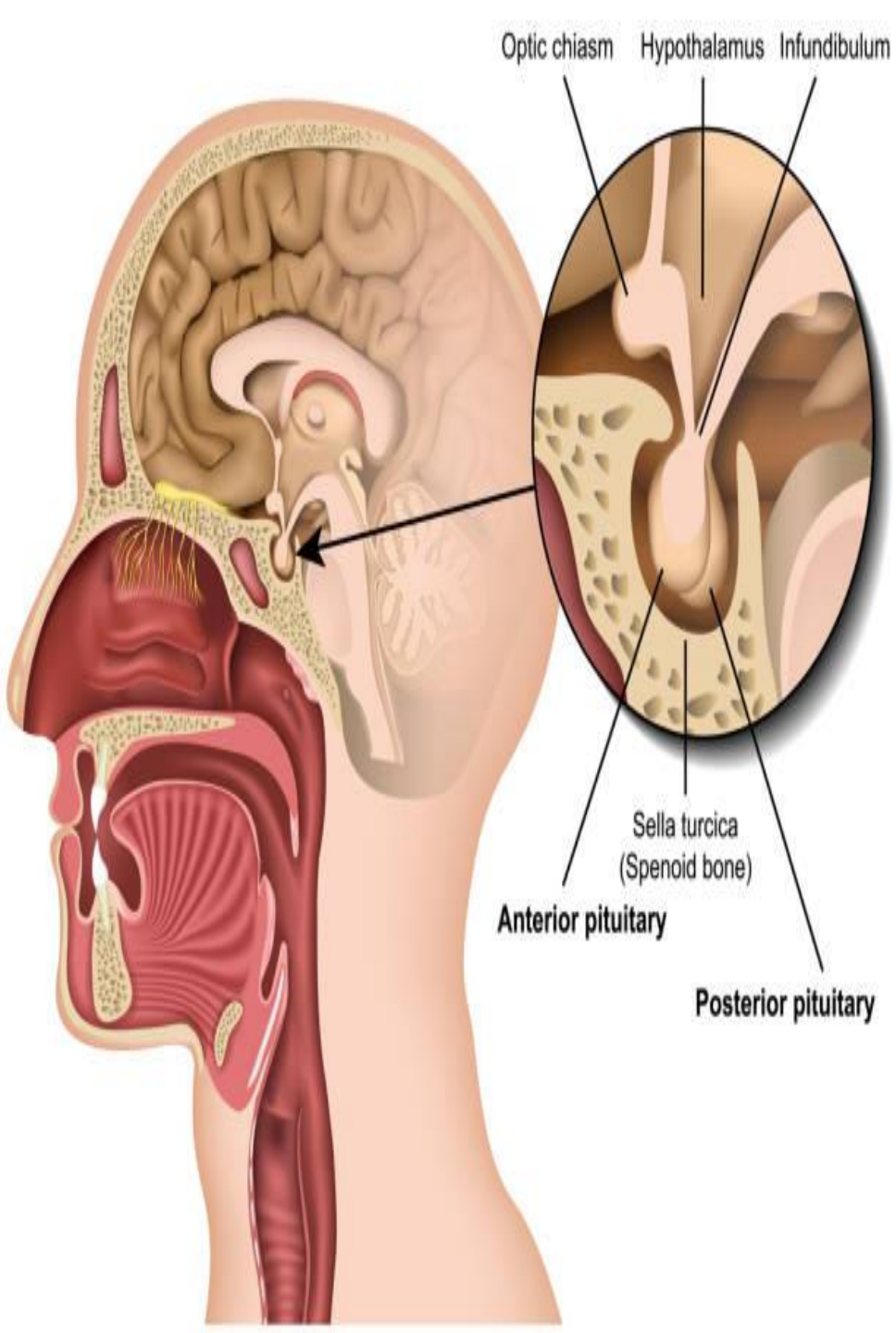
On each side: it is related to the cavernous sinus and its contents.

Superiorly: it is related to the diaphragma sellae which separate the gland from the optic chiasma.

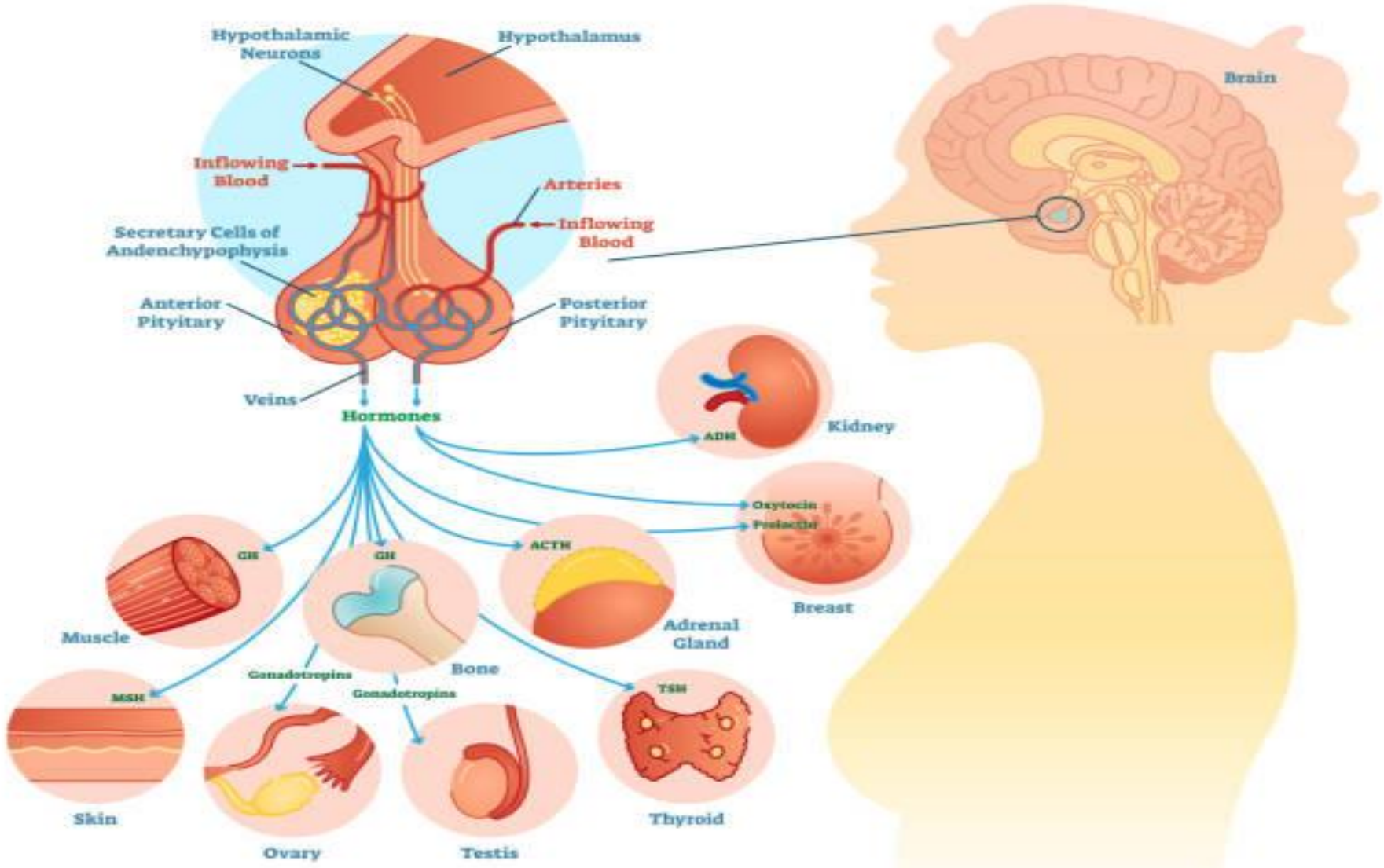
Inferiorly: it is related to body of sphenoid and sphenoid air sinus which separates the gland from the nasophaynx. It is separated from the floor of the hypophyseal fossa by the dura and the intercavernous sinus.

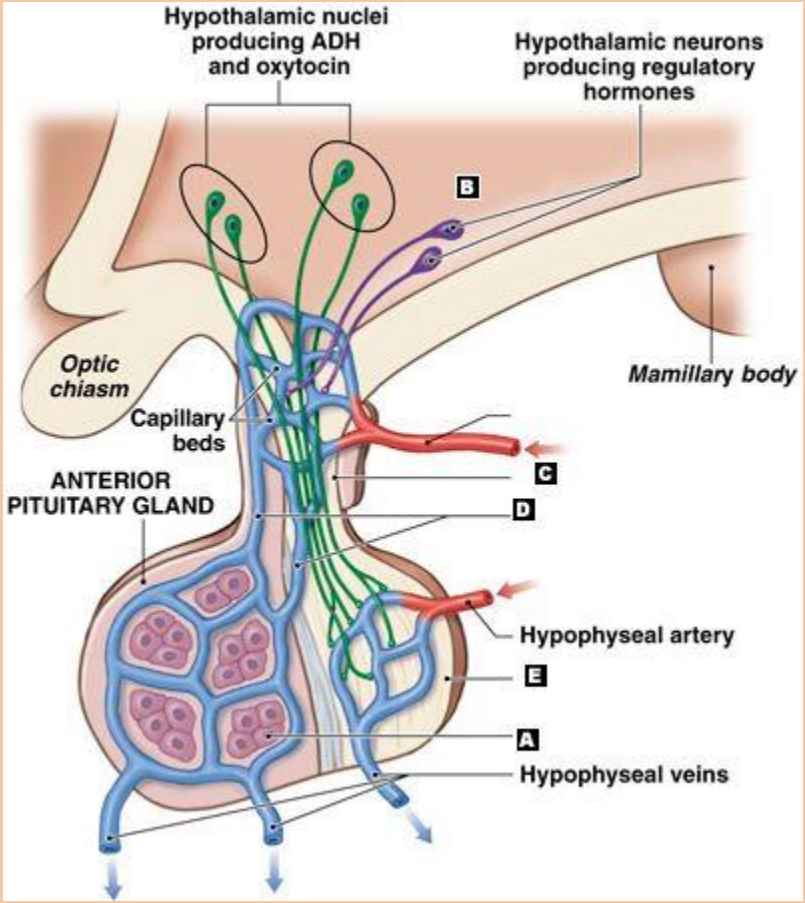
Anteriorly: it is related to the tuberculum sellae and sphenoid air sinus which separates the gland from the cavity of the nose.

Posteriorly: it is related to the dorsum sellae which separates the gland from the pons and the basilar artery



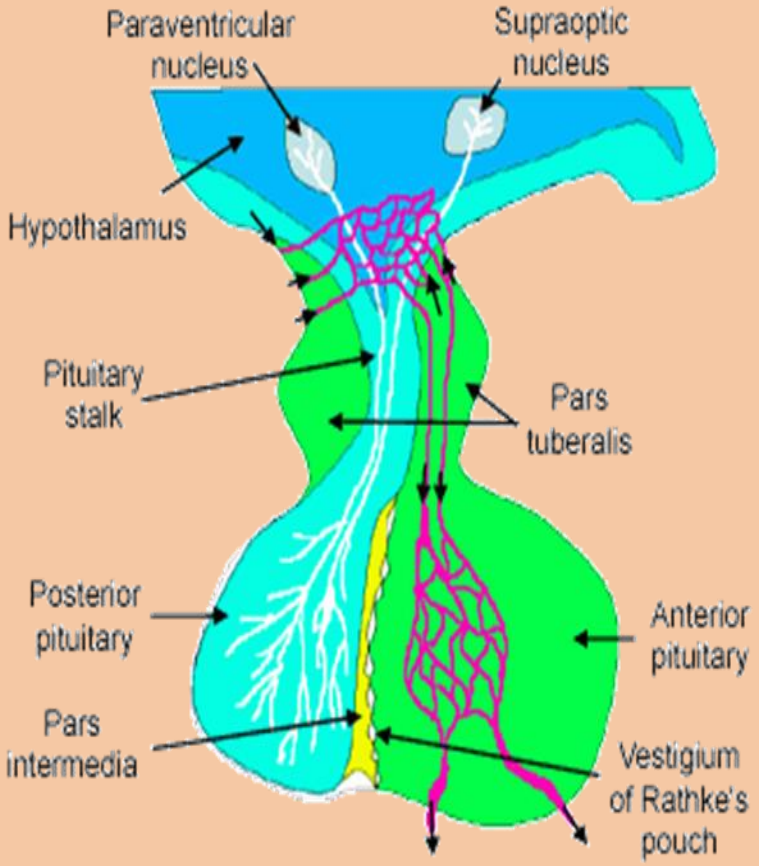
PITUITARY GLAND



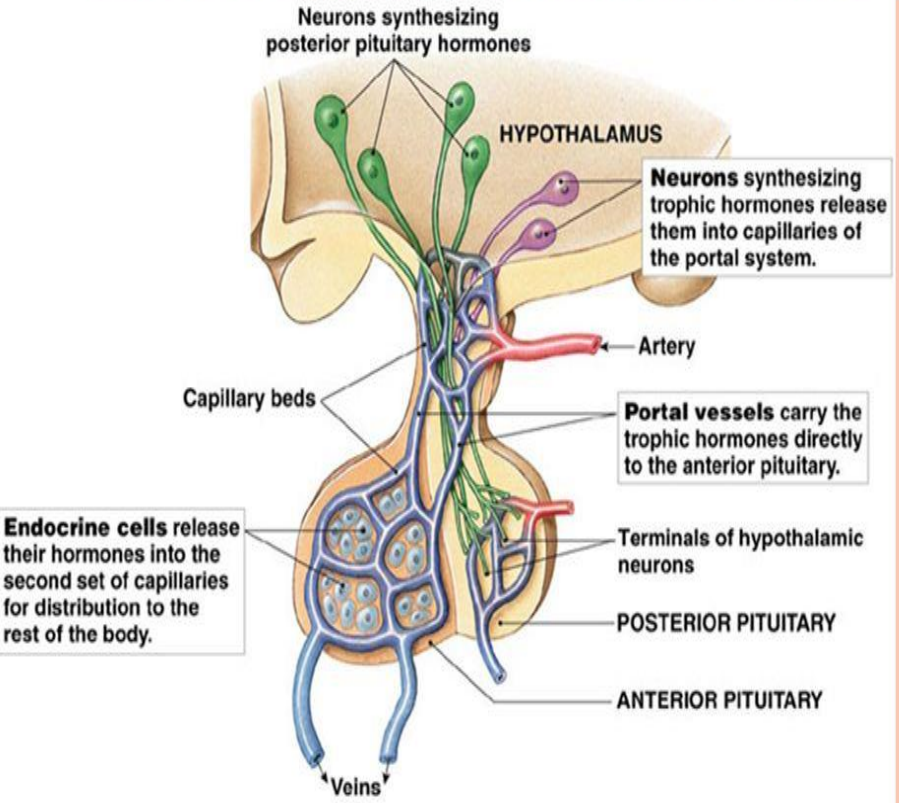


- **Most hormones are secreted into the general circulation to exert their effects on appropriate distant target tissues. There are important exceptions, however, such as self-contained portal circulations in which blood is directed to a specific area. A portal circulation begins in a capillary bed. As the capillaries extend away from the capillary bed, they merge to form a set of veins, which then divide to form a second capillary bed. Thus, blood collected from the first capillary bed is directed solely into the tissues nourished by the second capillary bed.**

- the hypothalamic-hypophyseal portal circulation, collects blood from capillaries originating in the hypothalamus and, through a plexus of veins surrounding the pituitary stalk, directs the blood into the anterior pituitary gland. This allows the neurohormones secreted by the neuroendocrine cells of the hypothalamus to be transported directly to the cells of the anterior pituitary. These hormones are largely, but not entirely, excluded from the general circulation



BLOOD SUPPLY OF PITUITARY GLAND



ARTERIES: Superior & inferior hypophyseal arteries (branches of internal carotid artery)

VEINS: Hypophyseal veins drain into Cavernous Sinuses.

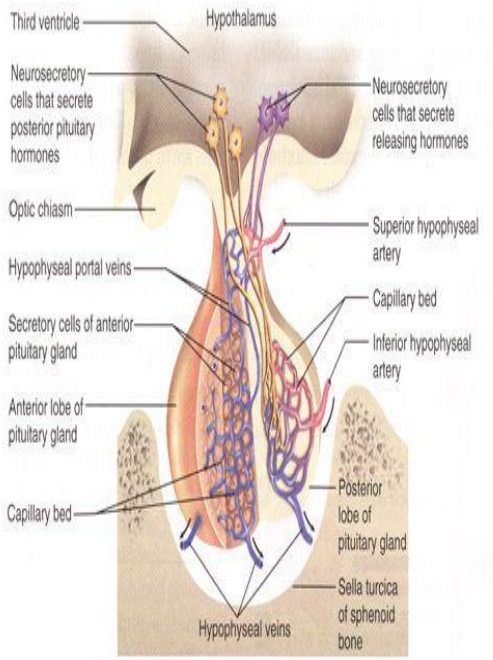
Pituitary gland

Arterial supply:

- Two pairs of arteries from the internal carotid artery.

1. Superior hypophyseal artery supplies pars tuberalis & infundibulum and form primary capillary plexus in median eminence.

2. Inferior hypophyseal artery supplies posterior lobe.



Suprarenal gland

Site

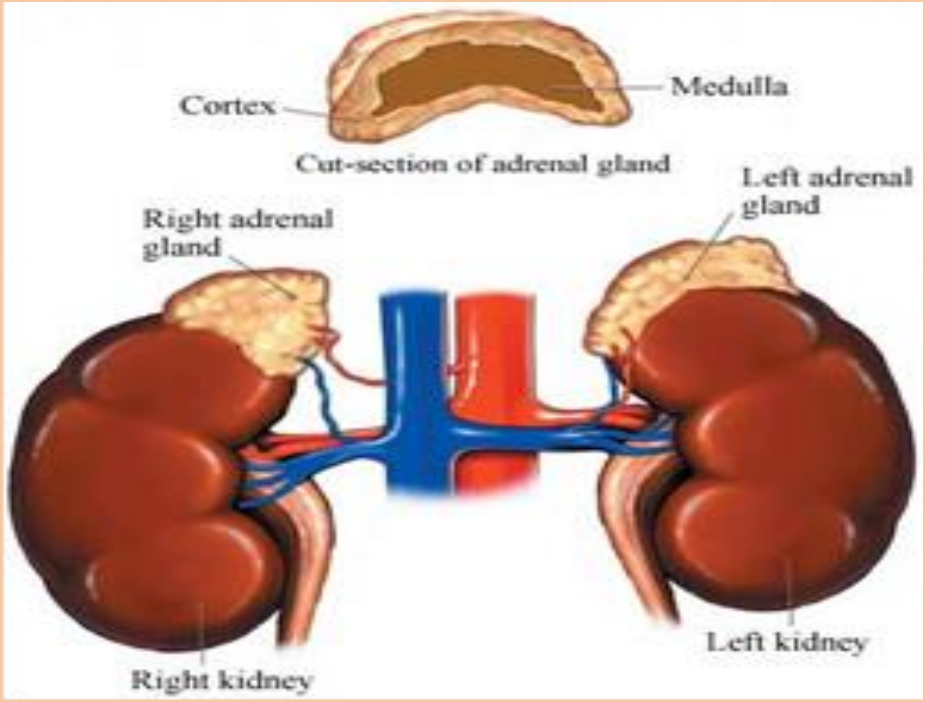
It lies at the upper pole and adjacent part of the medial border of the kidney. The right one is triangular while the left one is semilunar in shape.

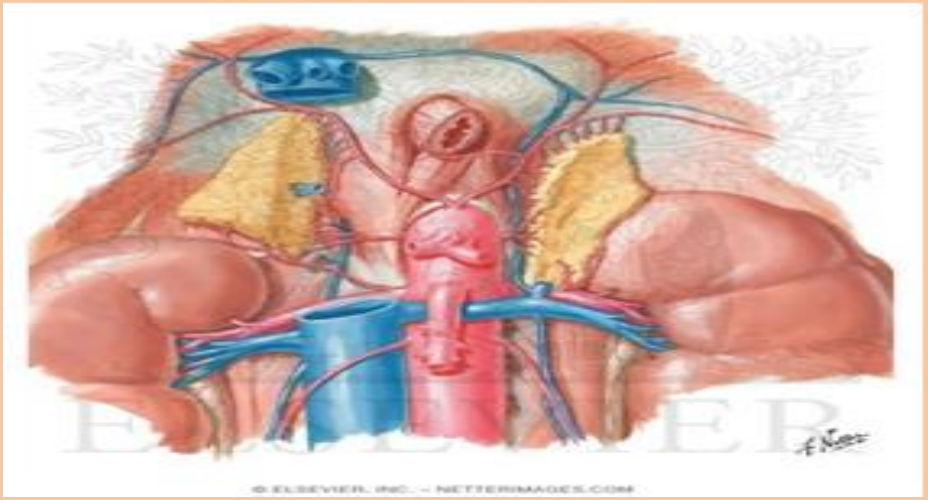
Relations

Posteriorly: the diaphragm.

Postero-inferiorly: the kidney.

Medially: the celiac ganglion.



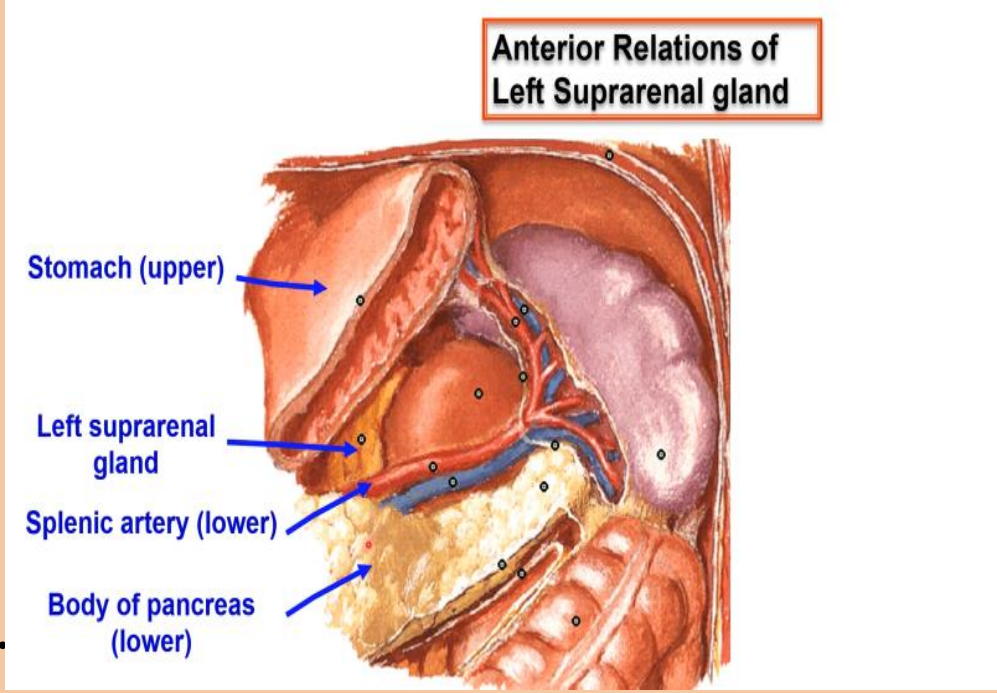


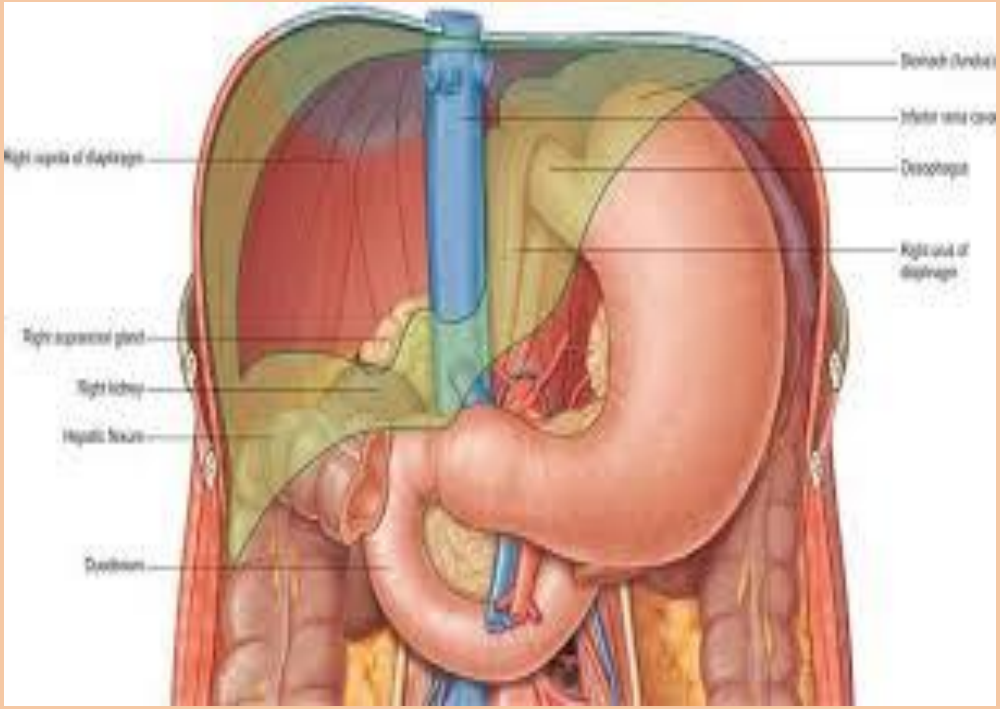
Relations

Anteriorly:

1- the right one is partially covered by peritoneum and related to the IVC and the liver.

2-The left one is covered by the peritoneum of lesser sac and forming part of the stomach bed. Its lower border is related to the body of pancreas and splenic vessels.





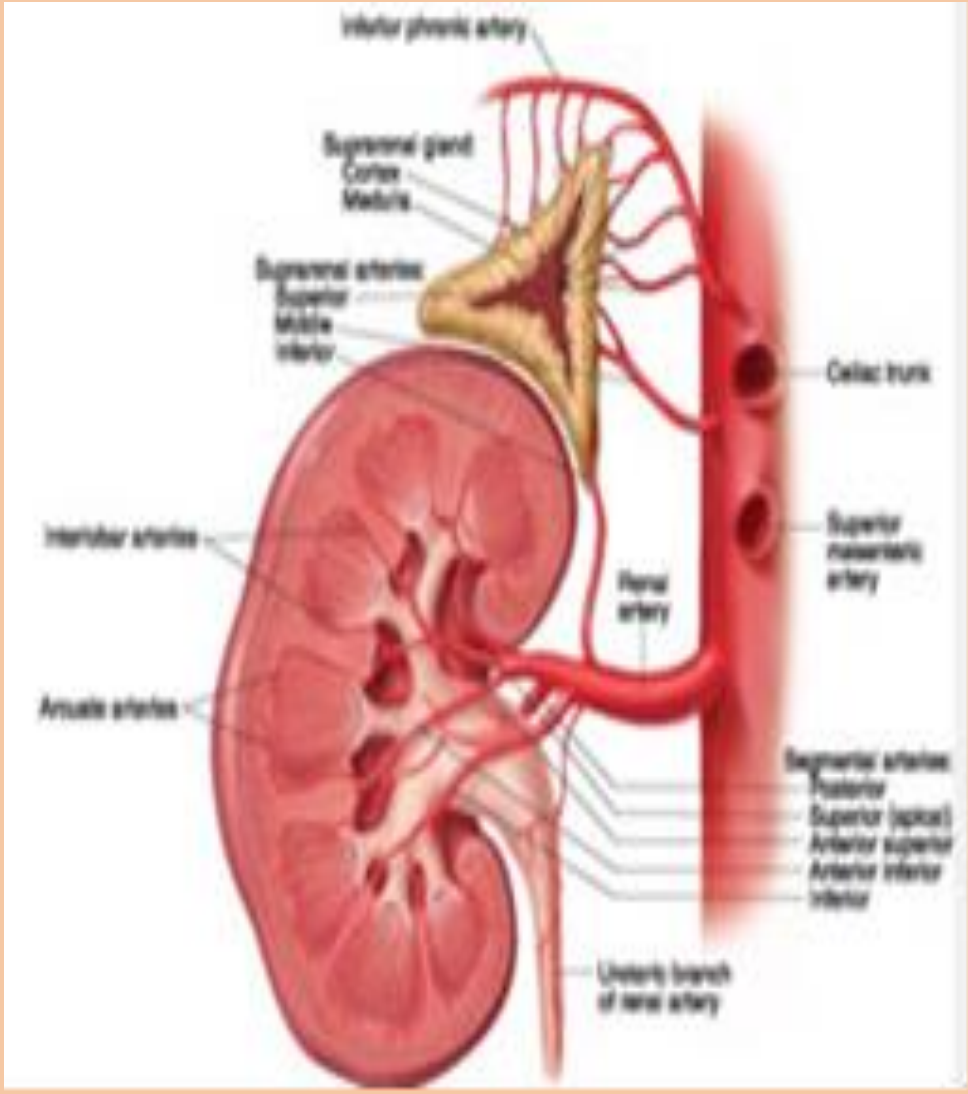
Arterial supply

Each gland is supplies by three arteries:

1-Superior supra-renal artery (from inferior phrenic artery).

2- Middle supra-renal artery (from the abdominal aorta).

3- Inferior supra-renal artery (from the renal artery).

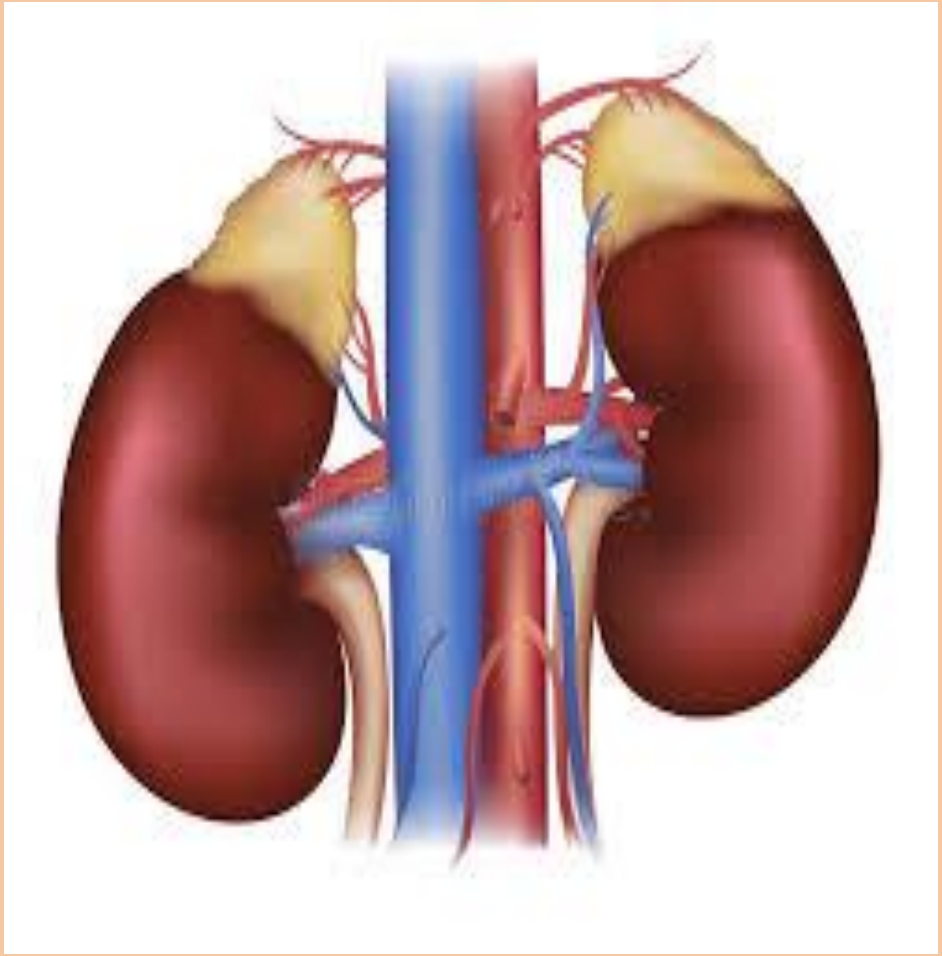


Venous drainage

Each gland is drained by a single vein:

-Right supra-renal vein drains into the IVC. -

-Left supra-renal vein drains into the left renal vein.




Thank you!