ANATOMY OF THE PITUITARY GLAND

Who suffer (s) from pituitary disturbances?

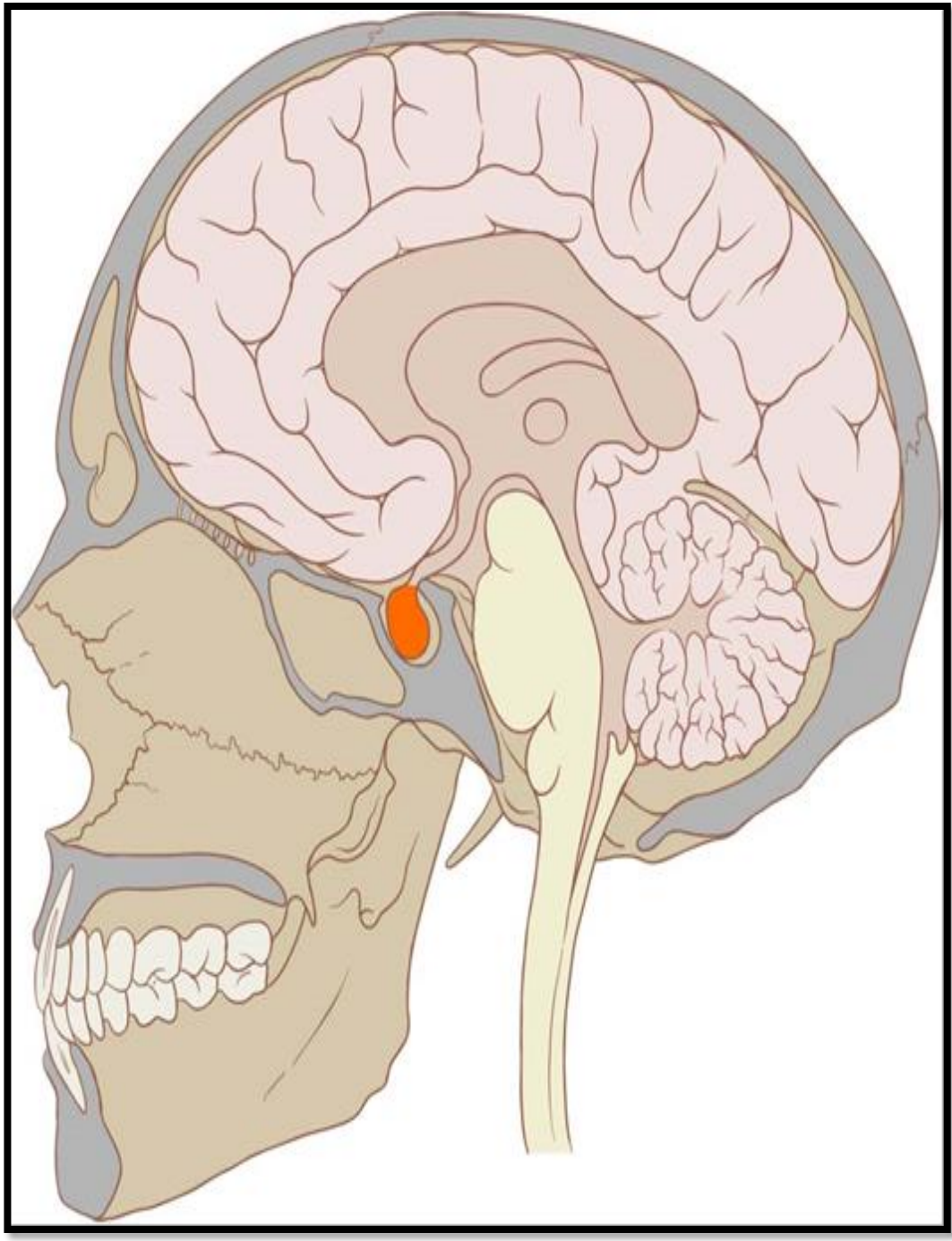
1) Soldier # 1
2) Soldier # 2 ⬅
3) Soldier # 3
4) Soldiers # 1 & 3

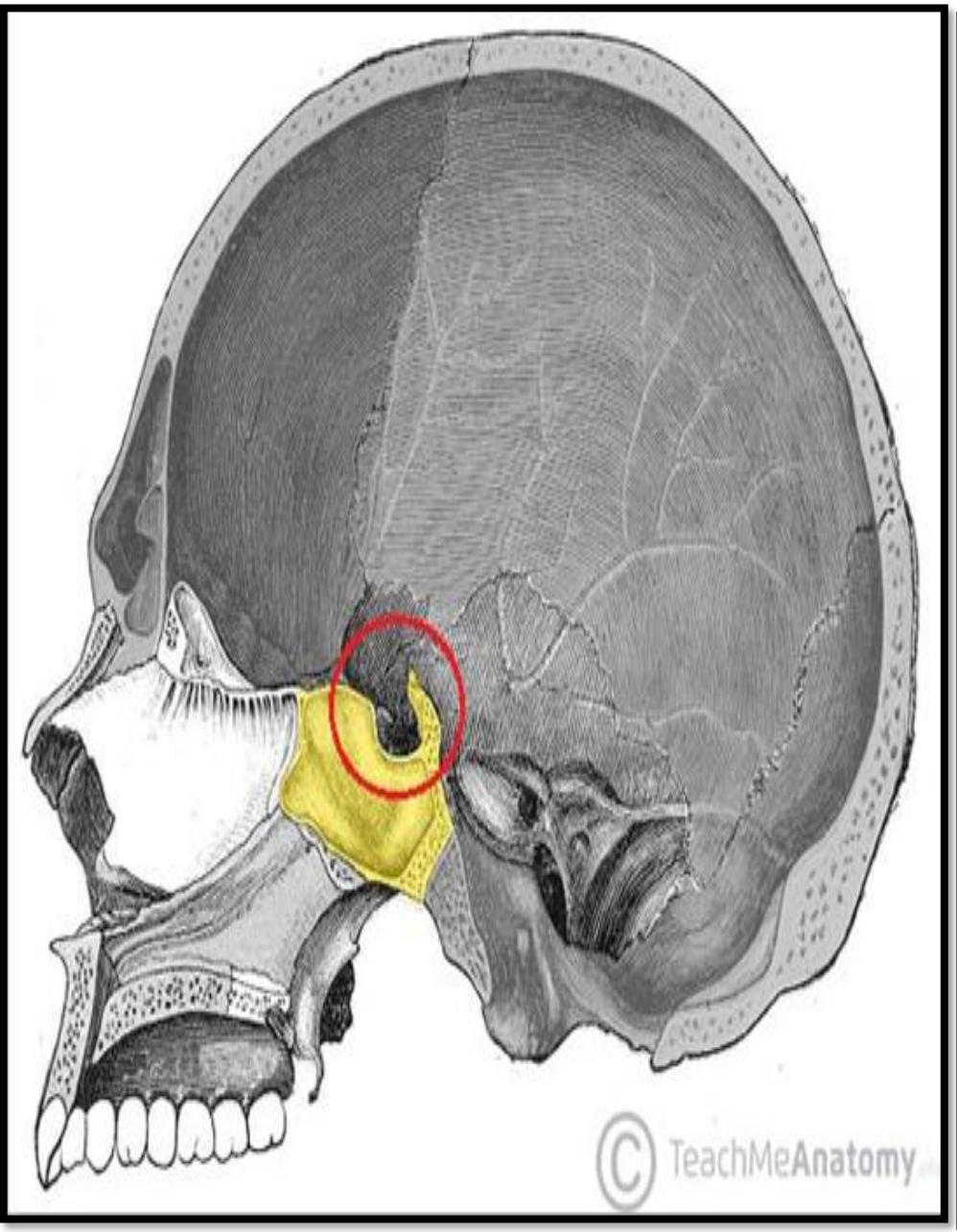
shape and size

Small oval endocrine gland, ½ gm in weight, measuring 12 mm in transverse diameter and 8 mm in anteroposterior diameter.

Position:

It lies in the hypophyseal (pituitary) fossa (Sella turcica) under cover of a dural fold named the diaphragma sellae consists of 2 lobes (large anterior lobe and small posterior lobe).

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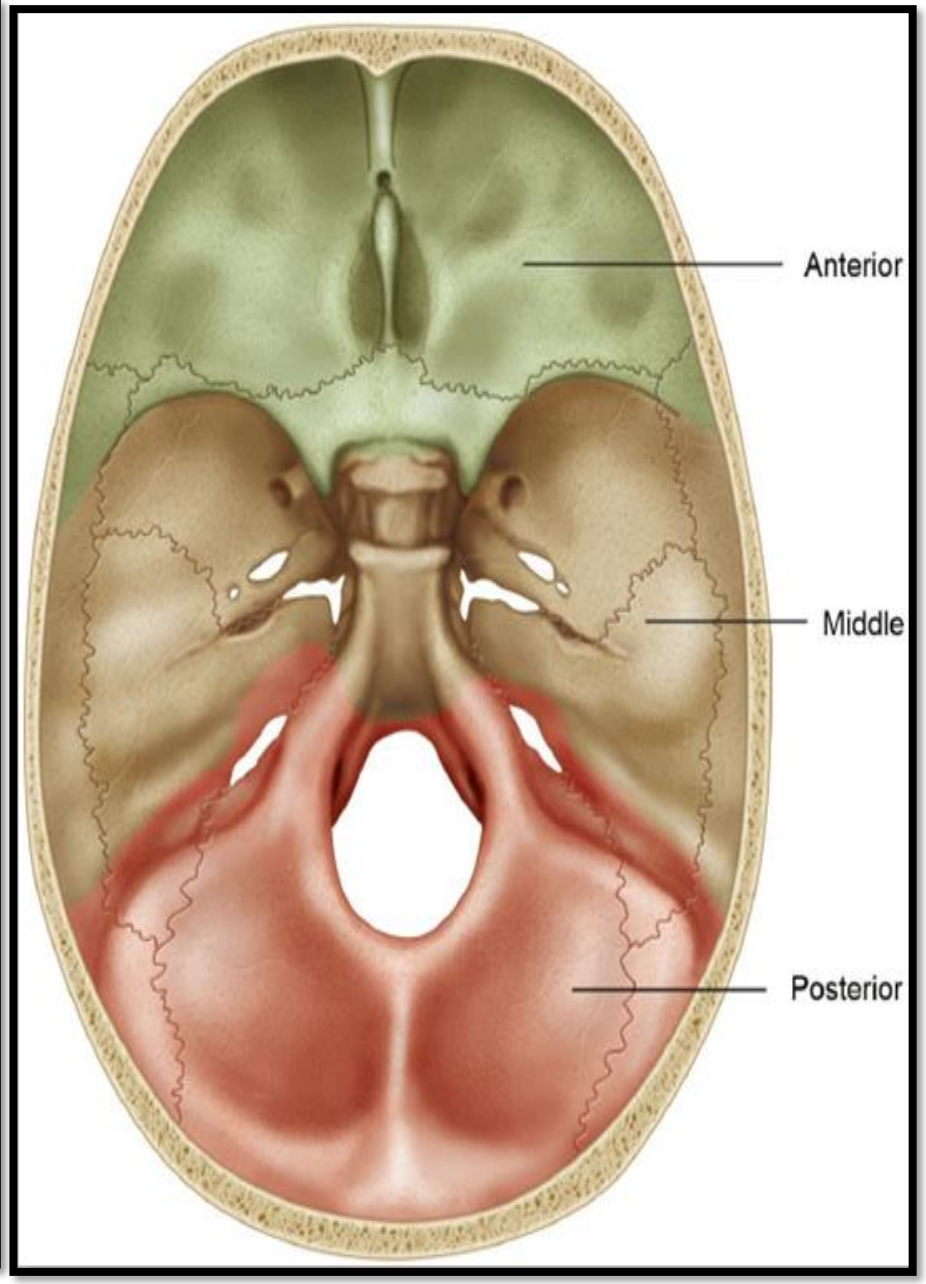
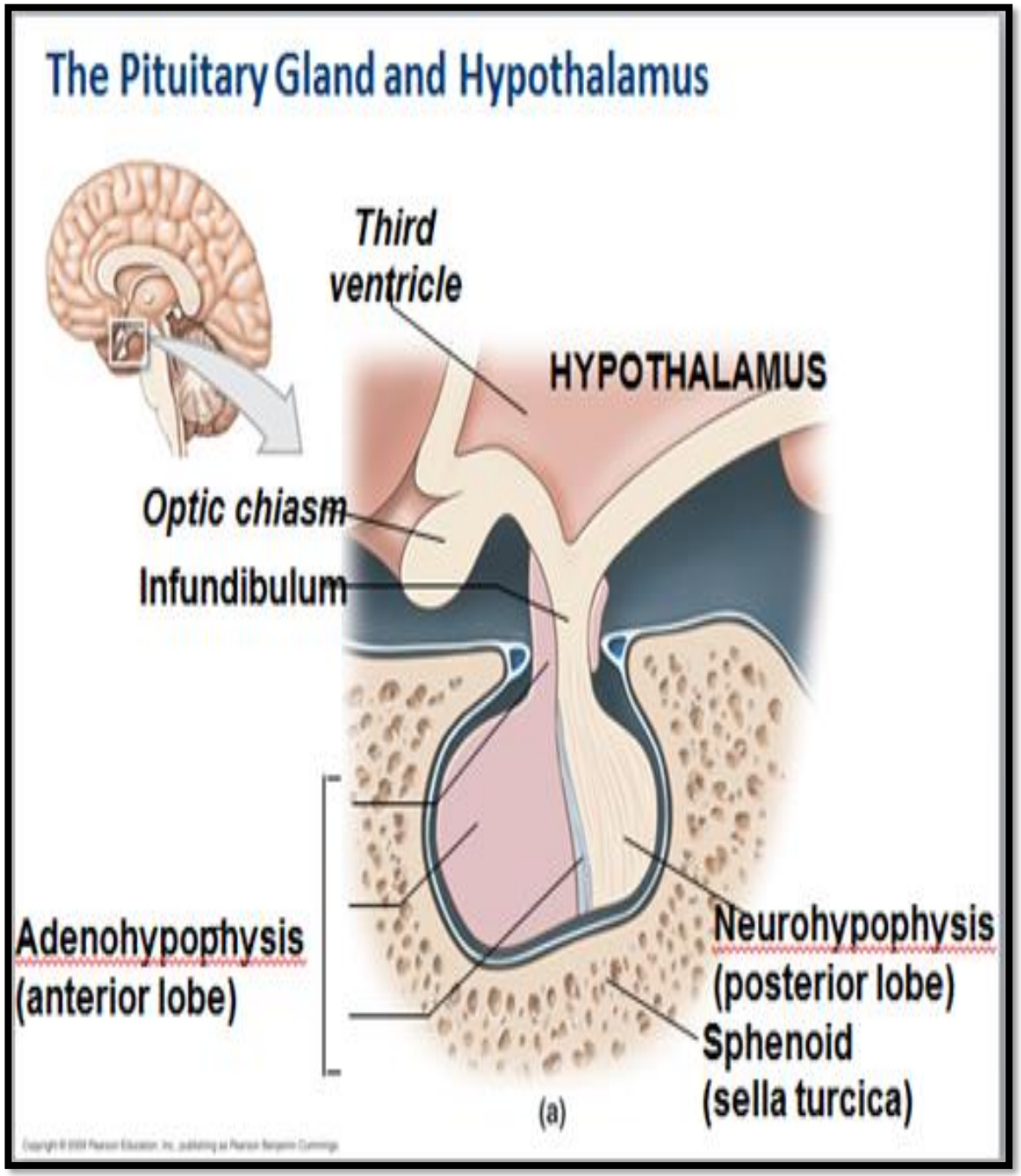

Anterior
Middle
Posterior

- **Parts:** It is formed of 2 lobes:

1) Large anterior lobe called adenohypophysis.
2) Small posterior lobe called neurohypophysis. It is connected to the tuber cinereum of the hypothalamus by the infundibulum which perforate the diaphragm sellae.

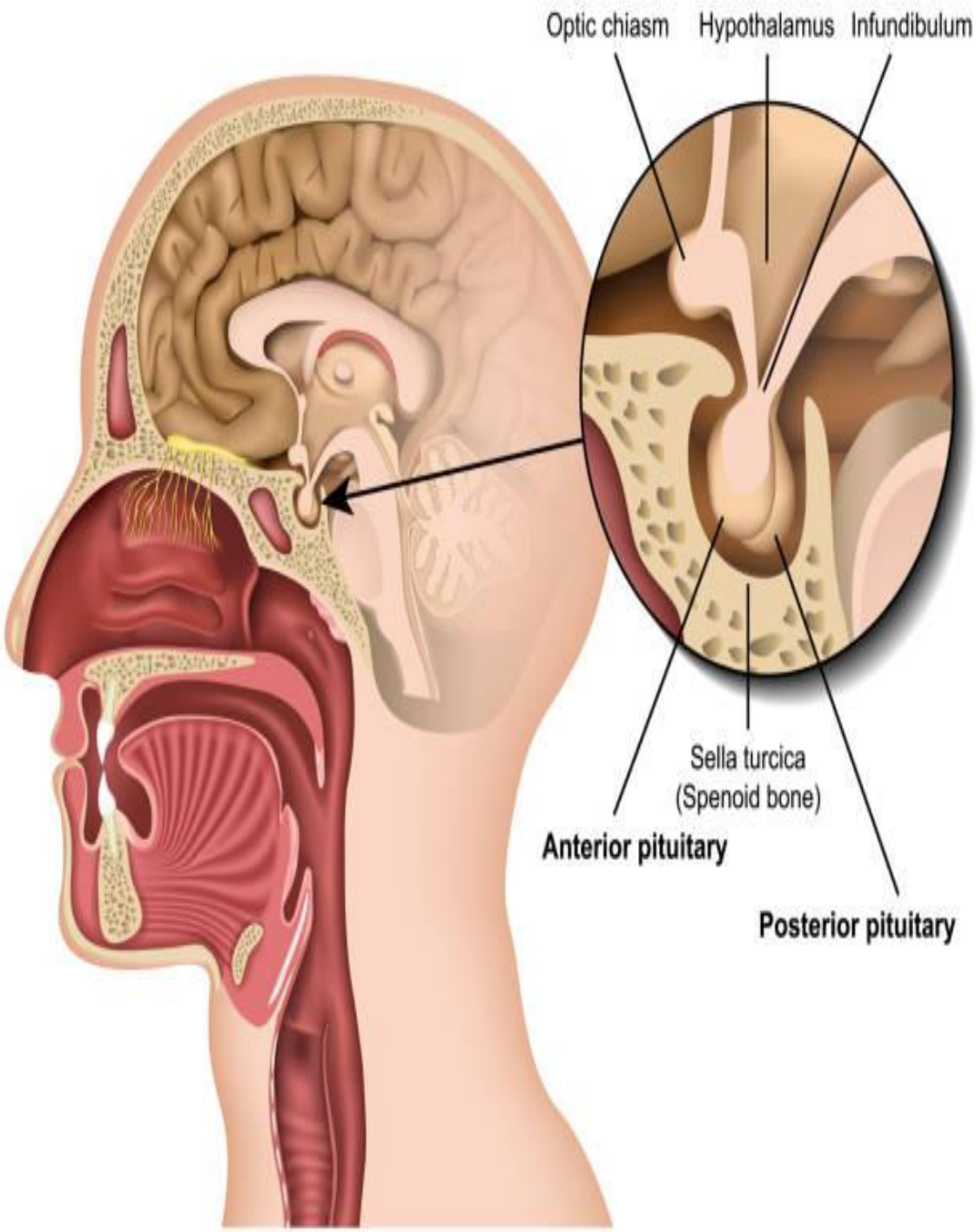


⋆ Relations:

1. **Superior:** diaphragma sellae separating the pituitary gland from the hypothalamus and pierced by the infundibulum connecting the posterior lobe to tuber cinereum of hypothalamus.
2. **Below:** Body of sphenoid, sphenoidal air sinuses and intercavernous sinuses.
3. **Posterior:** Dorsum sellae separating the gland from basilar artery and pons.

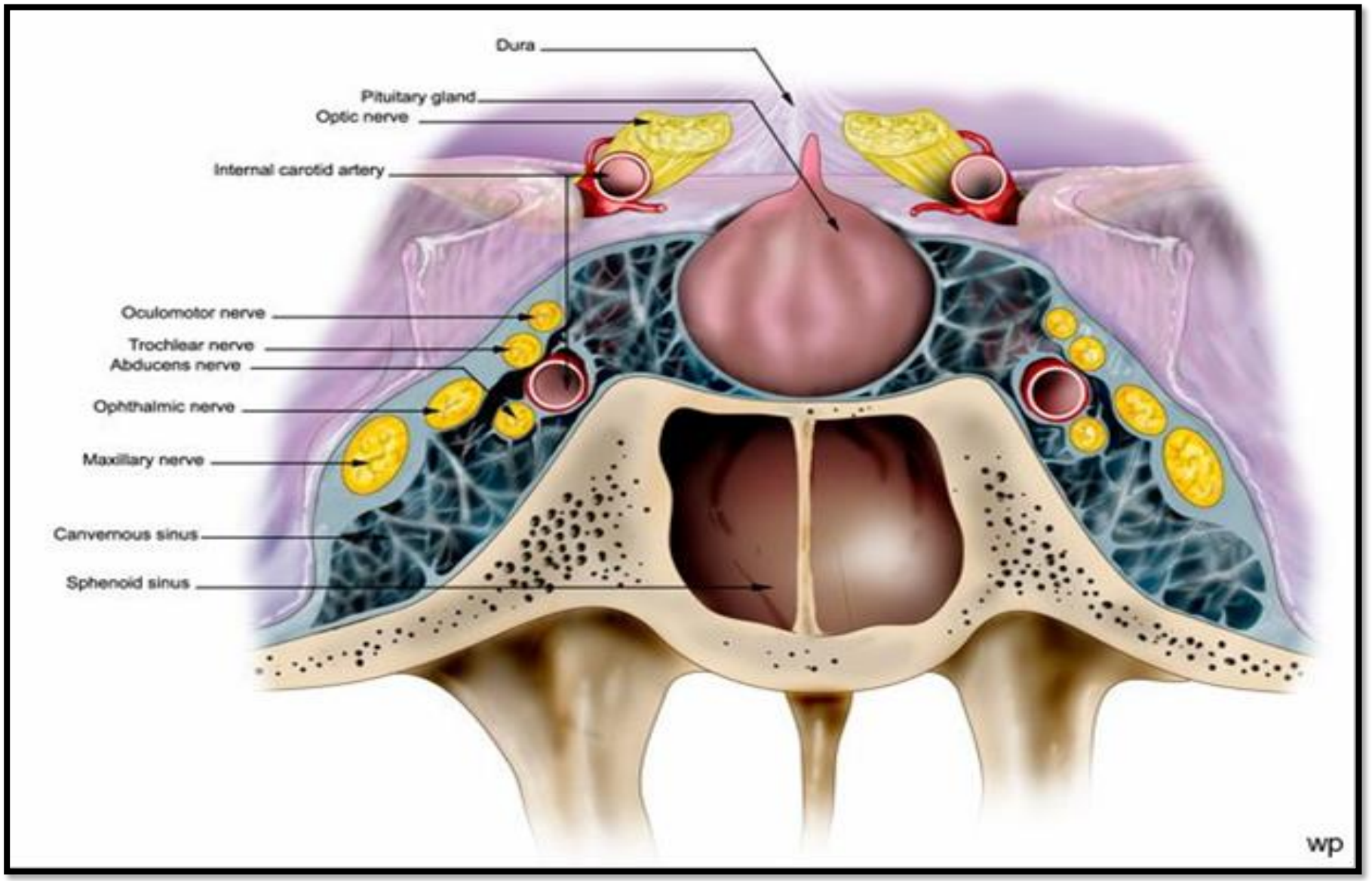
4.Anterior:

- Tuberculum sellae is the anterior wall of the pituitary fossa.
- Optic chiasma.
- Sphenoidal air sinuses.



5.On each side:

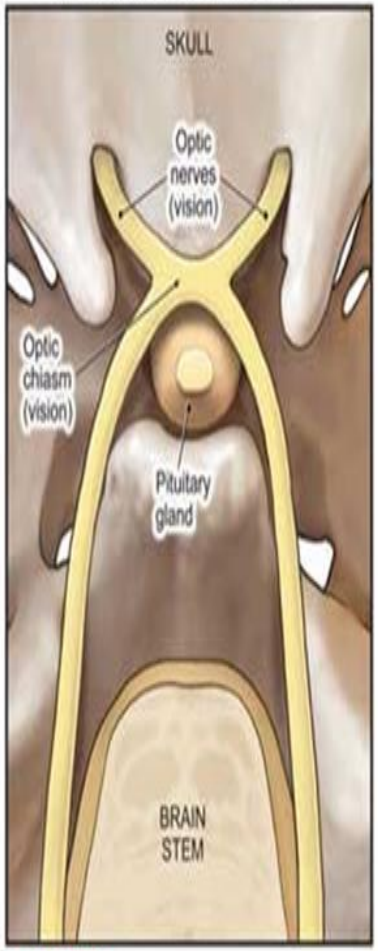
Cavernous sinus containing internal carotid artery and abducent nerve.

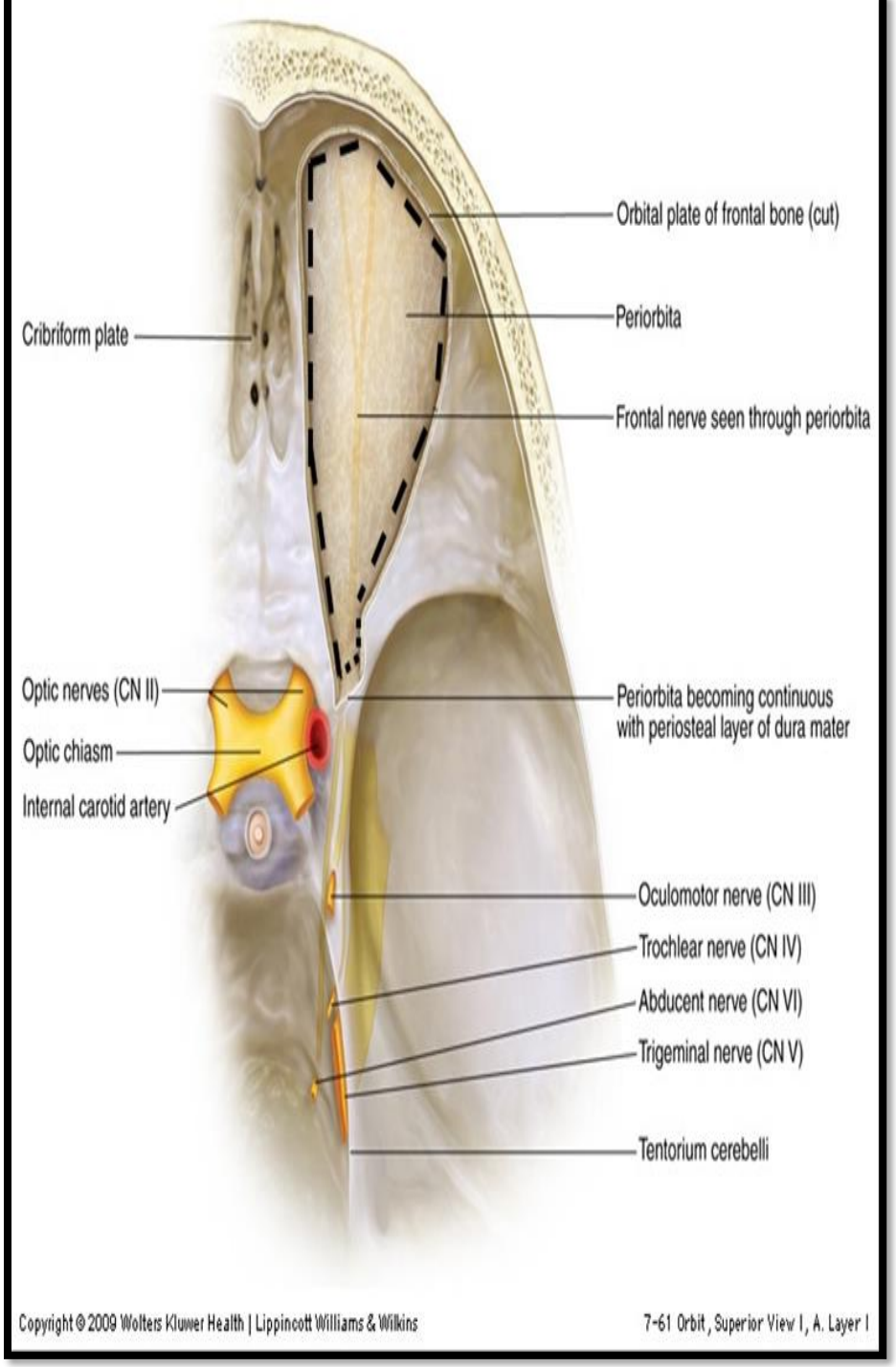


Anatomy Around Pituitary Gland

View of Brain From the Side, at Midline

View of Skull Floor From Above





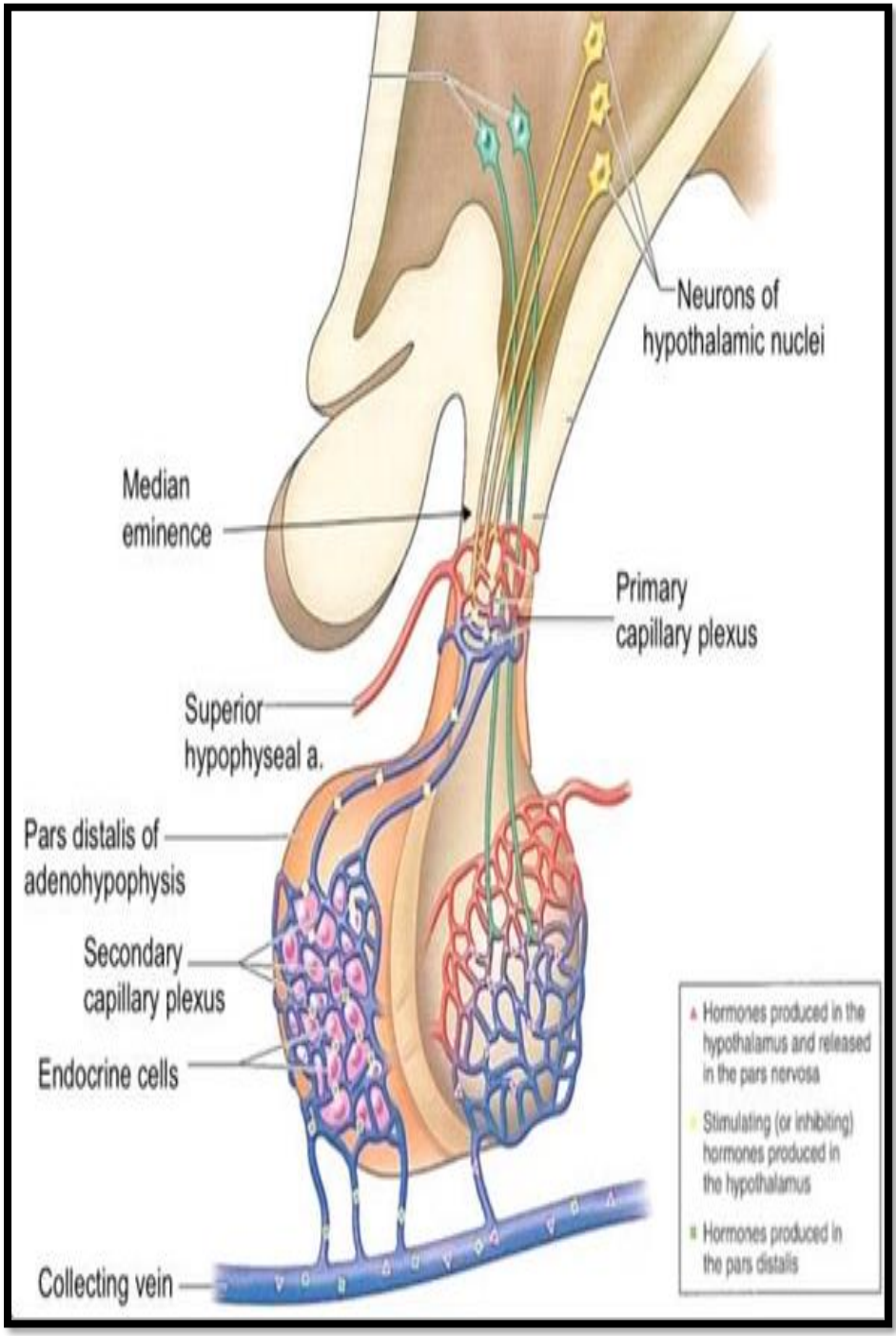
7-61 Orbit, Superior View I, A. Layer I

★ **Blood supply:**

1. **Inferior hypophyseal artery:** Arises from internal carotid artery inside the cavernous sinus and supplies the posterior lobe.
2. **Superior hypophyseal artery:** arise from internal carotid artery after leaving the cavernous sinus, they supply the **infundibulum.**
3. **Hypothalamo-hypophyseal portal system:**

- Venous blood from the hypothalamus is drained by vessels that descends through the infundibulum and break into sinusoids in the anterior lobe and carries the hormone-releasing factors from the hypothalamus down to the anterior lobe.

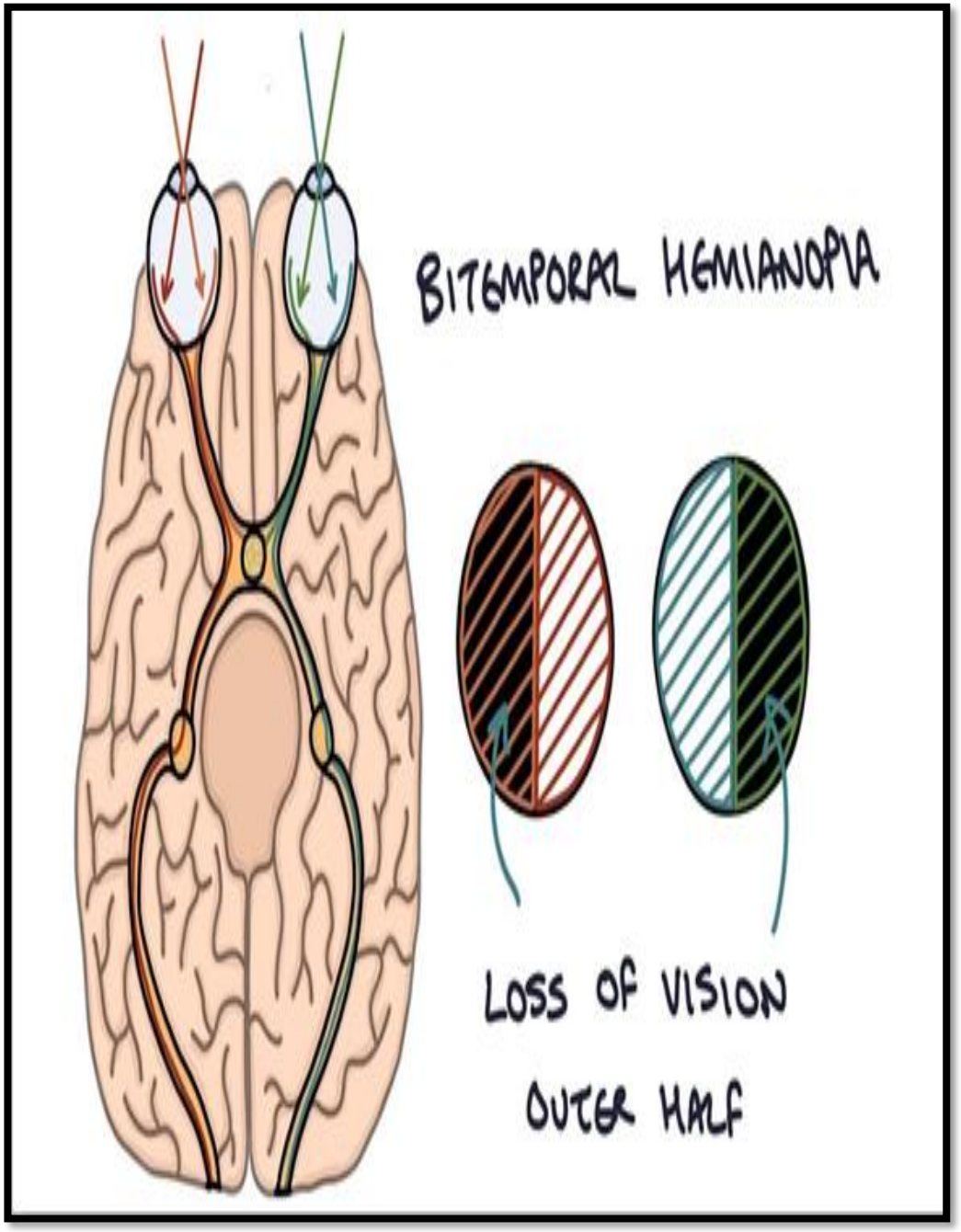
- Large hypophyseal veins drain the gland into the cavernous sinus.



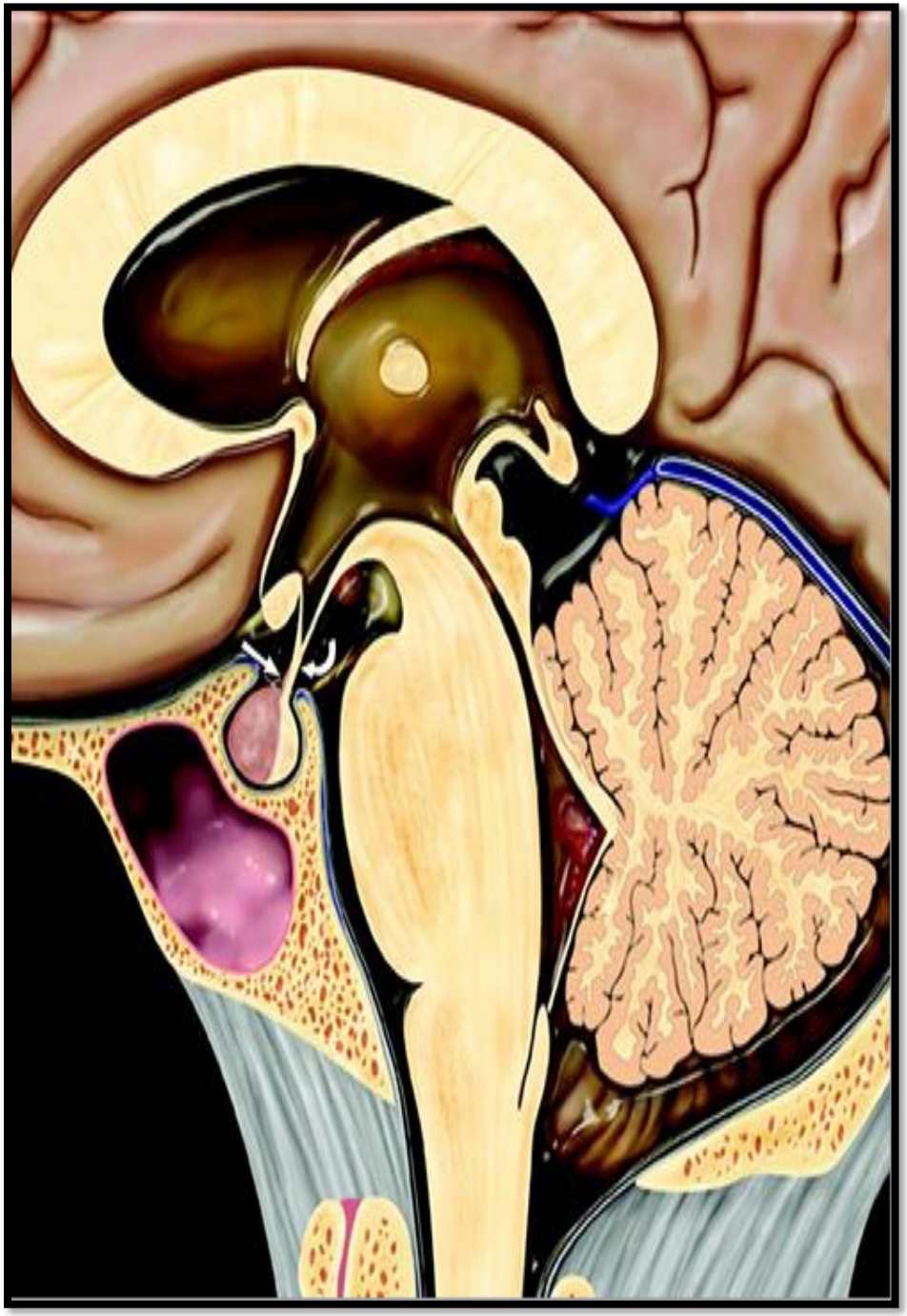
★ **Applied Anatomy:**

★ **Pituitary tumors are characterized by 3 clinical features:**

1. **Manifestations of endocrinal (hormonal) disturbance usually appear first.**
2. **Manifestations of increased intracranial tension appears later as headache, vomiting and blurring of vision.**
3. **Finally, manifestations due to pressure effects of the tumor appears, e.g., pressure of the pituitary tumor on the optic chiasma leading to a clinical condition called bitemporal hemianopia.**



Surgical treatment for small intrasellar pituitary tumors requires **trans-sphenoidal** approach



Suprarenal gland

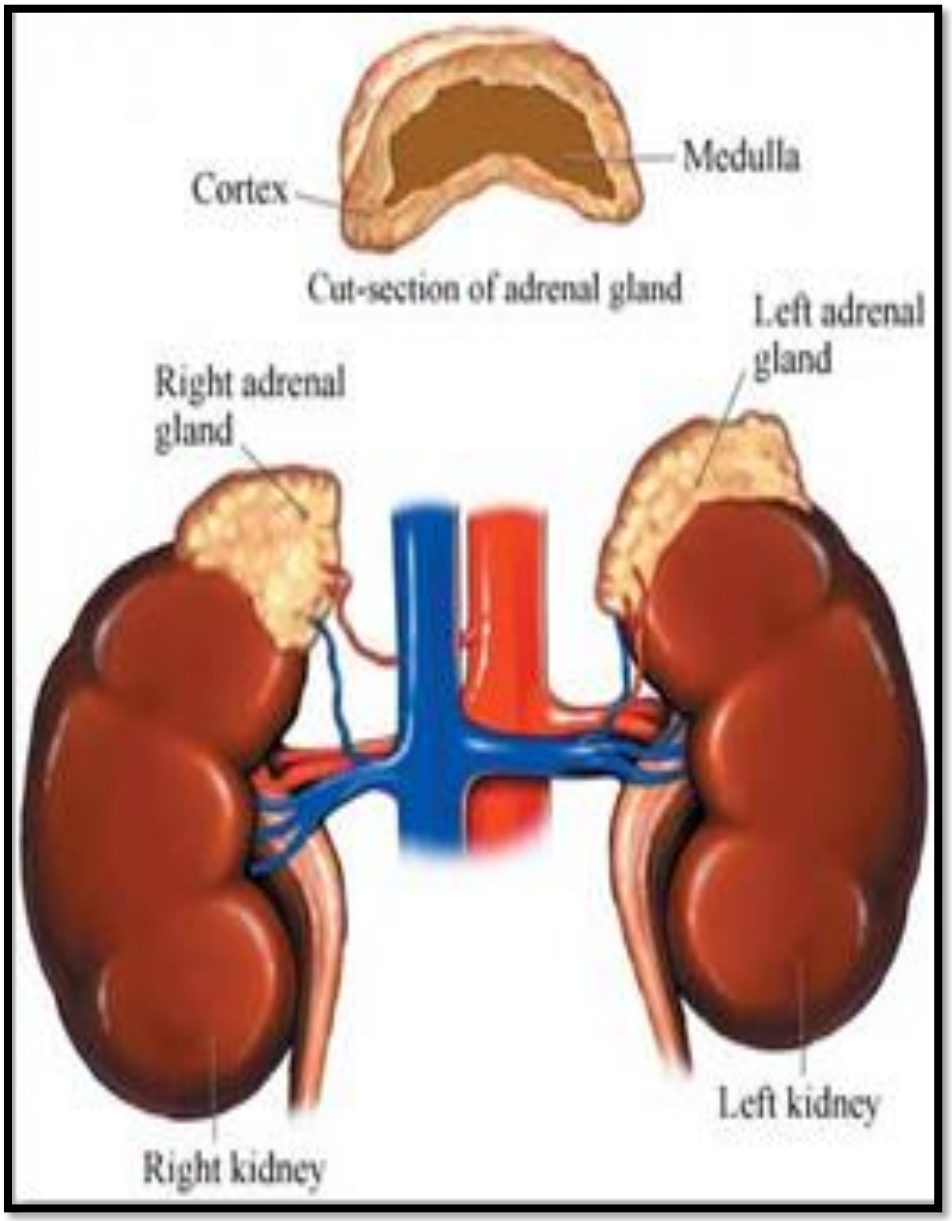
Site, shape

The suprarenal (adrenal) glands are yellowish endocrinal glands located between the superomedial aspects of the kidneys and the diaphragm .

- Each gland has a hilum , where the veins & lymphatics exit the gland , but arteries & nerves enter the glands at multiple sites .
- The hilum of the right gland is directed upwards. While The hilum of the left one is directed downwards.

*The glands are enclosed within the perirenal fascia and separated from the kidney by a thin septum of loose areolar connective tissue.

The right one is triangular while the left one is semilunar in shape.



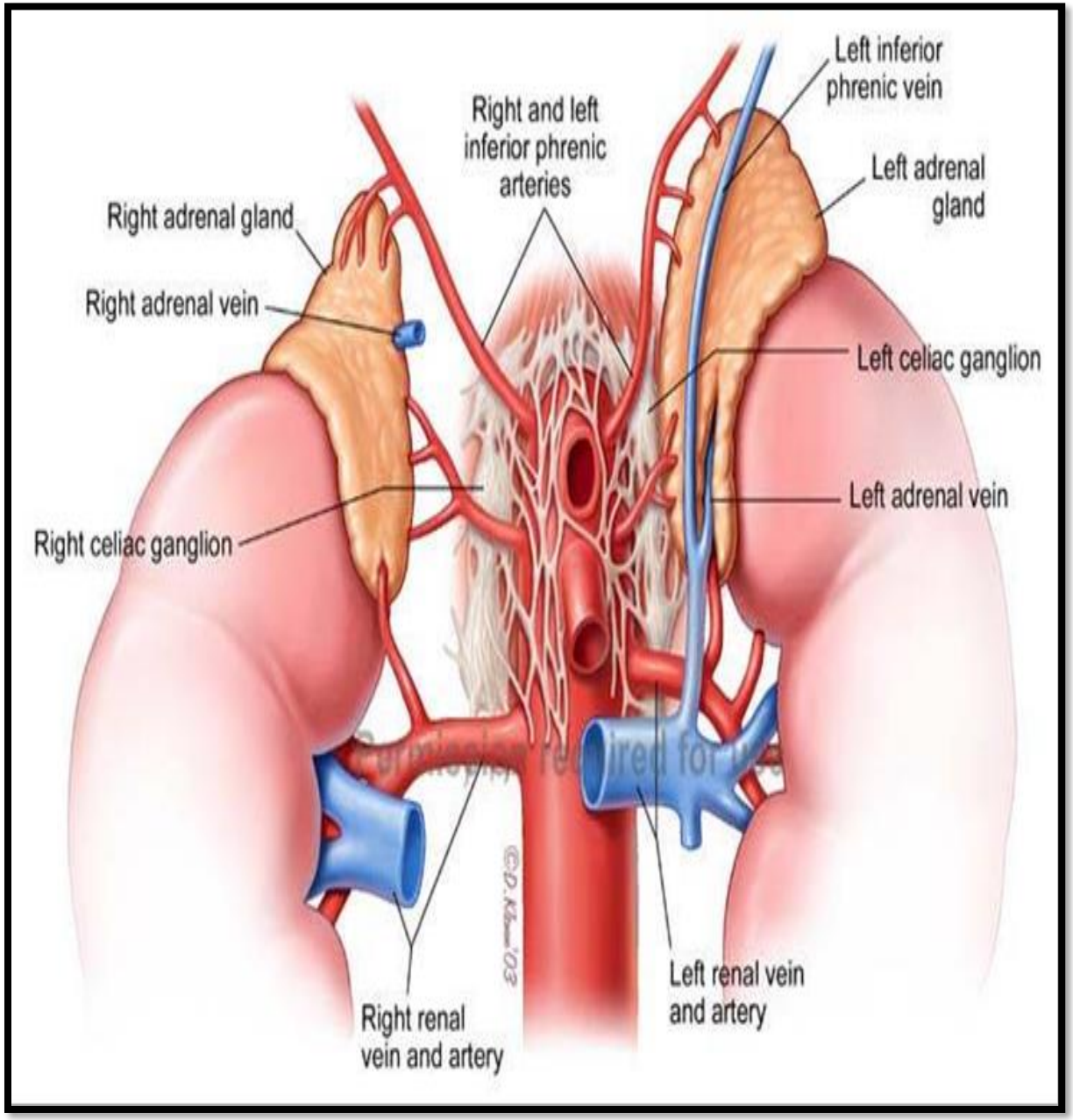
Right Suprarenal	Left Suprarenal
1. Triangular	1. Semilunar.
2. Higher, lying on upper pole of right kidney.	2. Lower, medial to the upper ½ of left kidney & near to its hilum .
3. Right suprarenal vein is short and drains into I.V.C	3. Left suprarenal vein is long and drains into left renal vein .
4. The hilum is directed upwards.	4. The hilum is directed downwards.
5. Related posteriorly to Right crus of diaphragm.	5. Related posteriorly to Left crus of diaphragm.
6. Related anteriorly to inferior vena cava and right lobe of liver (bare area).	6. Related anteriorly to stomach & lesser sac , body of pancreas and splenic vessels .

Relations

Posteriorly: the corresponding crus of the diaphragm.

inferiorly: the kidney.

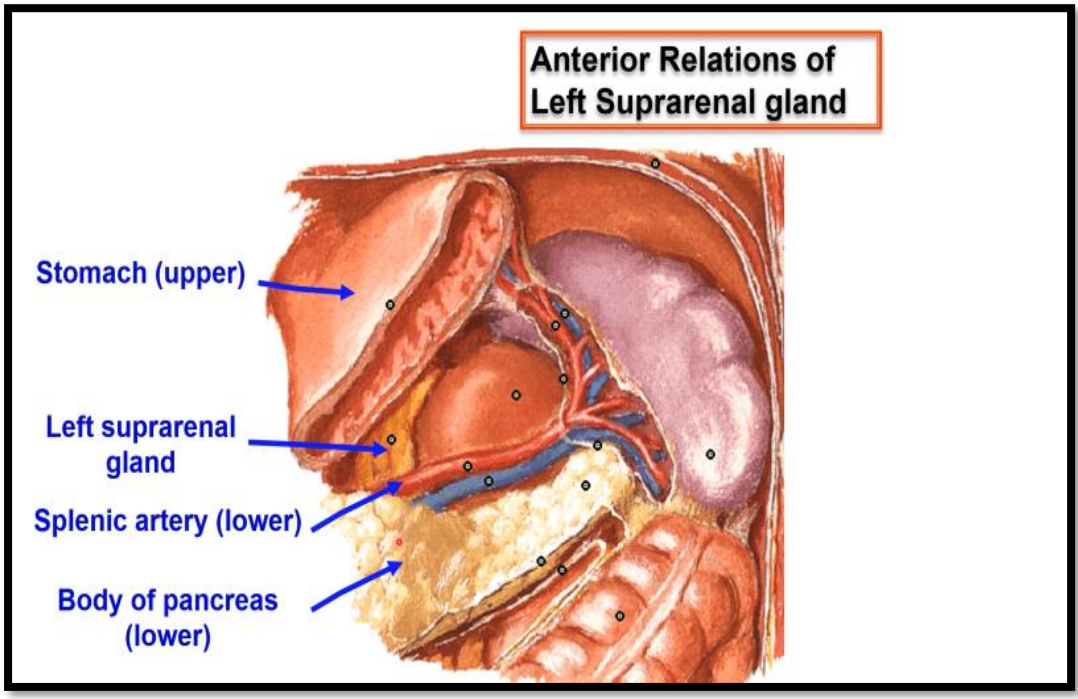
Medially: the celiac ganglion.

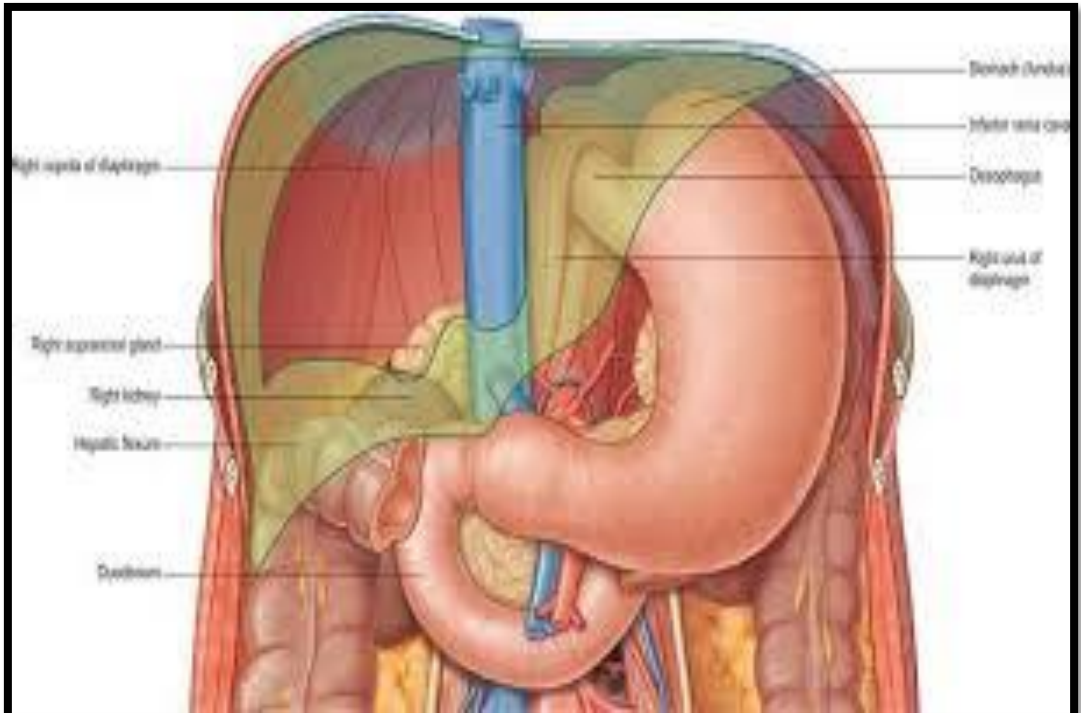


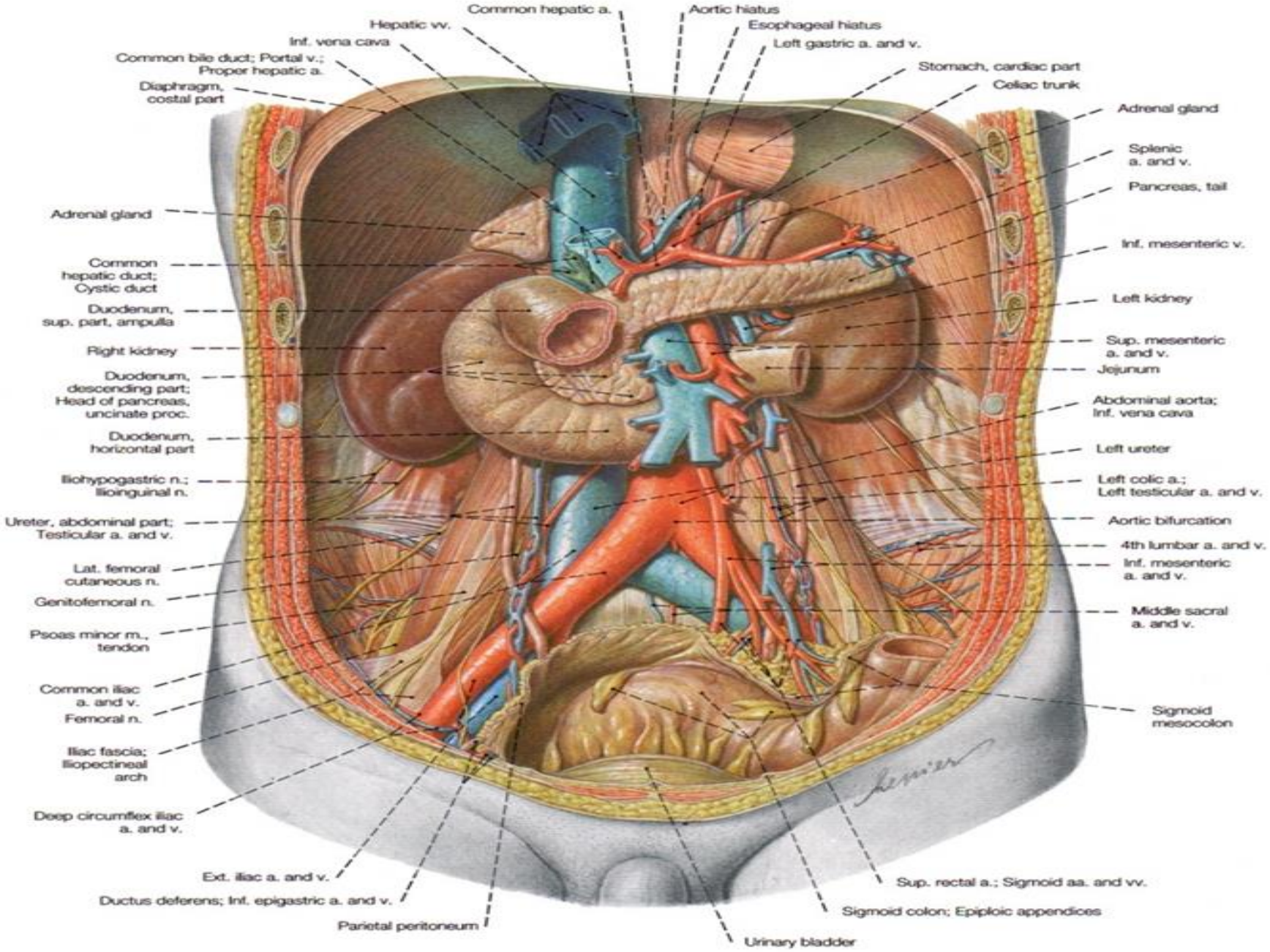
Anteriorly:

1- the right one is related to inferior vena cava and right lobe of liver (bare area).

2-The left one is partially 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.






Common hepatic a.
Aortic hiatus
Hepatic vv.
Esophageal hiatus
Inf. vena cava
Left gastric a. and v.
Common bile duct; Portal v.; Proper hepatic a.
Stomach, cardiac part
Diaphragm, costal part
Celiac trunk
Adrenal gland
Splenic a. and v.
Adrenal gland
Pancreas, tail
Inf. mesenteric v.
Common hepatic duct; Cystic duct
Left kidney
Duodenum, sup. part, ampulla
Sup. mesenteric a. and v.
Right kidney
Jejunum
Duodenum, descending part; Head of pancreas, uncinate proc.
Abdominal aorta; Inf. vena cava
Duodenum, horizontal part
Left ureter
Iliohypogastric n.; Ilioinguinal n.
Left colic a.; Left testicular a. and v.
Ureter, abdominal part; Testicular a. and v.
Aortic bifurcation
4th lumbar a. and v.
Lat. femoral cutaneous n.
Inf. mesenteric a. and v.
Genitofemoral n.
Middle sacral a. and v.
Psoas minor m., tendon
Common iliac a. and v.
Sigmoid mesocolon
Femoral n.
Iliac fascia; Iliopectineal arch
Deep circumflex iliac a. and v.
Ext. iliac a. and v.
Sup. rectal a.; Sigmoid aa. and vv.
Ductus deferens; Inf. epigastric a. and v.
Sigmoid colon; Epiploic appendices
Parietal peritoneum
Urinary bladder

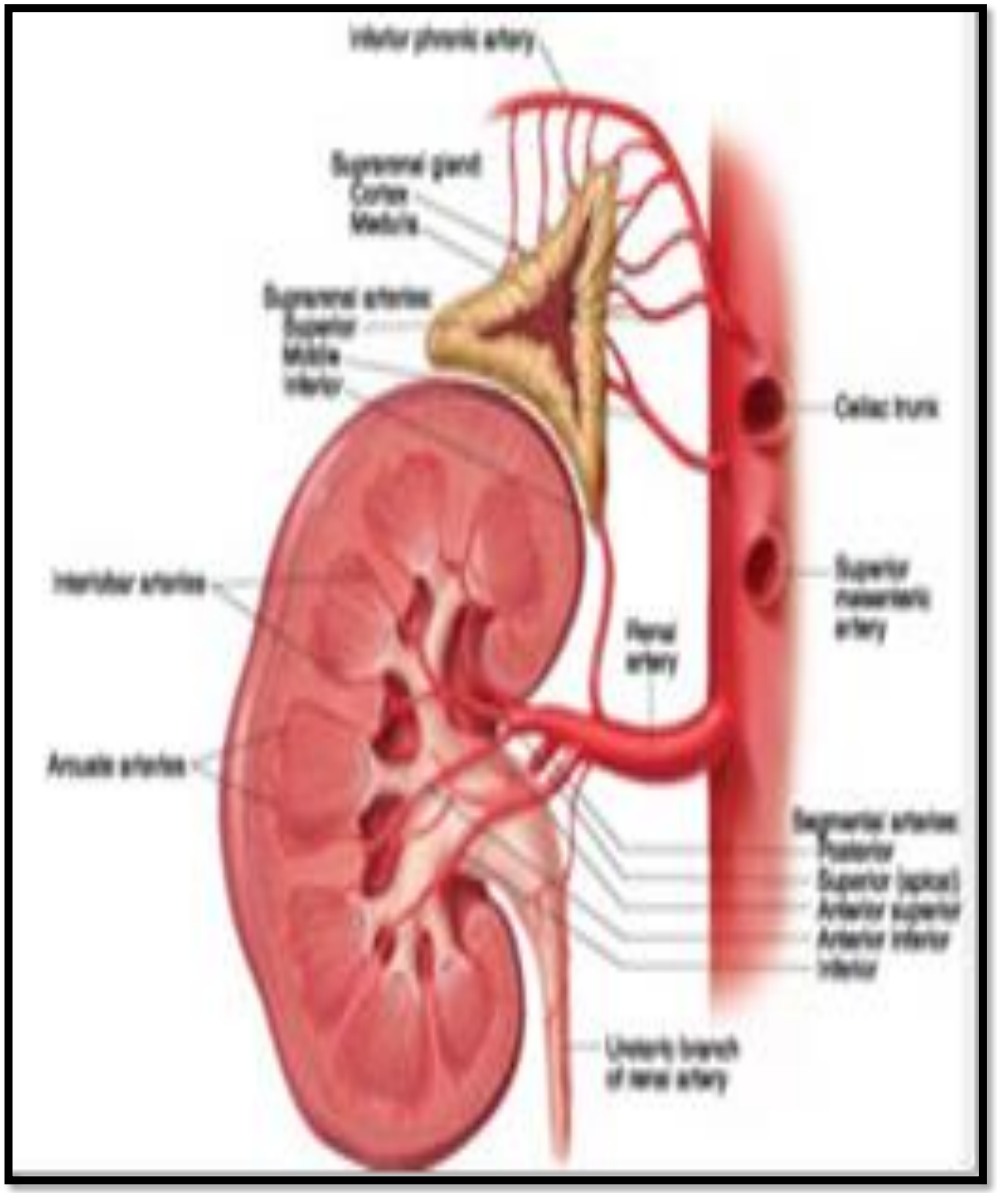
Arterial supply

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).



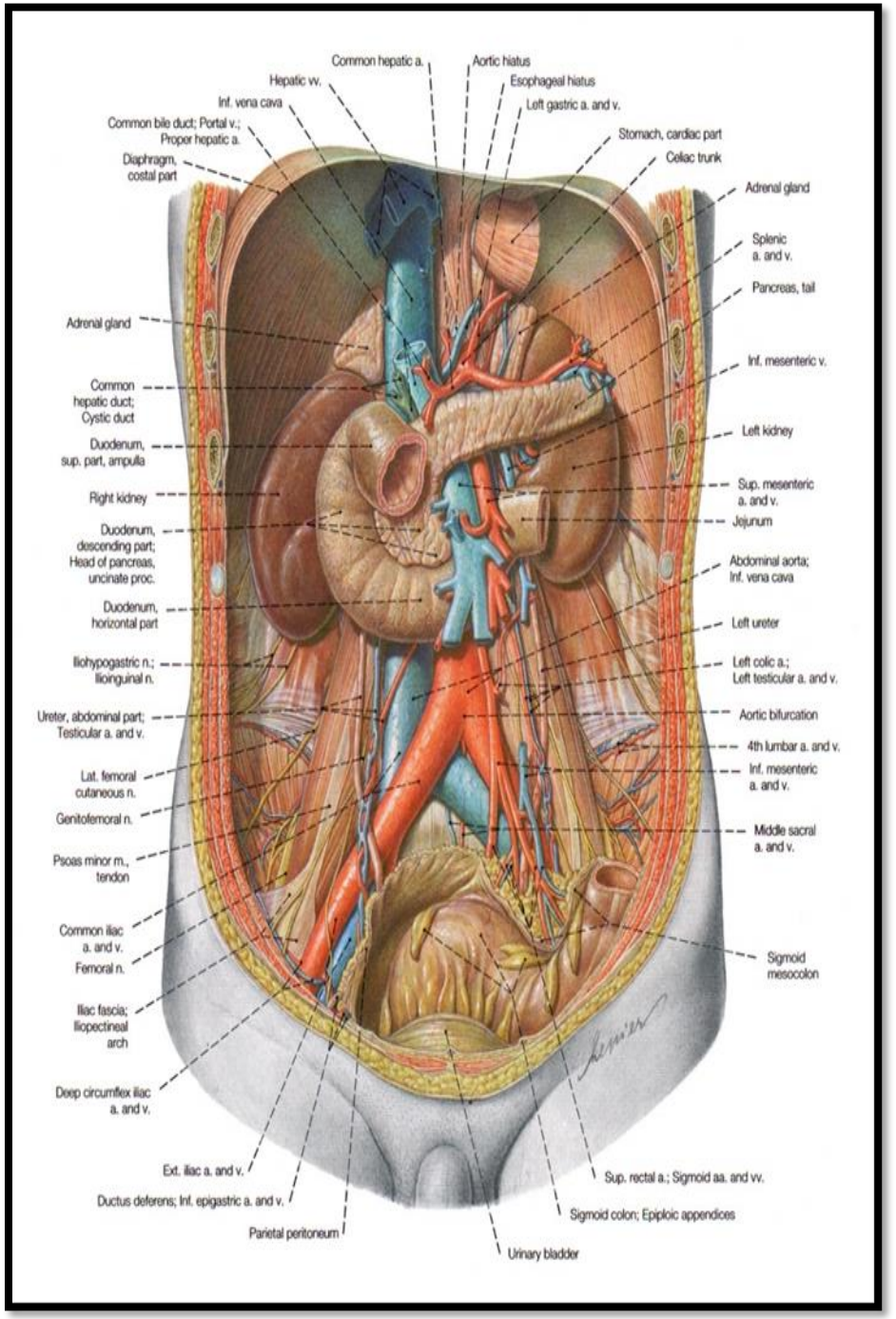
Venous drainage

Each gland is drained by a single vein:

-Right supra-renal vein is short and drains into the IVC.

-Left supra-renal vein is longer than the right and drains into the left renal vein.

- ***Lymphatic drainage :** para-aortic lymph nodes




Thank you!