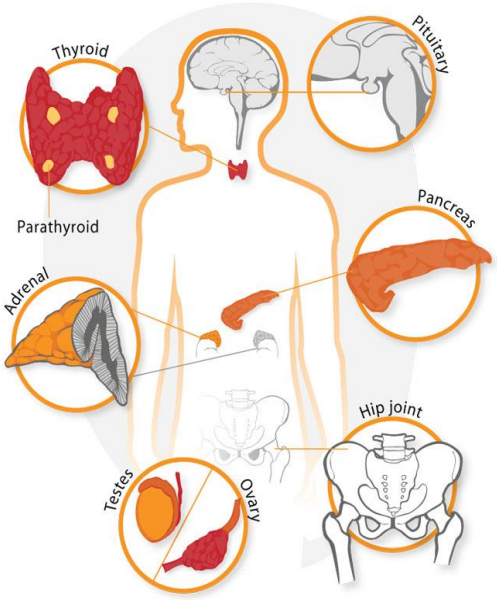
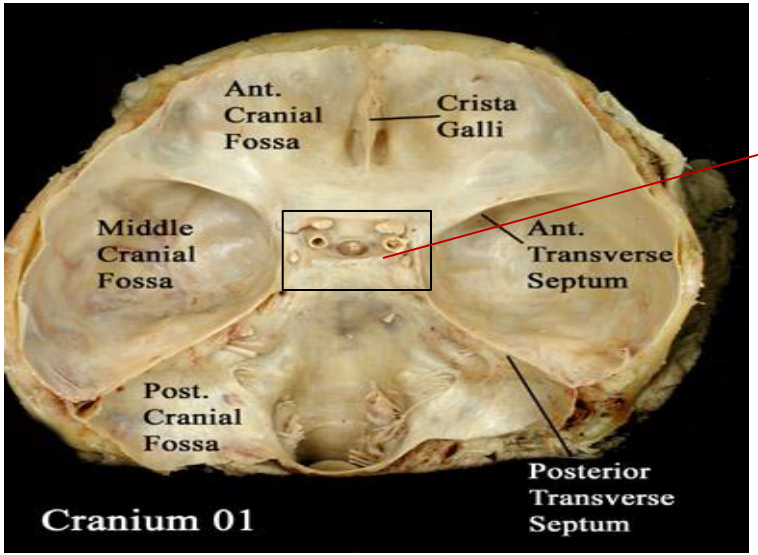


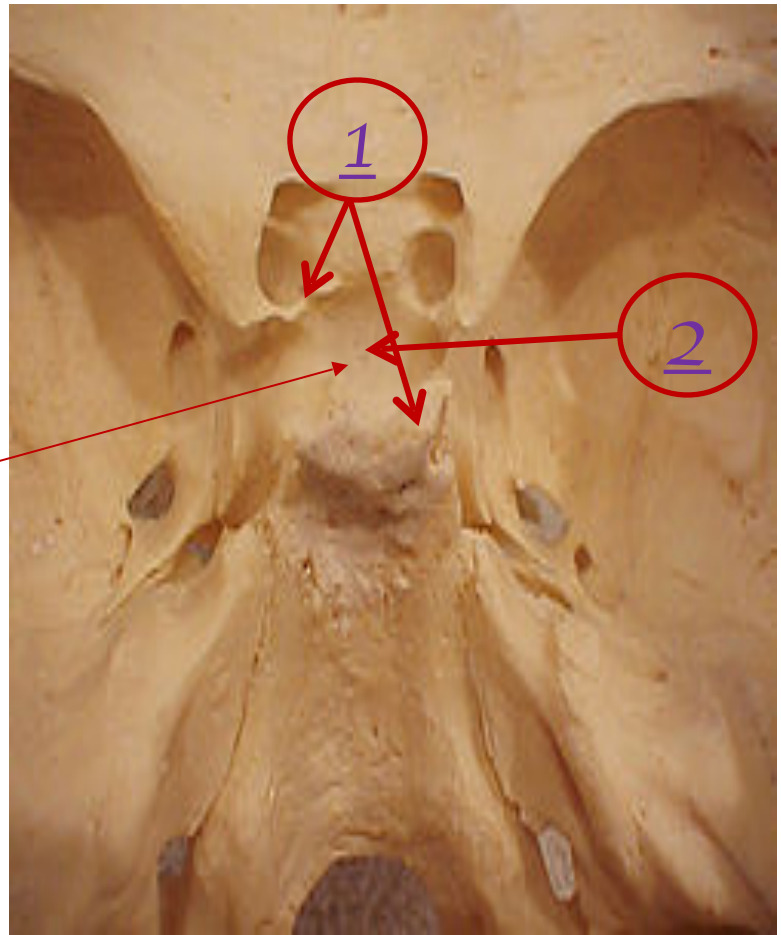
Anatomy Practical Endocrine Block 434

PITUITARY GLAND

located in middle cranial fossa and protected in sella turcica (hypophyseal fossa) of body of sphenoid.

1- Anterior and posterior clinoid processes.
2- Sella turcica (hypophyseal fossa)





PITUITARY GLAND

Anteriorly: Optic chiasma

Posteriorly: Mamillary body , Dorsum sellae, Basilar artery, pons

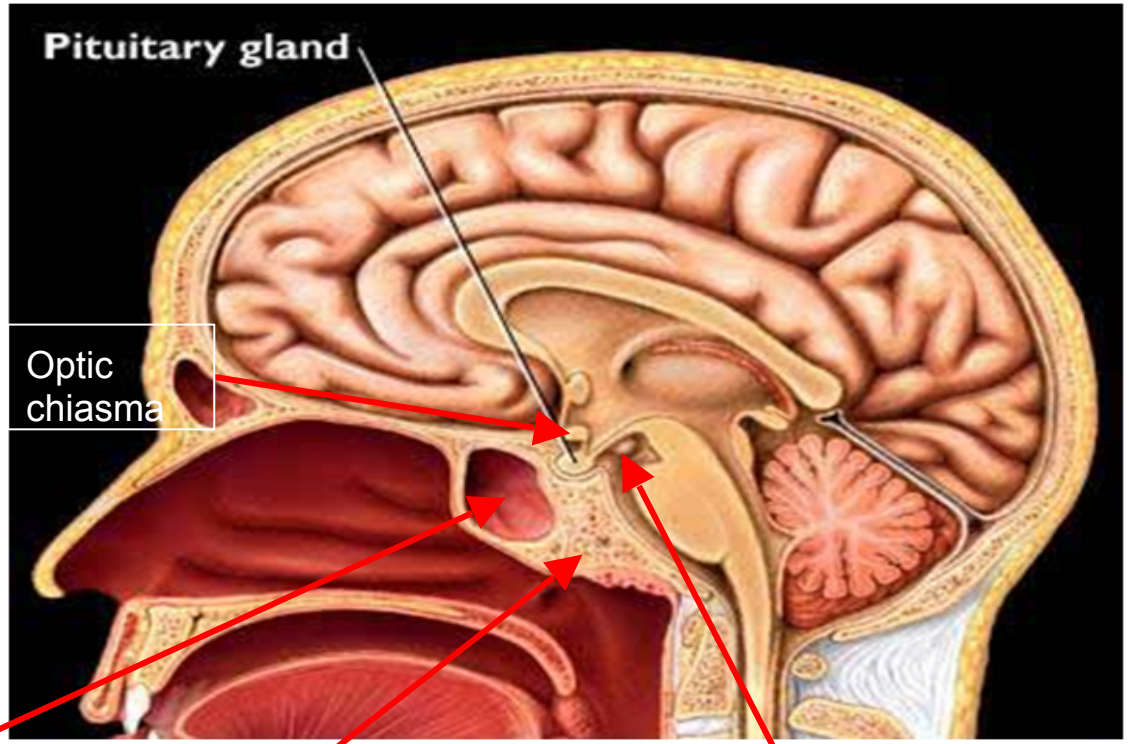
Superior: Diaphragma sellae, Optic chiasm(anterior lobe only

Inferior: Sphenoidal air sinus

laterally: Cavernous sinuses

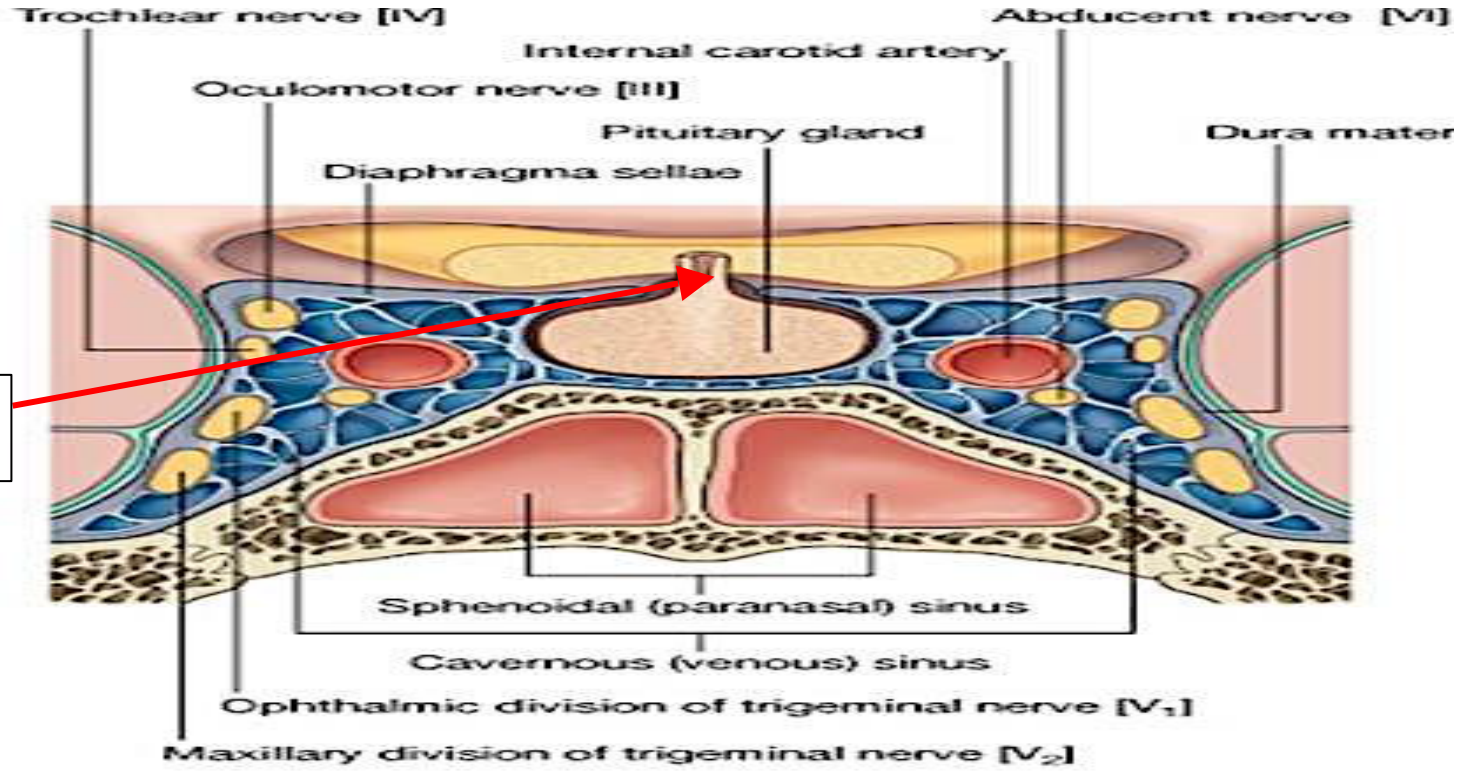
note:

Structures related laterally to the pituitary gland: Passing through cavernous sinus: 6th CN internal carotid artery Lateral to the cavernous: 3rd, 4th and 5th(only maxillary & ophthalmic branches)



PITUITARY GLAND

- If Pituitary gland became enlarged (e.g adenoma) it will cause pressure on optic chiasma and lead to Bilateral temporal eye field blindness



PITUITARY GLAND

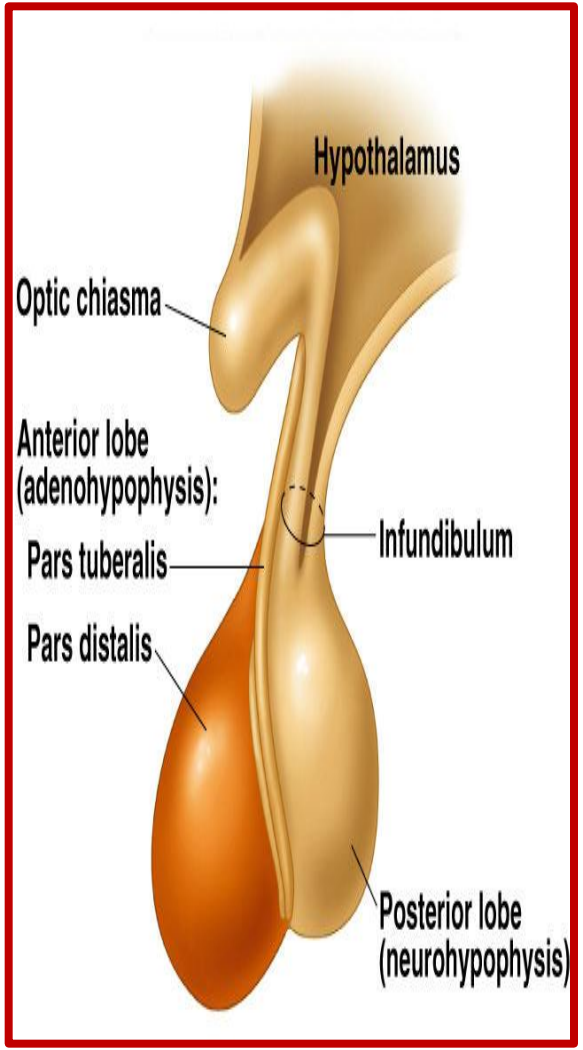
Identify the Pointed area :

1- Anterior lobe (Adenohypophysis)

2- optic chiasma

3- infundibulum .

4- Posterior lobe (Neurohypophysis)



SUBDIVISIONS OF PITUITARY GLAND	
Anterior Lobe (Adenohypophysis)	Posterior Lobe (Neurohypophysis)
The true gland	connected to hypothalamus through hypothalamo-hypophyseal tract
synthesizes & Secretes hormones	Stores hormones secreted by hypothalamic nuclei
Hormone-releasing & inhibiting factors produced by hypothalamus use Hypophyseal Portal System to reach the Anterior lobe of pituitary gland	receives a nerve supply from some of the hypothalamic nuclei (supraoptic & paraventricular) The axons of these nuclei convey their neurosecretion to the Posterior lobe of pituitary gland through Hypothalamo-Hypophyseal tract from where it passes into the blood stream.

BLOOD SUPPLY OF PITUITARY GLAND			
	Arteries		Veins
name	Superior & Inferior hypophyseal arteries		Hypophyseal veins
origin	Internal Carotid artery		Cavernous Sinuses
Superior hypophyseal		Inferior hypophyseal	
Supplies the infundibulum & forms the hypophyseal portal system		supplies posterior lobe	

The superior hypophyseal A. forms a capillary network from which vessels pass downward & form sinusoids into the anterior lobe of pituitary gland

PITUITARY GLAND

BLOOD SUPPLY

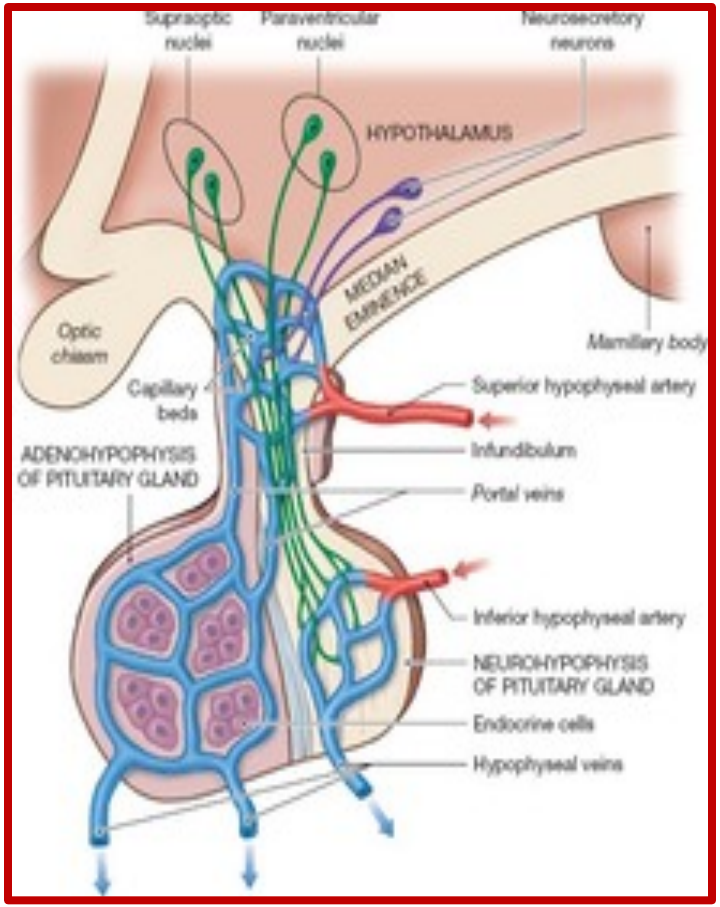
Identify the Pointed area :

1- Superior hypophyseal artery.

2-inferior hypophyseal artery.

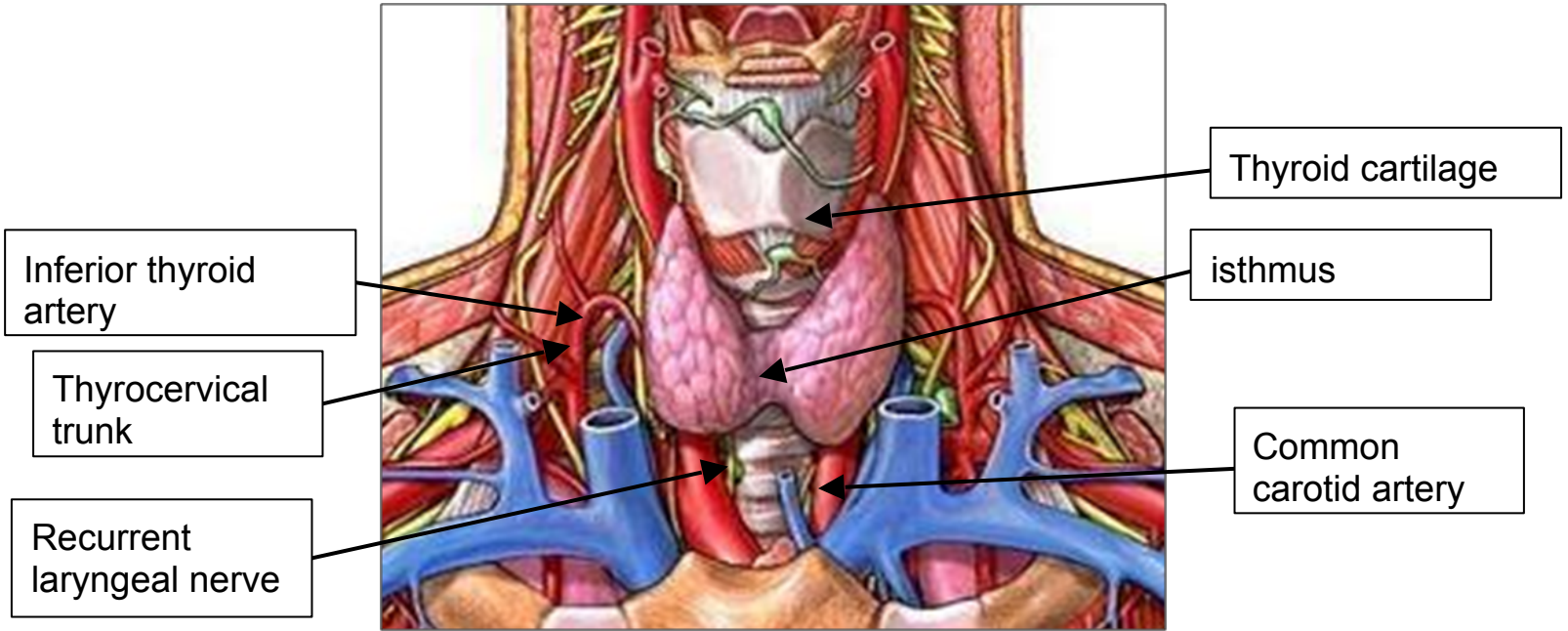
branches of internal carotid artery

3- Hypophyseal veins drain into Cavernous Sinuses

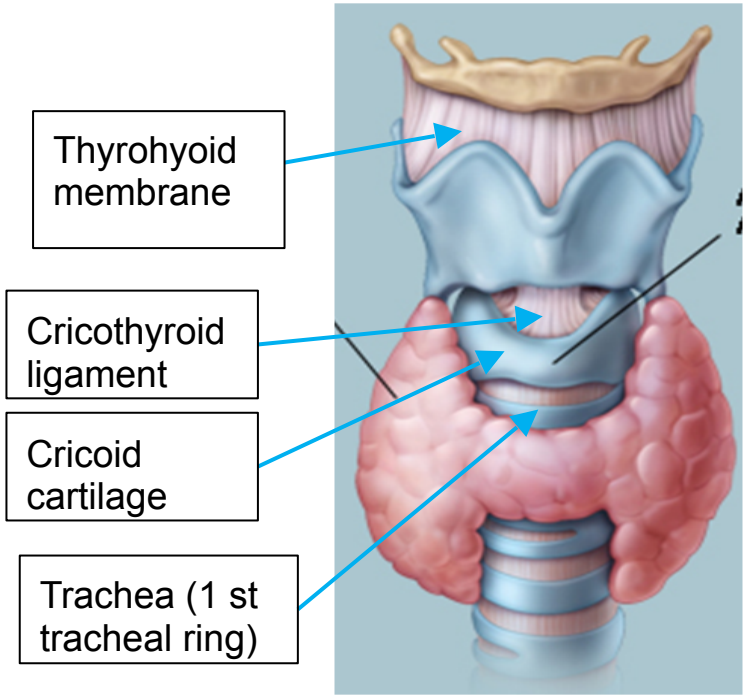


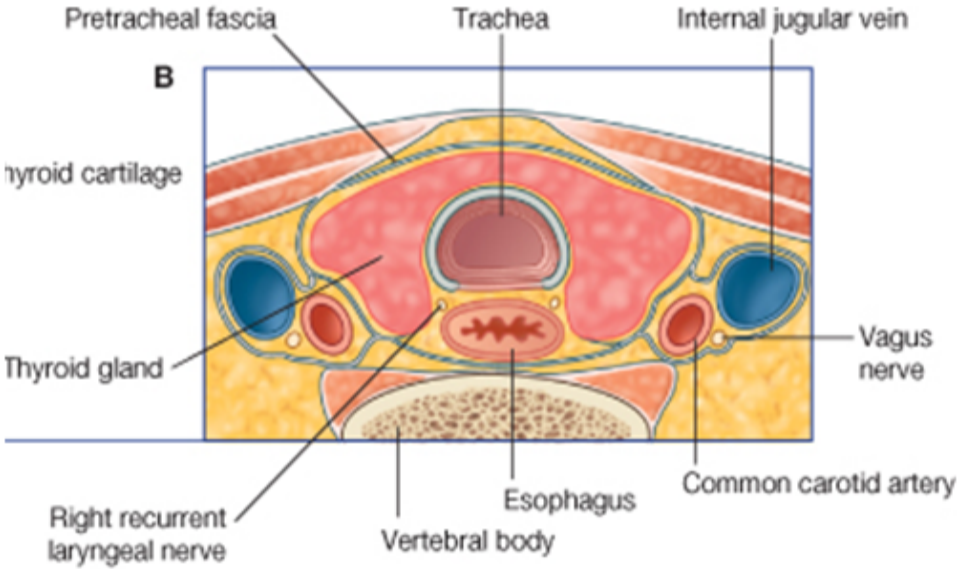
THYROID GLAND

- Composed of 3 lobes :1) Right lobe 2) left lobe 3)Pyramidal lobe (in 50% of people)
- The 3 lobes are connected by isthmus which overlies the 2nd , 3rd and 4th tracheal rings
- Each lobe is pear- shaped, with its apex reaching up to the oblique line of thyroid cartilage. (place of attachment of the sternothyroid muscle)
- Its base lies at the level of 4 th or 5th tracheal rings



THYROID GLAND





THYROID GLAND Blood supply

Arterial supply:

1- superior thyroid artery: a branch of external carotid artery.

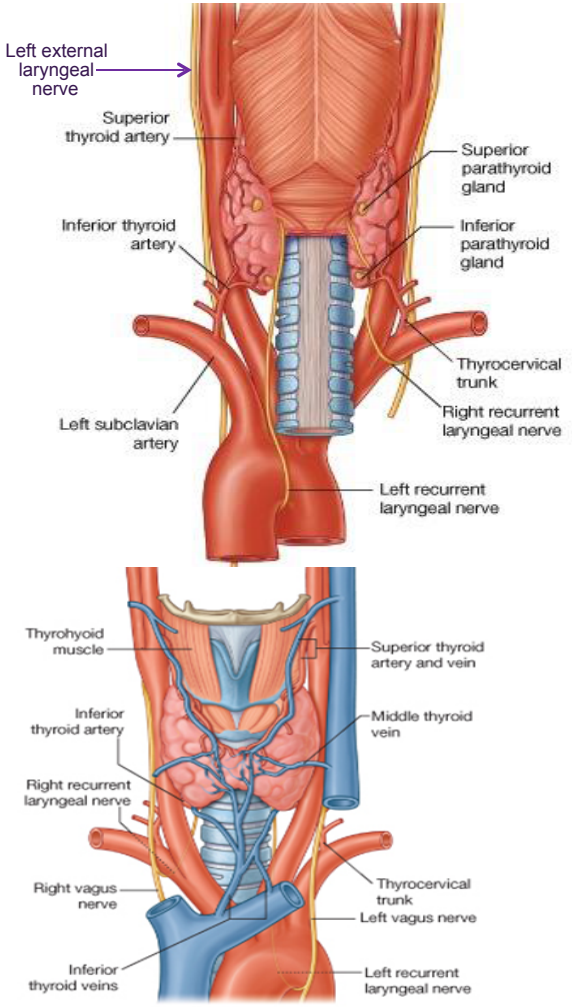
2- inferior thyroid artery: from thyrocervical trunk of the 1 st part of subclavian artery.

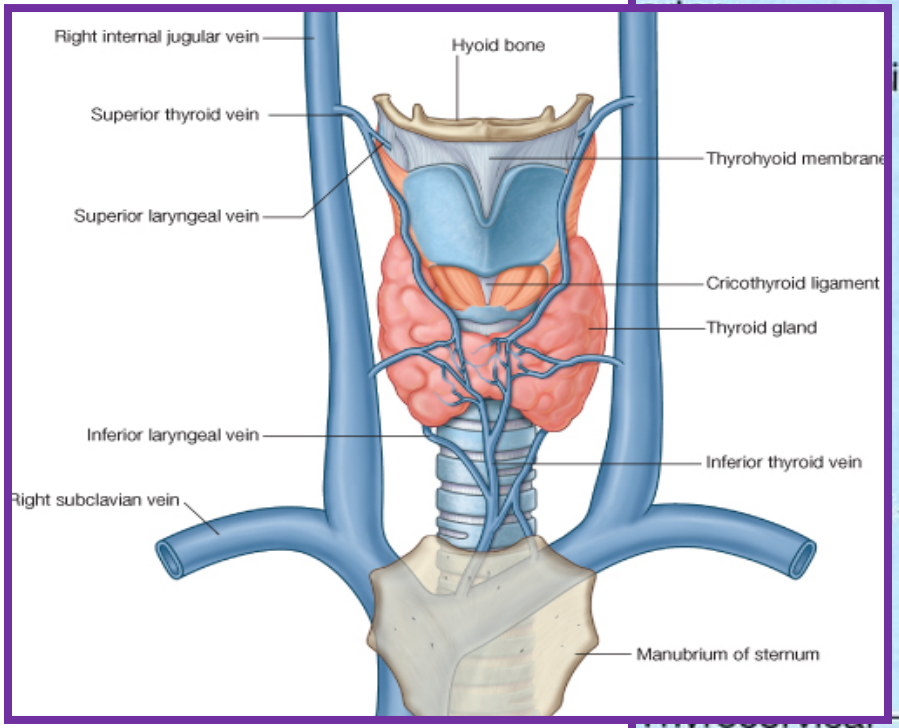
3- thyroid ima artery: (not always present) arise from aortic arch or brachiocephalic artery

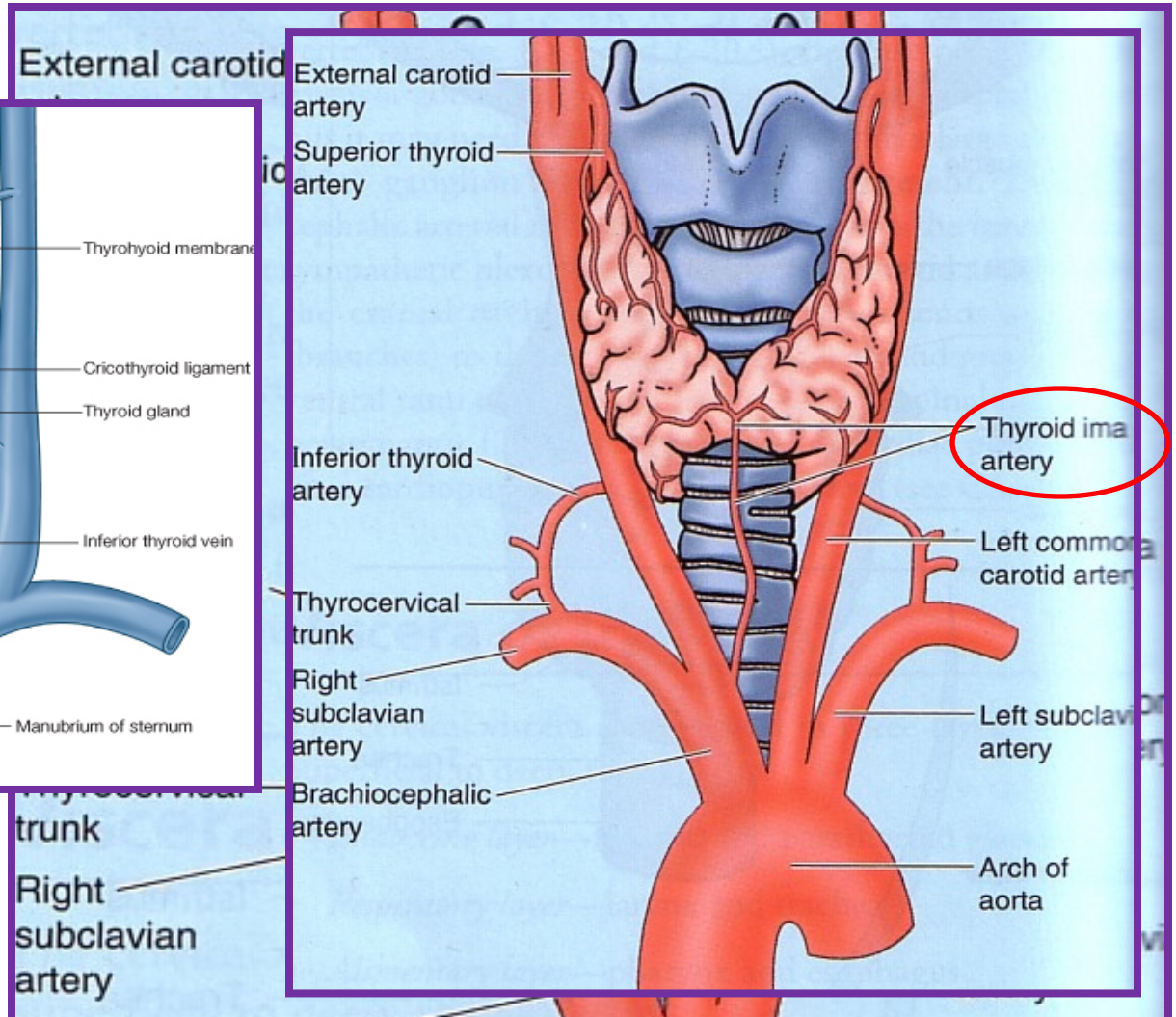
Veins:

1-Superior thyroid vein
2-Middle thyroid vein } Drain into internal jugular vein

3-Inferior thyroid vein : Drains into left brachiocephalic vein

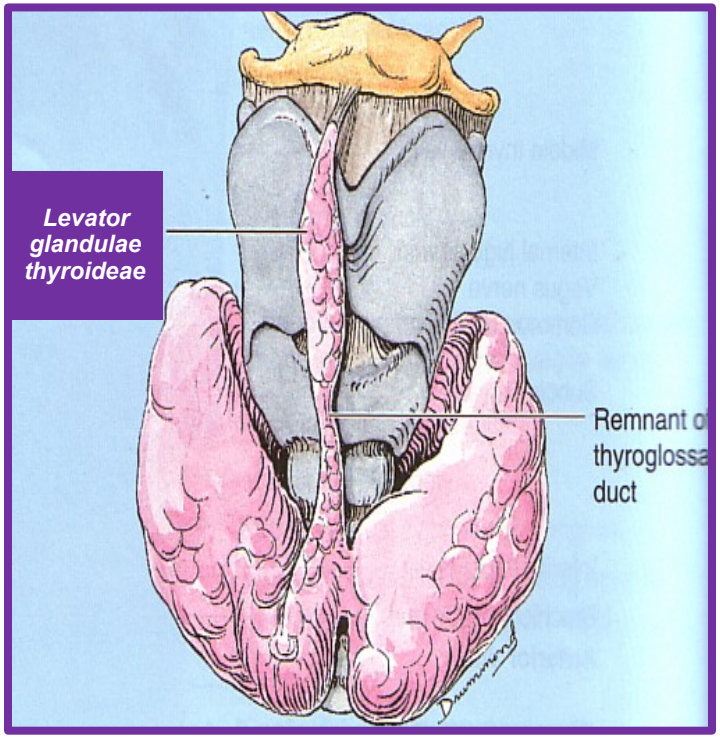



Right internal jugular vein
Hyoid bone
Superior thyroid vein
Thyrohyoid membrane
Superior laryngeal vein
Cricothyroid ligament
Thyroid gland
Inferior laryngeal vein
Inferior thyroid vein
Right subclavian vein
Manubrium of sternum


External carotid artery
Superior thyroid artery
Thyroid ima artery
Inferior thyroid artery
Left commo carotid arter
Thyrocervical trunk
Right subclavian artery
Left subcla artery
Brachiocephalic artery
Arch of aorta
External carotid
trunk
Right subclavian artery

THYROID GLAND

A small pyramidal lobe is often present which projects from the **upper border of the isthmus** usually to left of middle line.
Pyramidal lobe is connected to hyoid bone by a fibrous or muscular band called **levator glandulae thyroideae.**
This represents the fibrosed & obliterated thyroglossal duct.



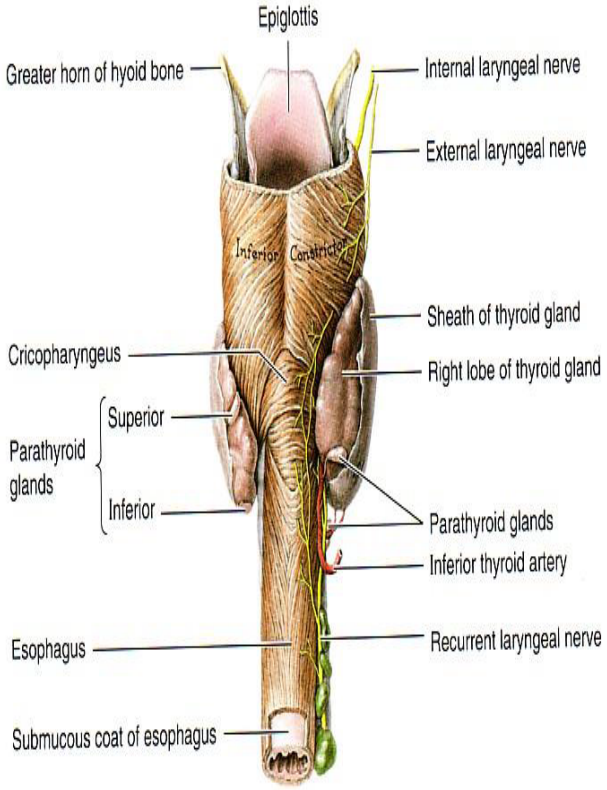
THYROID GLAND

Mention 2 nerves related to the thyroid gland?
1- Recurrent laryngeal nerve .
2- External laryngeal nerve.

Mention 2 muscles related to both isthmus and lobe of the thyroid gland.
1- Sternothyroid.
2- Sternohyoid.

<u>In thyroidectomy operation</u>
<u>Mention:</u>
- **.2 parts of the deep cervical fascia which should be incised?**

1- Investing layer.
2- Pretracheal layer



THYROID GLAND

Relations

Anterolaterally:

1. Sternothyroid. 2. Superior belly of omohyoid 3. Sternohyoid. 4. Sternomastoid.

Posterior:

Carotid sheath & its contents.

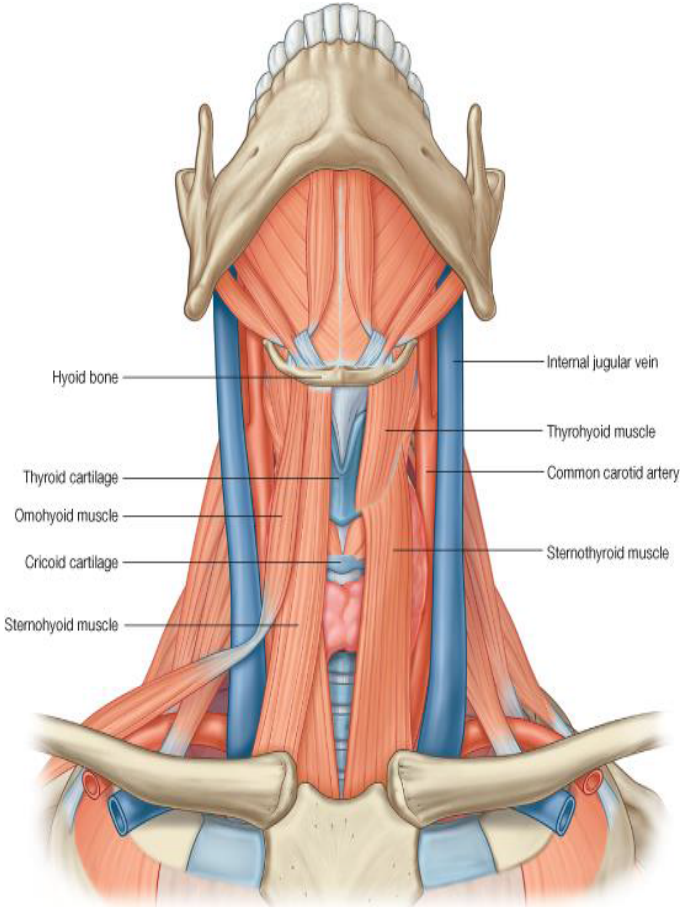
Medially:

Above: Larynx & pharynx .

Below: Trachea & esophagus.

Recurrent laryngeal nerve in between.

Cricothyroid muscle & external laryngeal nerve.



-Identify the pointed areas :-

1-sternohyoid muscle

2-thyroid cartilage

3-sternothyroid muscle

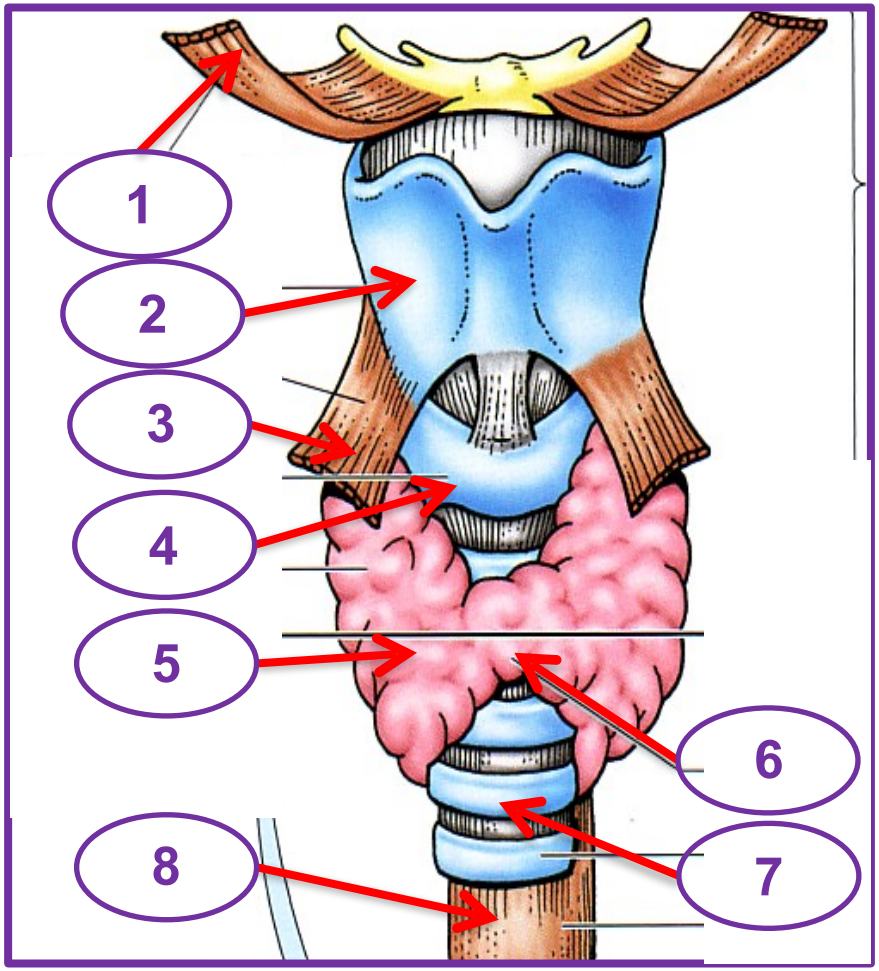
4-cricoid cartilage

5- thyroid gland

6-isthmus

7-trachea

8-esophagus



CLINICAL NOTES Thyroidectomy

When ligating thyroid arteries during thyroidectomy 2 nerves are at risk:

1- external laryngeal nerve:

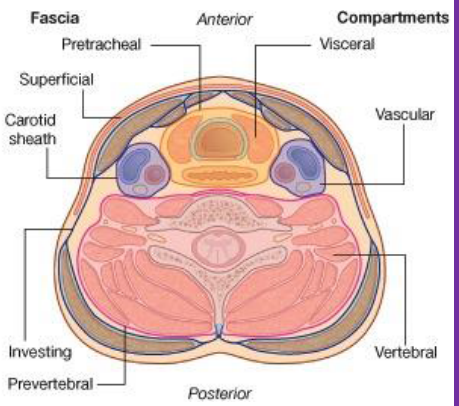
- Which runs close to the superior thyroid artery
- To avoid damaging this nerve the superior thyroid artery should be ligated within the upper pole of the gland (because it separates from the nerve inside the gland)
- Damage to this nerve (which supplies the cricothyroid muscle) will cause horsiness of voice.

2-recurrent laryngeal nerve:

- Which is related to the inferior thyroid artery.
- To avoid damaging this nerve the inferior thyroid artery should ligated away from the gland (because it approaches the nerve close to the gland).
- Damage to this nerve will cause Impaired breathing and speech.

Relation to Recurrent laryngeal nerve:

- **medialy:Trachea**
- **Laterally:common carotid artery**
- **Superior: thyroid lobe**



PARATHYROID

♦**4 small** ovoid bodies, about 6 mm. long.

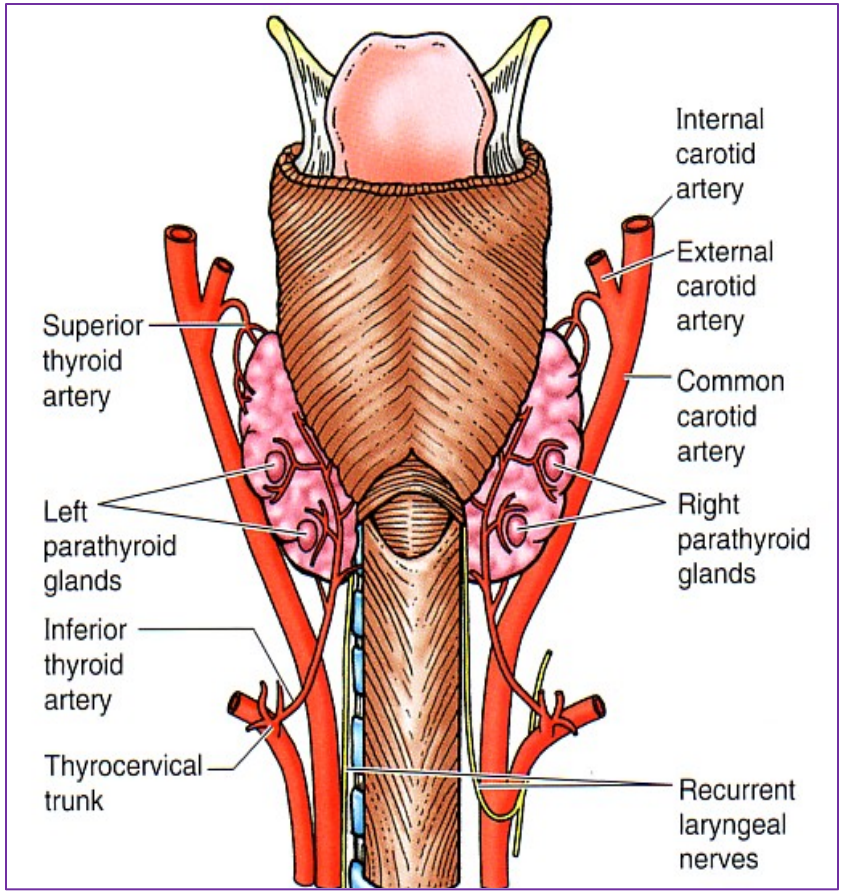
♦They lie **within** the **facial capsul** of the gland, (between the 2

♦**2 superior** parathyroid has a **constant** position at the **middle** of

♦**2 inferior** parathyroid usually at the level of the **inferior** pole

ARTERIES	superior & inferior thyroid arteries.
VEINS	superior, middle and inferior thyroid veins.
LYPHATIC NODES	Deep cervical & paratracheal lymph nodes.
NERVES	Superior & middle cervical sympathetic ganglia (vasomotor). There is no known secrotomotor innervation.

Parathyroid Gland



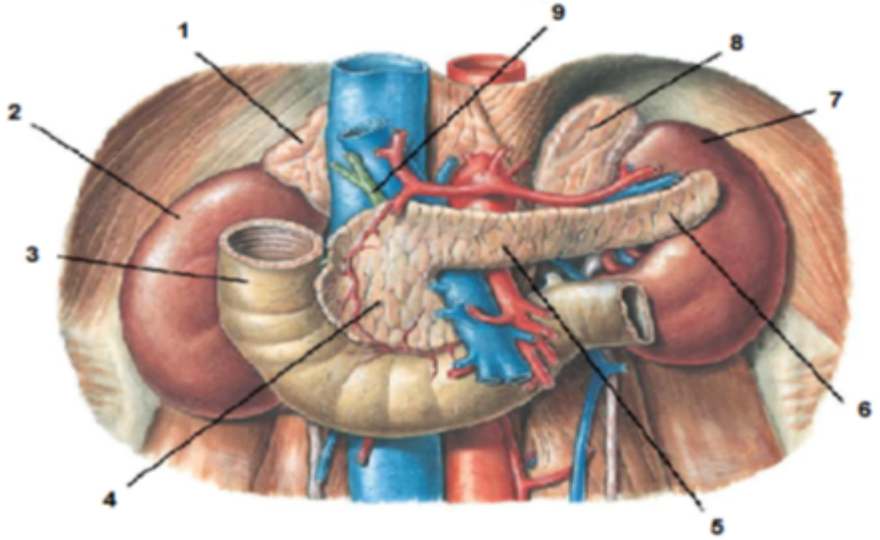
Adrenal Gland at the level of T12

	Right Suprarenal Gland	Left Suprarenal Gland
	Pyramidal in shape, caps the upper pole of the right kidney	**Crescent** in shape, extends along the medial border of the left kidney from the upper pole to the hilus
Anterior	Right lope of the liver (anterolateral) & inferior vena cava (anteromedial)	Pancreas, lesser sac and stomach spleen (in some resources)
Posterior	Diaphragm (right crus)	Diaphragm (left crus)
Medial	Celiac plexus and ganglia	Celiac plexus and ganglia

Adrenal Gland at the level of T12

1. Right suprarenal gland
2. Right kidney
3. Duodenum
4. Head of pancreas
5. Body of pancreas
6. Tail of pancreas
7. Left kidney
8. Left suprarenal gland
9. Common bile duct

Important Picture



Adrenal Gland at the level of T12

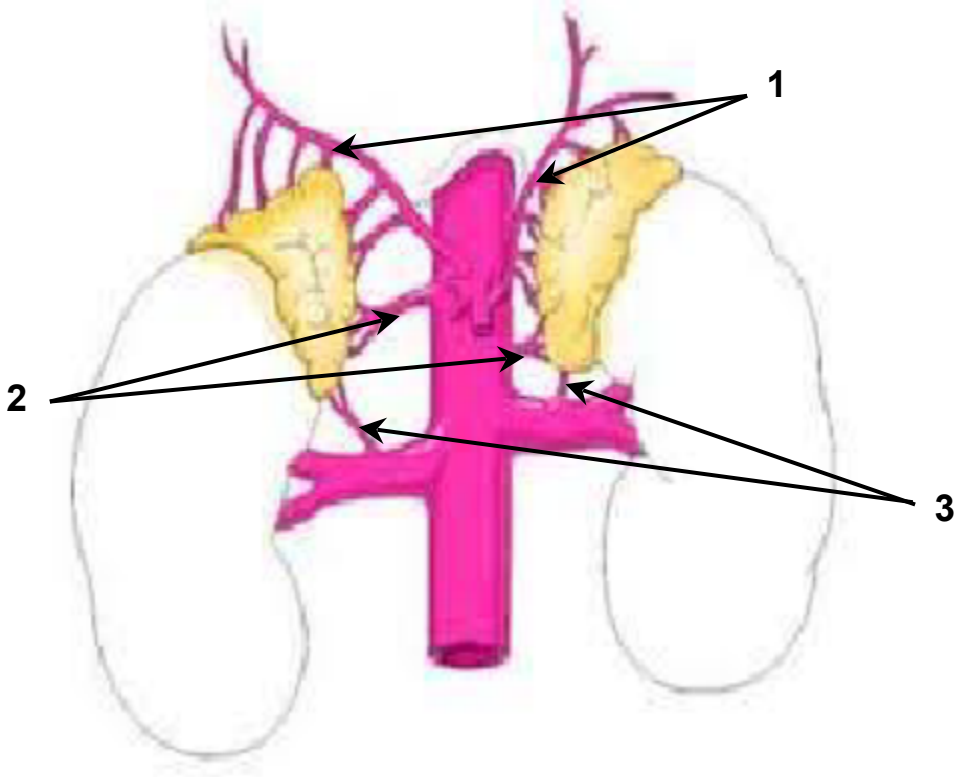
Arterial supply:

1. inferior phrenic artery

(will give Superior suprarenal artery from)

2.Middle suprarenal artery from abdominal aorta

3.Inferior suprarenal artery from renal artery



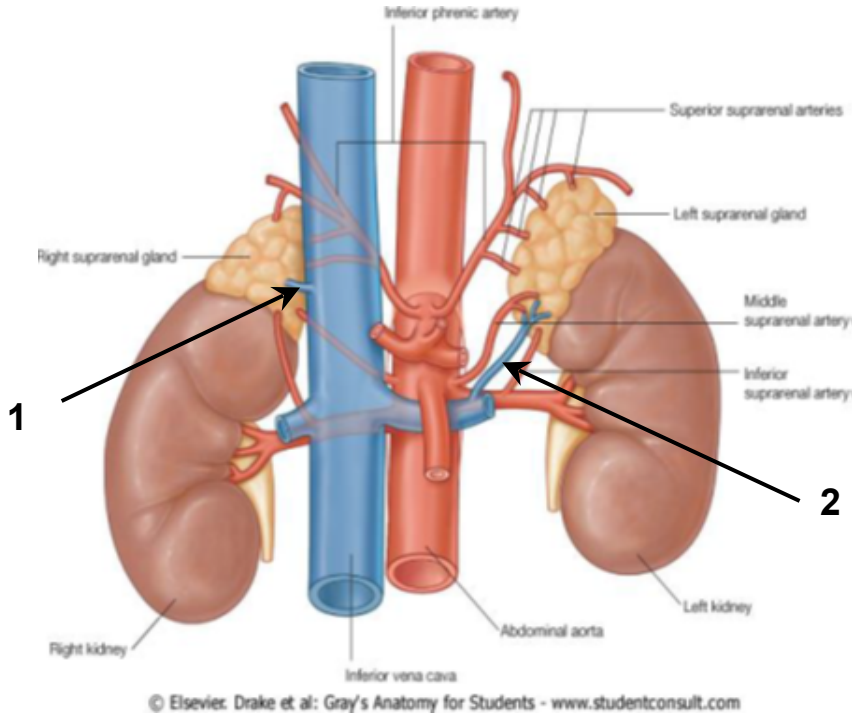
Adrenal Gland at the level of T12

Venous drainage:

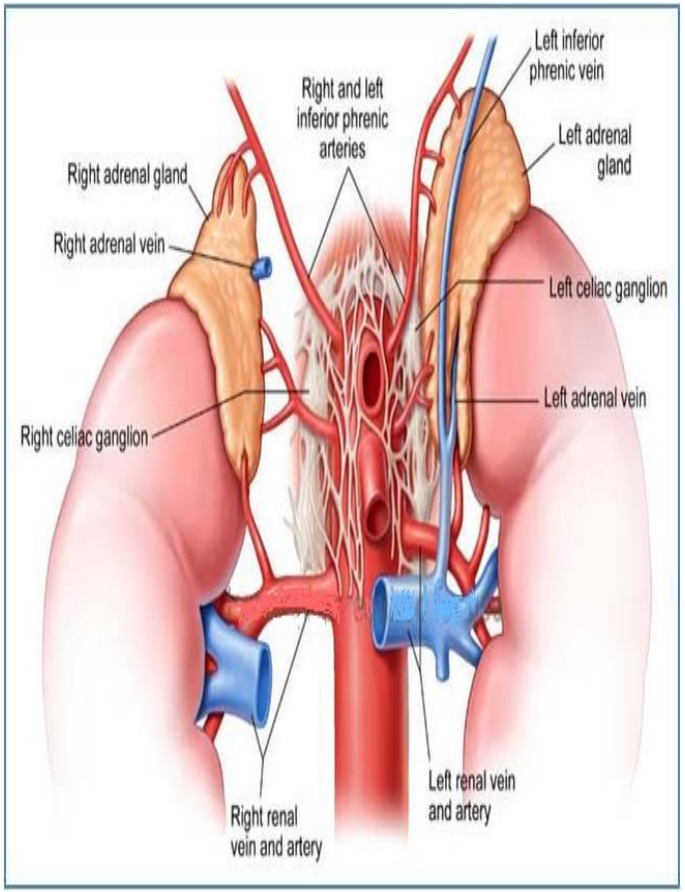
1. Right adrenal vein drainages into inferior vena cava
2. Left adrenal vein drainages into Left renal vein

*other structure it is drainage to the left renal?

Gonadal:left ovary , left testicular



Adrenal Gland at the level of T12



Dr.Essam Saeed said

Pancreas is not included

Pancreas Retroperitoneal at the Transpyloric plane (L1)

Part	Important Note
Head	Has the uncinate process (cancer head of pancreas is associated with obstructive jaundice)
Neck	*Lies in front of : aorta & origin of superior mesenteric artery and the confluence of the portal vein *supports the pylorus of the stomach by its anterio-superior surface *its inferior border is: emerging of superior mesenteric vessels emerge
Body	The splenic vein is embedded in its posterior surface, Splenic Artery runs to the left along the upper border of the pancreas (content of stomach bed)
Tail	Lies within the splenorenal ligament at the level of T12 -Splenectomy causes tear of tail> Acute pancreatitis > Death -Metastasis of cancer from tail to liver from splenic vein draining into portal vein

Pancreas Retroperitoneal at the Transpyloric plane (L1)

Relations:-

Anterior: (body & Tail)

1. Stomach (separated by the lesser sac)
2. Transverse colon
3. Transverse mesocolon

Posterior:

(Head):

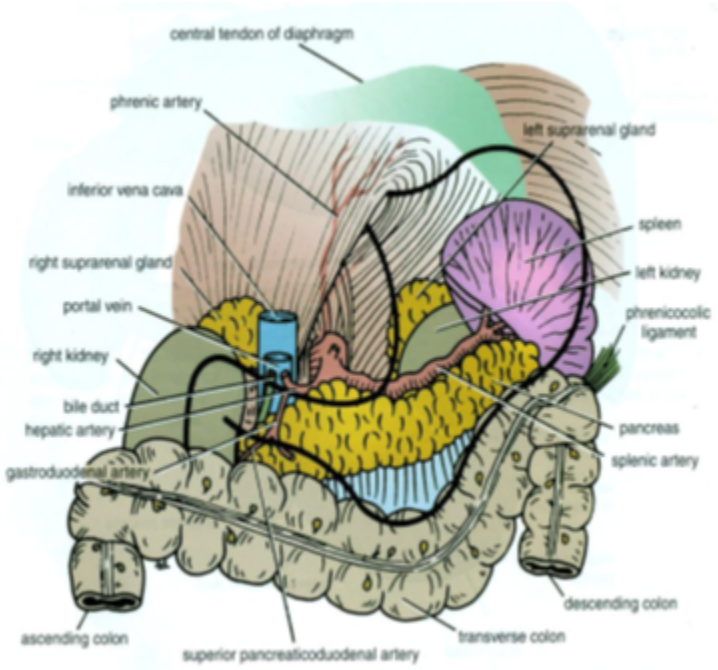
1. Bile duct
2. Inferior vena cava

(Neck):

3. Portal and splenic veins
4. Aorta and origin of superior mesenteric artery

(Body & Tail):

5. Left psoas muscle
6. Left adrenal gland
7. Left renal vessels
8. Upper 1/3 of left kidney
9. Hilum of spleen



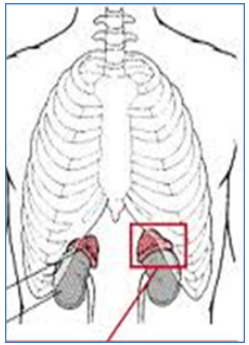
Pancreas Retroperitoneal at the Transpyloric plane (L1)

Blood Supply:
Head= -Celiac trunk (via common hepatic artery CHA) =>Gastroduodenal => Superior pancreaticoduodenal artery
-Superior mesenteric artery= Inferior pancreaticoduodenal artery
Body & Neck= Splenic arteries
Venous drainage:
Head & Body= Anterior and posterior arcades
Body & Tail= Splenic vein
all to Portal vein
Pancreatic Duct:
Main P duct: Joins common bile duct & *they open into a small hepatopancreatic ampulla in the duodenal wall (Ampulla of Vater)* (major duodenal papilla) (from the Tail to the post. wall of the head)
Accessory P duct:(of Santorini) Drains superior portion of the head open separately into 2nd portion of duodenum (minor duodenal papilla).

These levels are mentioned by the doctor in the theoretical lecture:
origin of the Superior Mesenteric artery : same site as the pancreas= L1
origin of the Renal & gonadal= L2
origin of the inferior Mesenteric artery = L3
End of the Aorta = L4
cliac trunk : T12
***If pancreas becomes solid => it is either and inflammation or a tumor**

Questions

1- Mention the anatomical level of the adrenal glands? T12

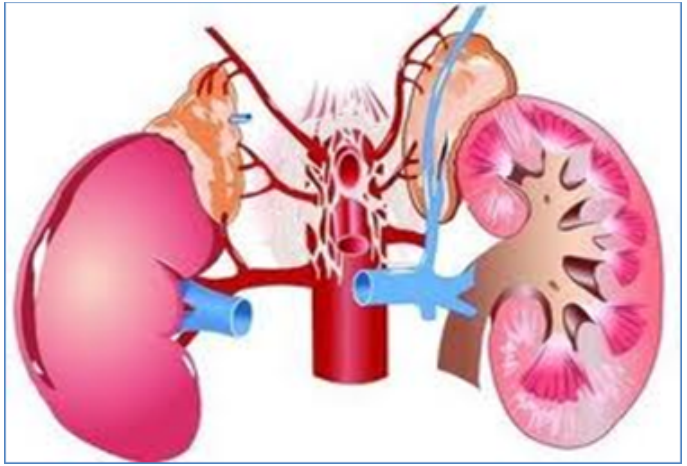


2- Mention the arterial supply of the adrenal glands and the origin of each?

a. Superior suprarenal: inferior phrenic artery

b. Middle suprarenal: abdominal aorta

c. Inferior suprarenal: renal artery



3- Mention the origin of the venous drainage of the adrenal glands?

a. Inferior vena cava on the right

b. Left renal vein on the left

Questions

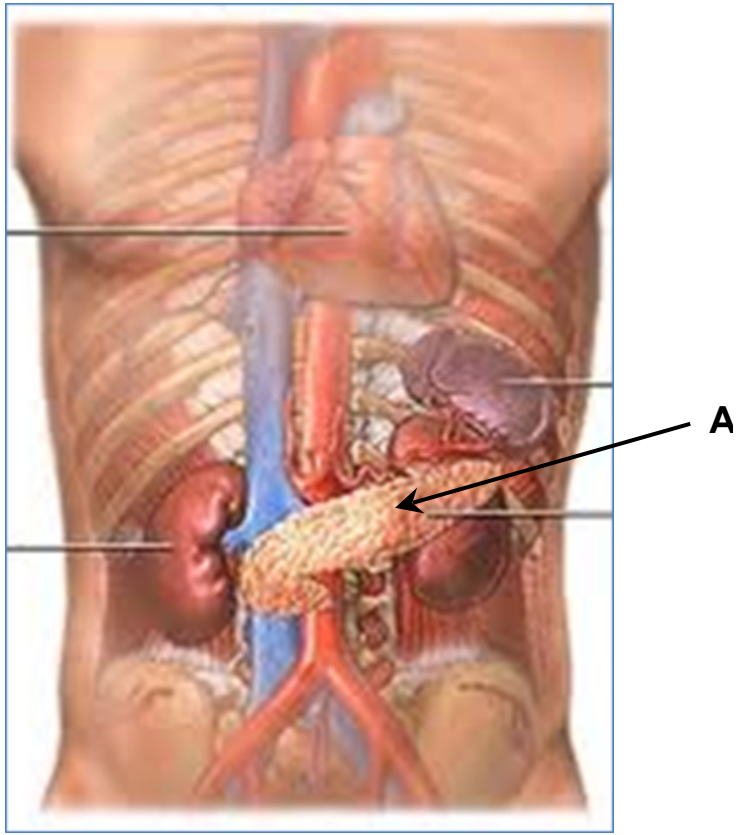
If a surgeon was to preform thyroidectomy which structures would
he cut through to reach the thyroid gland?
1. Skin. 2. Investing fascia. 3. Pretracheal fascia.
4. Thyroid capsule.

1- Mention parts of the structure (A)?

Head, neck, body, tail of the pancreas

2- Mention it`s level?

1st lumbar vertebral



Questions

1- Mention 3 structures related to the anterior surface of the body of the pancreas?

a. Stomach (separated by lesser sac)

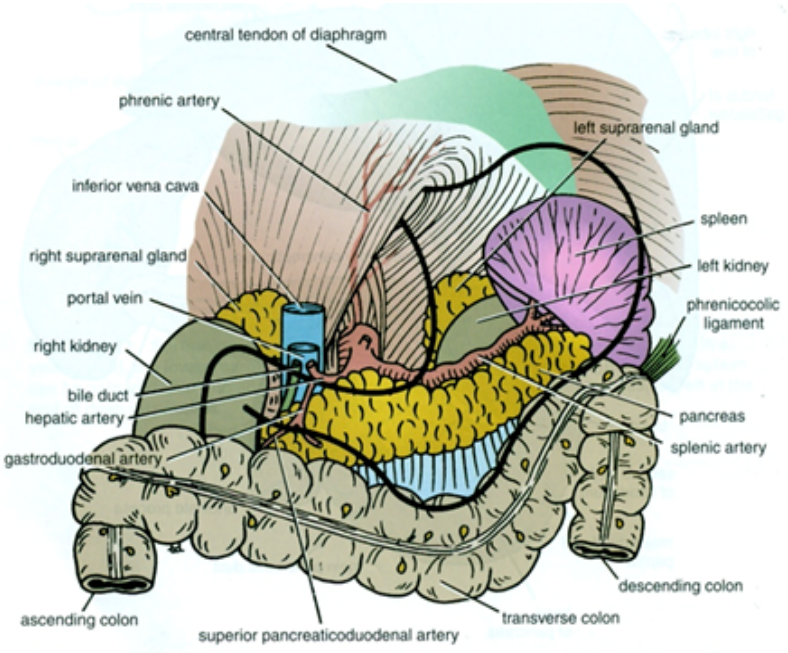
b. Transverse colon

c. Transverse mesocolon

2- Enumerates 2 veins related to it`s body?

1- Splenic vein

2- Left renal vein



Questions

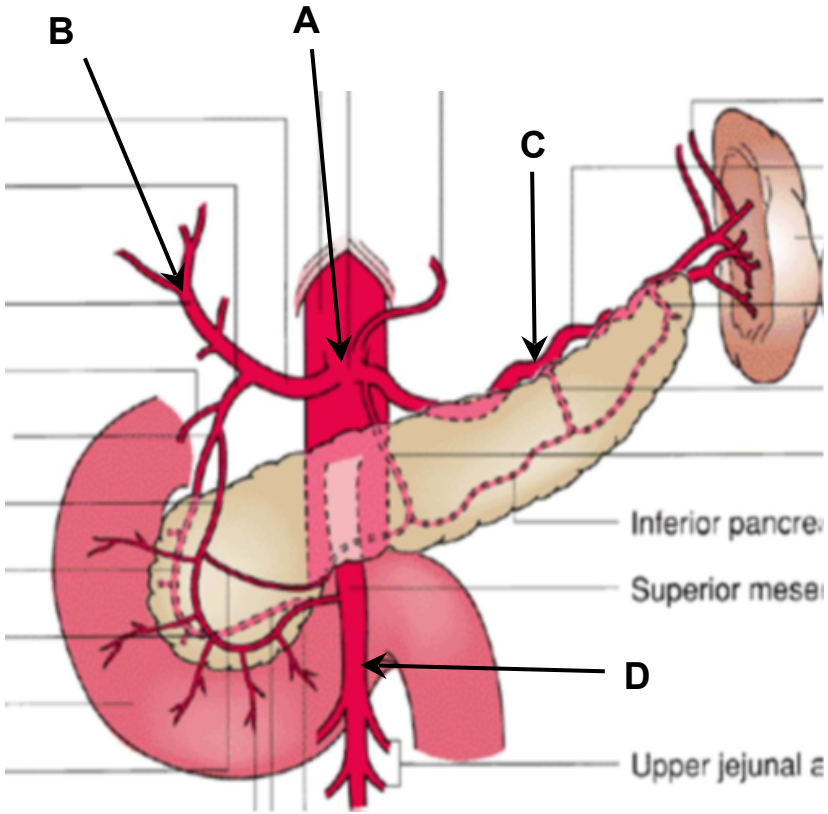
Label the indicated arrows:

A: Celiac artery

B: Hepatic artery

C: Splenic artery

D: Superior mesenteric artery



Questions

1- Identify:

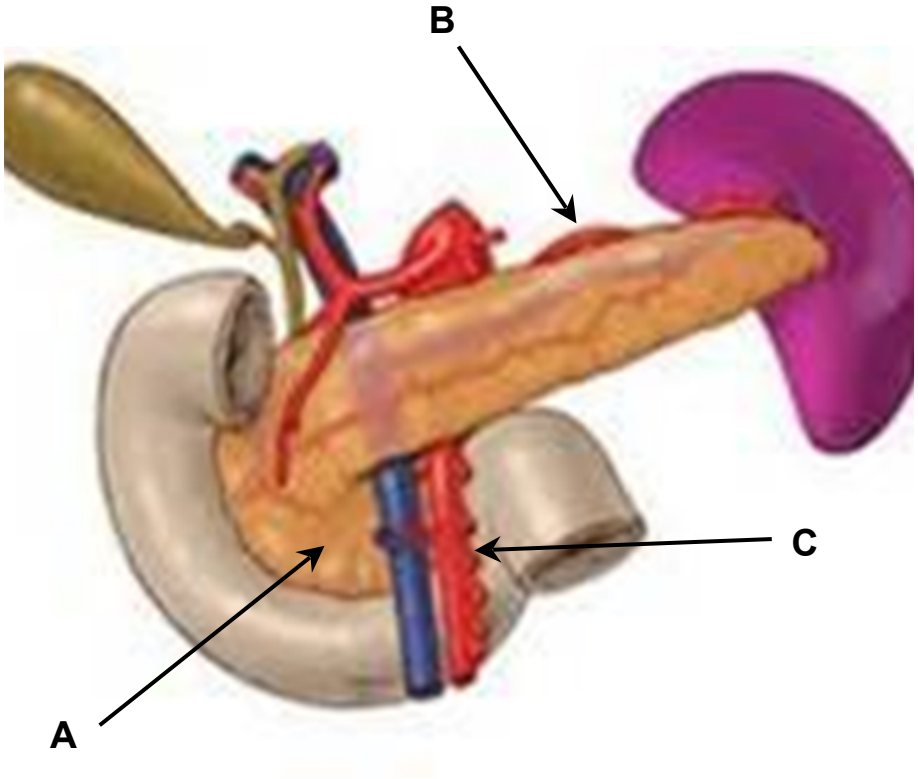
A: Uncinate process

B: Splenic artery

C: Superior mesenteric artery

2- (C) supplies which part of the pancreas?

The head of the pancreas



Questions

Identify:

A: Bile duct

B: Main pancreatic duct

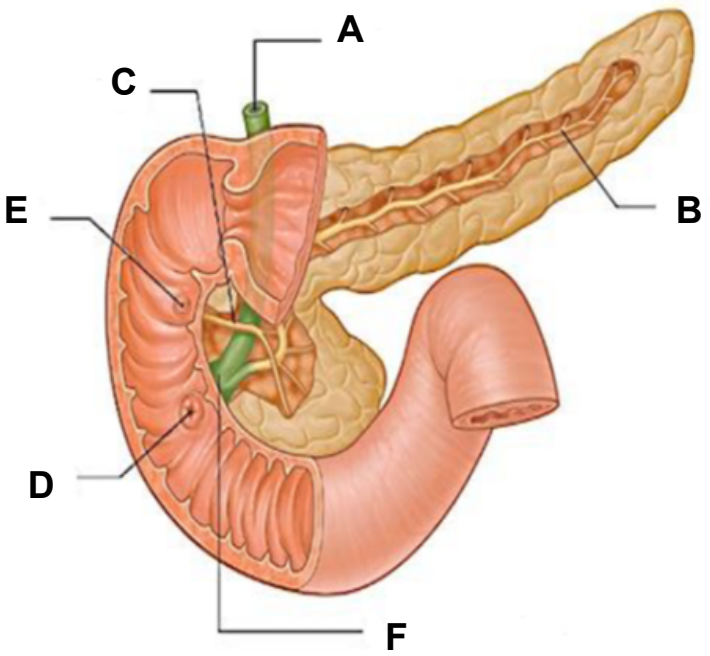
C: Accessory pancreatic duct

D: Major duodenal papilla

E: Minor duodenal papilla

F: Hepatopancreatic ampulla

Important Picture



Done by

إلهام الغامدي

ندى العمري

نجلاء الرباح

أنس بن علي الزهراني (تصحيح)