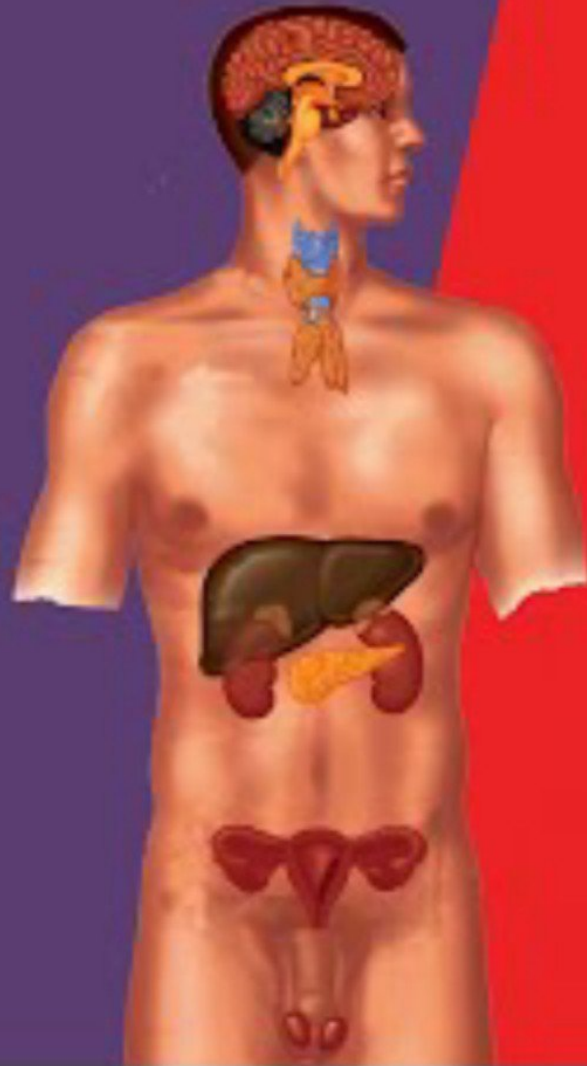


Endocrine System

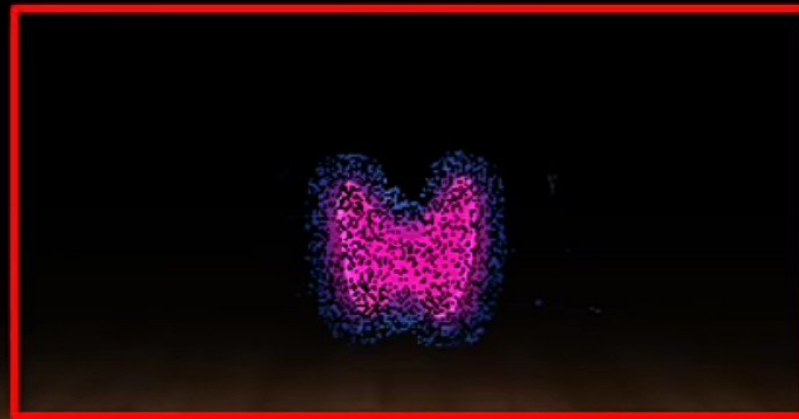


2

Thyroid Gland

Thyroid Gland

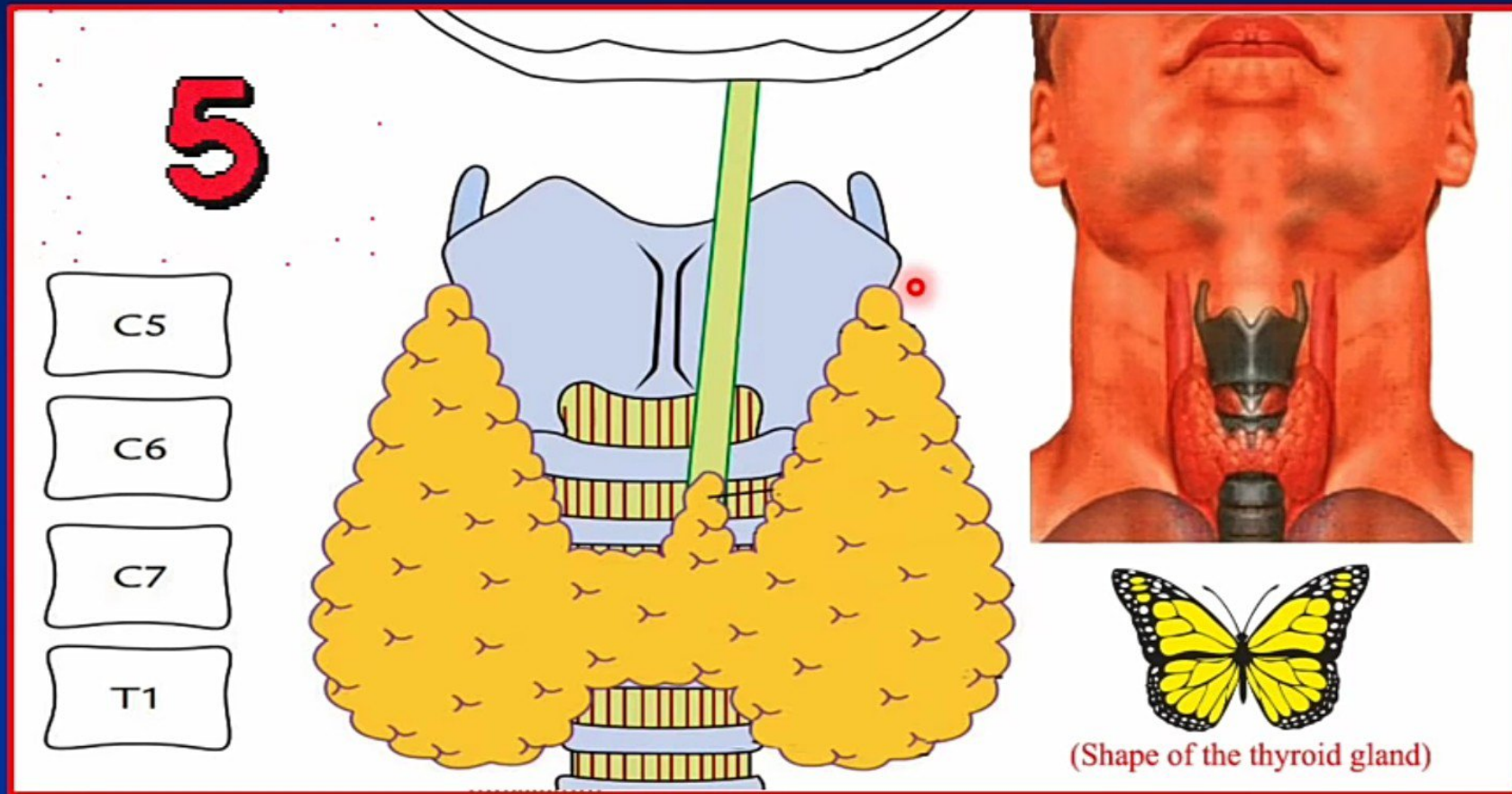
- ✓ Anatomy of the thyroid gland
- ✓ Development of thyroid gland



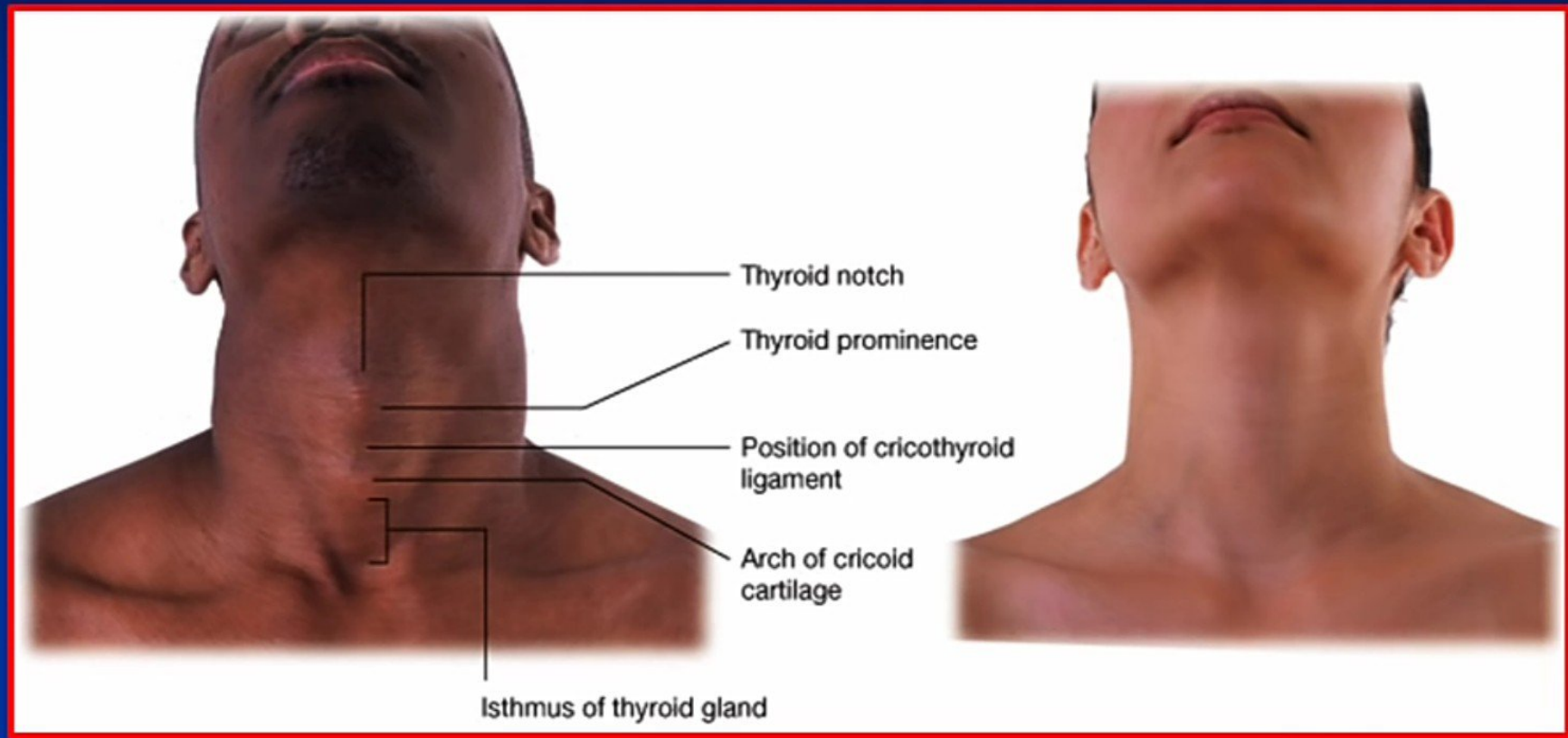
Anatomy of Thyroid Gland



Site



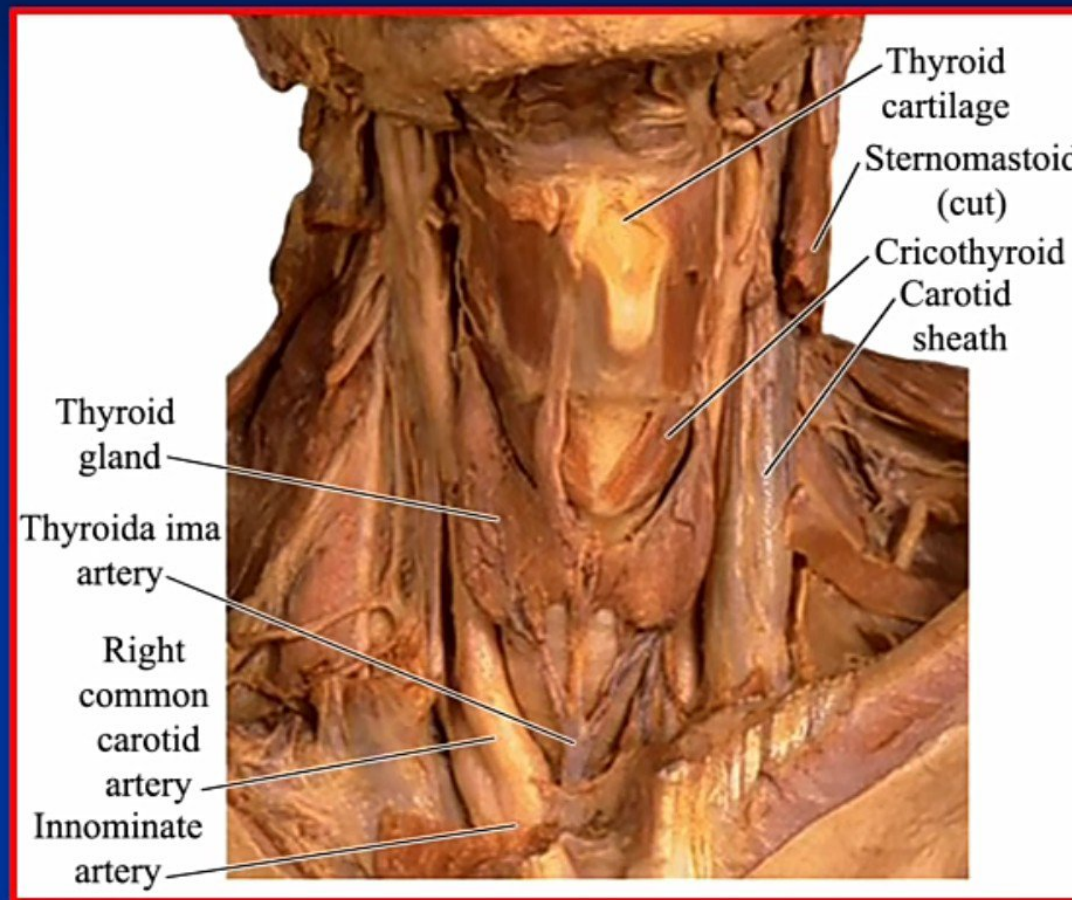
- ❑ It lies at the front and sides of the lower part of the neck.
- ❑ It extends from the *oblique line of the thyroid cartilage* to the *5th tracheal ring*.
- ❑ It extends from the level of *5th cervical vertebra* down to *1st thoracic vertebra*.



(Anatomical site of thyroid gland)

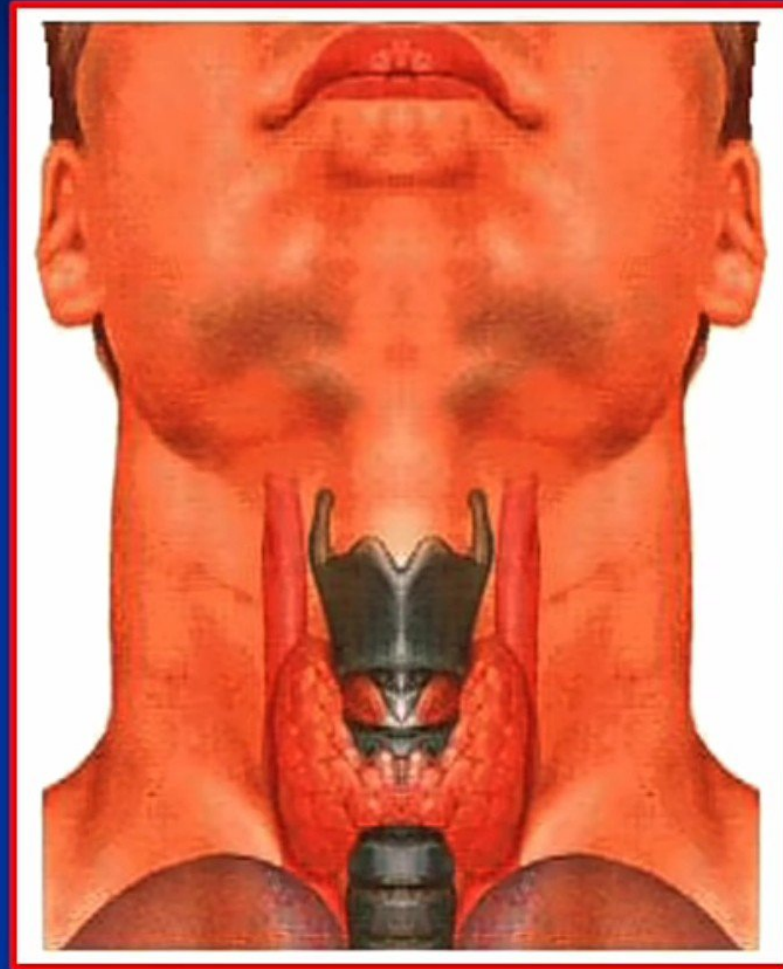


Size

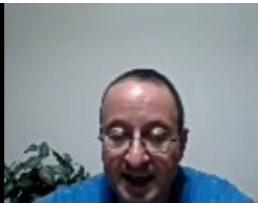


- ❑ It is the largest gland in the body.
- ❑ It weighs about 25 grams.
- ❑ The normal size thyroid is can't be felt.

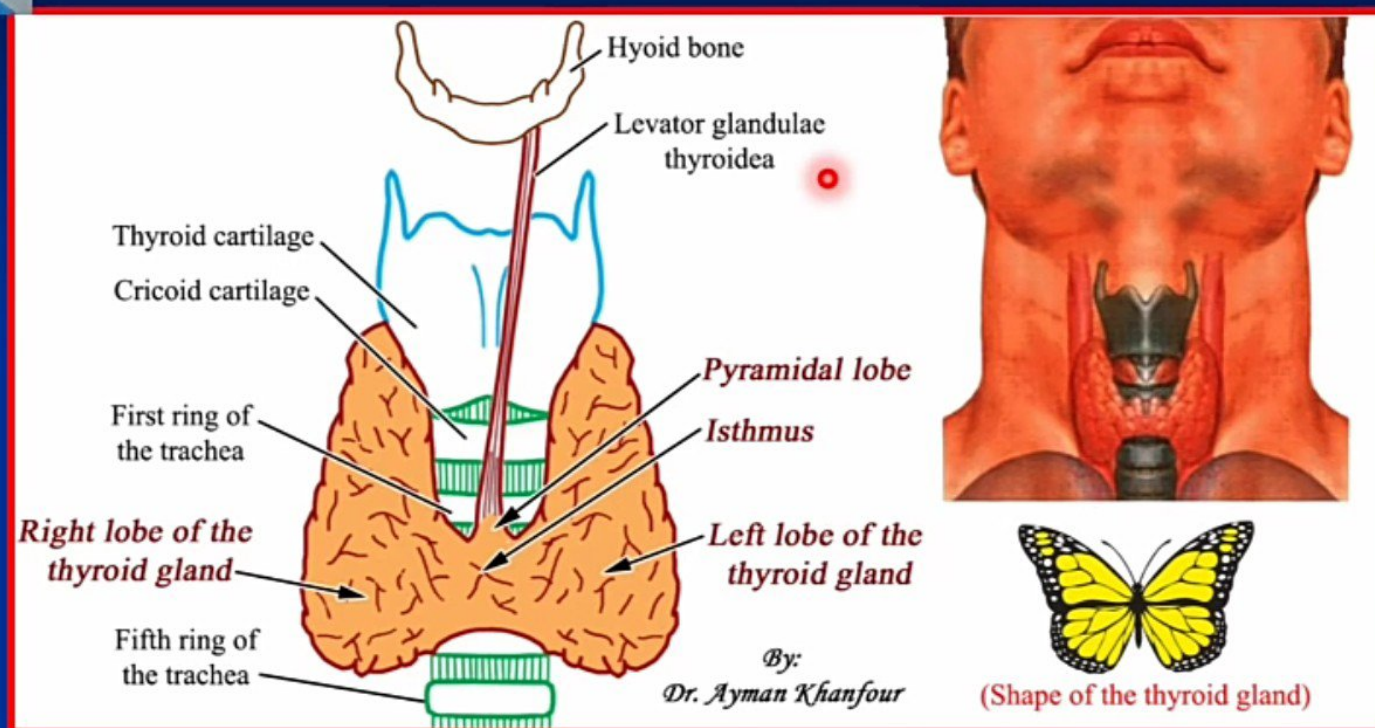
Shape



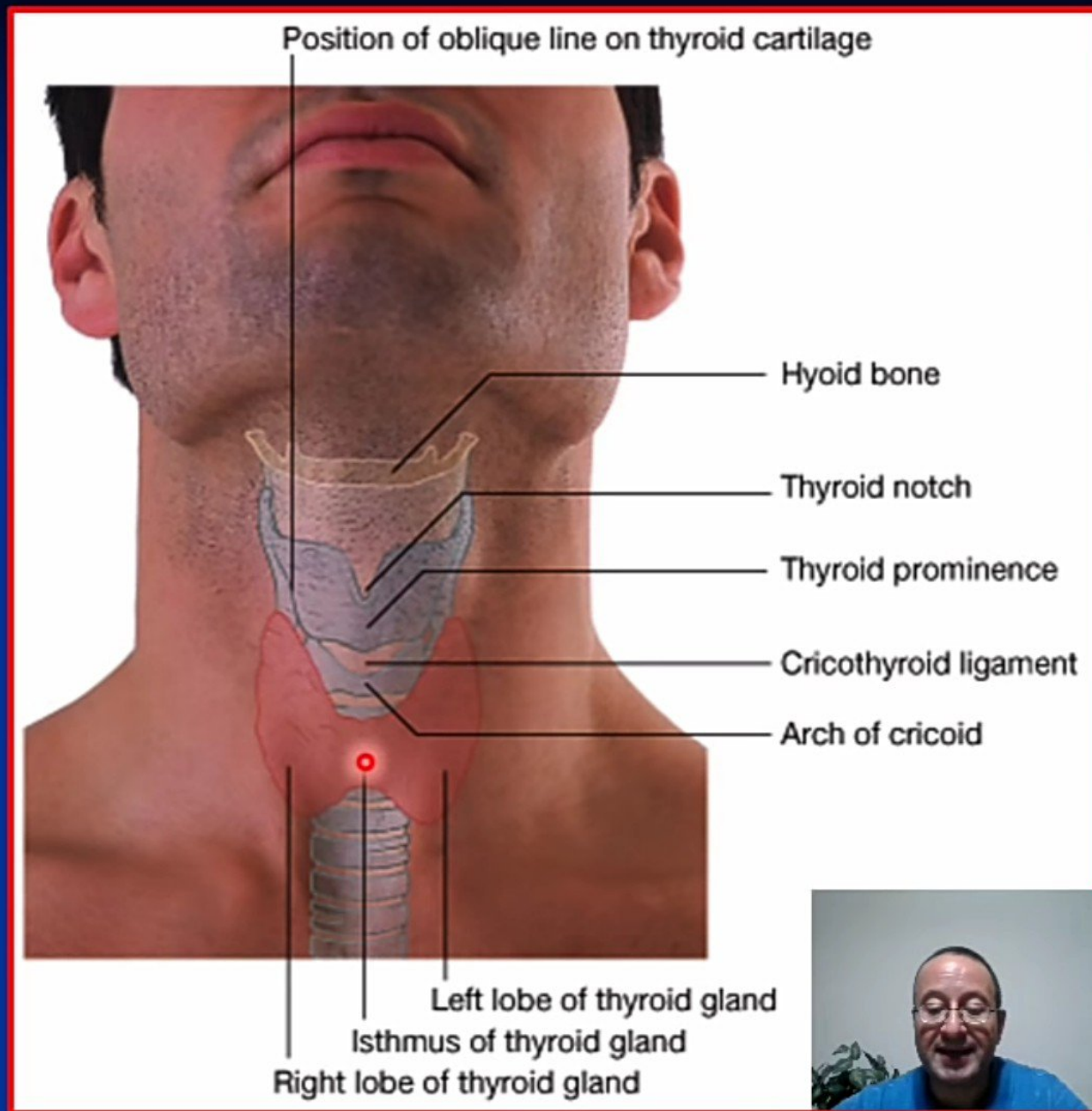
- It is *butterfly* in shape.



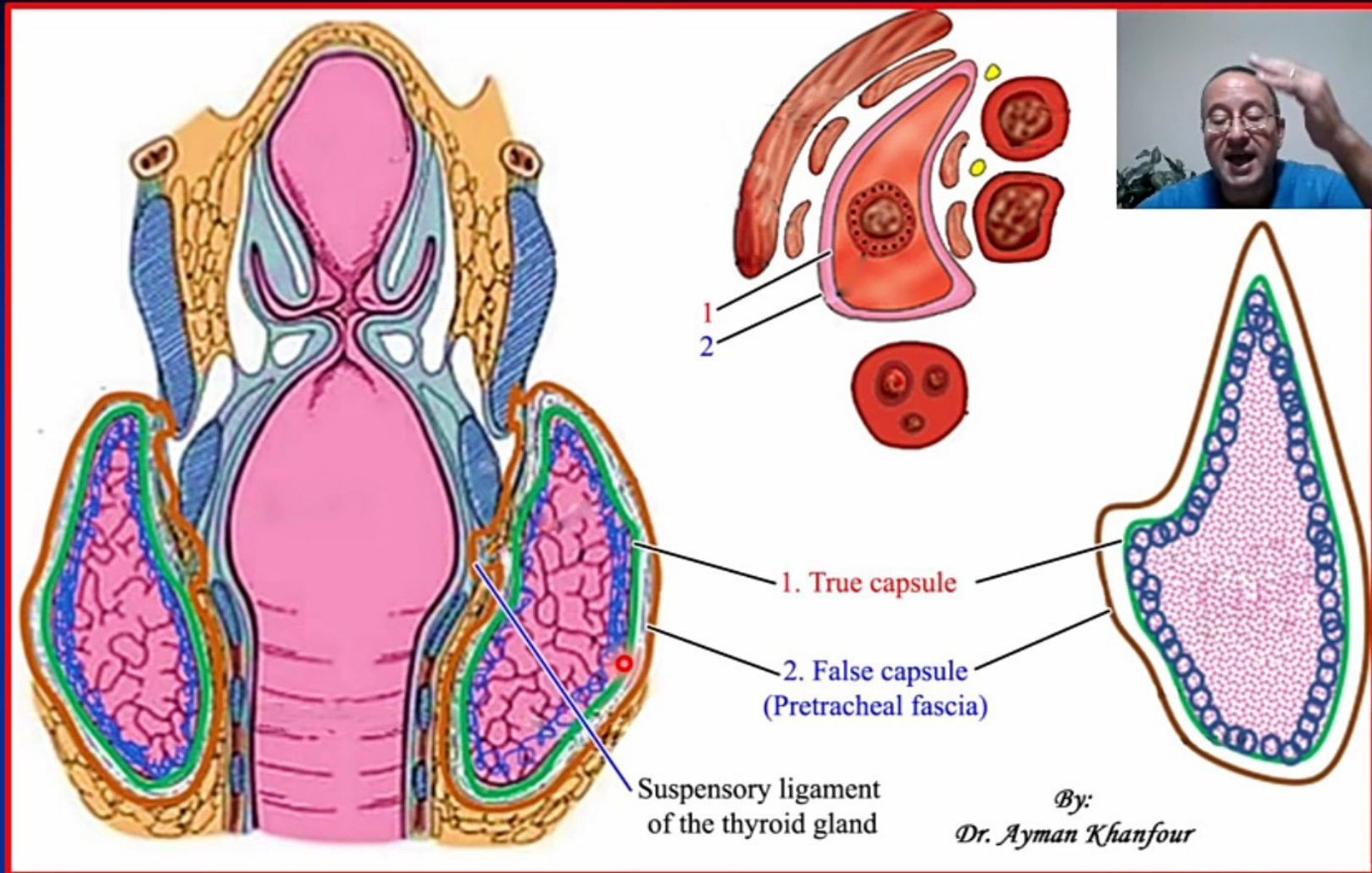
Parts



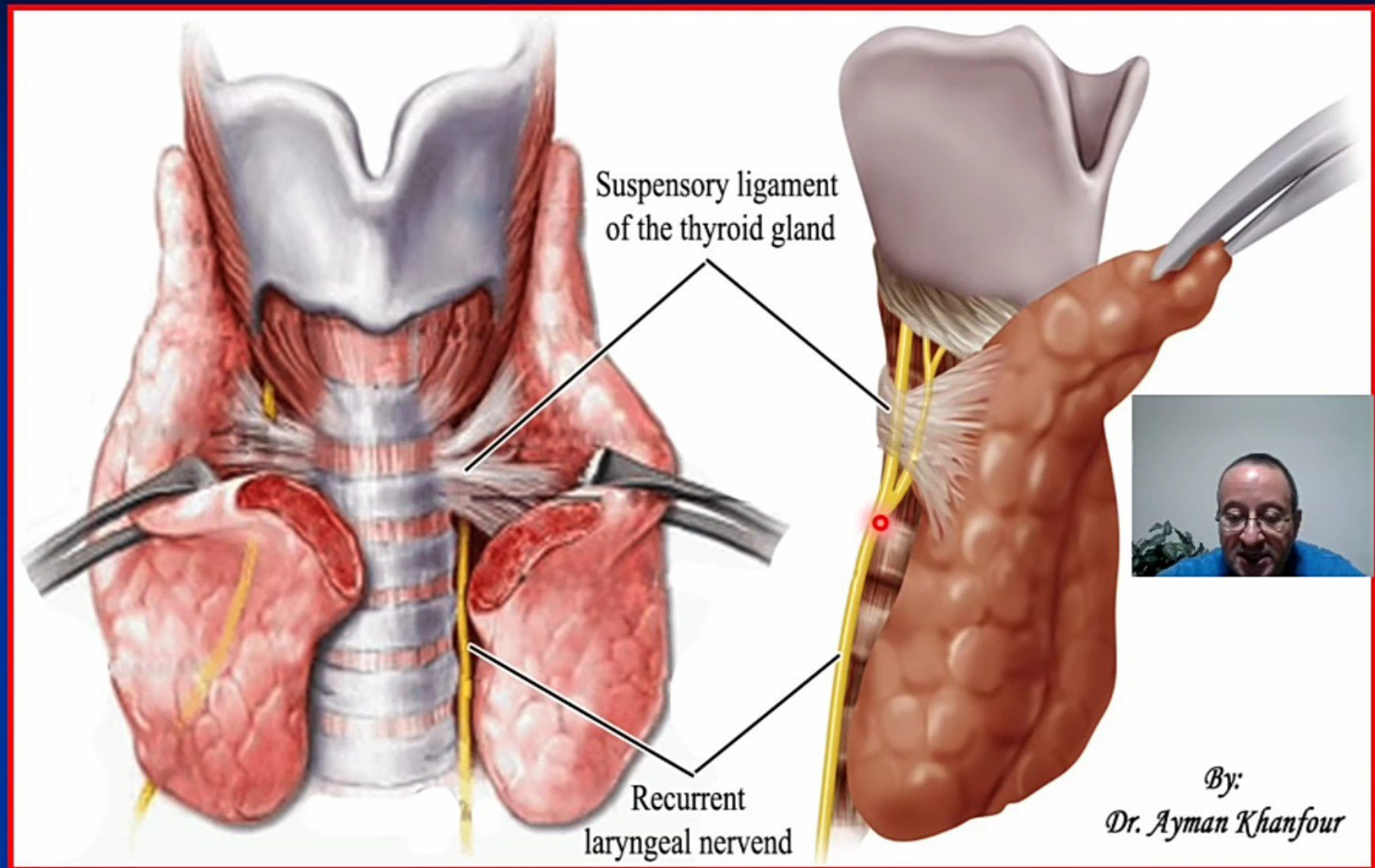
- **Lateral lobe:** One on each side.
- **Isthmus:** It is a small part which connect both lobes together in the midline (lies in front of the second, third, and fourth tracheal rings).
- **Pyramidal lobe:** It is a small triangular lobe projecting upwards from isthmus.
- The pyramidal lobe may be connected to the hyoid bone by a fibromuscular band called *levator glandulae thyroidea* (remnant of the thyroglossal duct in the embryo).



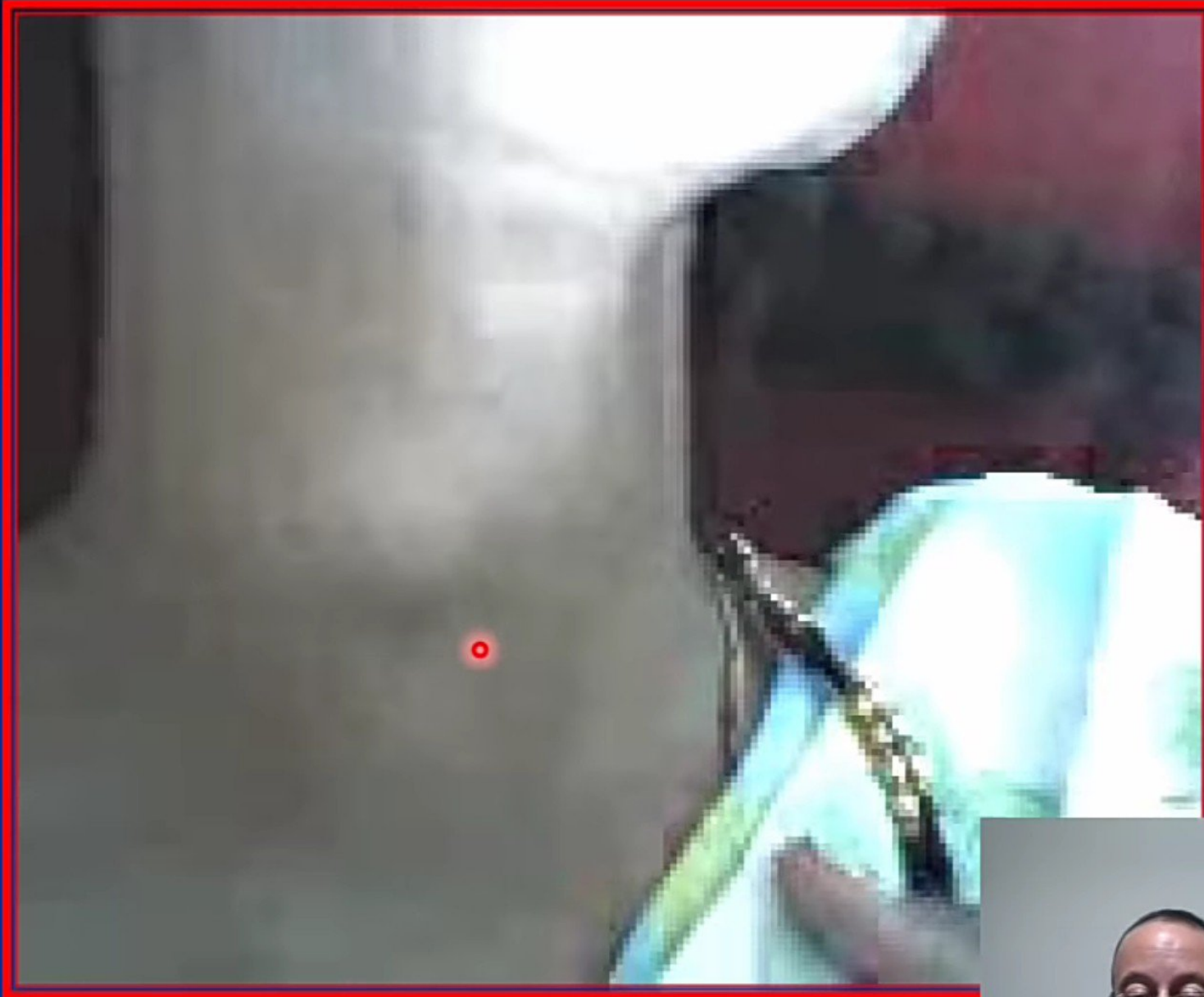
(Parts of the thyroid gland)



- The pretracheal fascia is fixed between the gland and the 2nd, 3rd, and 4th tracheal rings.
- This fixation and the investment of the whole gland by the pretracheal fascia are responsible for the movement of the gland up and down with deglutition ↑↓.



(Suspensory ligament of thyroid gland “Berry's ligament”)



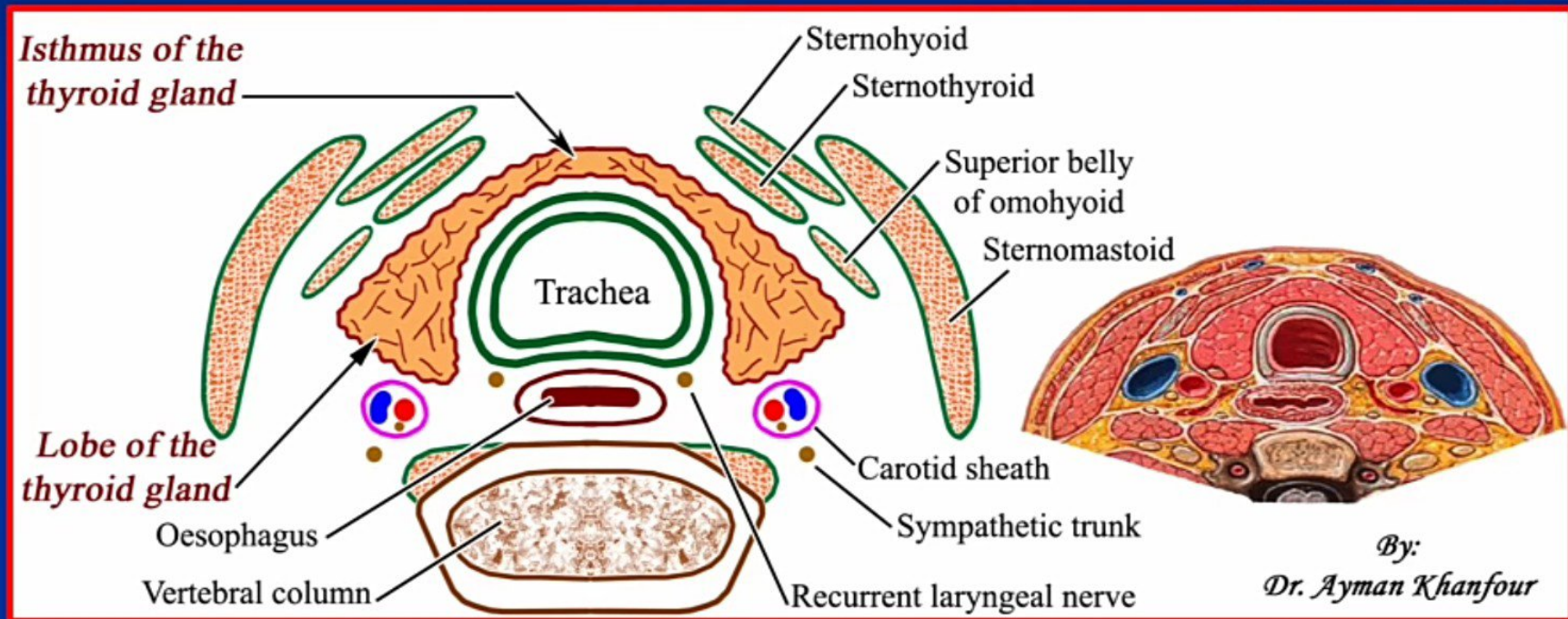
(Examination of thyroid swelling – Animation)



I. Thyroid lobe

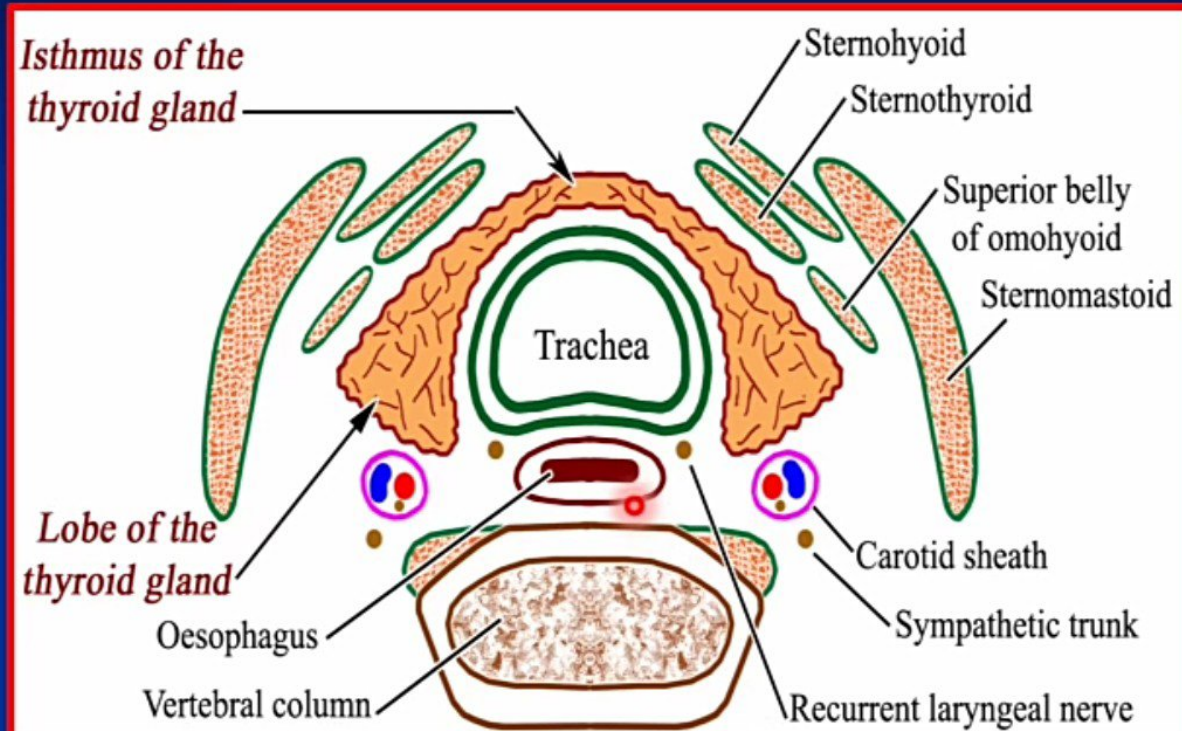
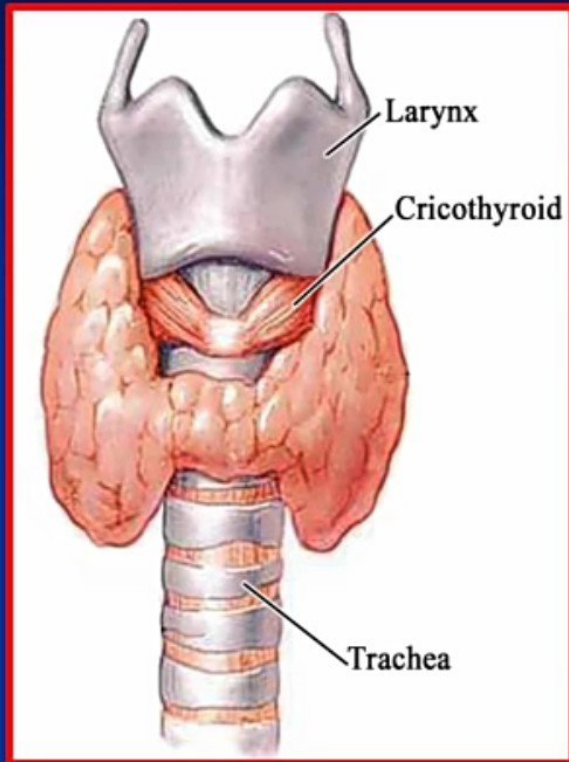
Relations

1. Anterolateral surface (4 S)



- ❑ Skin, superficial fascia (containing platysma), and the investing layer of the deep cervical fascia.
- a. Upper part: Covered by Superior belly of omohyoid.
- b. Middle part: Covered by Sternothyroid (superficially) and Sternohyoid (deeply).
- c. Lower part: Overlapped by anterior border of Sternomastoid.

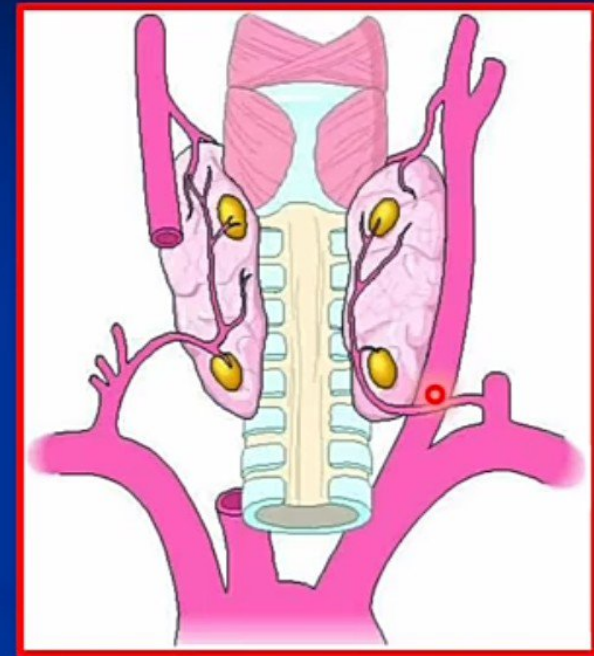
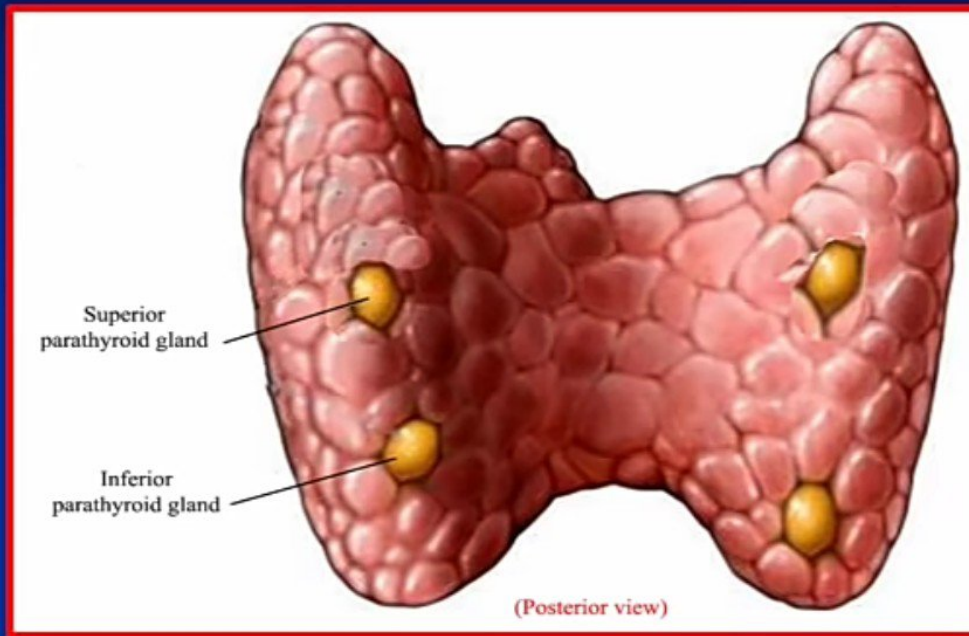
2. Medial surface



- Upper part: Larynx and pharynx.
- Middle part: Cricothyroid muscle.
- Lower part: Trachea and oesophagus with the *recurrent laryngeal nerve* in between.



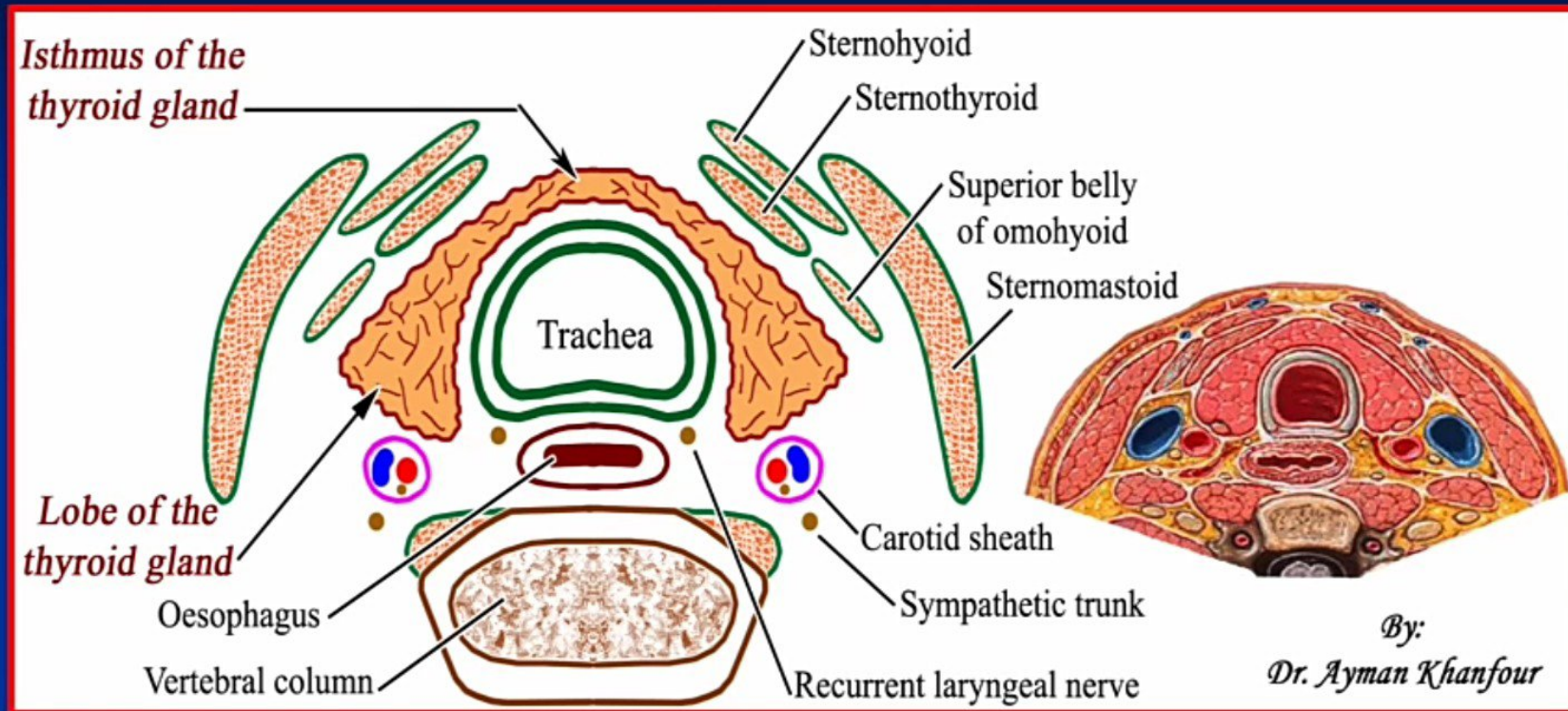
3. Posterior surface



- Parathyroid glands.
- Inferior thyroid artery.



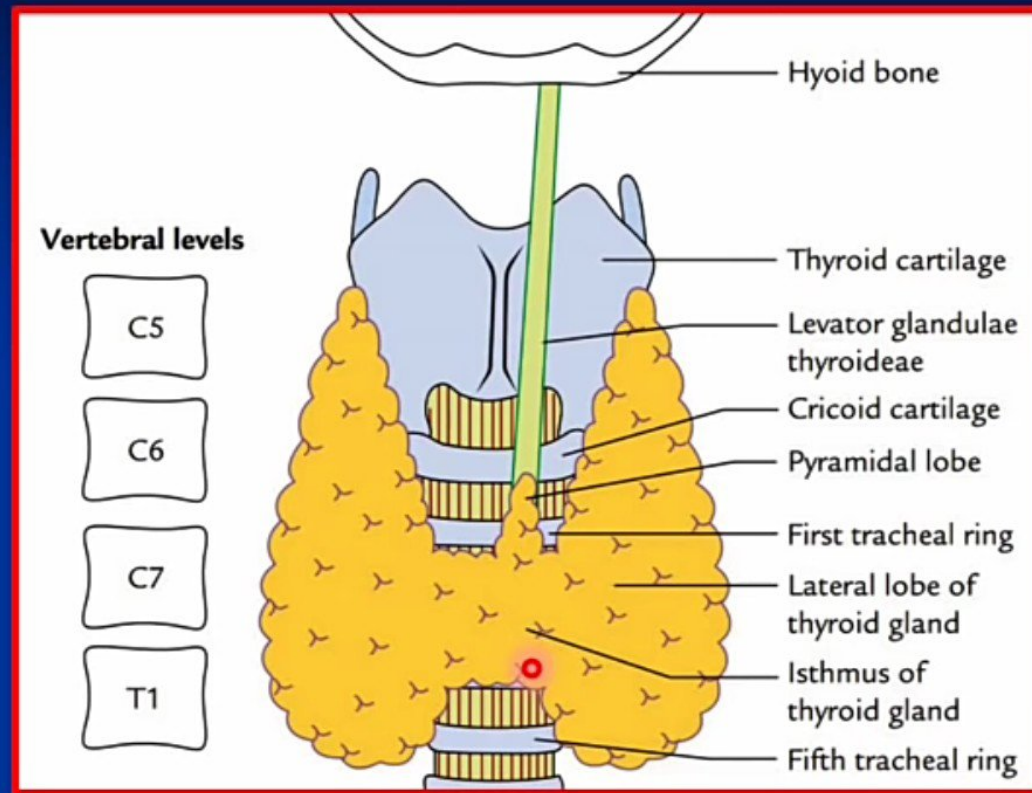
3. Posterior surface



- Parathyroid glands.
- Inferior thyroid artery.
- Carotid sheath.
- Longus coli muscle



II. Isthmus



1. Anterior surface, related to:

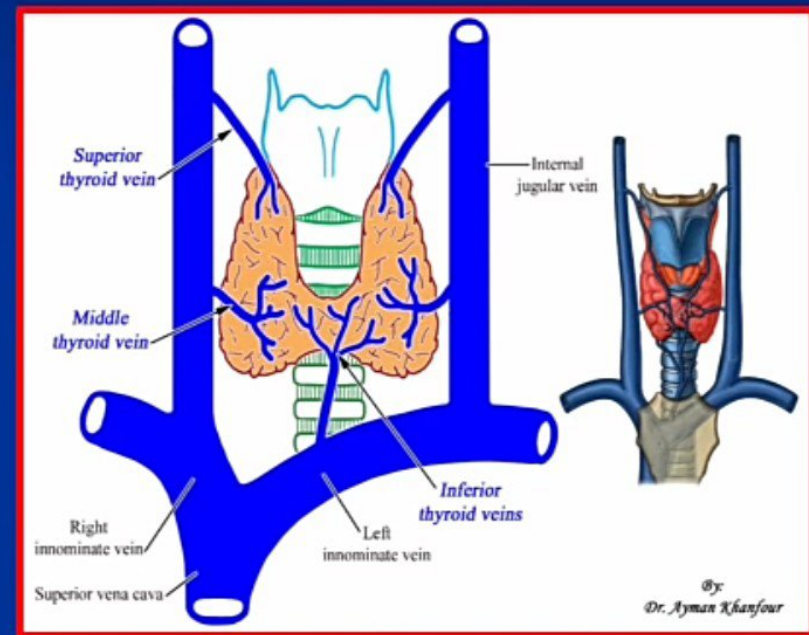
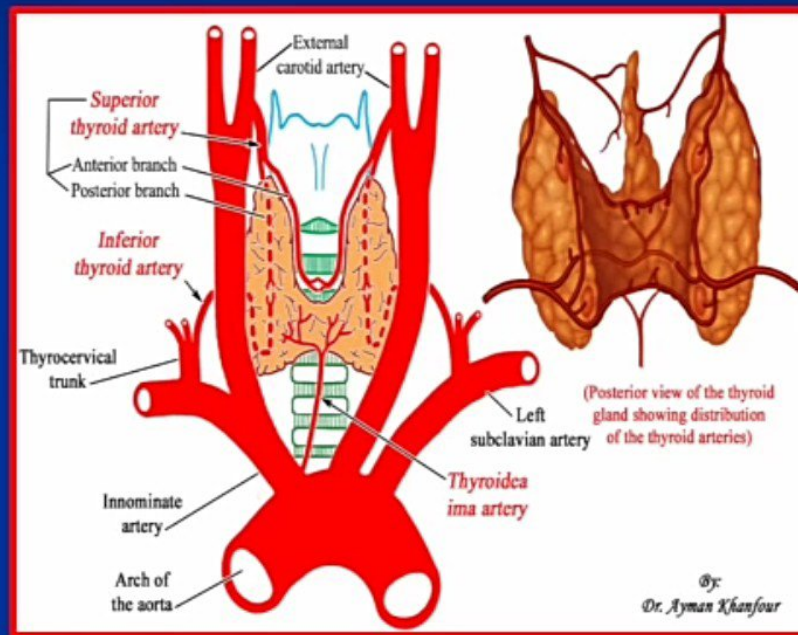
- Skin, superficial fascia and deep fascia.

2. Posterior surface, related to:

- Second, third and fourth tracheal rings (firmly attached to these tracheal rings).

3. Upper border, related to: (Arteries)

- Anastomosis between the anterior branches of the superior thyroid artery on each side.

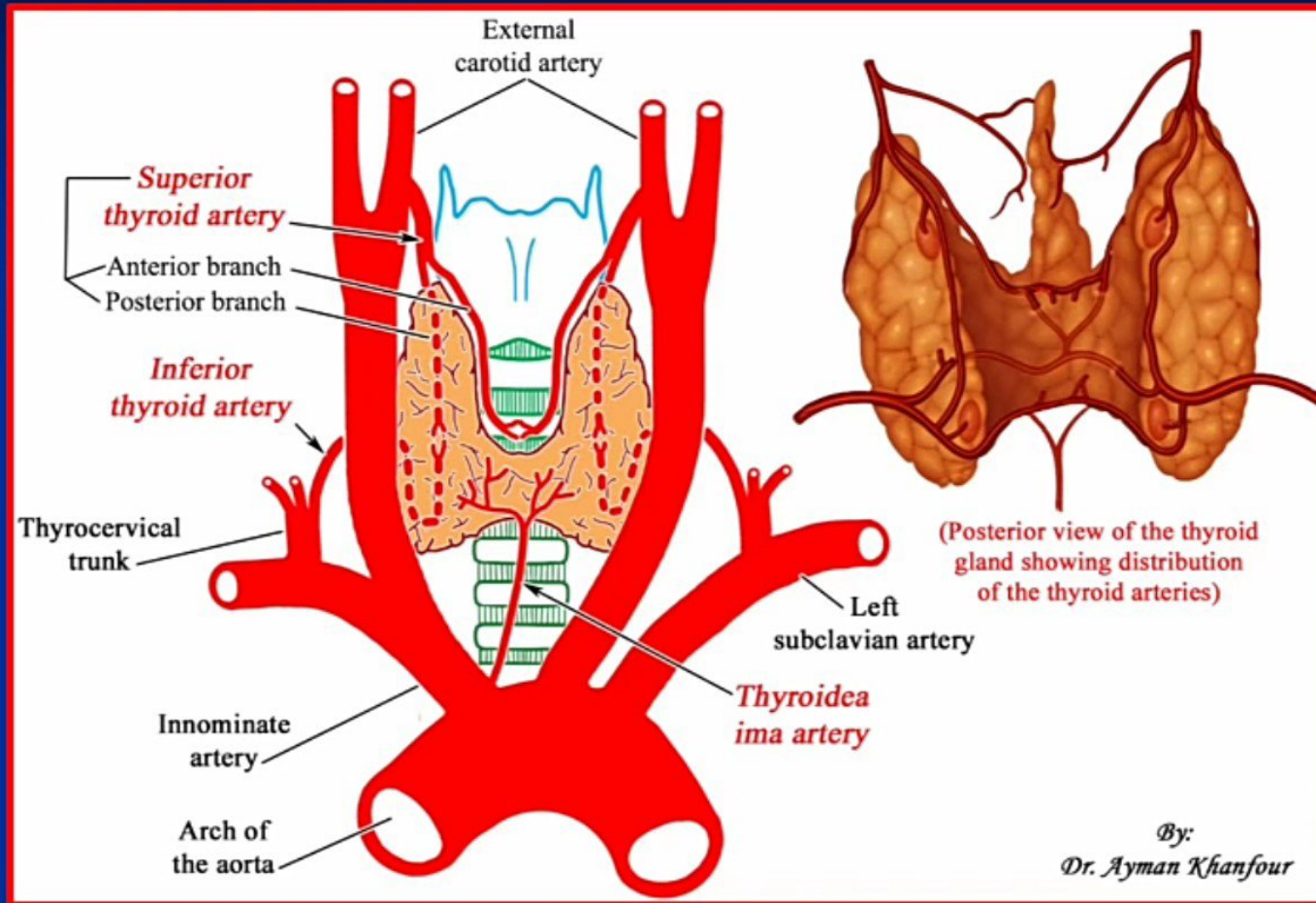


4. Lower border, related to: (Veins)

- Tributaries of inferior thyroid veins and the thyro



Arterial Supply

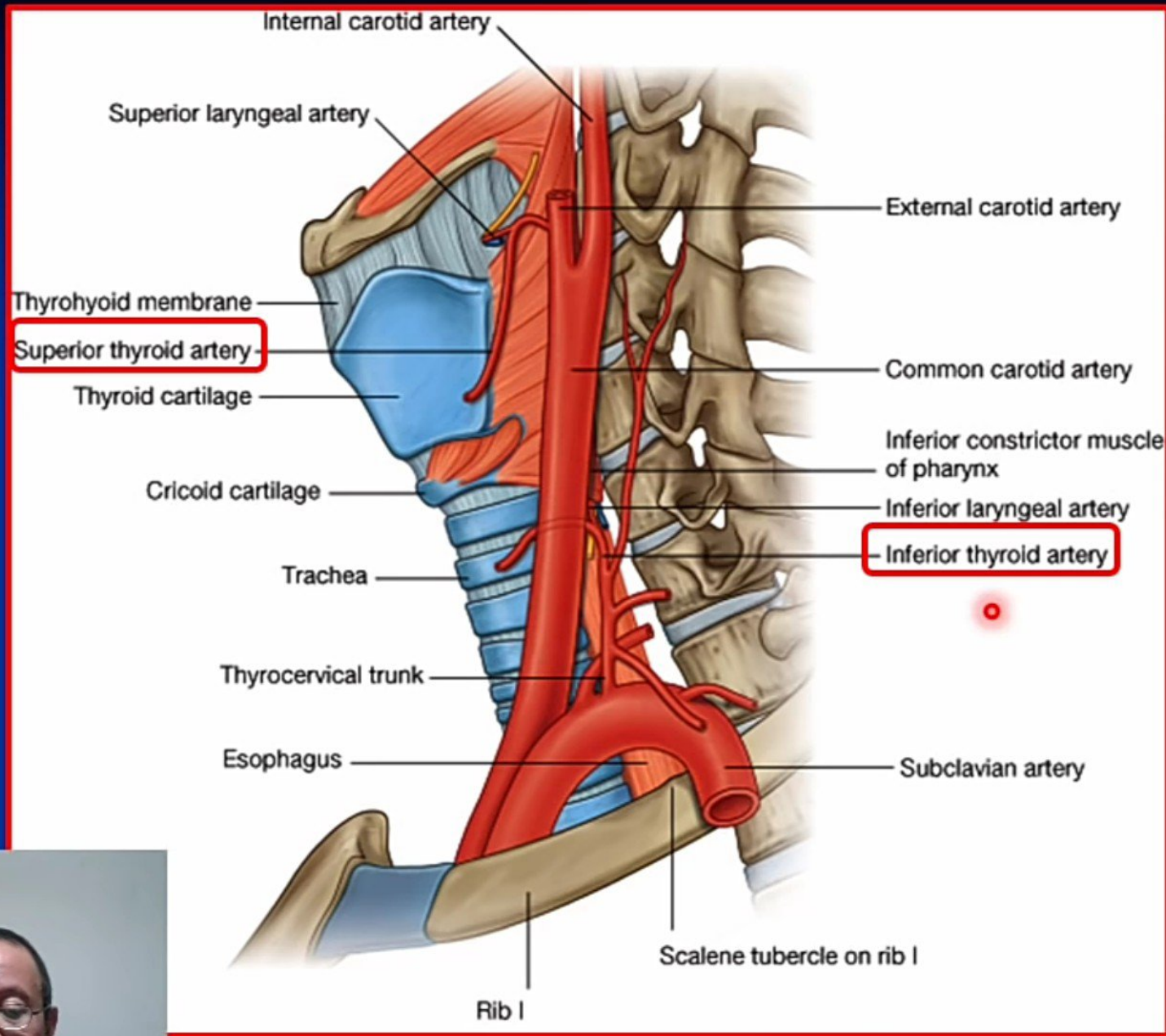


1. Superior thyroid artery

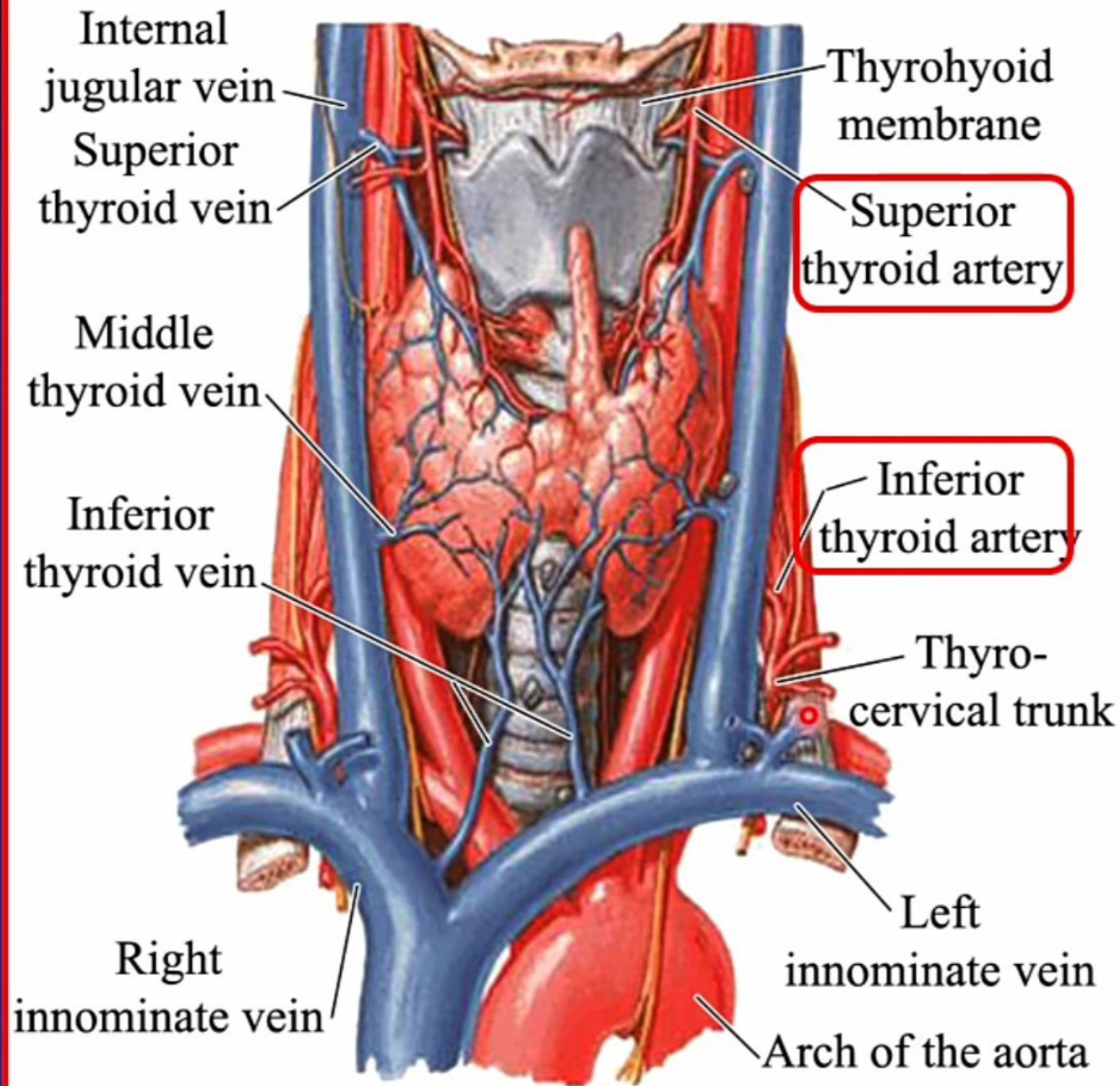
2. Inferior thyroid artery

3. Thyroidea ima artery (usually absent) (ima = single)





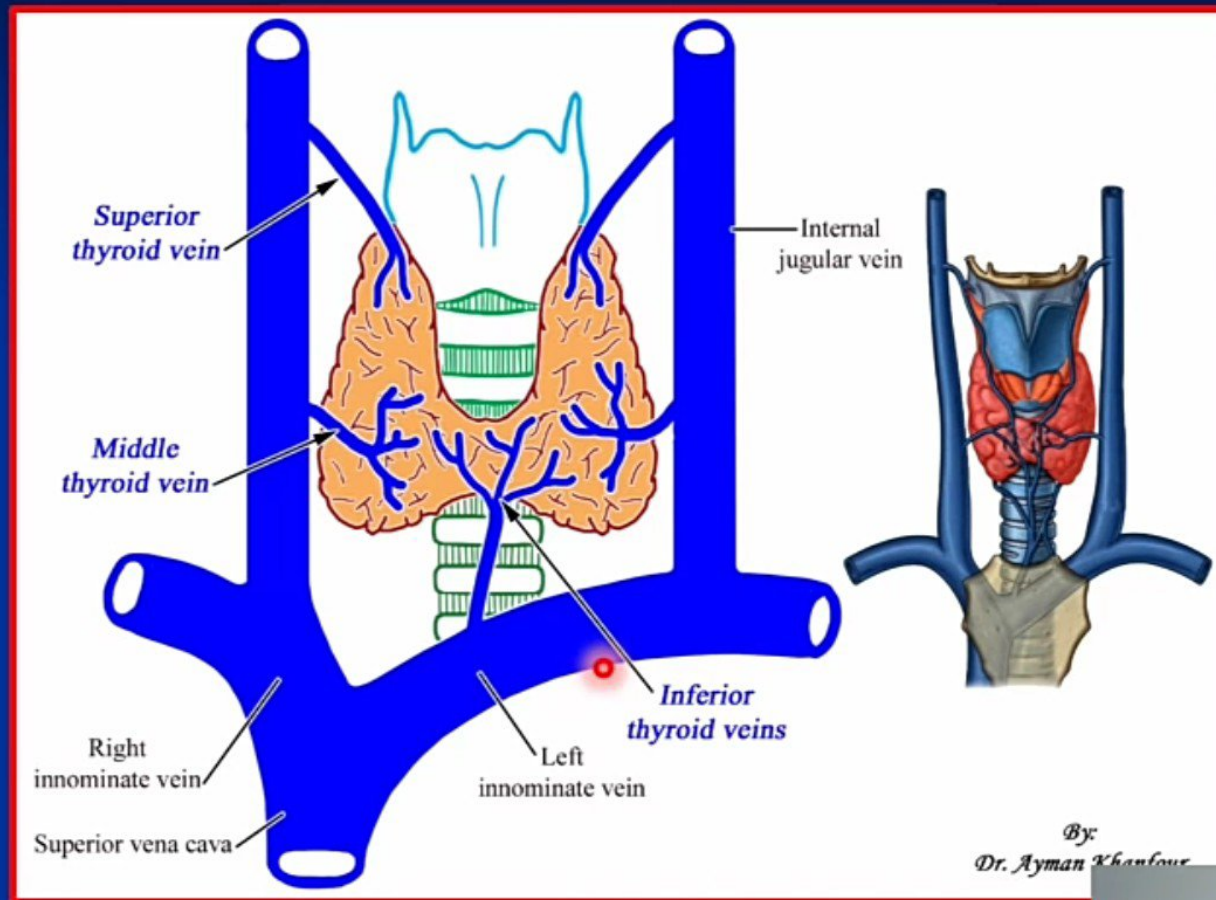
(Arterial supply of thyroid gland)



(Arterial supply of thyroid gland)

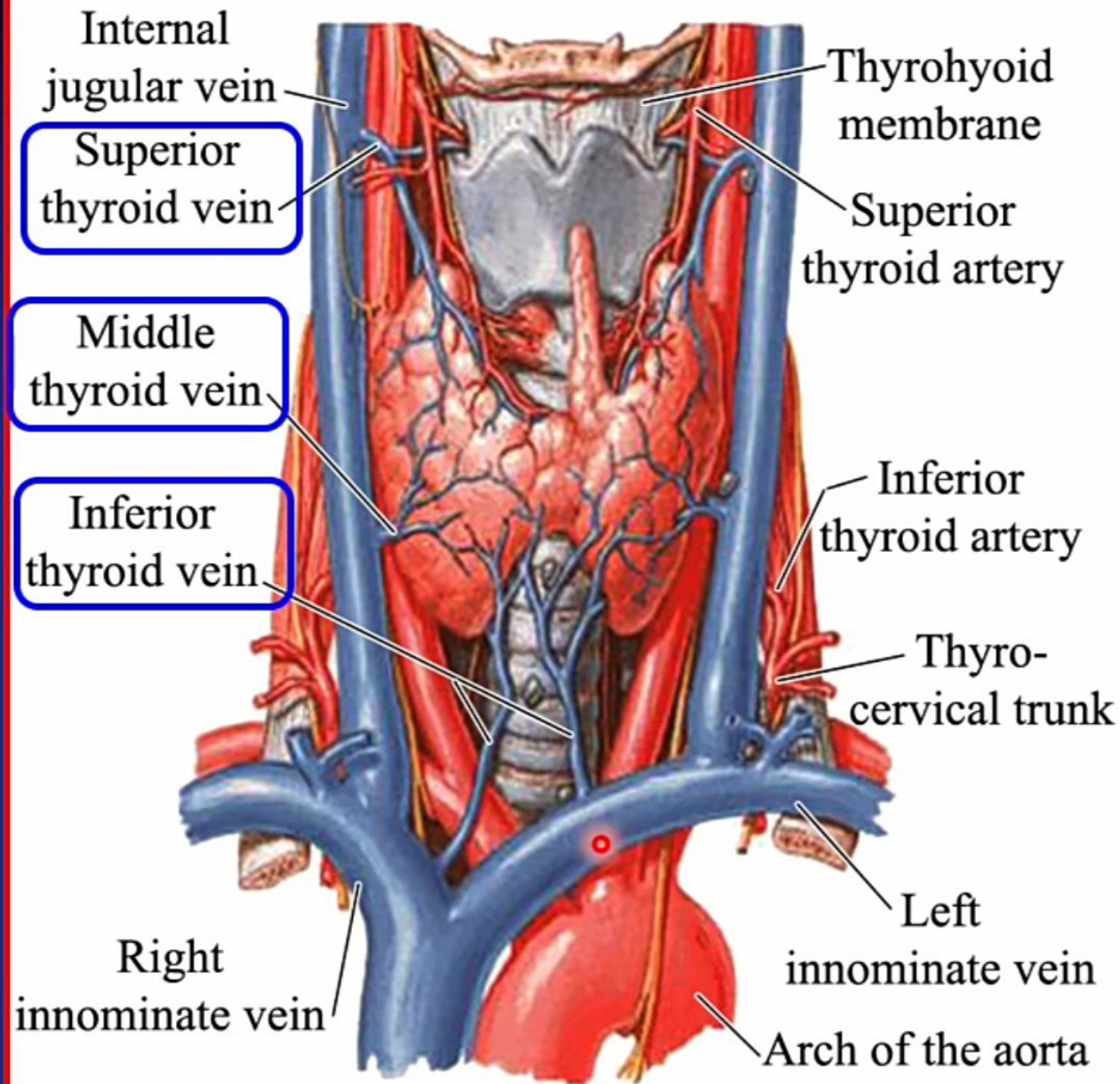


Venous Drainage



1. Superior thyroid vein: Drains into IJV
2. Middle thyroid vein: Drains into IJV
3. Inferior thyroid veins: Drains into Lt. innominate

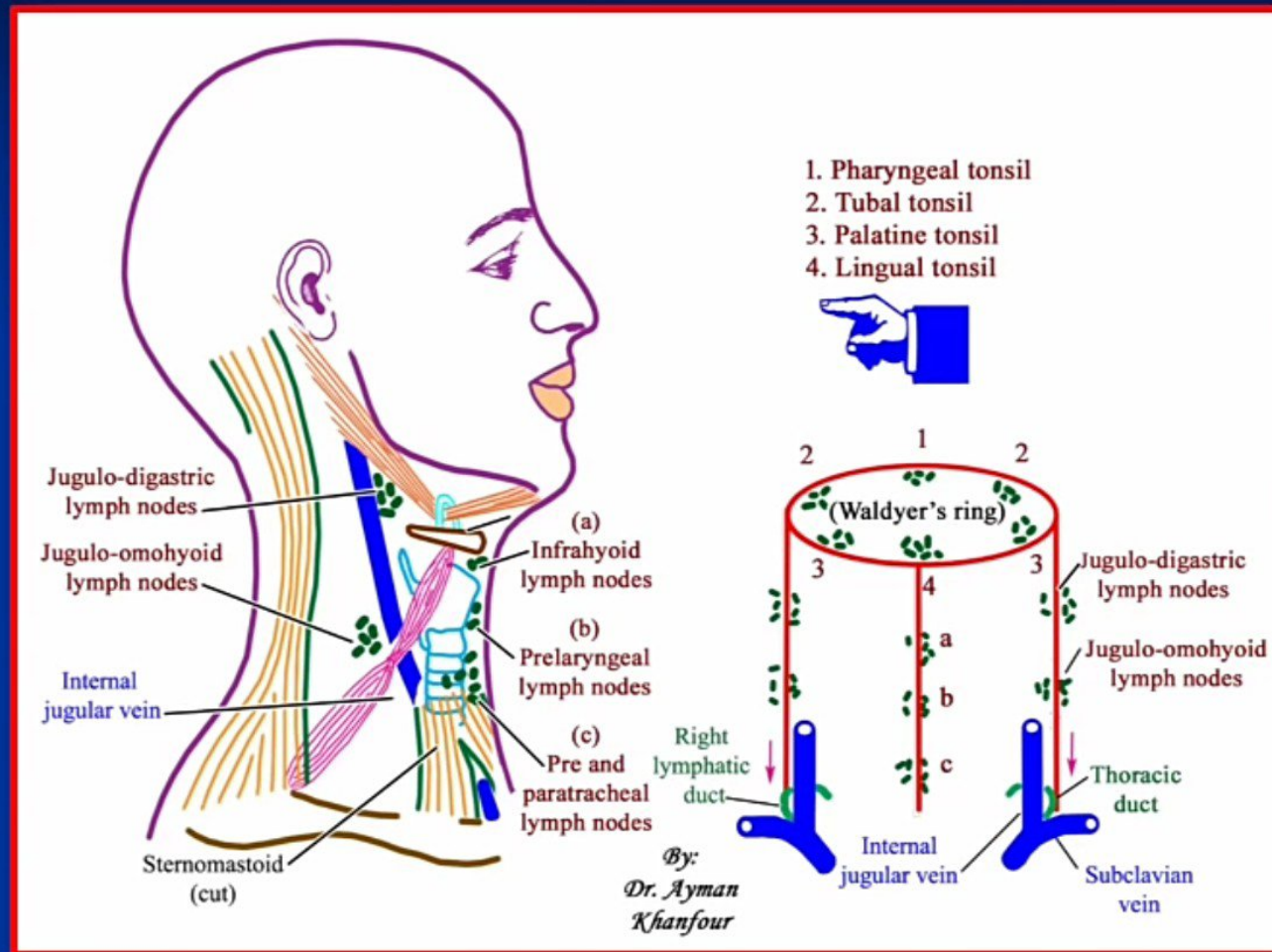




(Thyroid veins)



Lymphatic Drainage

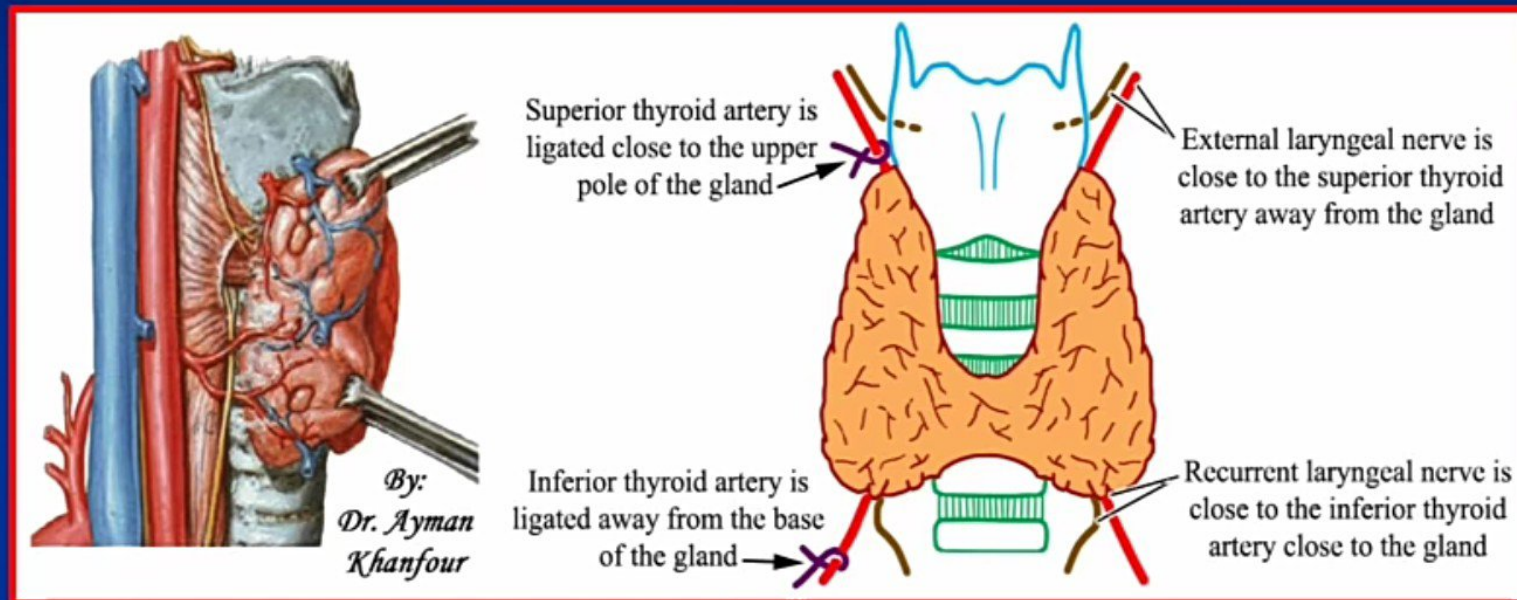


- ❑ Upper part of the gland ----- Drains into the *upper deep cervical LN*.
- ❑ Lower part of the gland ----- Drains into the *lower deep cervical LN*.
- ❑ Isthmus ----- Drains into the *prelaryngeal and pretracheal LN*.

Applied Anatomy

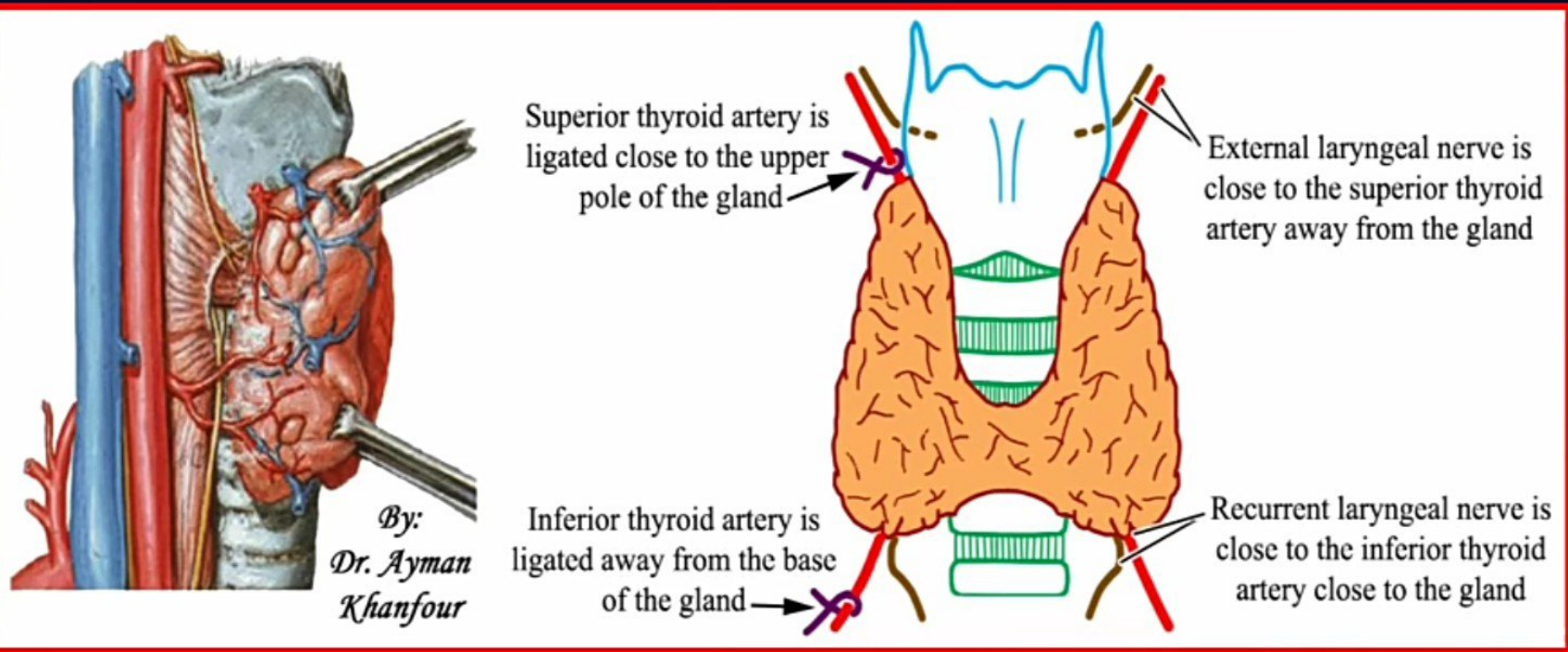


1. Thyroidectomy (surgical removal of the thyroid gland):



a. The “external laryngeal nerve” is closely medial to the superior thyroid artery before it reaches the upper pole of the gland to supply cricothyroid muscle.

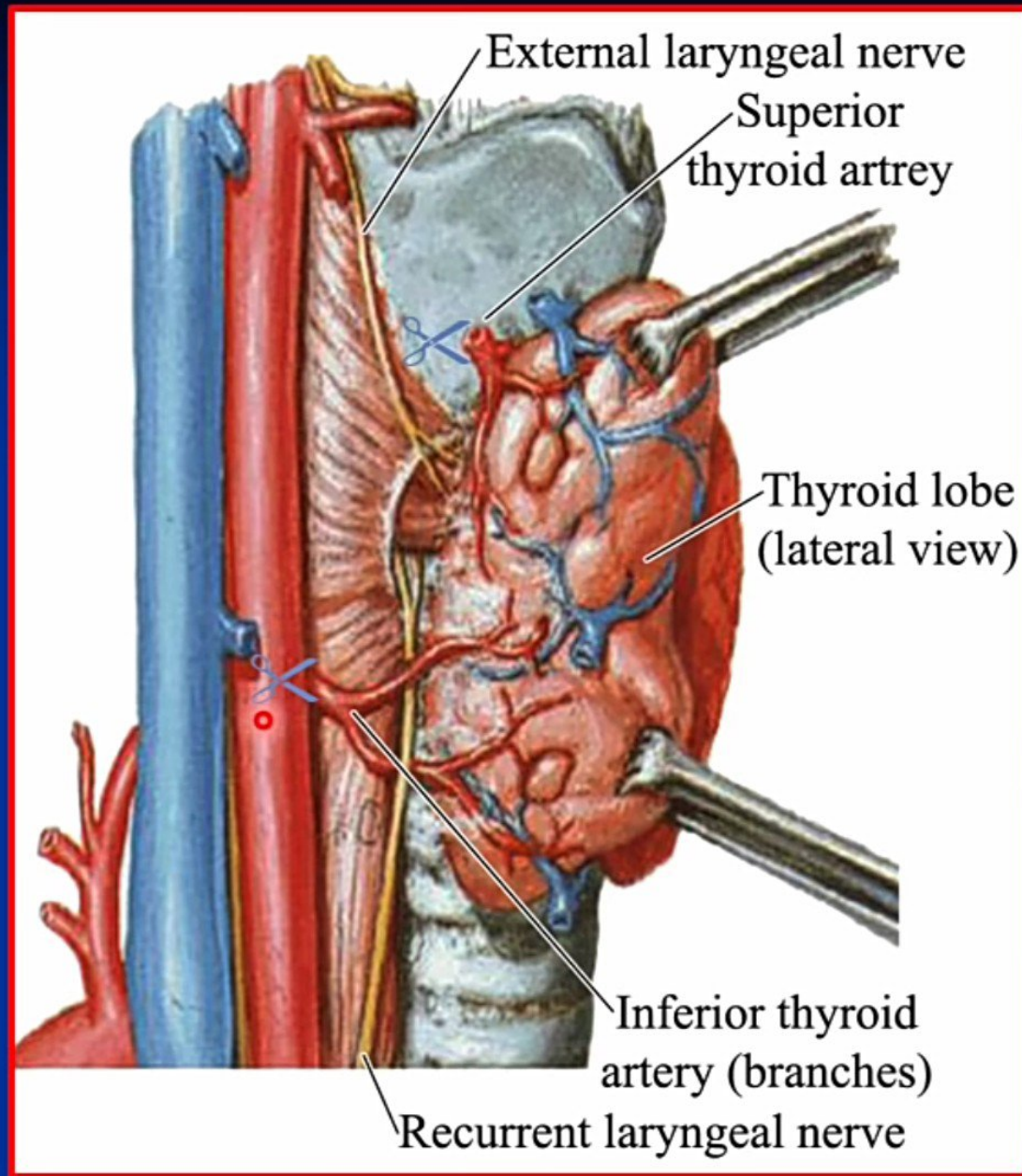
So, the superior thyroid artery is ligated close to the upper pole to avoid damage to the external laryngeal nerve.



a. The “**recurrent laryngeal nerve**” passes close to the branches of the **inferior thyroid artery** very close to the gland.

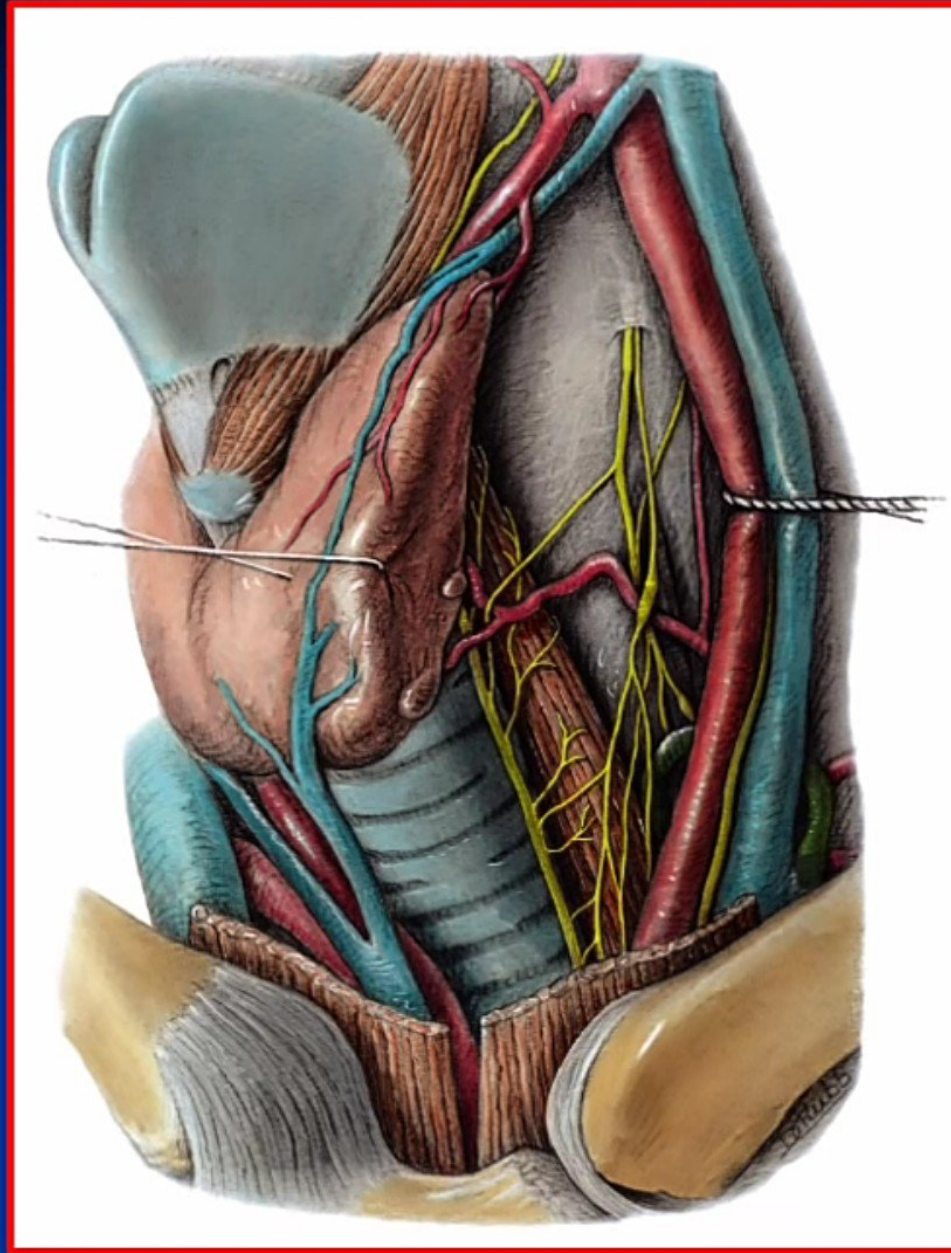
So, the superior thyroid artery is ligated close to the upper pole to avoid damage to the external laryngeal nerve.





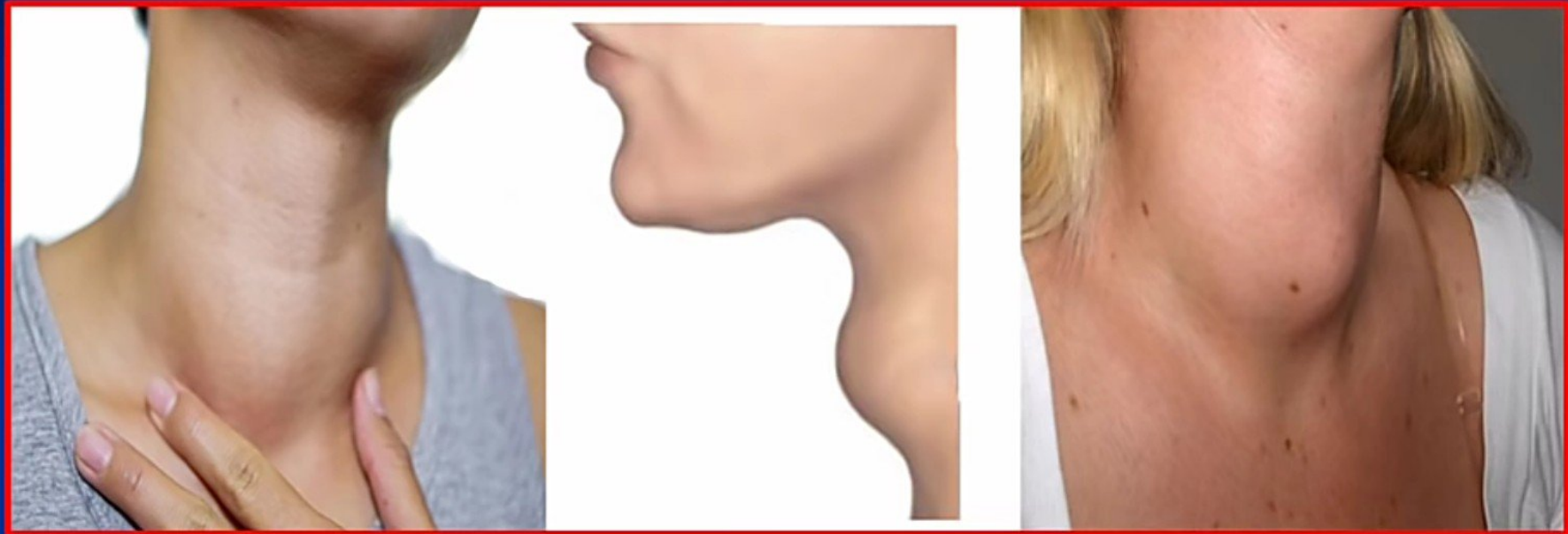
(Laryngeal nerves)





(Laryngeal nerves)

2. Goiter



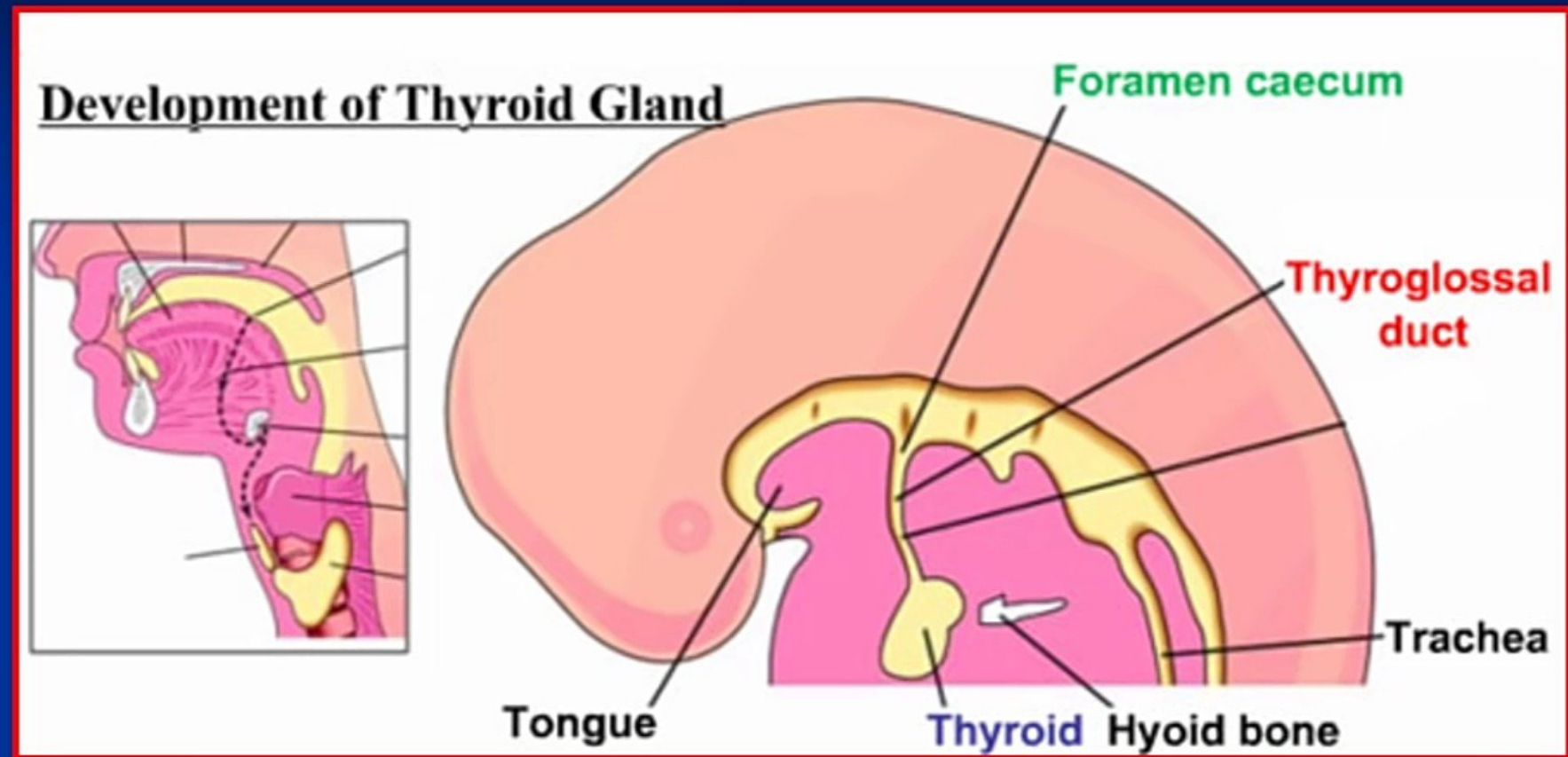
- It is an abnormal enlargement of the thyroid gland.



Development of Thyroid Gland



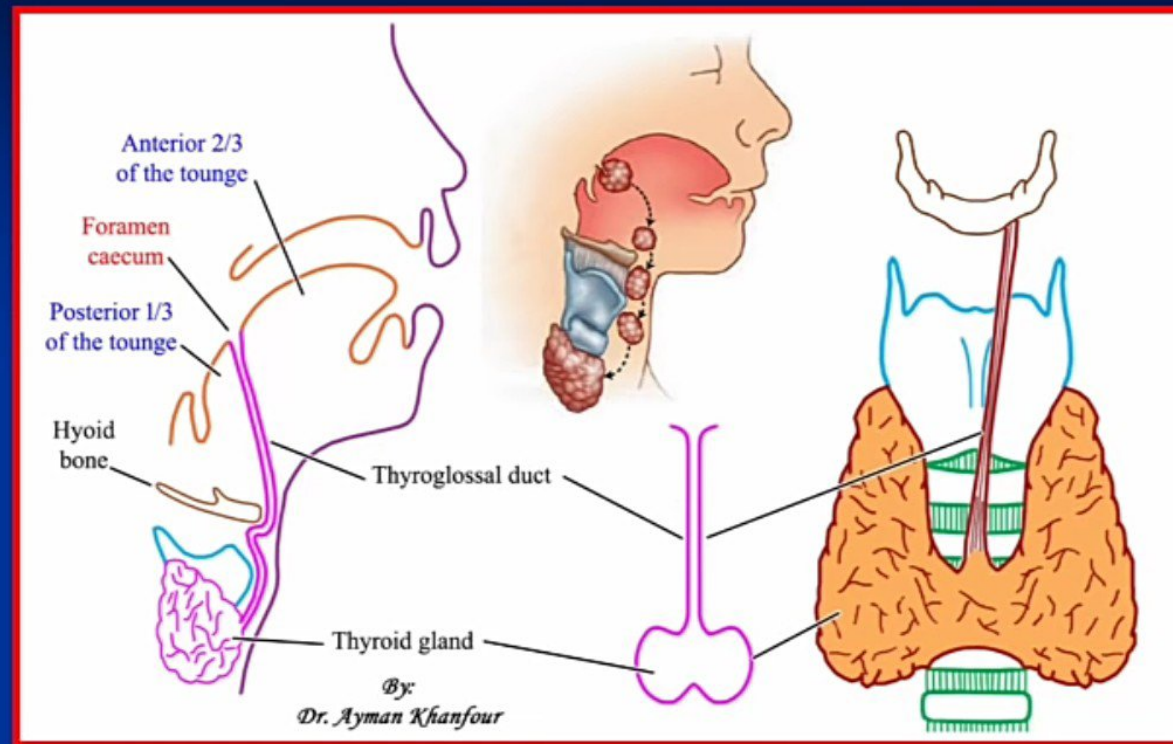
Embryological Origin



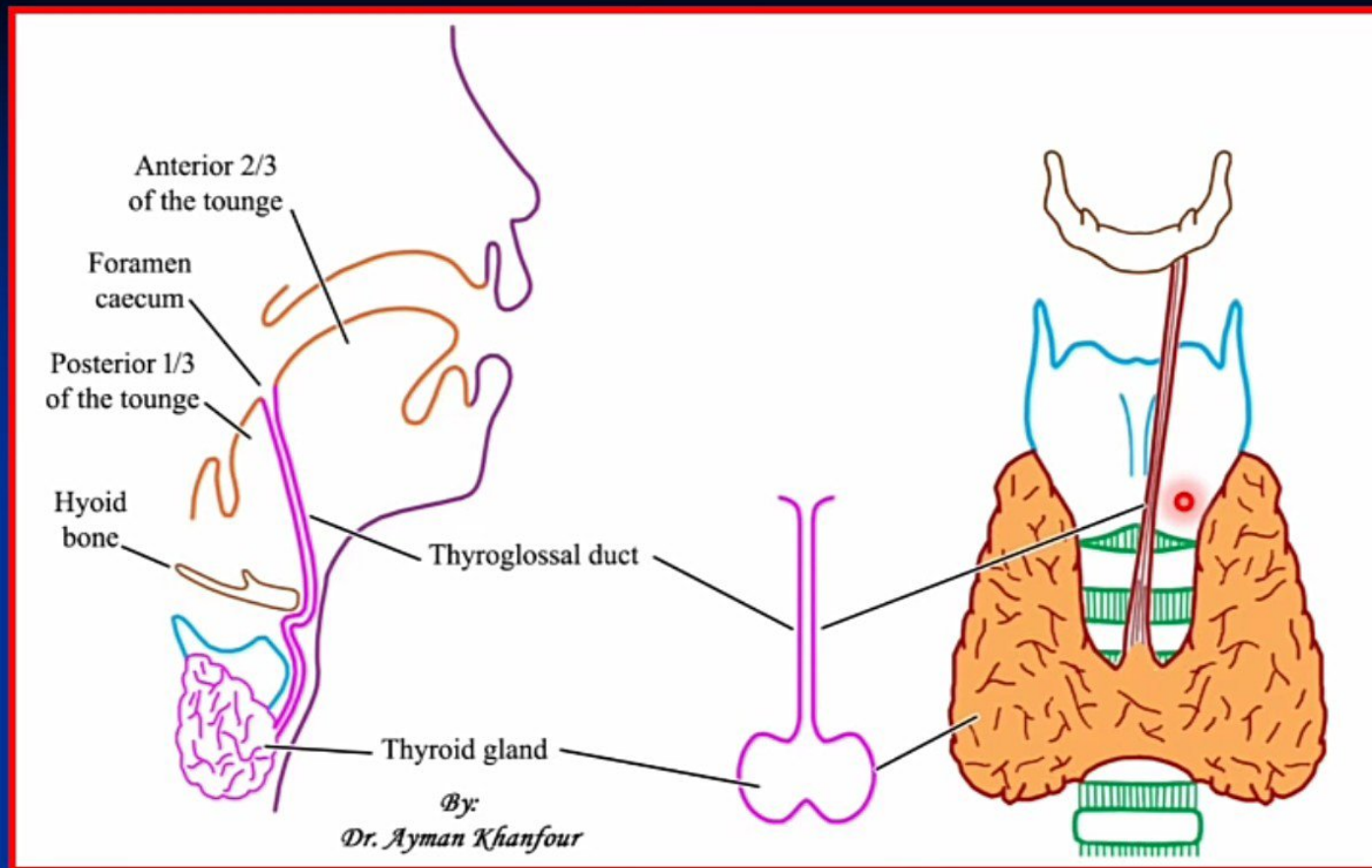
- Endoderm (from the floor of the primitive pharynx between first and second arches)



Development



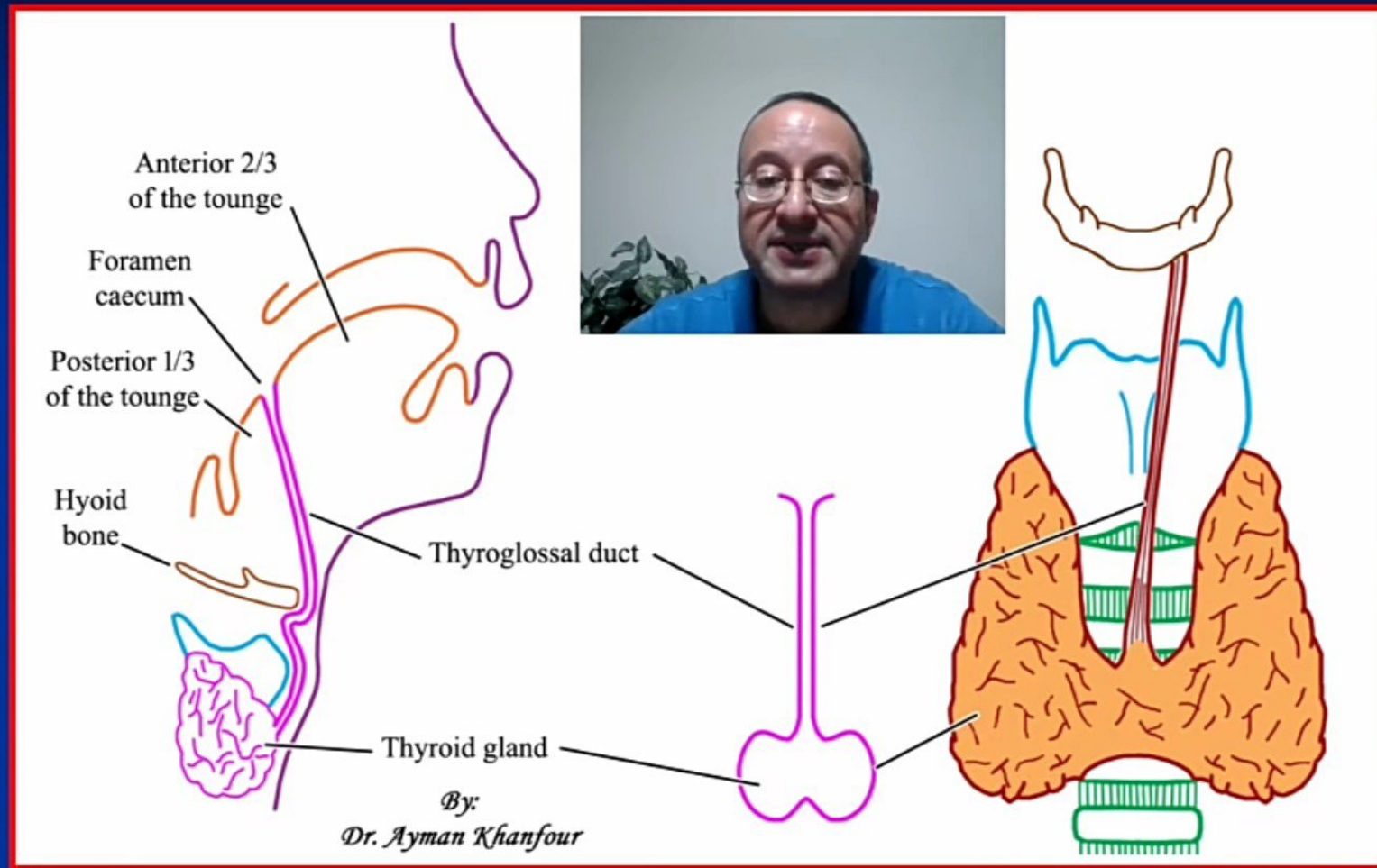
- ❑ The thyroid gland starts as thickening of the endoderm between the anterior 2/3 and posterior 1/3 of the tongue forming the **“thyroid bud”**.
- ❑ The thyroid bud descends downwards forming a stalk called **“thyroglossal duct”** and its lower end becomes dilated.
- ❑ As the thyroid bud descends, it passes in front of the **hyoid bone** till it reaches the **ultimobranchial body** (derivative of 4th branchial arch) which prevents further descend of the gland.



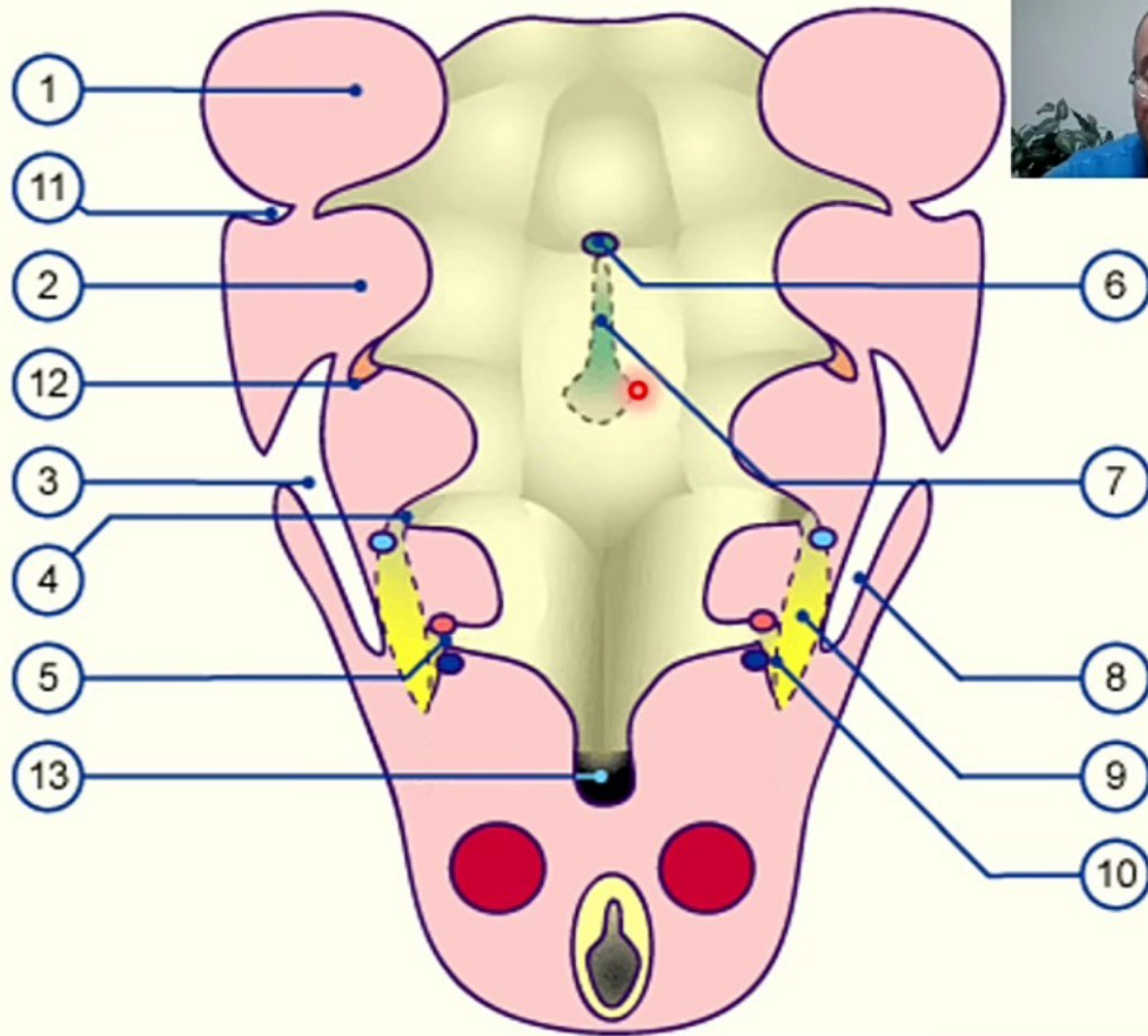
- ❑ The thyroid bud becomes **flask shaped** then **bilobed** (right and left lobes connected by the isthmus).
- ❑ The surrounding mesenchyme gives the fibrous tissue capsule.
- ❑ The thyroglossal duct obliterates except its lower part which becomes the **pyramidal lobe** (in 50% of people) while its beginning is indicated by the **foramen caecum** (in the tongue).



❖ What are is the function of the ultimobranchial body?

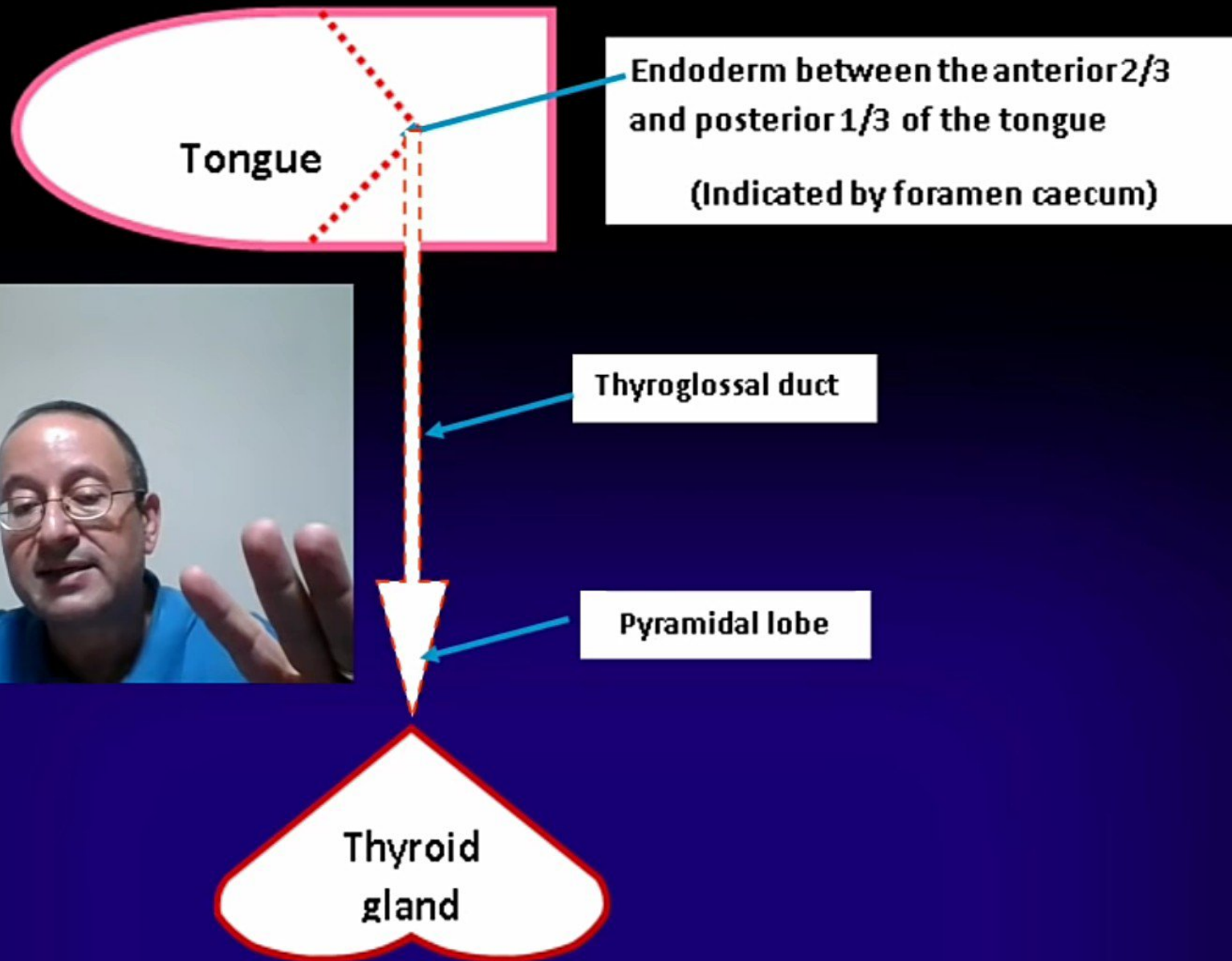


- a. It prevents further descend of the thyroid gland.
- b. It gives the **para-follicular C cells** which secretes calcitonin

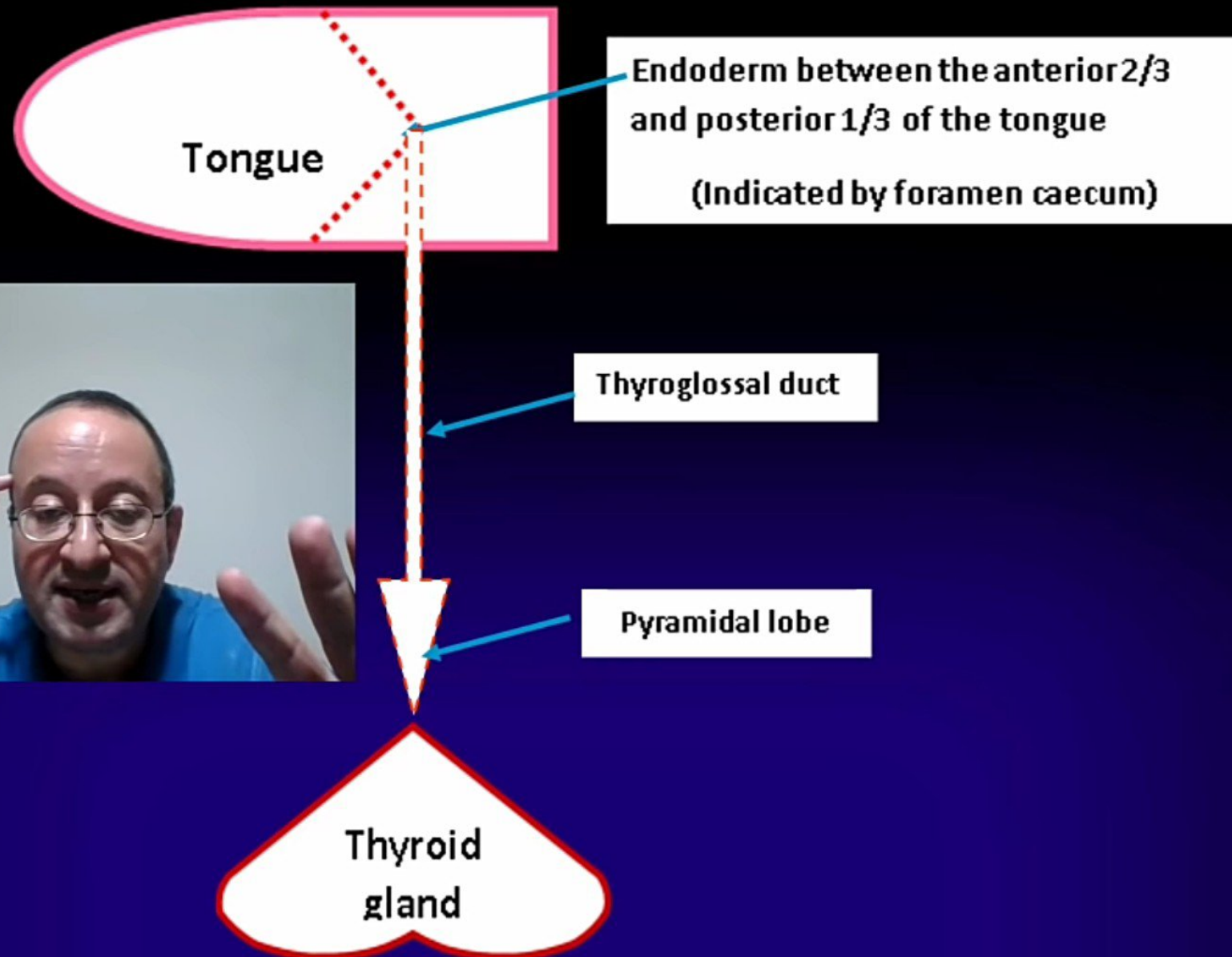


(Development of the thyroid gland - Animation "GIF")

❖ Summary of development of the thyroid gland:



❖ Summary of development of the thyroid gland:



Congenital Abnormalities

I. Agenesis



- Failure of formation of the thyroid gland.

II. Anomalies according to the site:

a. Lingual thyroid gland

- It is due to complete failure of descend of the thyroid gland.

a. Sublingual thyroid gland

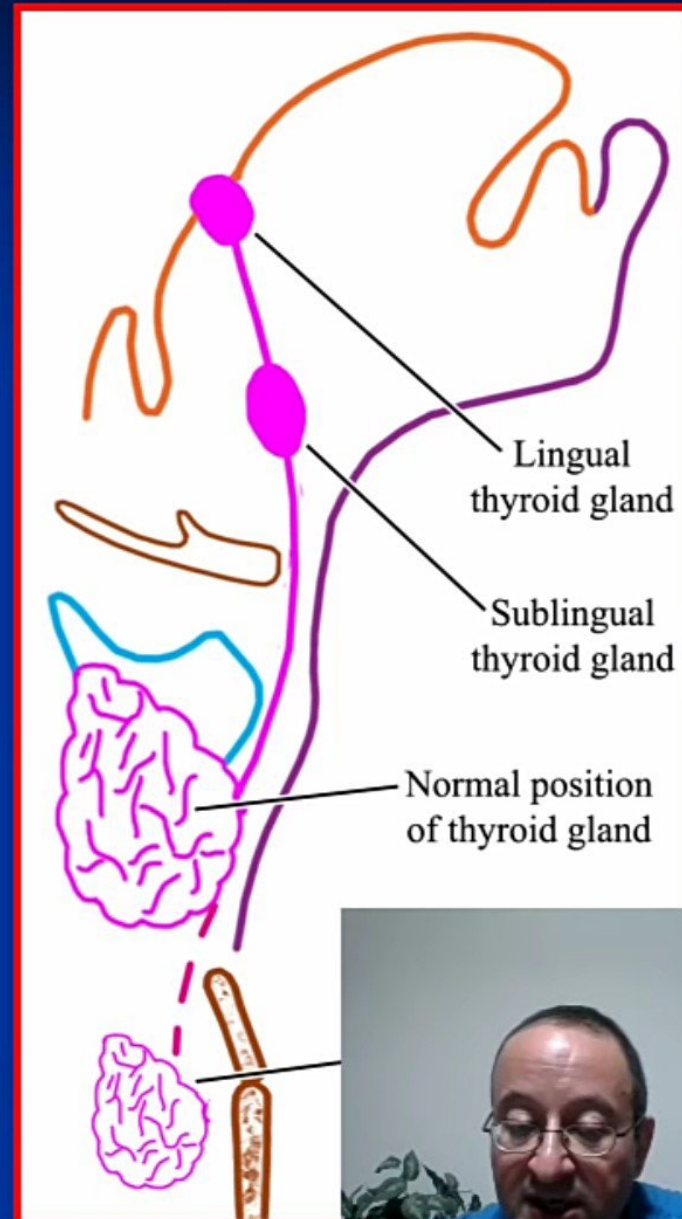
- It is due to partial failure of descend of the thyroid gland.

c. Retrosternal thyroid gland

- It lies behind sternum.
- It is due to excessive descend of the thyroid gland.

d. Superficial thyroid gland

- It lies superficial to infrahyoid muscles.



III. Anomalies of thyroglossal duct:

a. Thyroglossal cyst

(moves with deglutition)

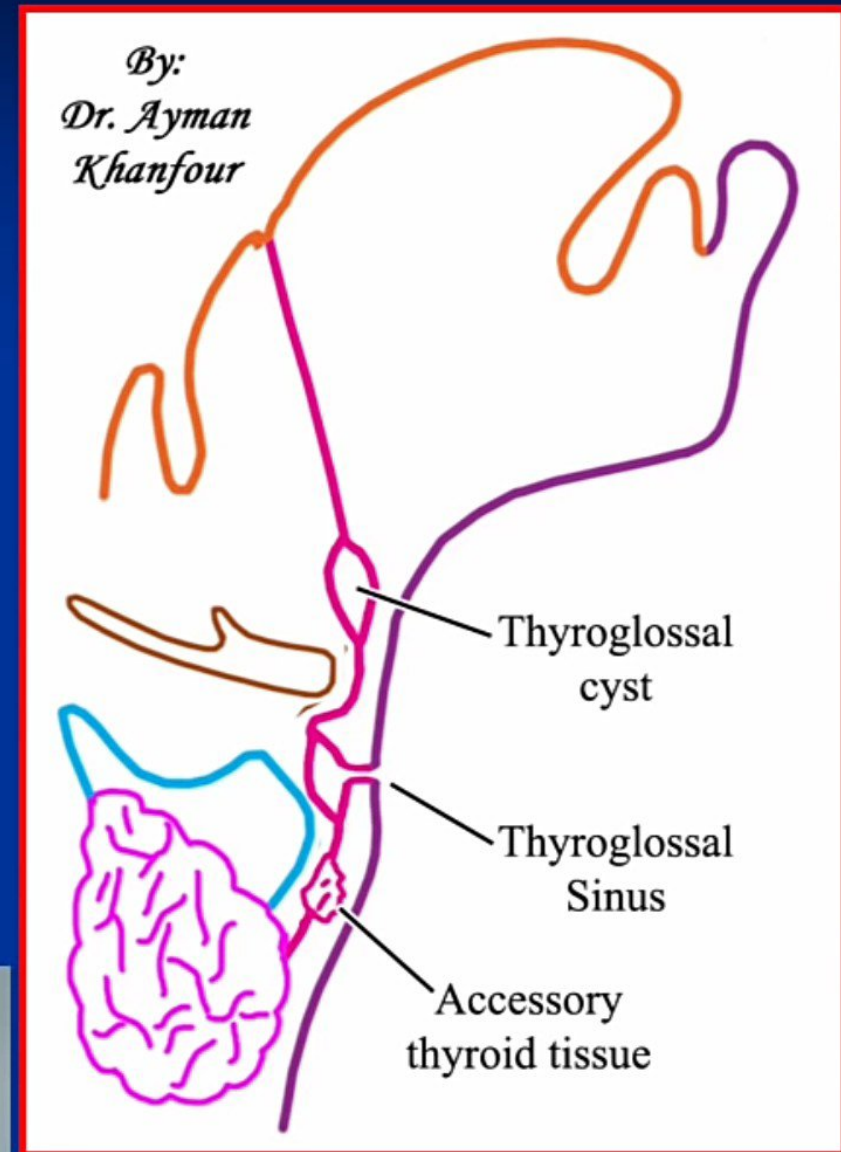
- It is due to failure of obliteration of a part of the thyroglossal duct.

a. Thyroglossal sinus

- The cyst may be infected and opens to the outside surface of the neck.

c. Accessory thyroid tissue

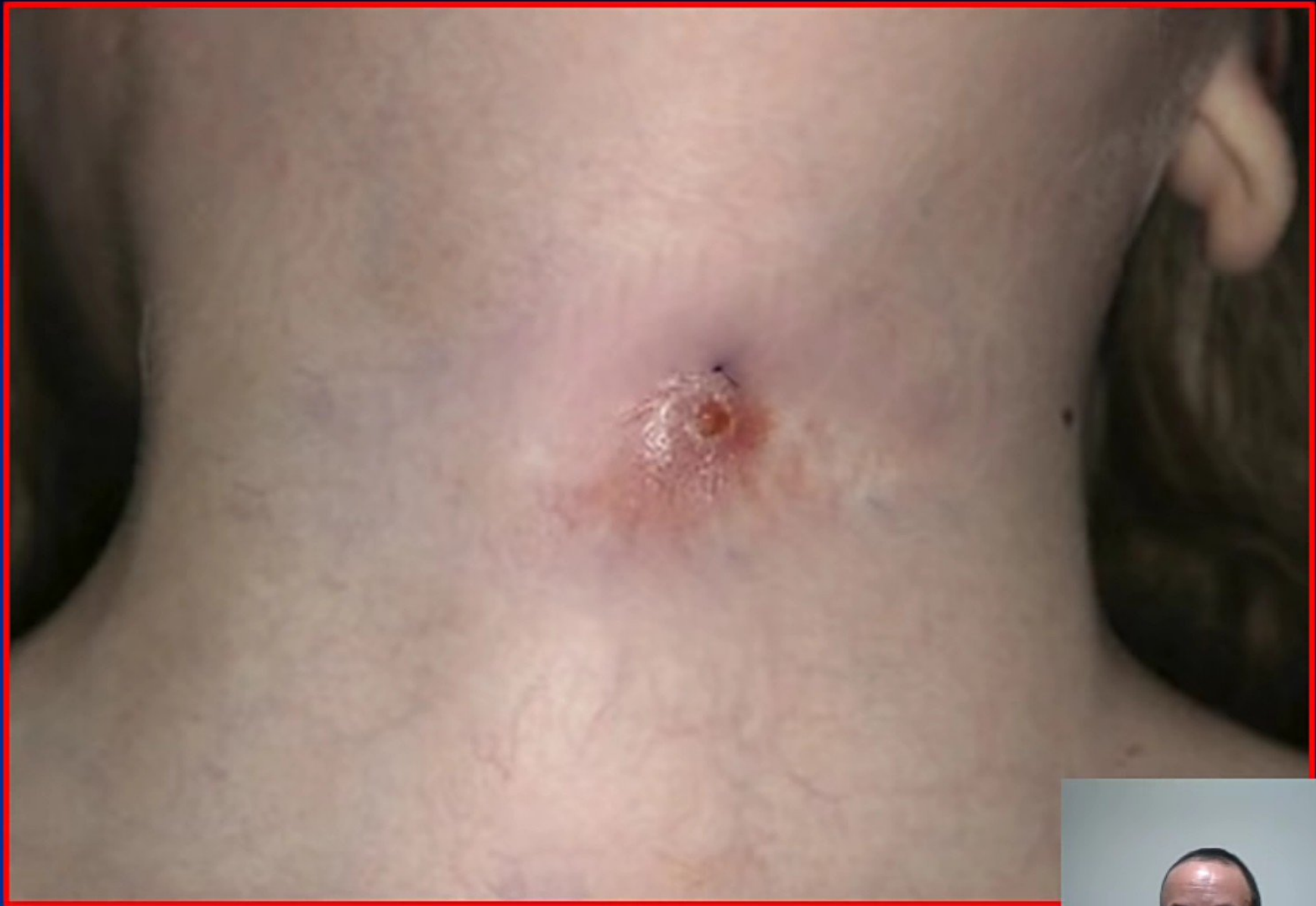
- It can be found anywhere along the way of descend of the thyroid gland.





(Thyroglossal cyst)



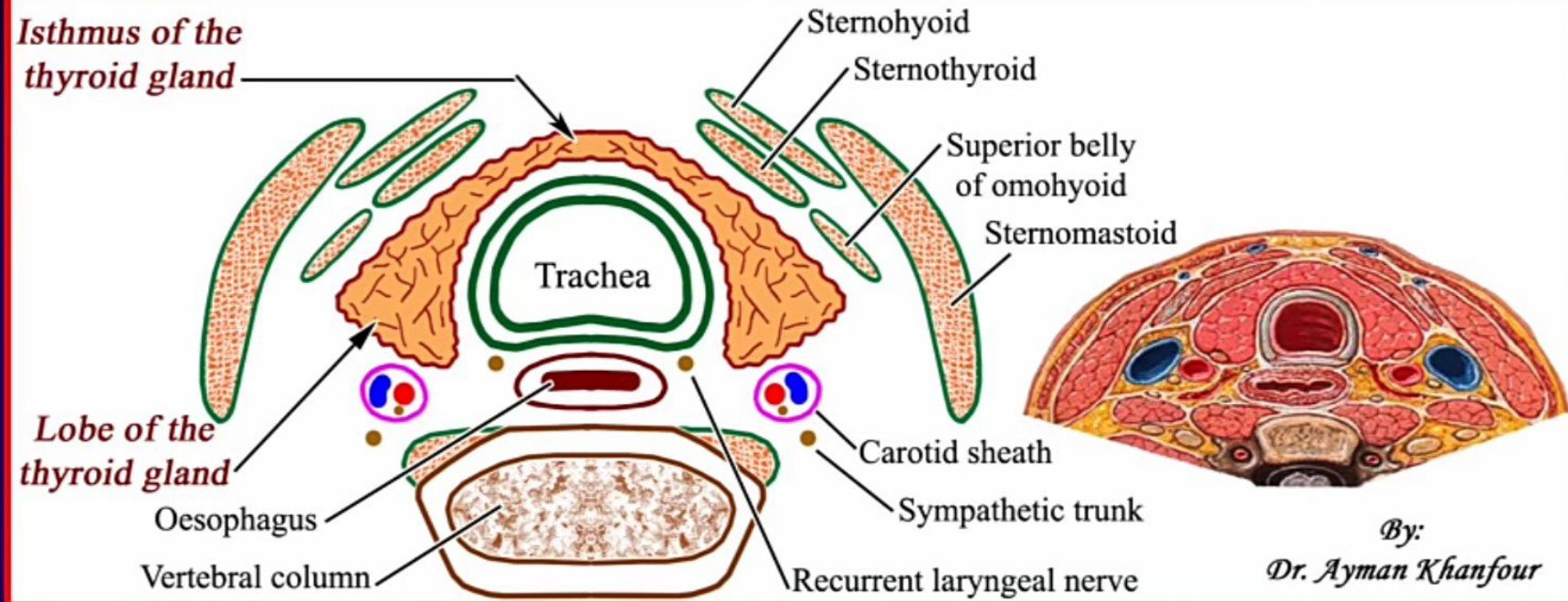


(Thyroglossal sinus)



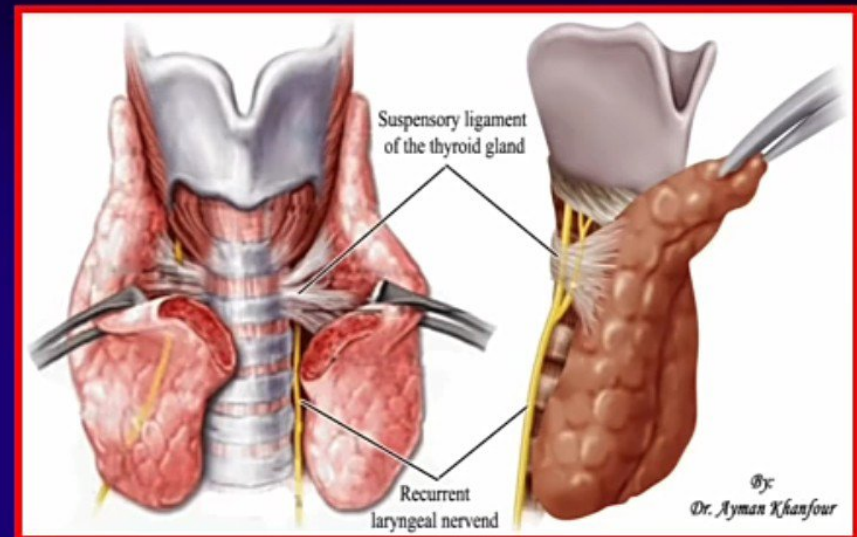
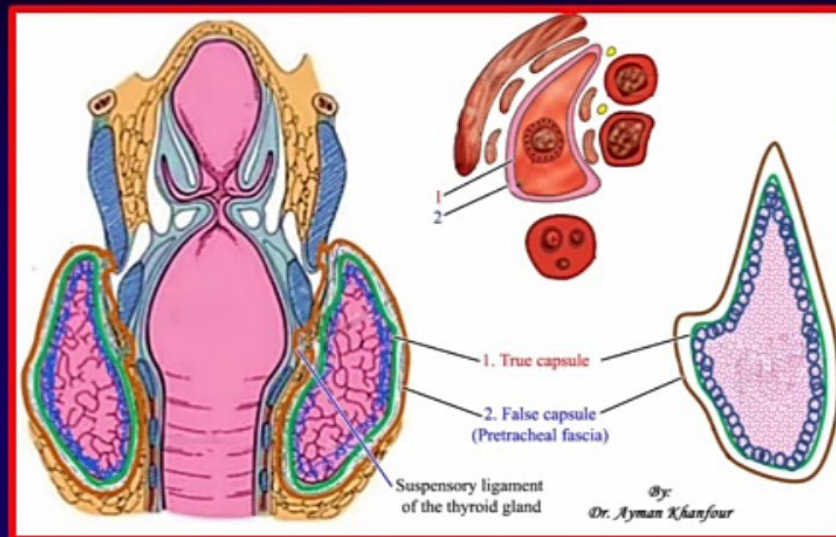
❑ Which of the following is not medial relation to thyroid gland?

- a. Oesophagus.
- b. Recurrent laryngeal nerve
- c. Larynx.
- d. Sternothyroid muscle.



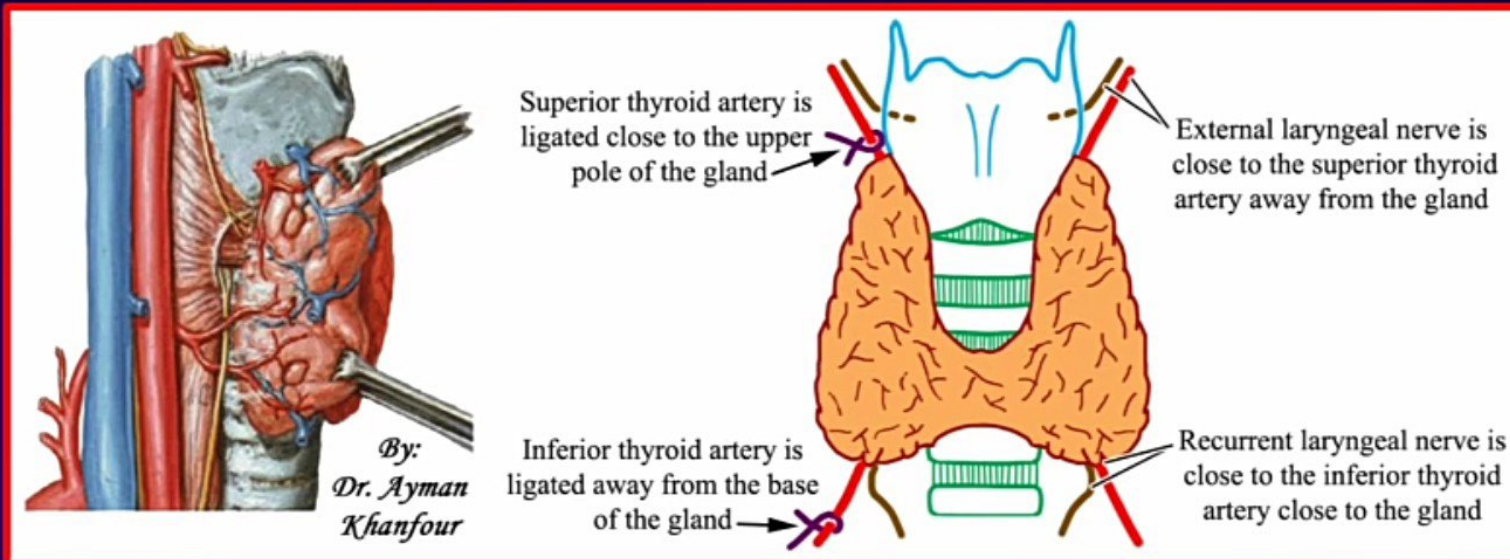
❑ The thyroid gland moves up and down because of which of the following?

- a. Suspended to the thyroglossal duct.
- b. Invested with the pretracheal fascia.
- c. Pulled with the superior thyroid artery.
- d. Pushed with the increased intrathoracic pressure.



❑ Which of the following nerves might be injured when ligating the inferior thyroid artery during operations on the thyroid gland?

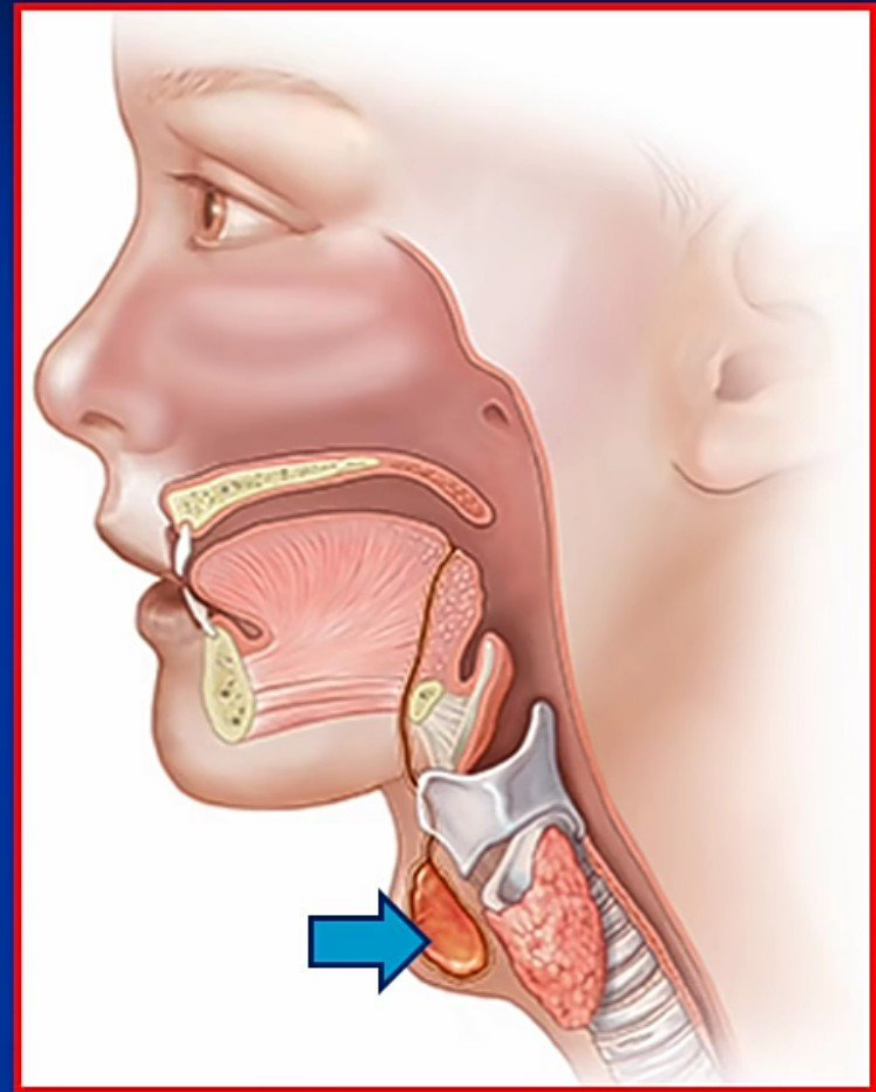
- a. Internal laryngeal nerve.
- b. Descendens cervicalis.
- c. Recurrent laryngeal nerve.
- d. Superior laryngeal nerve.



❖ Identify this congenital anomaly?

□ Answer:

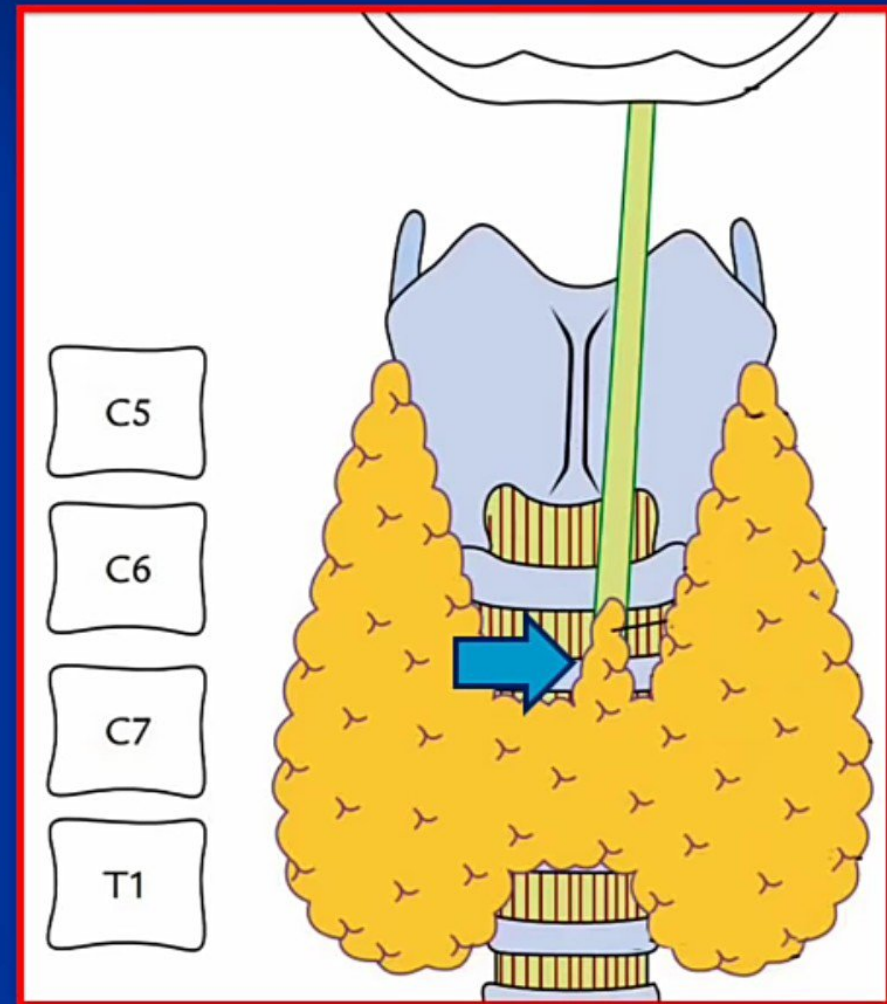
- Thyroglossal cyst



❖ Identify the pointed structure?

□ Answer:

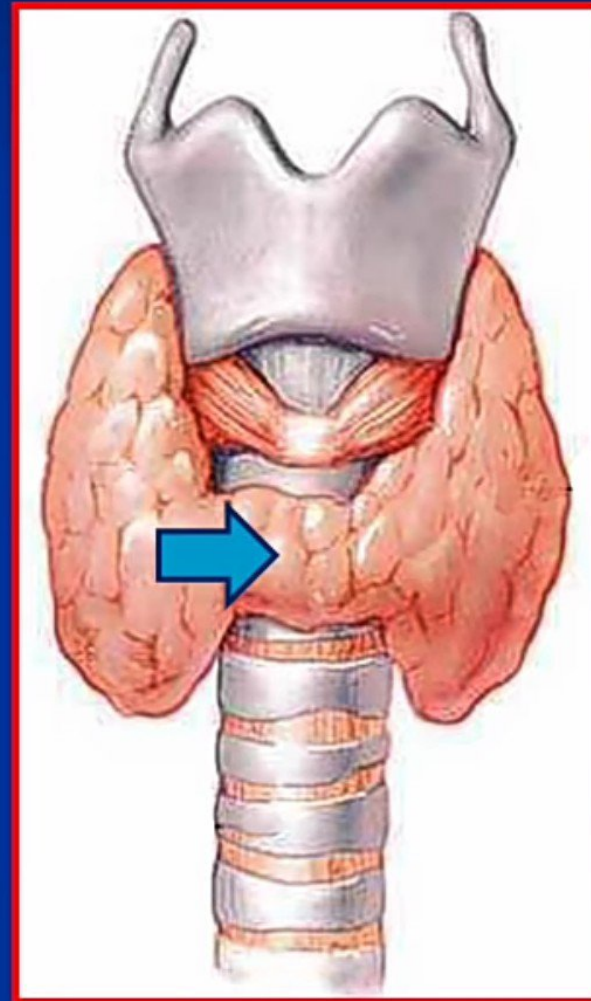
- Pyramidal lobe



❖ Identify the pointed structure?

□ **Answer:**

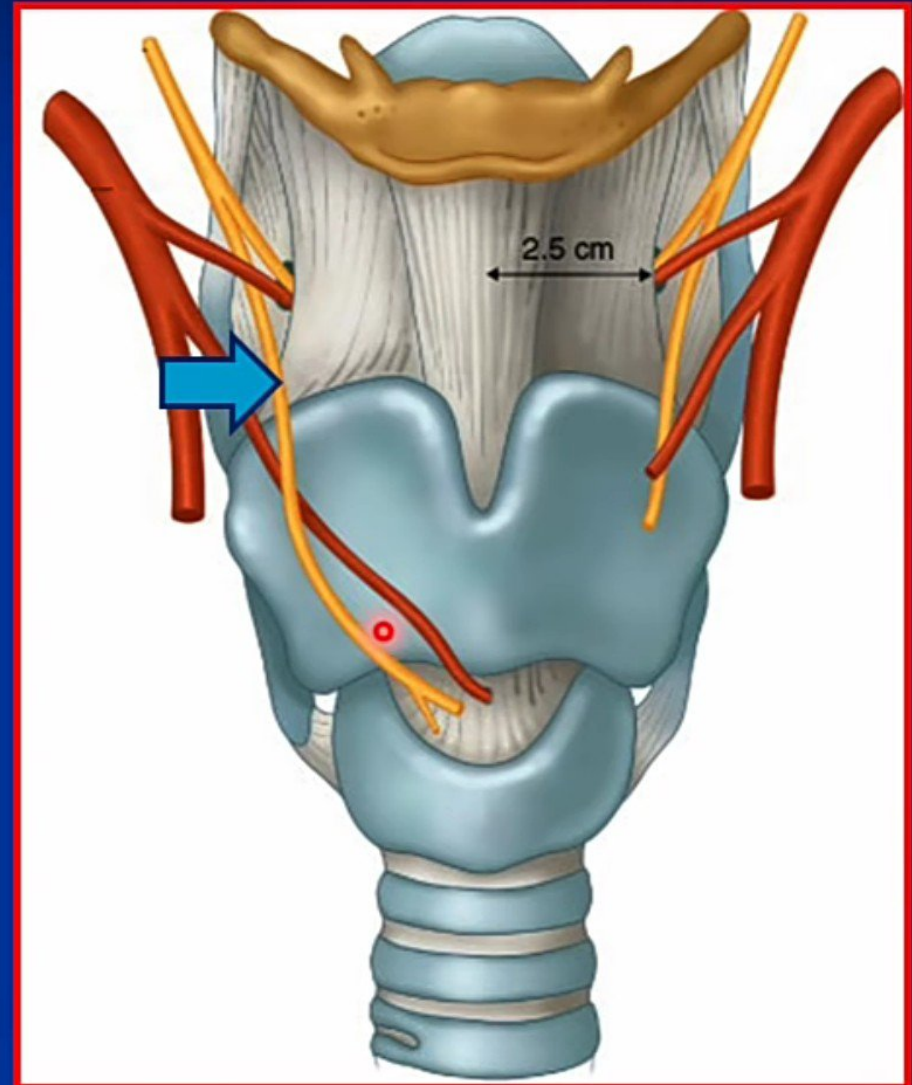
- Isthmus of thyroid gland



❖ Identify the pointed structure?

□ Answer:

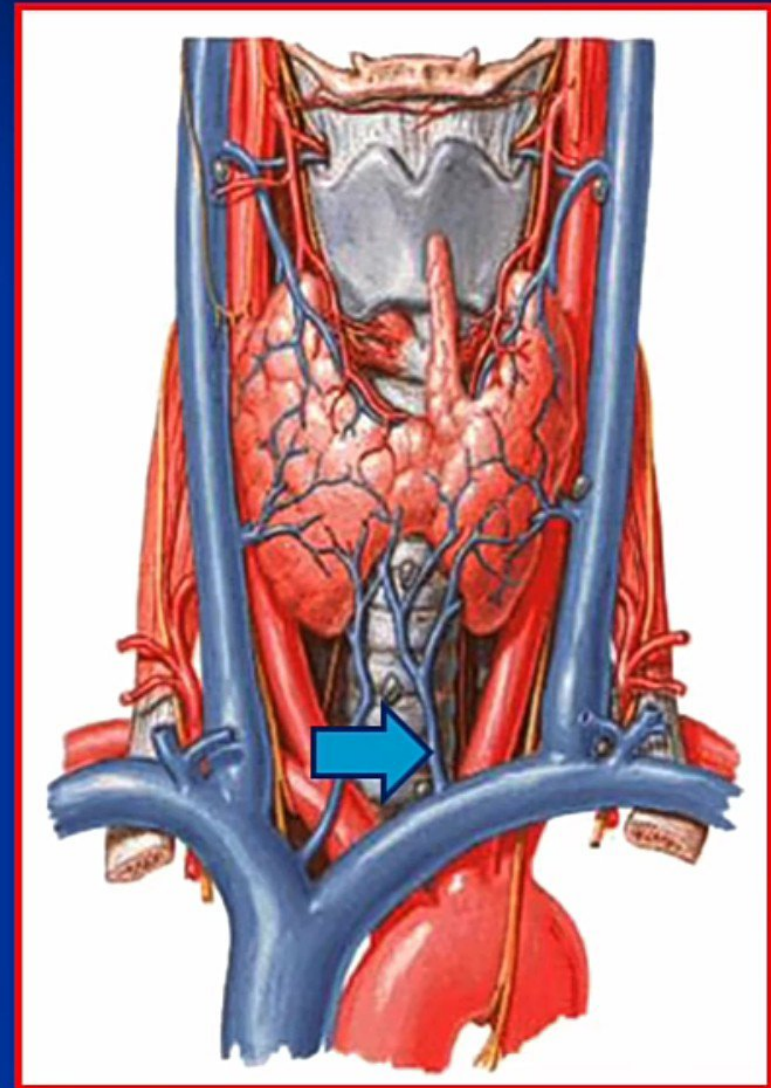
- External laryngeal nerve



❖ Identify the pointed structure?

□ Answer:

- Inferior thyroid vein



Question 1

What are the nerves related to the thyroid gland?



Question 2

A patient suffered from low pitched voice after thyroidectomy. What is your provisional diagnosis?



Question 3

A patient complains tetanic contractions (cramps and carpopedal spasm) in the postoperative period of thyroidectomy. What is your provisional diagnosis?



Question 4

During thyroidectomy operation, the surgeon faced uncontrollable bleeding. What can he do as a life saving for the patient?



Question 5

A patient has thyroid swelling (goiter), meanwhile, this swelling became no more moving with deglutition. What you suspect?





الردود



Q1. right & left recurrent laryngeal nerves, right & left internal laryngeal nerves, right & left external laryngeal nerves, right & left vagus nerves.

Q2. During the operation, the doctor has injured the external laryngeal nerve which supplies the coracothroid muscle that is responsible for high pitched voice (perhaps when he was doing ligation of superior thyroid artery).

Q3. Tetanic contraction is due to low calcium level , so I think the doctor has removed parathroid glands by mistake.

Q4: The doctor should do ligation of the main arteries (external carotid artery and thyrocervical trunk) which give branches to the gland.

Q5: due to rupture of berry's ligament that attaches the gland to tracheal rings and that is because malignancy.

ترجمة إلى اللغة العربية



4

إضافة رد...



• قبل سنة واحدة • Dr. Ayman Khanfour



ايه الجمال دا ما شاء الله

Question 3

A patient complains tetanic contractions (cramps and carpopedal spasm) in the postoperative period of thyroidectomy. What is your provisional diagnosis?



2. Thyroid gland

39,108 مشاهدات قبل سنتين 7a. Endocrine system (Lectures) ...المزيد



48 ألف Dr. Ayman Khanfour



حفظ

تم تنزيله

مشاركة



810

التعليقات 111

وبرضو في سؤال عن origin of thyroid gland وانت حكيت انه endodermal بس حاطط الجواب endo+meso

