

THYROID&PARATHYROID GLANDS

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The thyroid gland

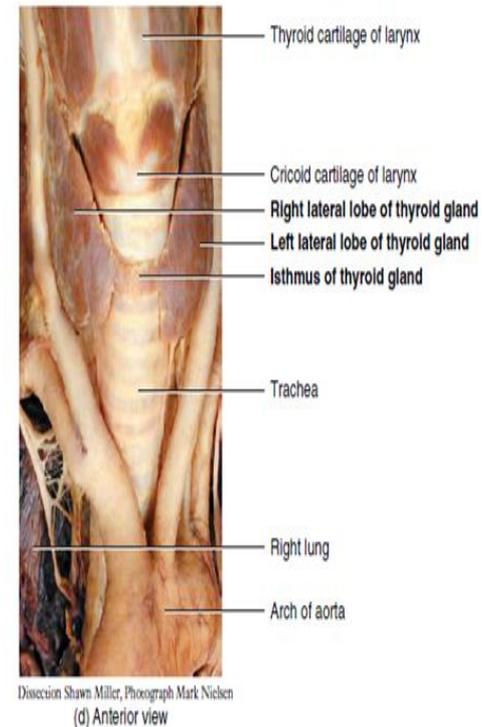
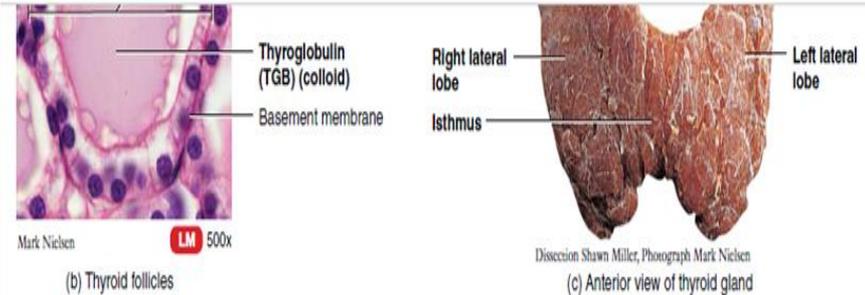
□ is the body's largest endocrine gland.

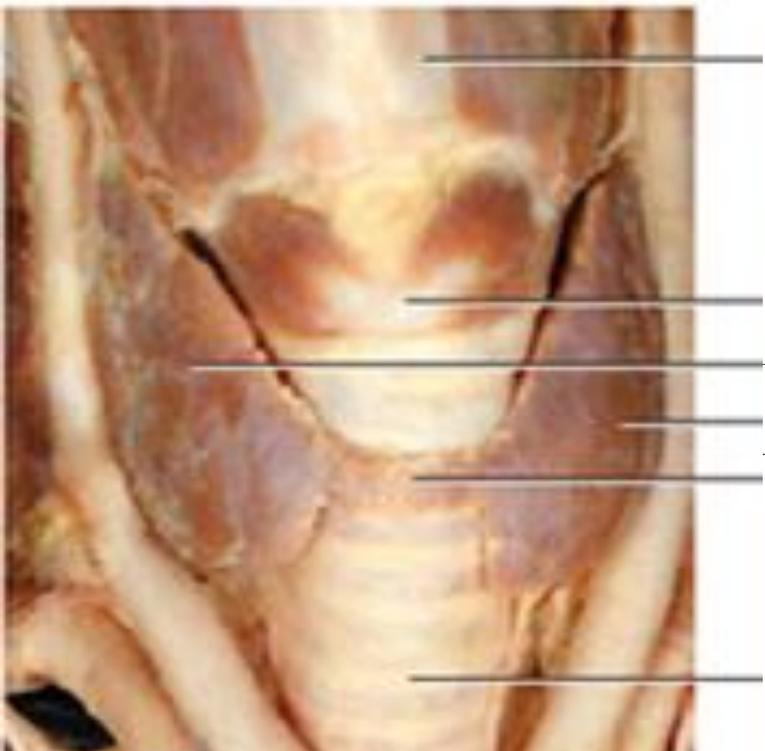
□ It produces:

✓ *thyroid hormone*, which controls the rate of metabolism

AND

✓ *calcitonin*, a hormone controlling calcium metabolism.





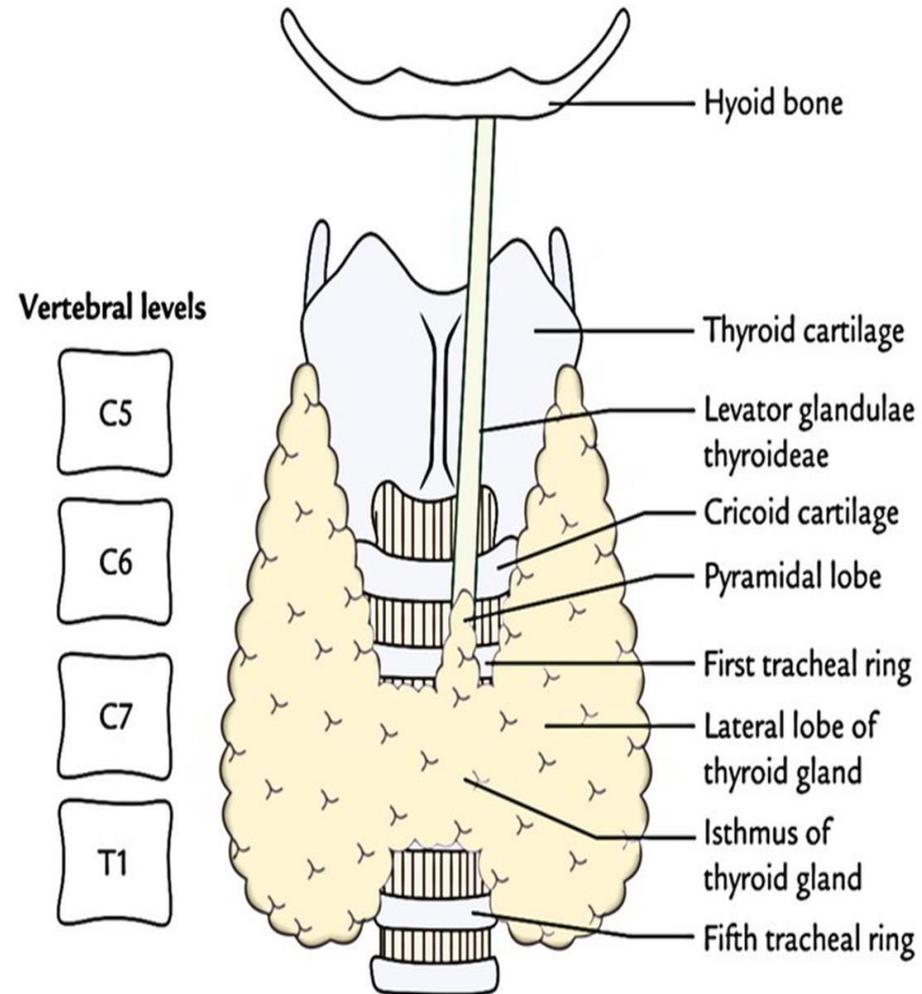
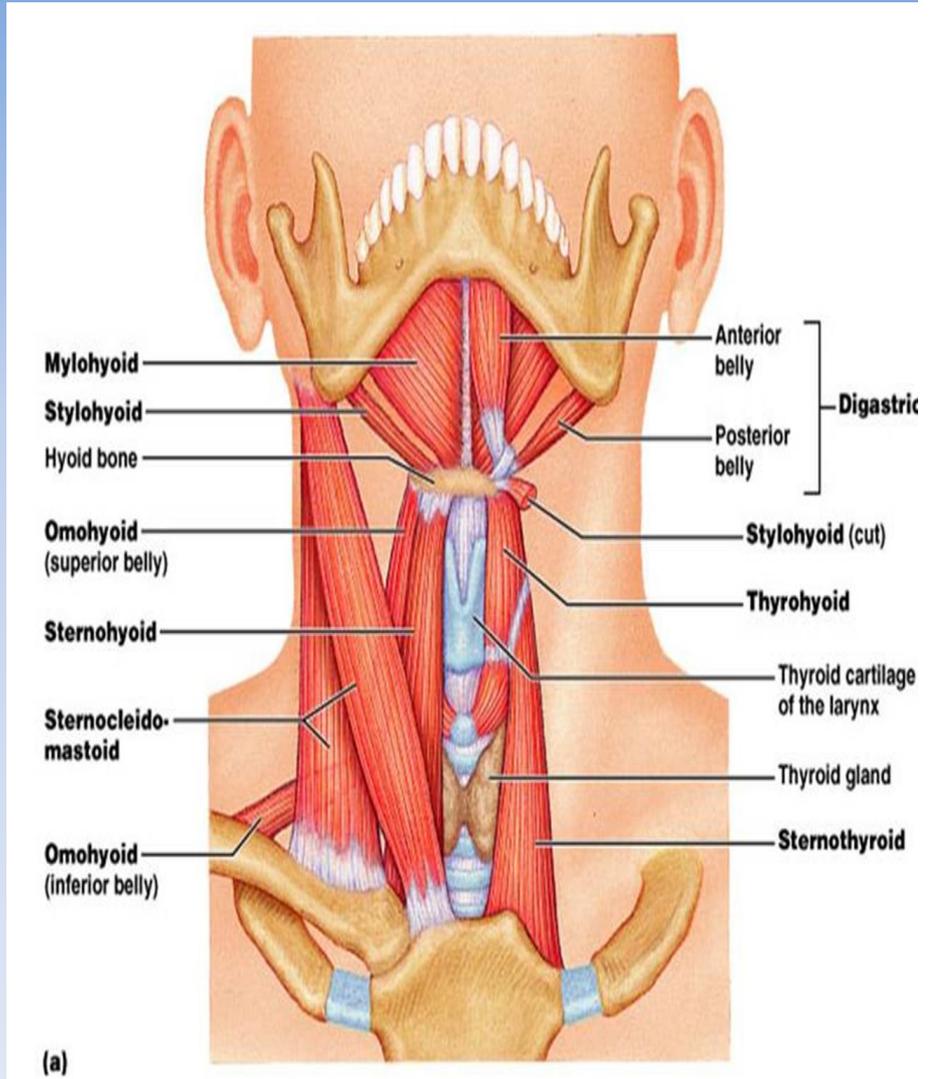
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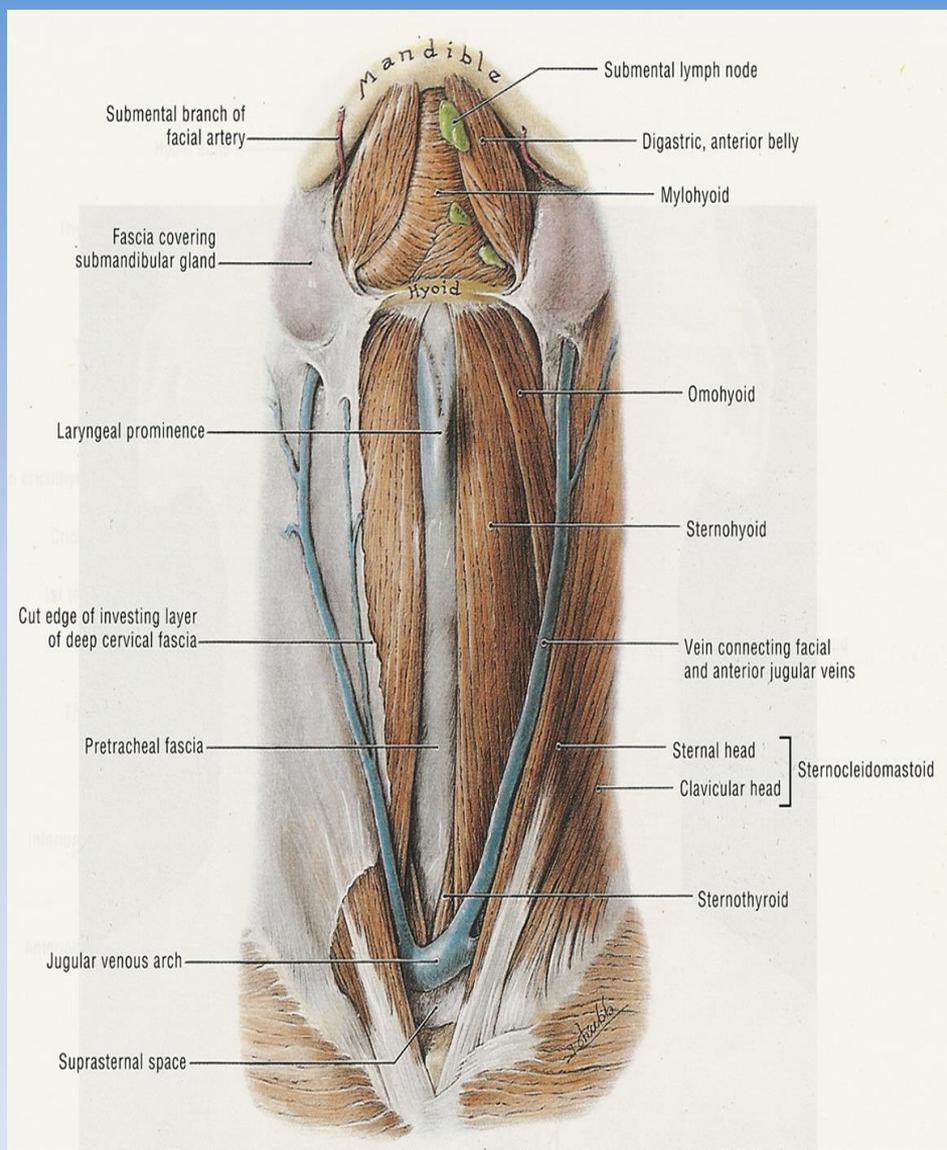
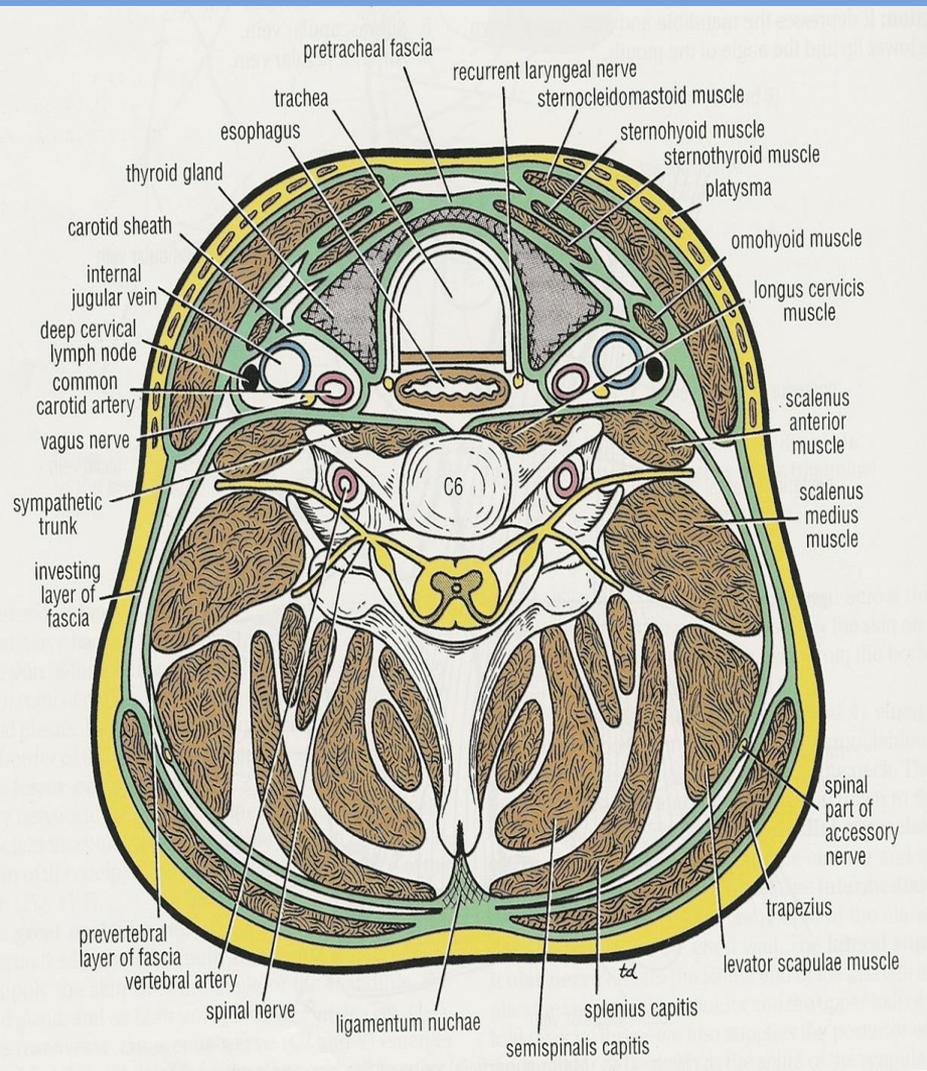
- The **thyroid gland** lies deep to the sternothyroid and sternohyoid muscles
- located anteriorly in the neck at the level of the C5-T1 VERTEBRAE

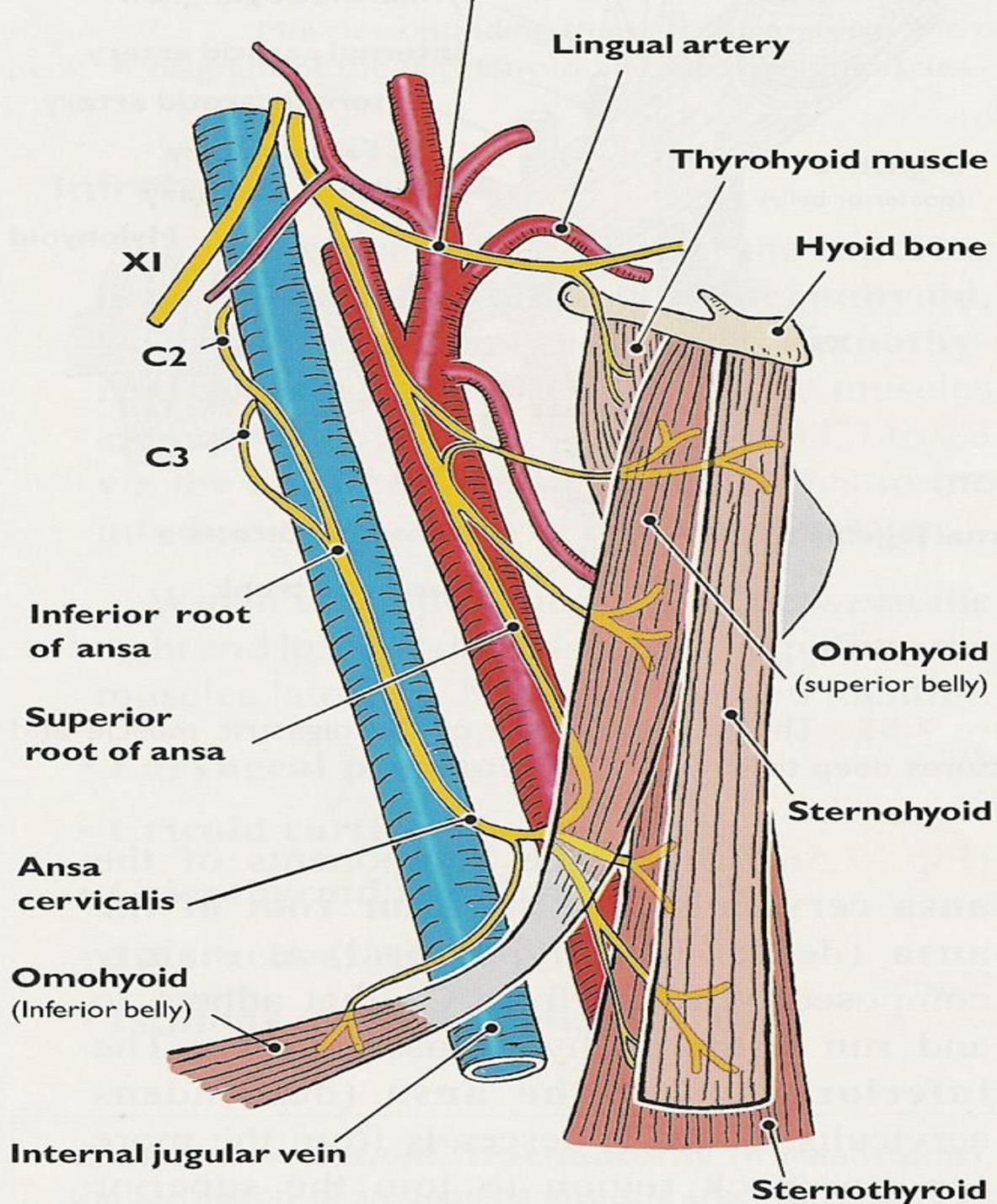
SHAPE

- BUTTERFLY SHAPE
- TWO LOBES: right and left **lobes**.
- A relatively thin **isthmus** unites the lobes
- The thyroid gland is surrounded by a thin **fibrous capsule. ensheathed by the pretracheal fascia (cervical fascia).**

Small pyramidal lobe: (may be present) project upwards from the isthmus and may be connected by fibromuscular band called levator glandulae thyroideae (remnants of thyroglossal duct in the embryo)



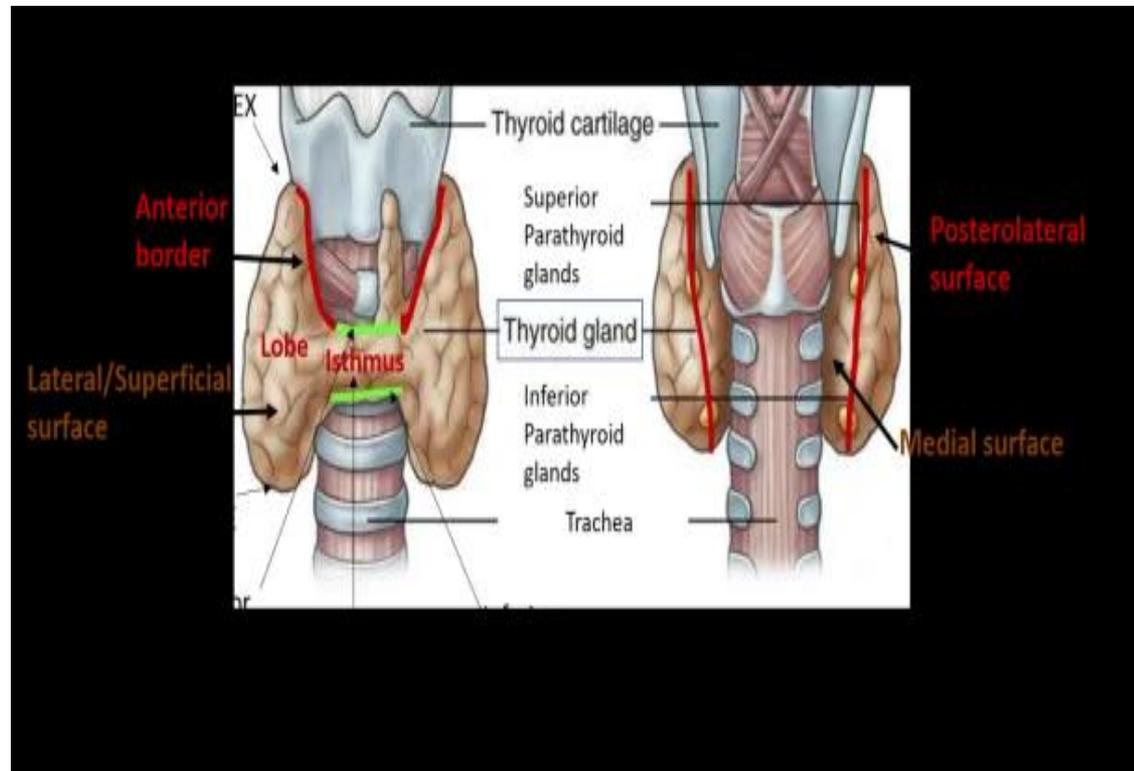
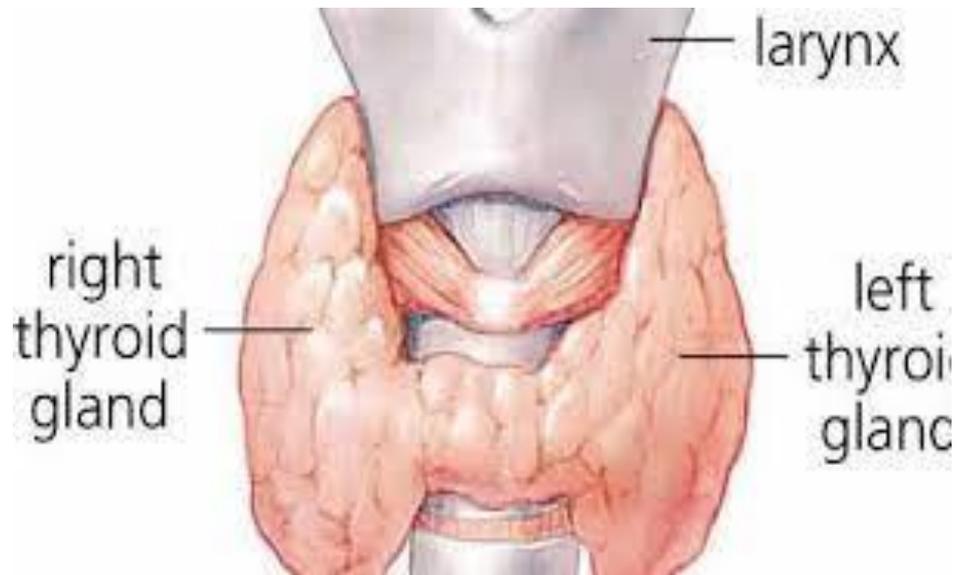




Thyroid gland

Every lobe of the thyroid gland is about pyramidal (conical) in shape, each has:

- ✓ apex,
- ✓ base,
- ✓ 3 surfaces (anterolateral, medial and posterior)
- ✓ and 2 borders (anterior and posterior)

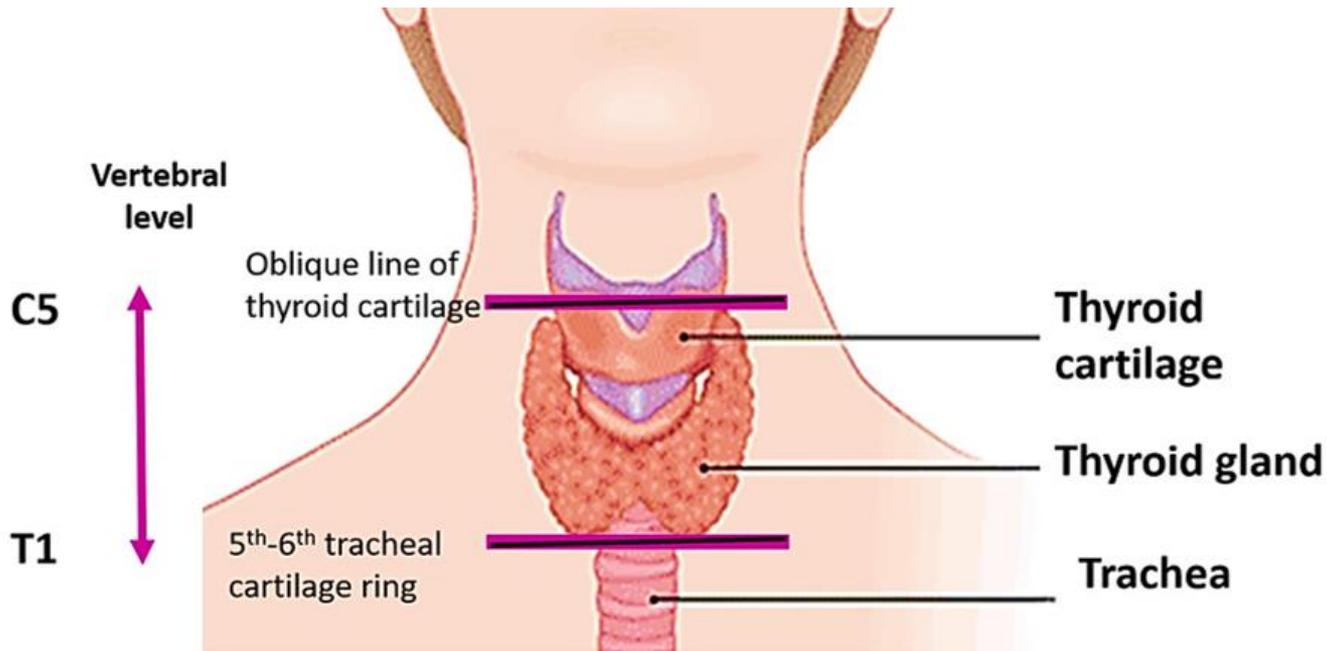


Thyroid gland

Apex: The apex is pointed upwards and laterally.

It reaches up to the oblique line of thyroid cartilage.

The apex is sandwiched between the inferior constrictor medially and sternothyroid laterally.



Thyroid gland

Base:

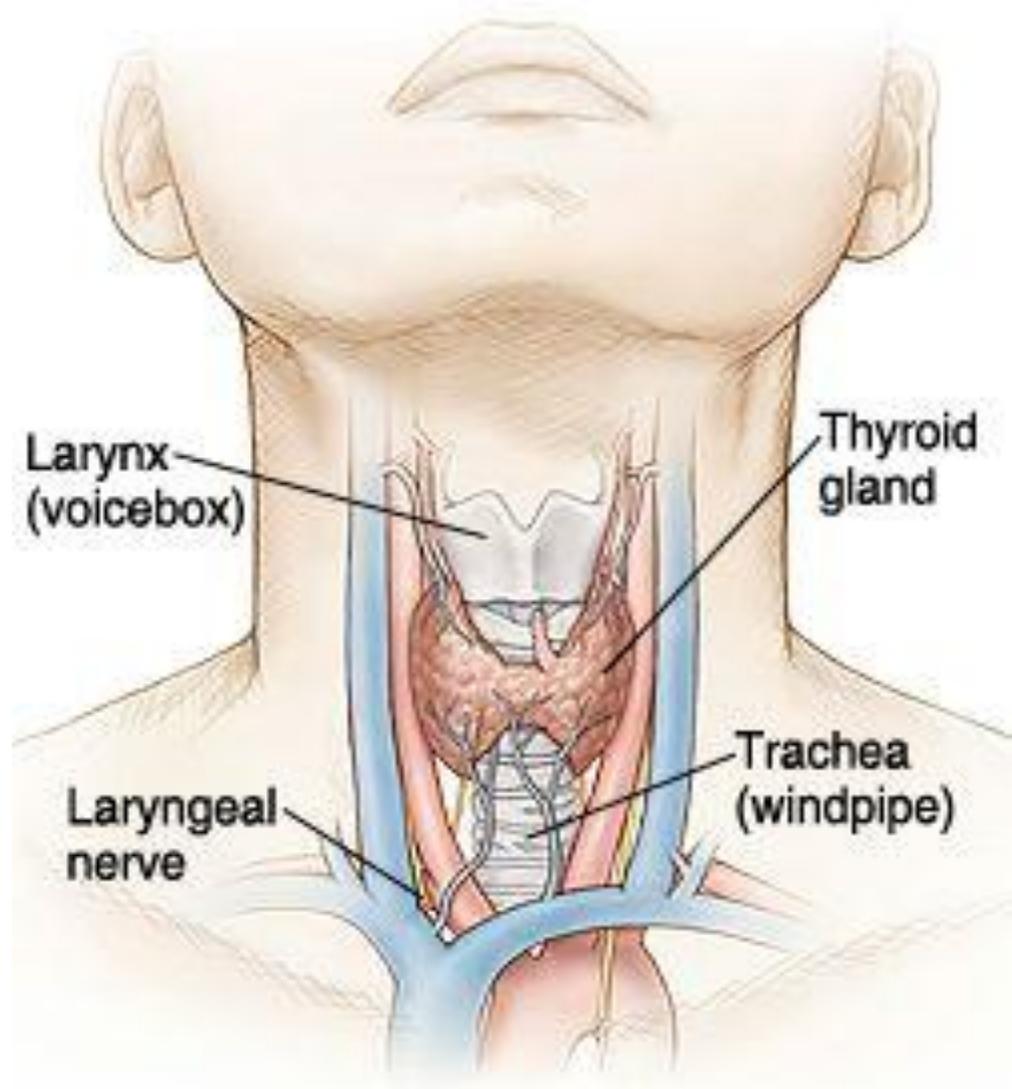
❖ The base reaches down to the 5th or 6th tracheal ring.

❖ It's related to:

✓ inferior thyroid artery

AND

✓ recurrent laryngeal nerve.



Thyroid gland

The ISTHMUS is:

- ✓ horizontal
- ✓ It has 2 surfaces- anterior and posterior
- ✓ It has 2 edges- superior and inferior.

Anterior surface is related to:

- strap muscles (sternohyoid and sternothyroid)
- anterior jugular veins

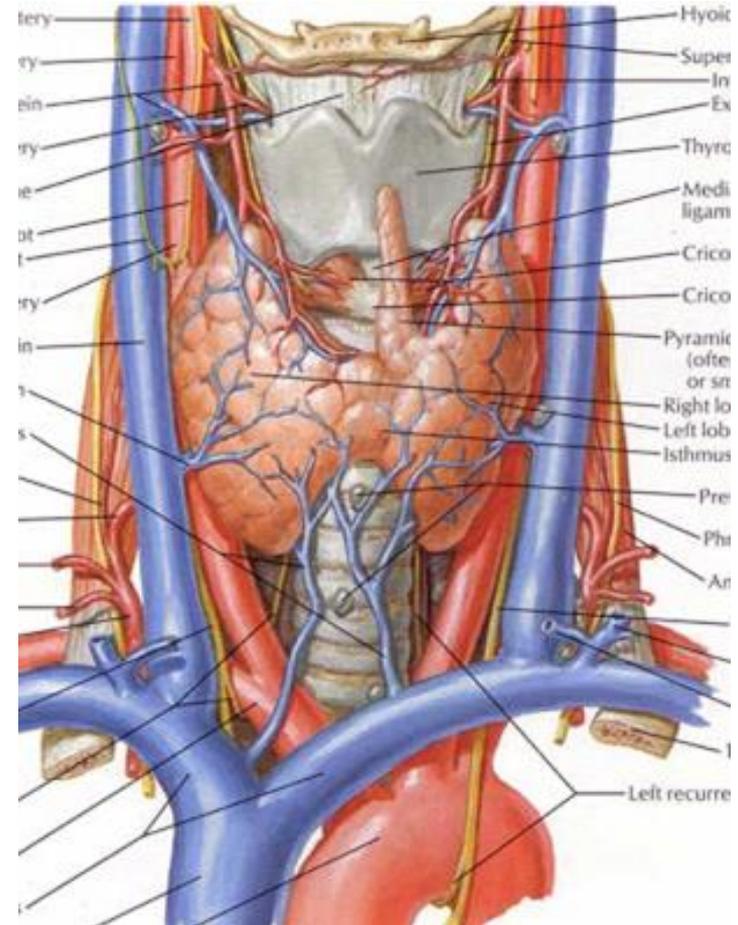
Posterior surface is related to:

- second, third and 4th tracheal rings.

Superior border is associated with anastomosis between the anterior branches of 2 superior thyroid arteries.

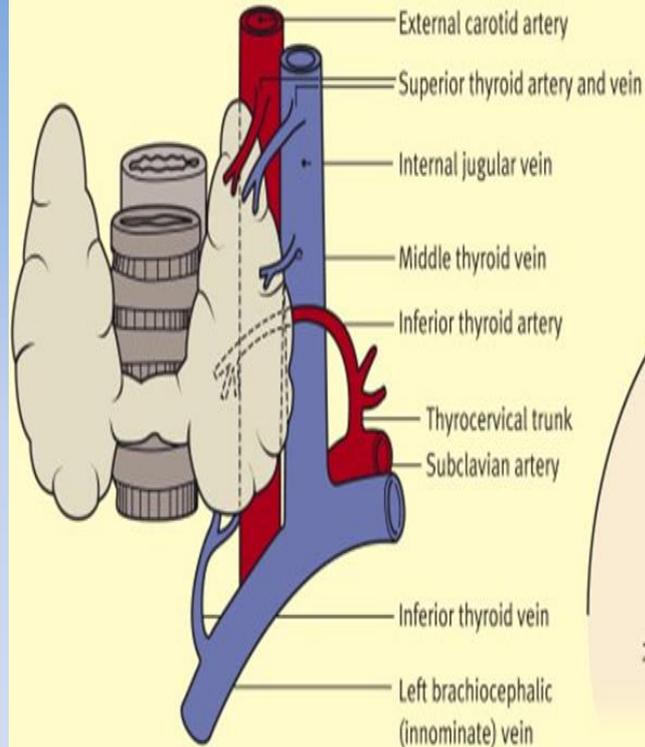
Inferior border: Along this border inferior thyroid vein and thyroidea ima artery (when present) enters.

- **The pyramidal lobe** may project upwards from the isthmus.

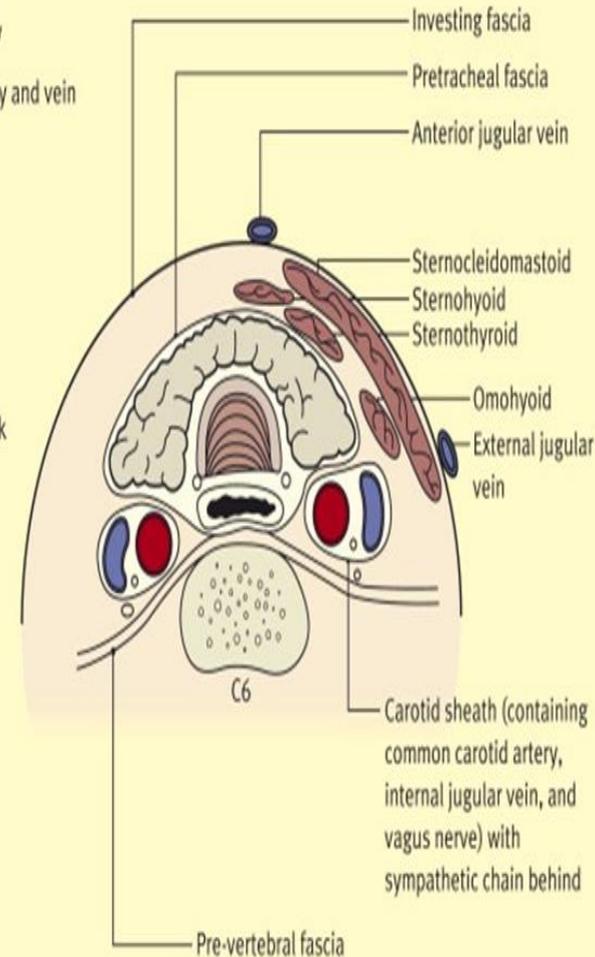


II-Thyroid lobes:

The thyroid gland and its blood supply



Transverse section of the neck through C6



- Each lateral lobe has three surfaces:

- Anterolateral, medial and posterior surfaces.

- **(1) Anterolateral surface (superficial surface):**

- a) skin, superficial fascia (containing platysma muscle) & deep fascia (pretracheal fascia)

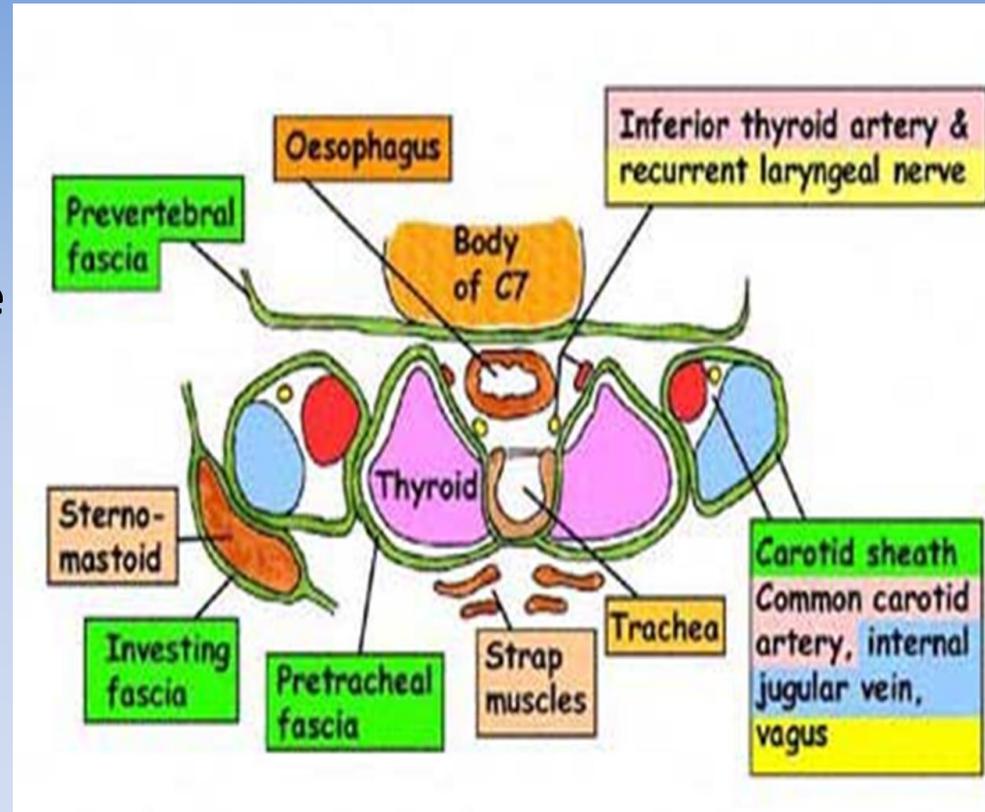
- b) Its upper part is crossed by superior belly of omohyoid

- c) Its middle part is covered by sternohyoid (superficially) & sternothyroid (deeply)

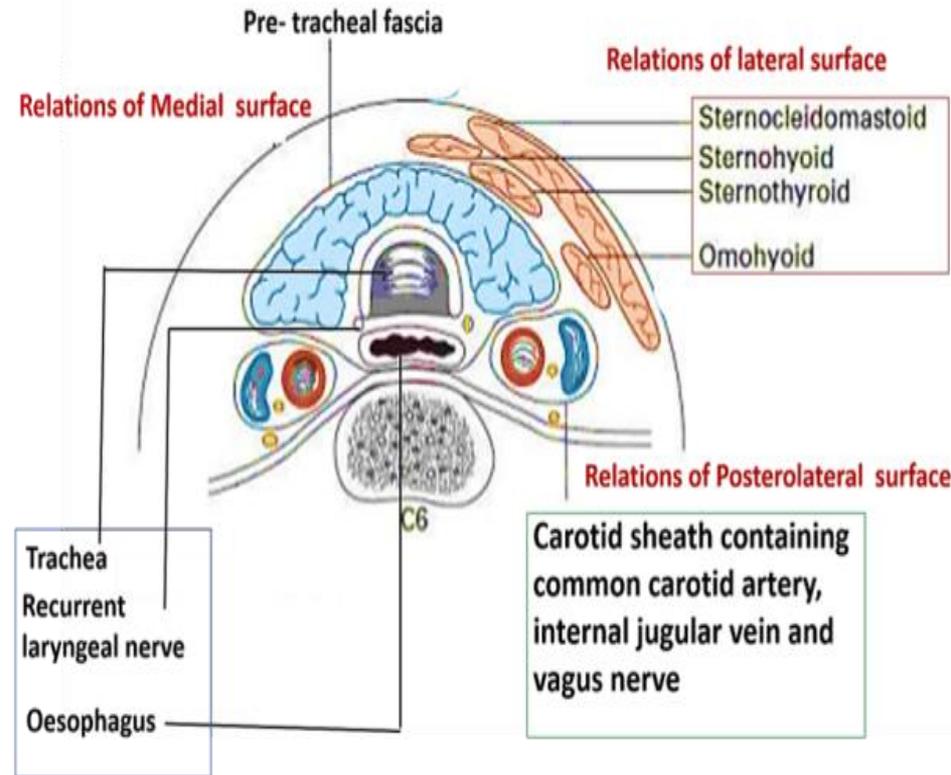
- d) Its lower part is overlapped by the anterior border of sternomastoid

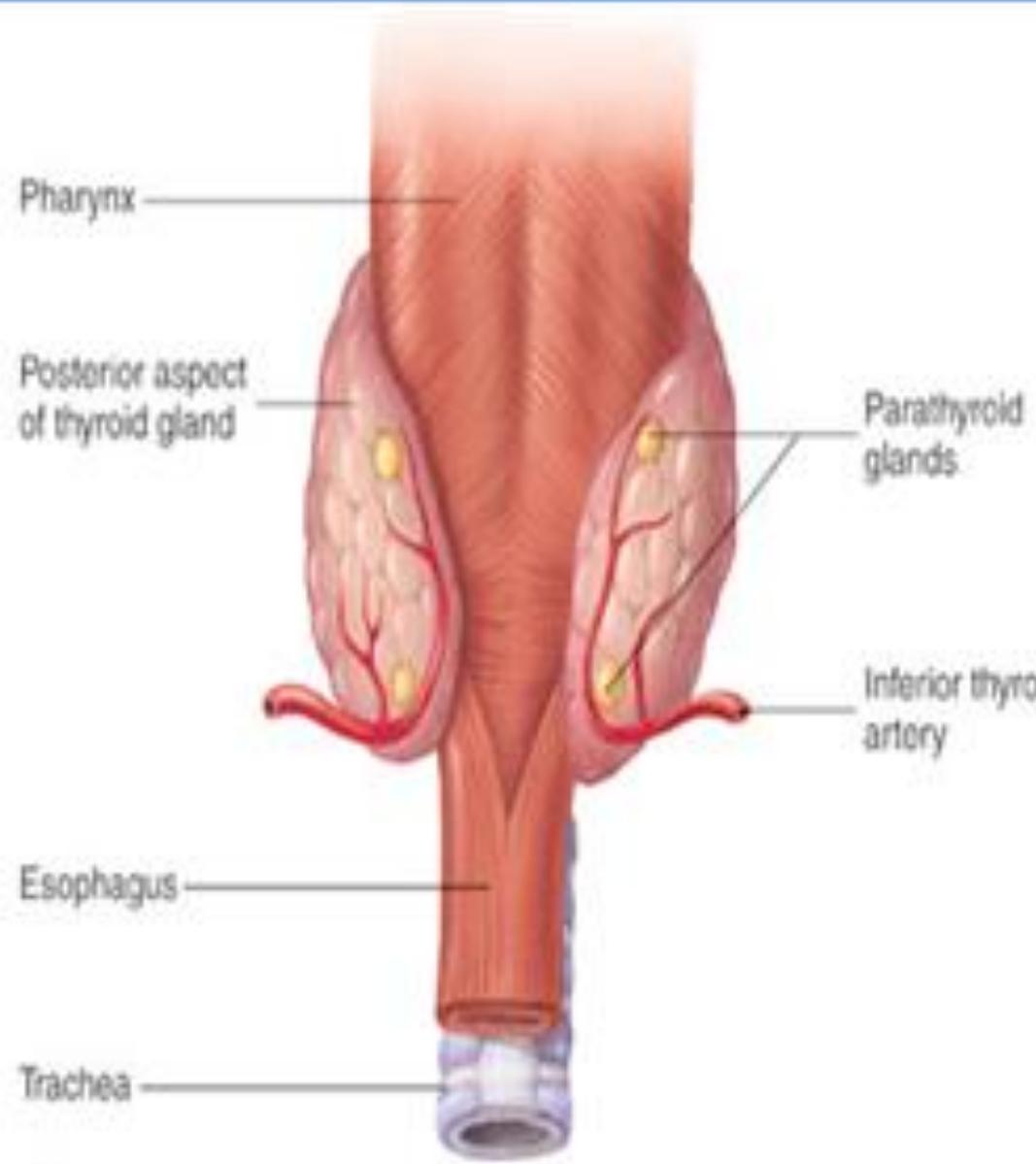
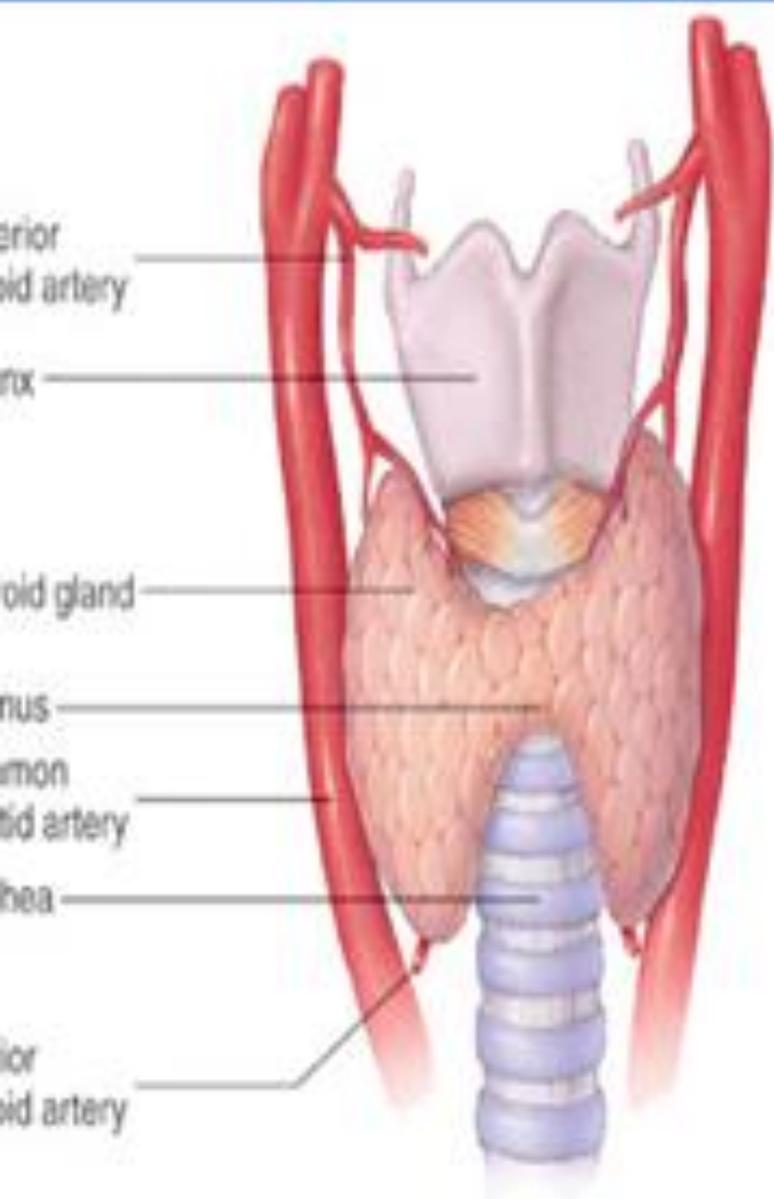
II-Thyroid lobes

- **(2) Medial surface:**
 - **Its upper part is related to**
 - a) Larynx: thyroid, cricoid cartilages & cricothyroid muscle
 - b) Pharynx: inferior constrictor muscle
 - c) External laryngeal nerve
 - **Its lower part is related to**
 - a) Trachea
 - b) cervical Esophagus
 - c) recurrent laryngeal nerve (in between)



- Posterolateral surface** is related to
- ✓ carotid sheath and its contents (common carotid artery, internal jugular vein and vagus nerve).
 - ✓ The ansa-cervicalis is embedded in the anterior wall of the sheath
 - ✓ two parathyroid gland are embedded in the posterior surface of each lobe
 - ✓ inferior thyroid artery (before entering the gland)





(b)

Thyroid gland

Anterior border

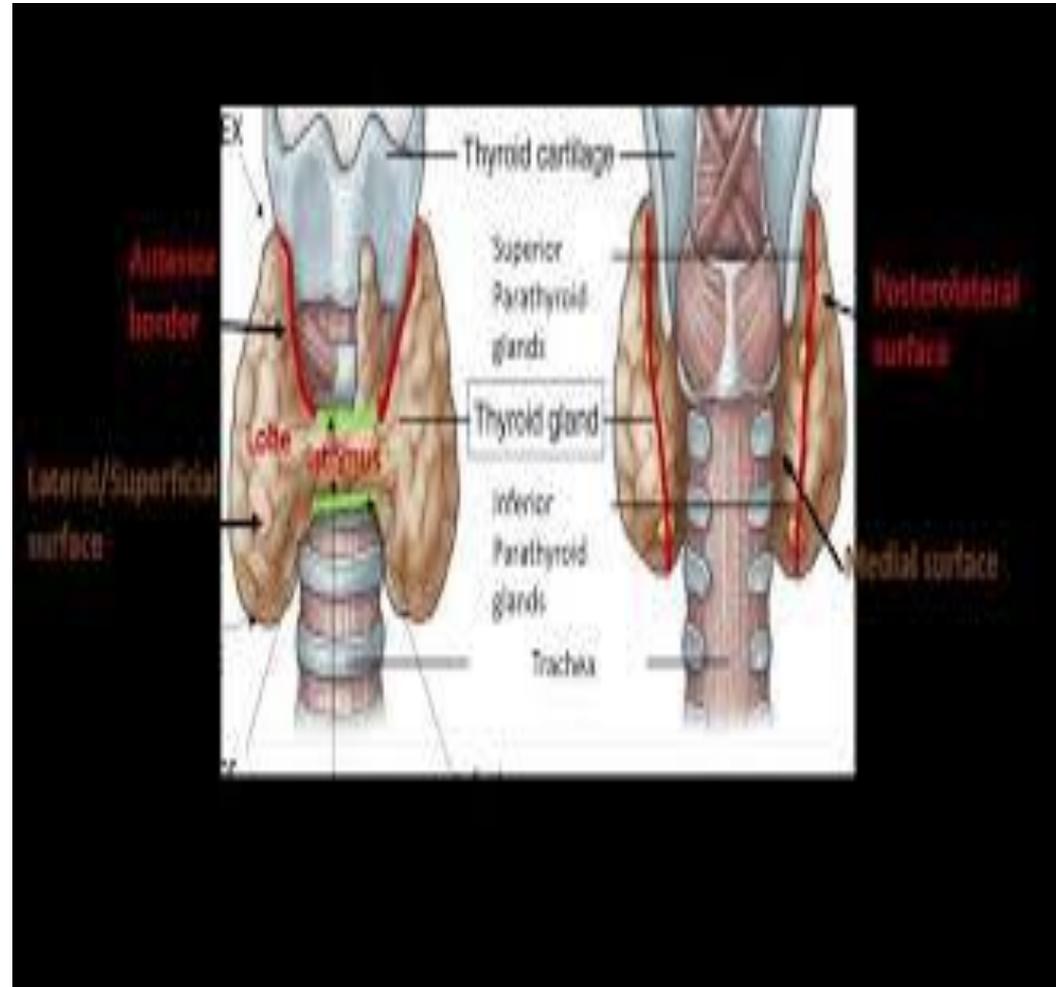
- ✓ is thin
- ✓ It splits superficial and medial surfaces.
- ✓ It's related to anterior branch of the superior thyroid artery.

Posterior border

- ✓ is thick and rounded.
- ✓ It splits the medial and the posterior surfaces.
- ✓ It's related to:
 - longitudinal arterial anastomosis between superior and inferior thyroid arteries

AND

- parathyroid glands



Arterial supply of the thyroid gland:

The thyroid gland receives its arterial supply from:

- 1- **The superior thyroid arteries** (is the first anterior branch of the external carotid artery).
- 2 - **Inferior thyroid arteries** (arises from the thyrocervical trunk, a branch of the first part of subclavian artery).
- 3 - Occasionally, **the thyroidea ima** arteries (which arises from the arch of aorta, brachiocephalic artery, or left common carotid artery). It supplies the isthmus of the thyroid gland).

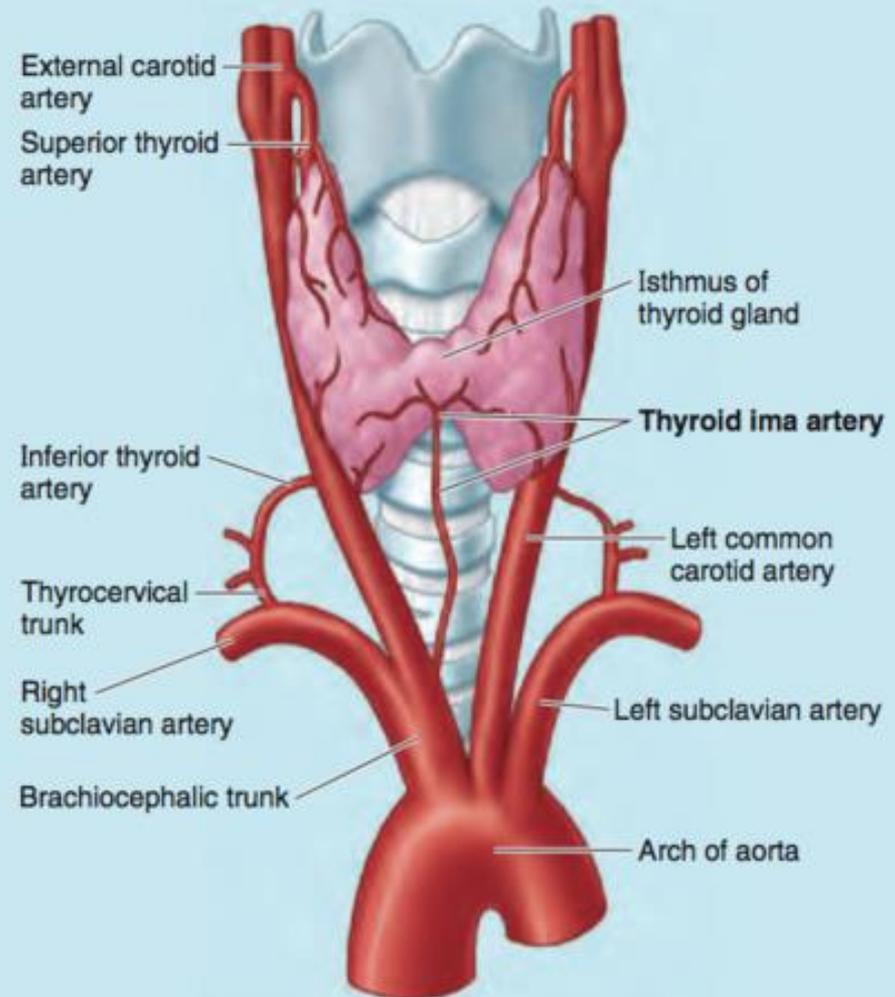
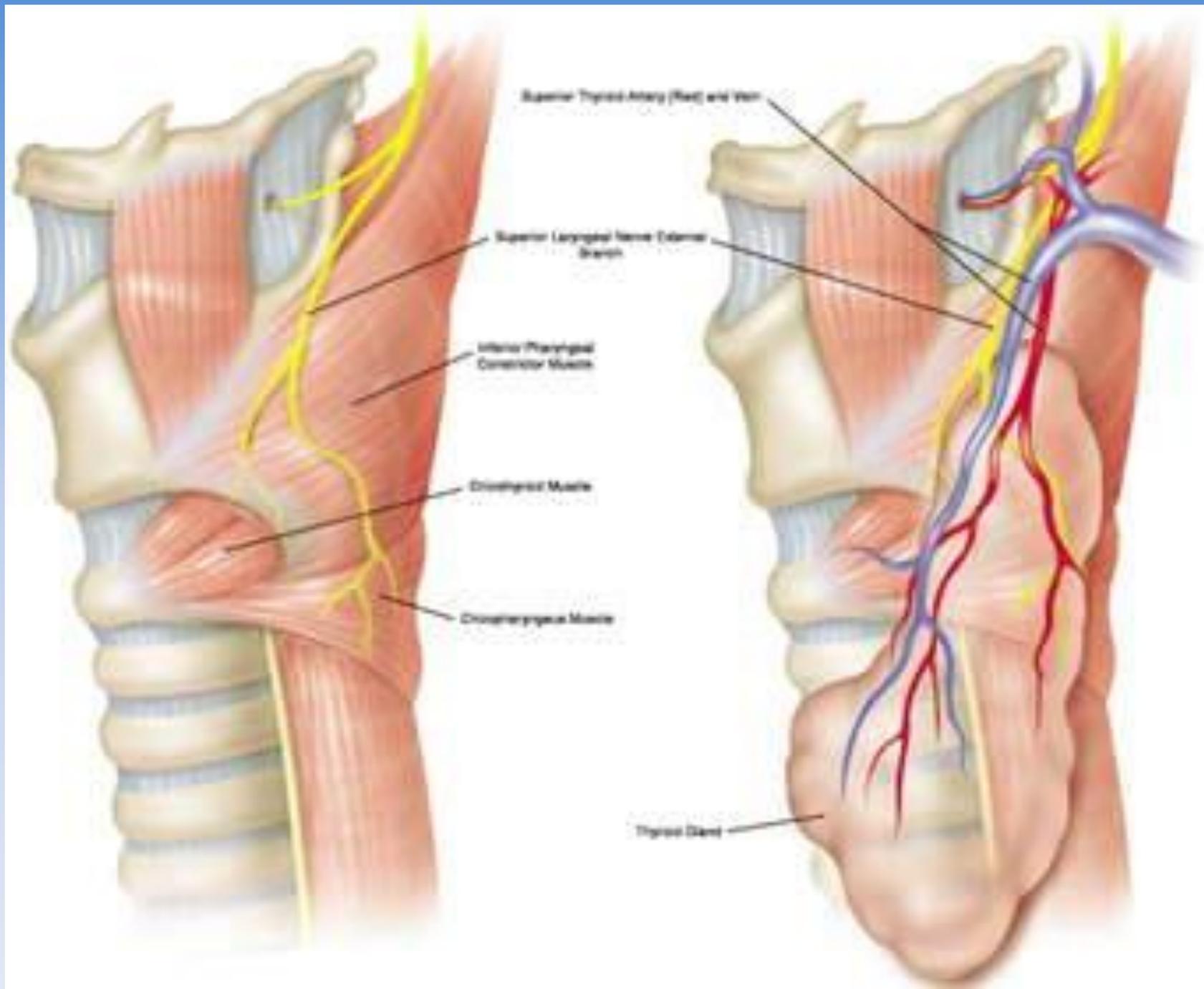
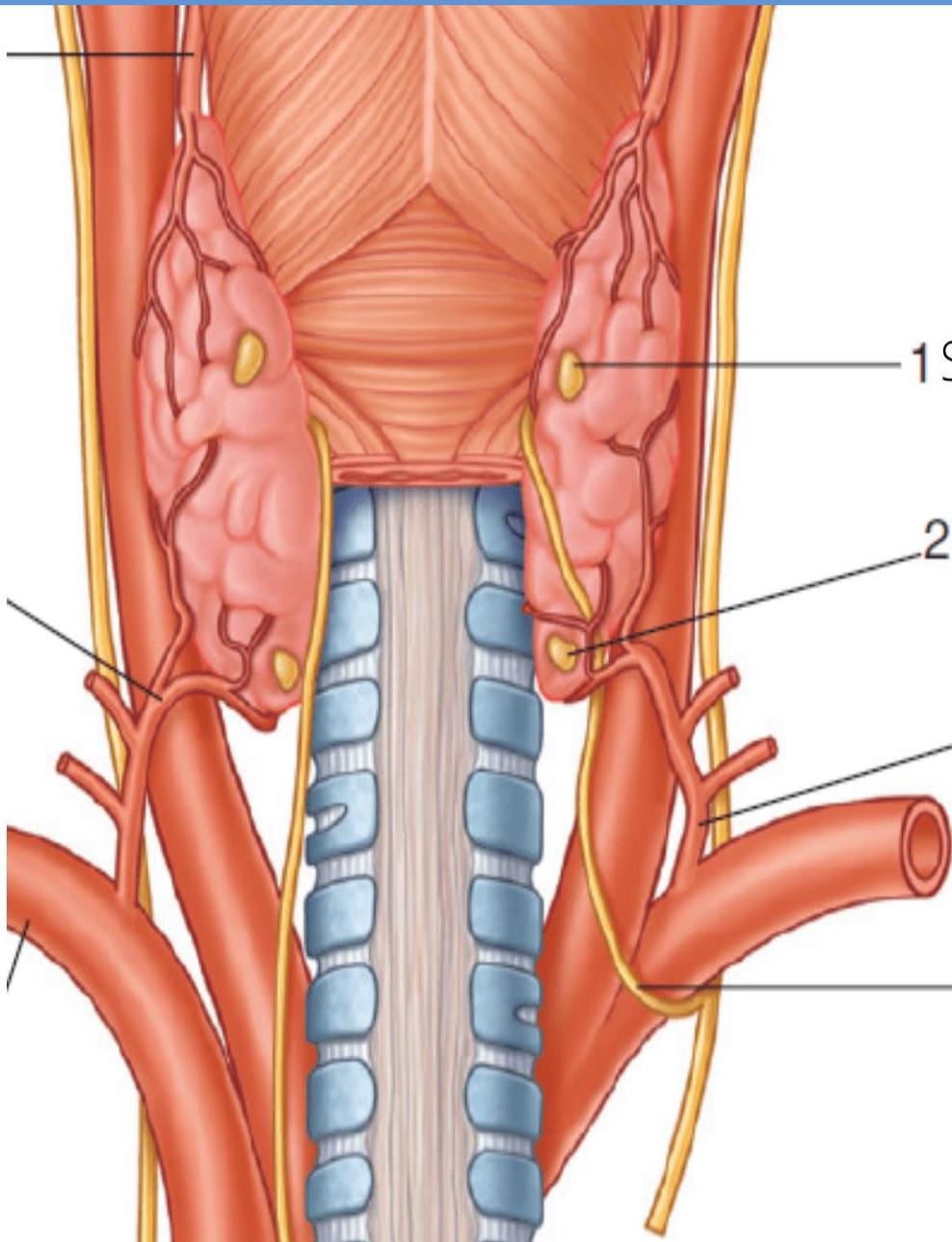


FIGURE B8.5.

- **Applied Anatomy:**
- 1) Superior to the upper pole of the thyroid, the external laryngeal nerve runs with the superior thyroid artery before turning medially to supply the cricothyroid muscle. In 21% the nerve is intimately associated with the superior thyroid vessels.
- * High ligation of the superior thyroid artery during thyroidectomy may cause injury of the external laryngeal nerve.
- 2) Ligature of the inferior thyroid artery near the lower pole of the thyroid gland can lead to injury of the recurrent laryngeal nerve as they are near.



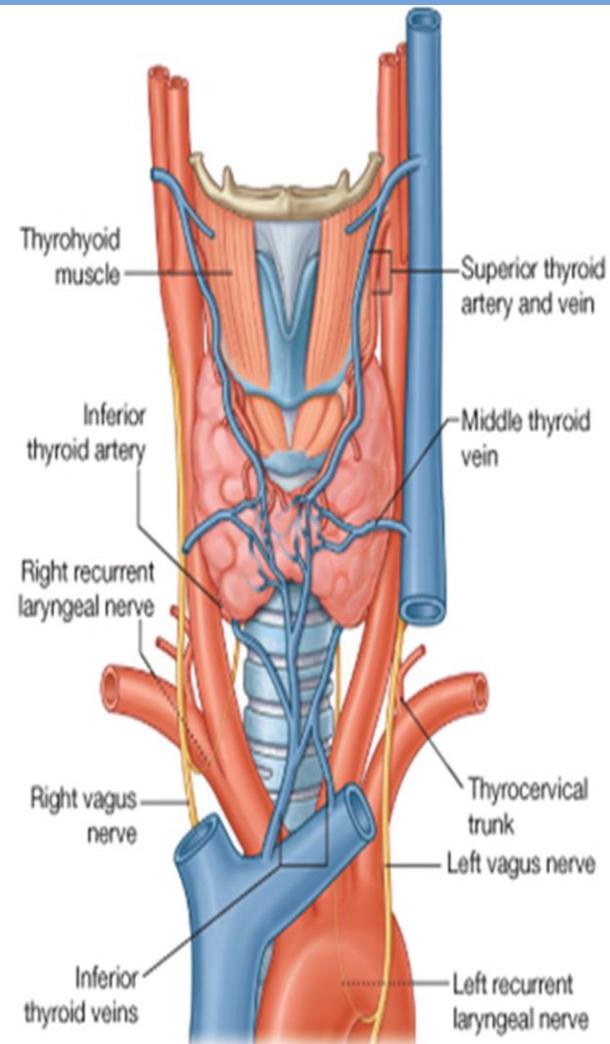


1 Superior parathyroid gland

2 Inferior parathyroid gland

Venous drainage:

- Three pairs of veins provide venous drainage to the thyroid gland.
- 1- **The superior thyroid vein:** ascends along the superior thyroid artery at the apex of the lobe and becomes a tributary of the internal jugular vein.
- 2- **The middle thyroid vein:** very short vein which arises from the middle of the lobe and ends in the internal jugular vein.
- 3- **The inferior thyroid veins:** arises from the lower border of the isthmus and adjacent part of the lobes. They descend anterior to the trachea and collect into one vein which usually ends in the left innominate vein.



Lymphatic Drainage of Thyroid Gland.

□ initially to prelaryngeal, pretracheal, and paratracheal lymph nodes.

□ The **prelaryngeal** nodes drain in turn to the

superior deep cervical lymph nodes

□ the **pretracheal** and **paratracheal** lymph nodes drain to the inferior deep cervical nodes .

□ Laterally, lymphatic vessels located along

the superior thyroid veins pass directly to the inferior deep cervical lymph nodes.

□ Some lymphatic vessels may drain into the brachiocephalic lymph nodes or the thoracic duct.

Thyroid gland

•Lymph drains to

• **prelaryngeal nodes**

• **pretracheal nodes**

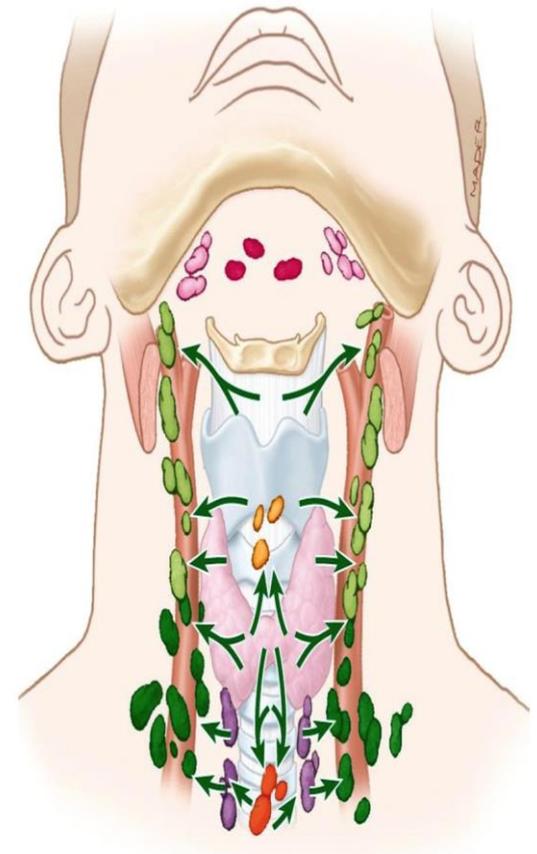
• **paratracheal nodes**

•Then to

superior deep cervical nodes

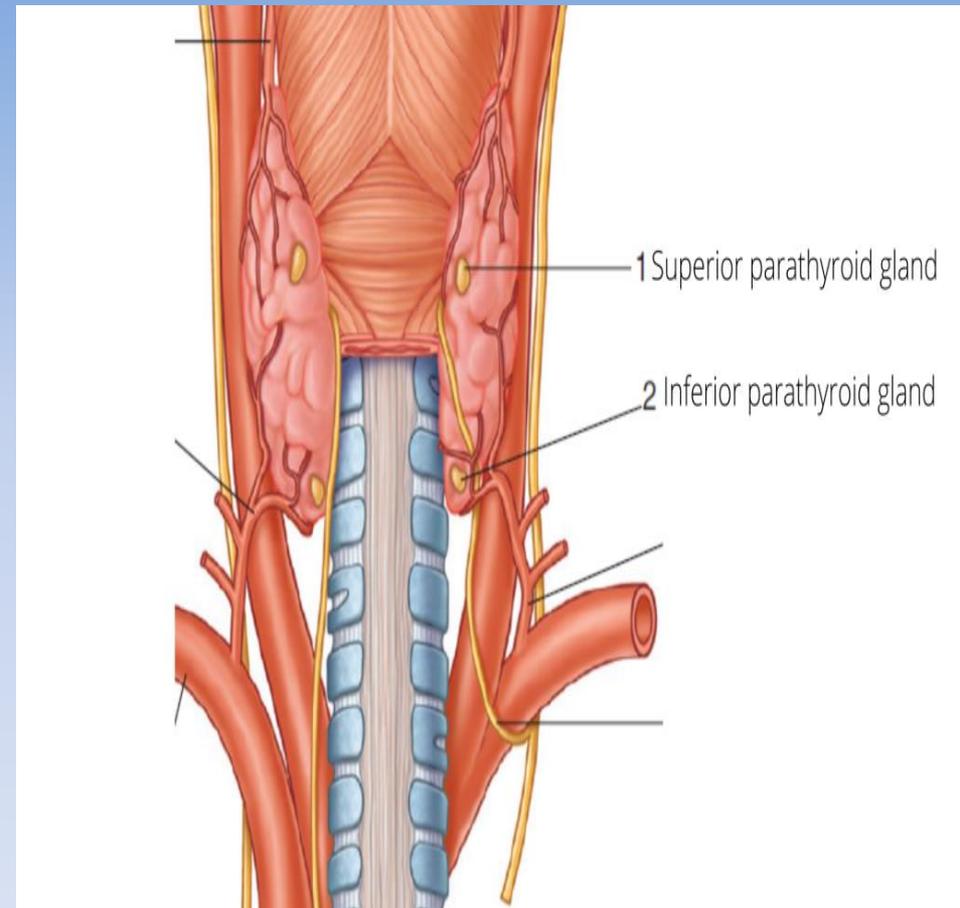
or

inferior deep cervical nodes



Parathyroid glands

- **Position:**
- They are four small, oval, yellowish- brown bodies which usually lie between the posterior lobar borders of the thyroid gland and its capsule; there are two glands on each side, superior and inferior one.
- The upper parathyroid glands are usually found adjacent to the posterior surface of the middle part of the thyroid lobe.
- The lower parathyroid glands are found on the lateral or posterior surface of the lower part of the thyroid lobe (their position is variable).



- **Arterial supply:** inferior thyroid artery
- **Nerve supply:** Sympathetic fibers are distributed from the superior and middle cervical ganglia of the sympathetic trunk they are only vasomotor fibers.
- **Lymphatic vessels** from the parathyroid glands drain with those from the thyroid gland into deep cervical lymph nodes and paratracheal lymph nodes
- These fibers are not secretory to the gland because the parathyroid activity is controlled by the level of the blood calcium.