

Cervical viscera & Root of neck

頸部臟器 與 頸根部

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Outline:

- Position and structure of cervical viscera
- Blood supply and nerve innervation of cervical viscera
- Contents in root of neck

Viscera of the Neck

Endocrine layer

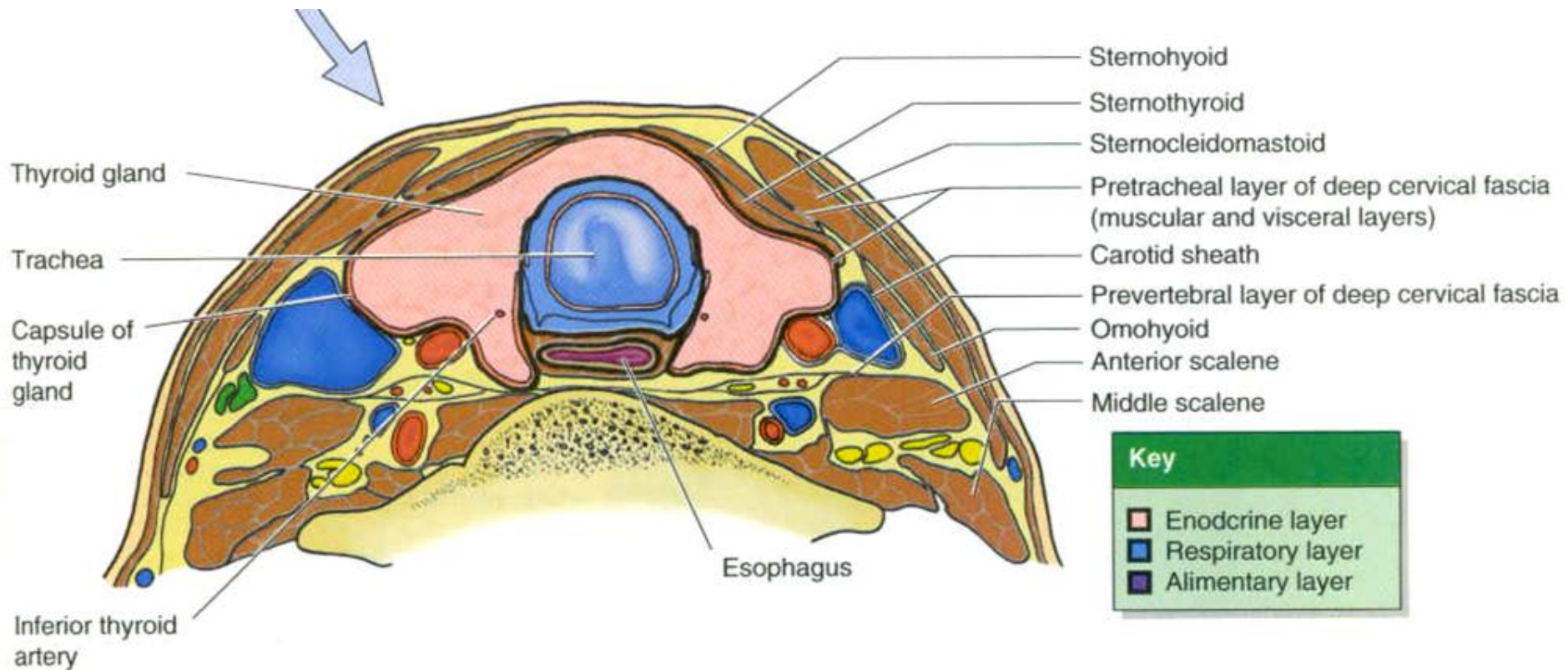
- **thyroid** and **parathyroid glands**

Respiratory layer

- **larynx** and **trachea**

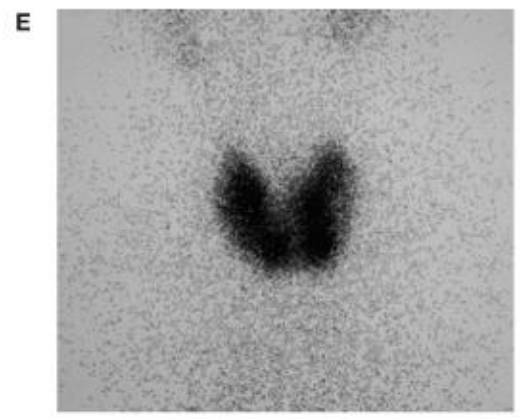
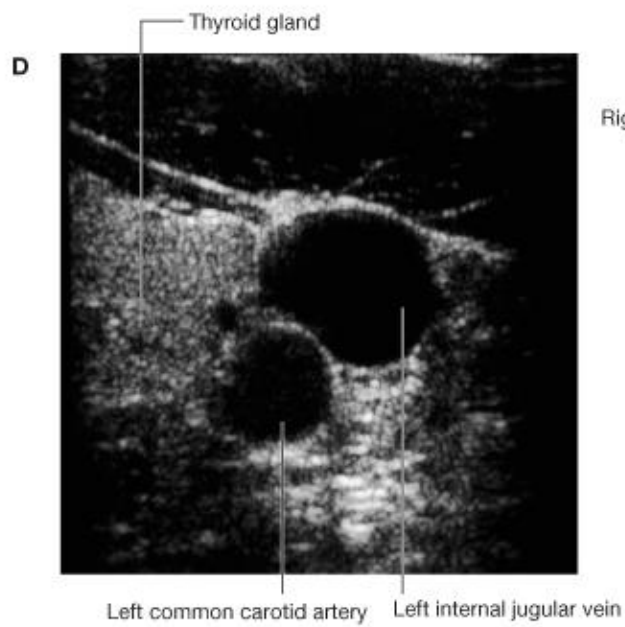
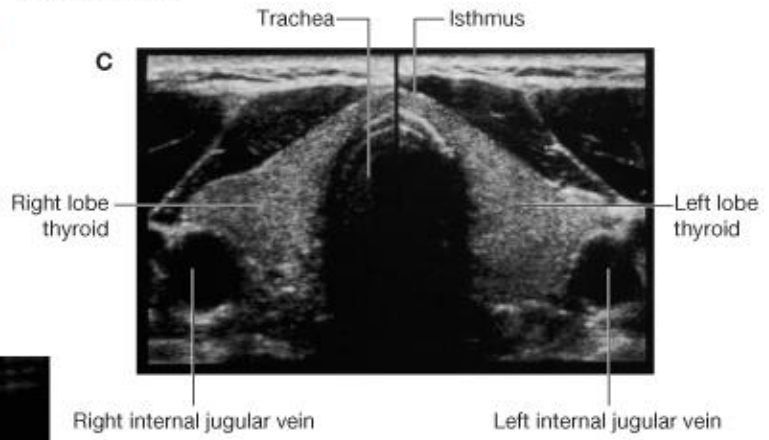
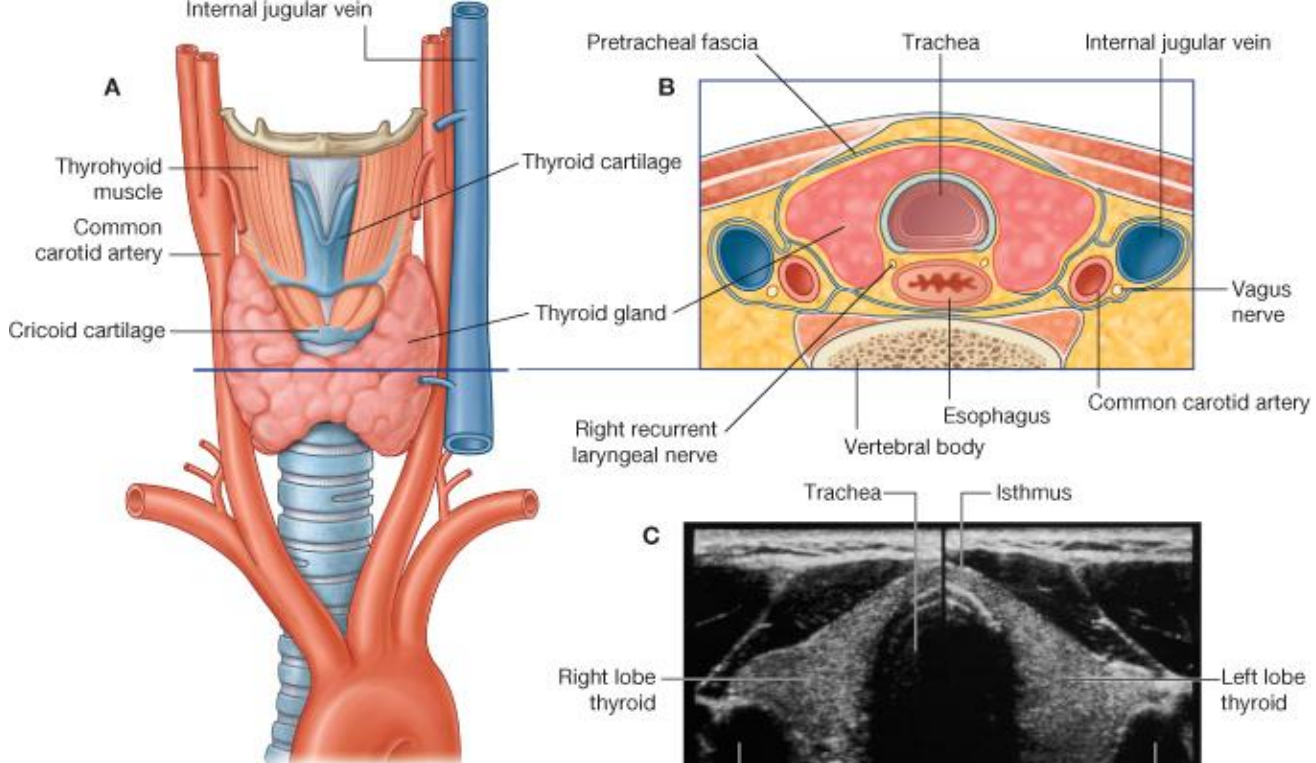
Alimentary layer

- **pharynx** and **esophagus**



(C) Transverse section at level indicated in (A)

Figure 8.21. Relations of the thyroid gland. **A.** A normal thyroid gland showing its relationship to the trachea, esophagus, and cricoid cartilage. The sternothyroid muscles have been cut to expose the lobes of the gland. Note that the isthmus of the gland lies anterior to the 2nd and 3rd tracheal rings. **B.** Dissection of the posterior surface of the thyroid gland showing the parathyroid glands. Note the blood supply of the thyroid and parathyroid glands. **C.** Layers of the neck at the level shown in (A). Observe that the thyroid gland is asymmetrically enlarged in this specimen.



Thyroid gland

Position: deep to **sterno-thyroid** and **sterno-hyoid** ms.

(the level of **C5 to T1**)

covered by **pretracheal deep cervical fascia** (loose sheath)

and **capsule** (dense connective tissue)

anterolateral to the **trachea**

arteries: **superior thyroid artery** – ant. & post. branches

inferior thyroid artery (br. of thyrocervical trunk)

thyroid ima artery (10%)

Veins: **superior** thyroid vein → IJVs (internal jugular veins)

middle thyroid vein → IJVs

inferior thyroid vein → brachiocephalic vein

Thyroid gland

Lymphatic drainage:

prelaryngeal, pretracheal and paratracheal

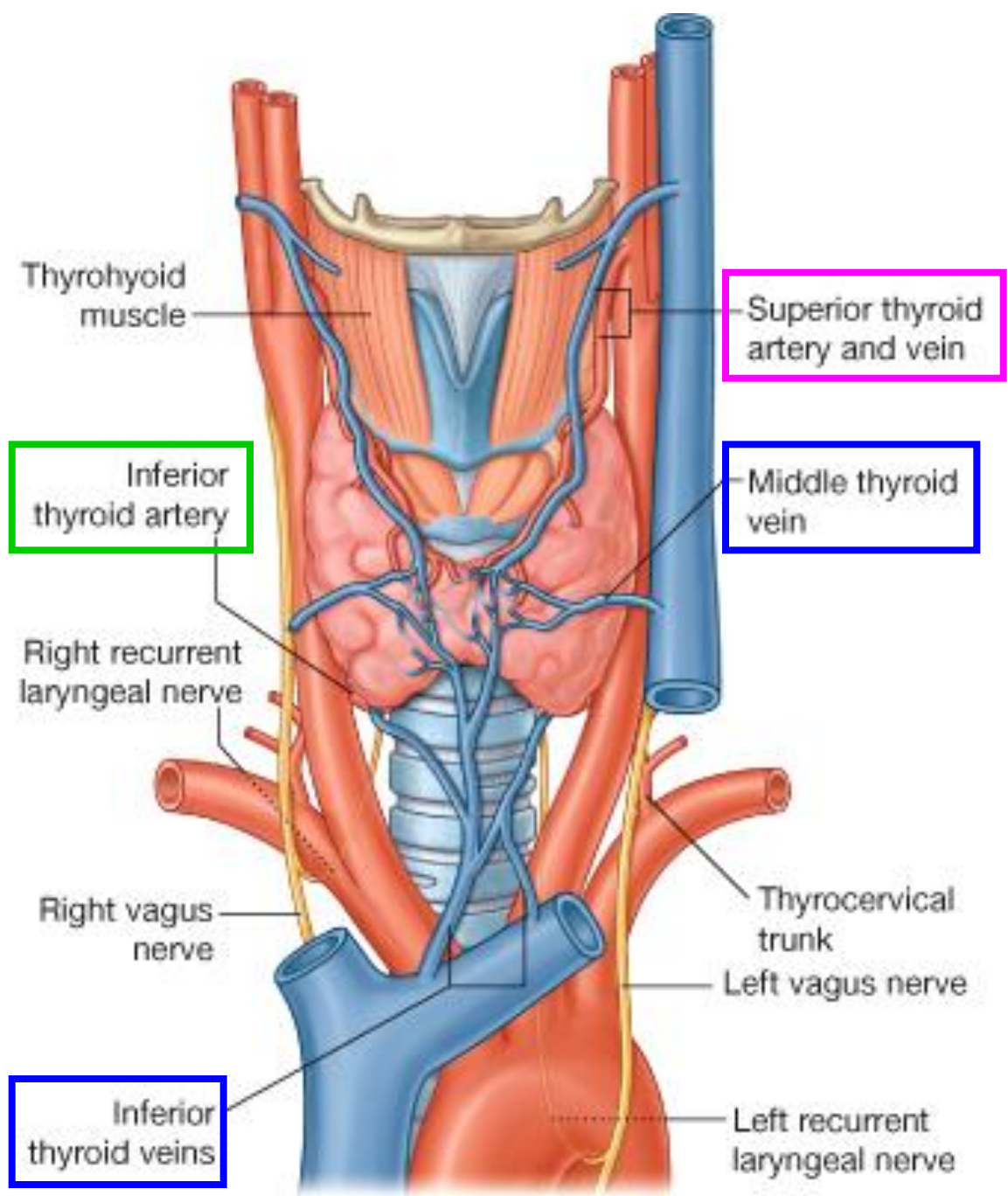
- lymph nodes → **inferior deep** cervical lymph nodes

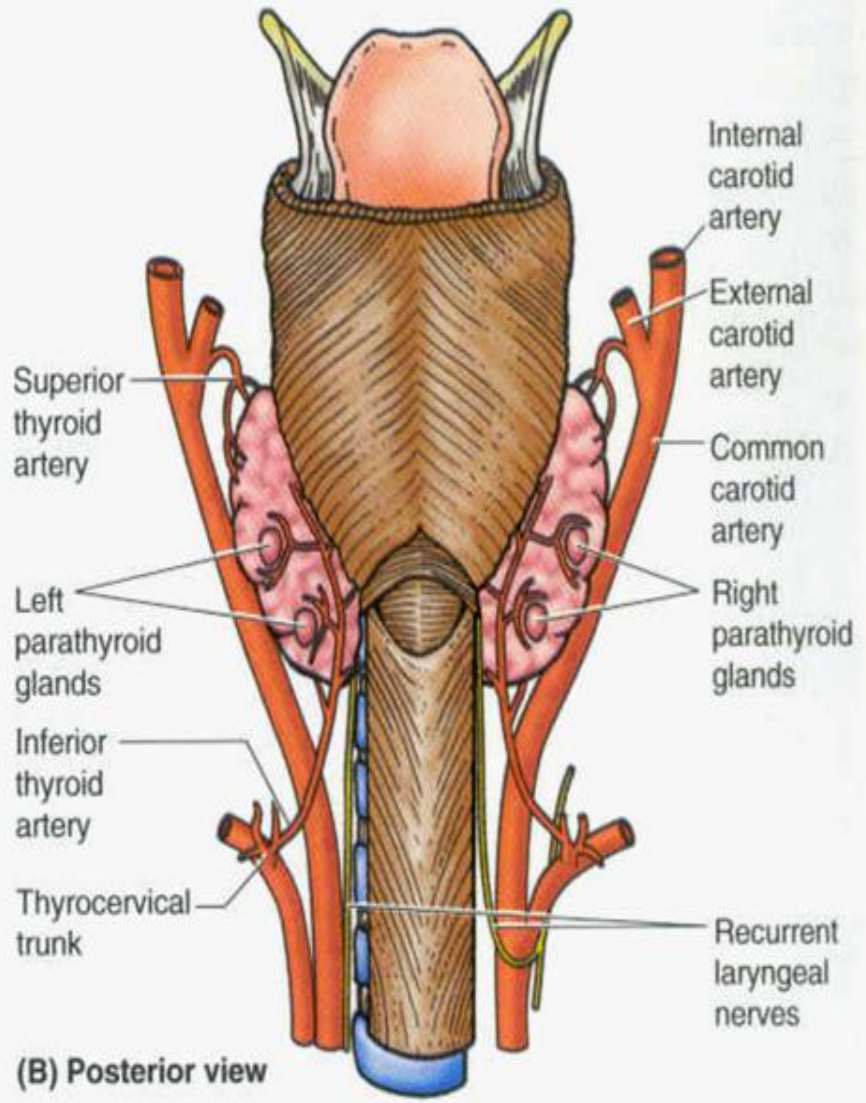
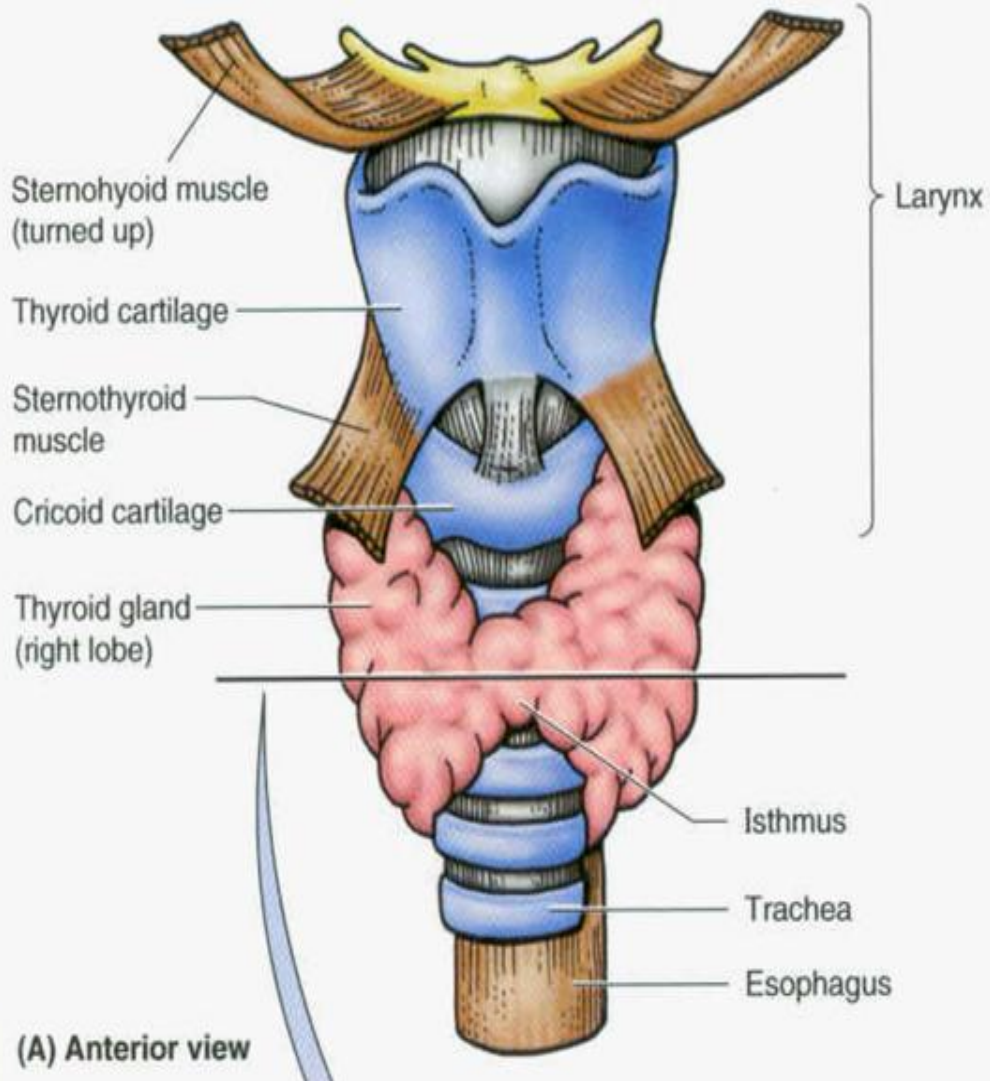
Nerves:

superior, middle & inferior **cervical sympathetic ganglia**

→ periarterial plexuses

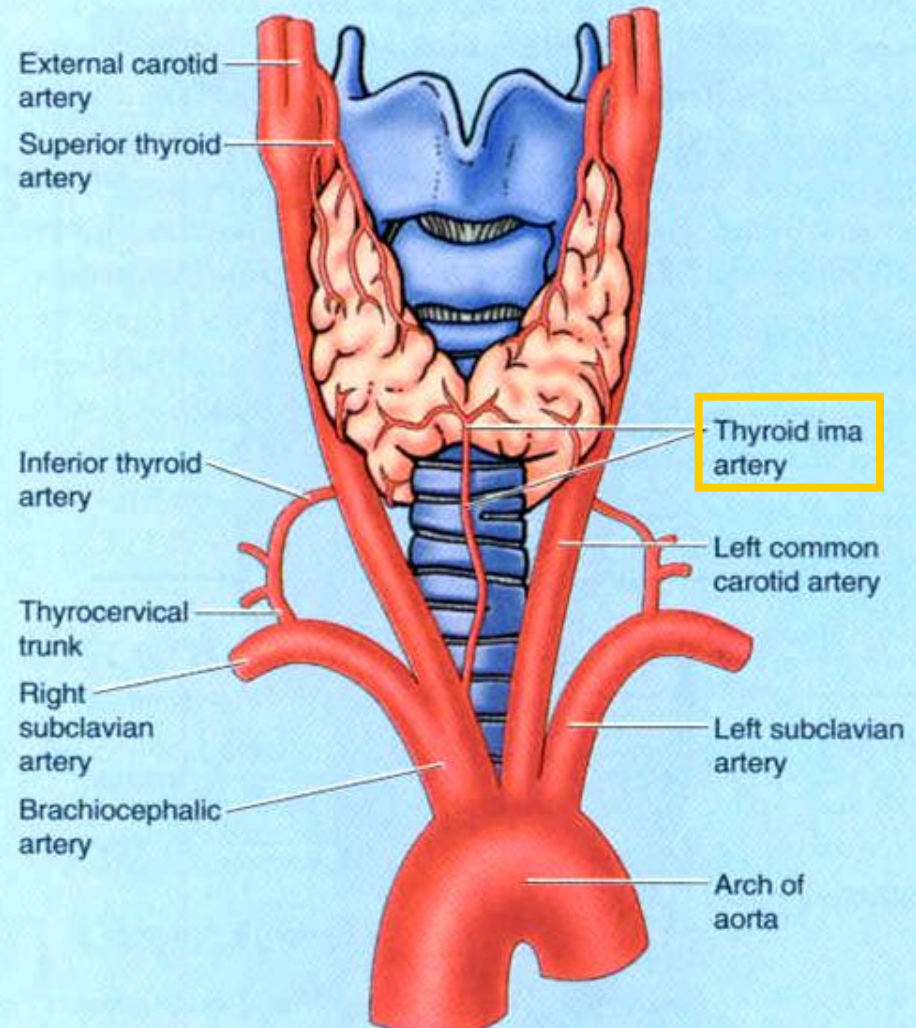
- # *thyroglossal duct cysts, pyramidal lobe (50%)* #

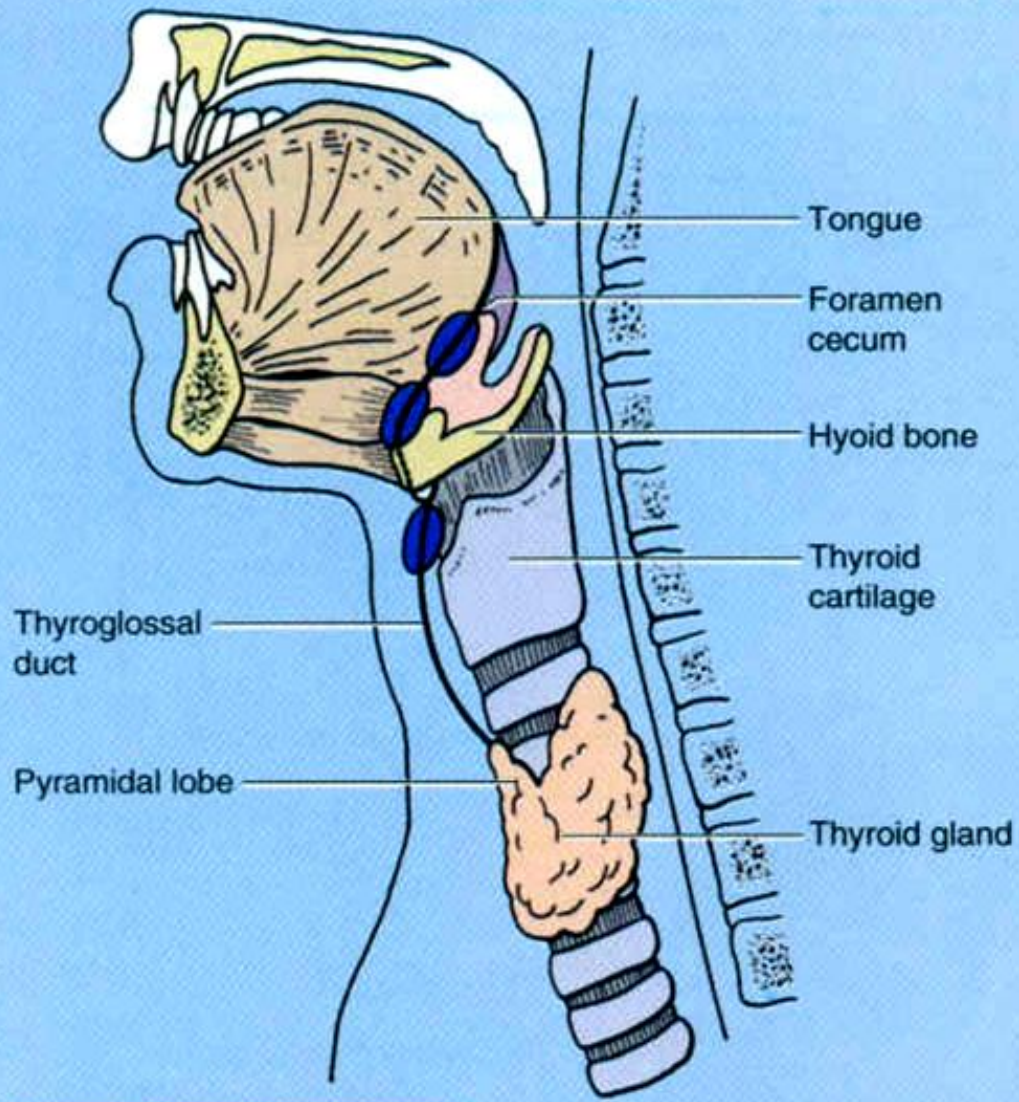




Thyroid Ima Artery

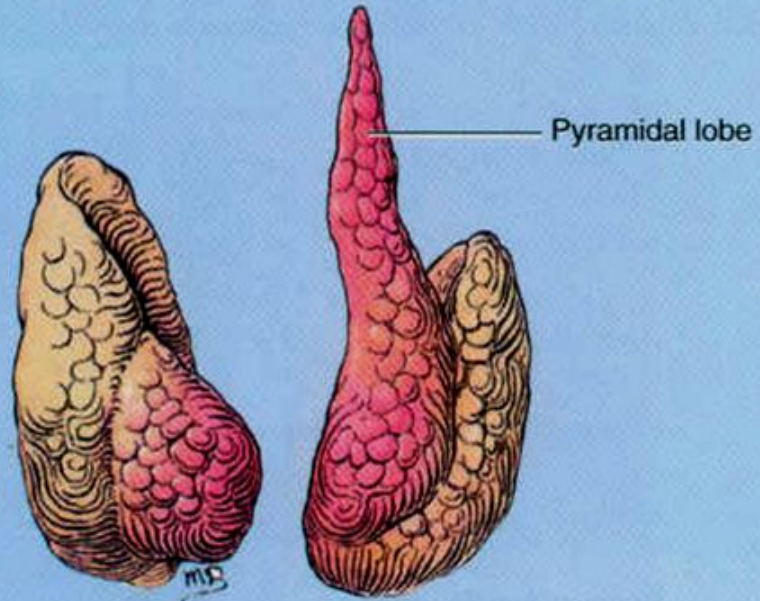
In approximately 10% of people, a small, unpaired *thyroid ima artery* (L. *thyroidea ima*) usually arises from the brachiocephalic trunk; however, it may arise from the arch of the aorta or from the right common carotid, subclavian, or internal thoracic arteries. This small artery ascends on the anterior surface of the trachea, which it supplies, and continues to the isthmus of the thyroid gland, where it divides into branches that supply it. The possible presence of a thyroid ima artery must be considered when performing procedures in the midline of the neck inferior to the isthmus (e.g., for a tracheostomy [p. 1049]). As it runs anterior to the trachea, it is a potential source of bleeding. ❖



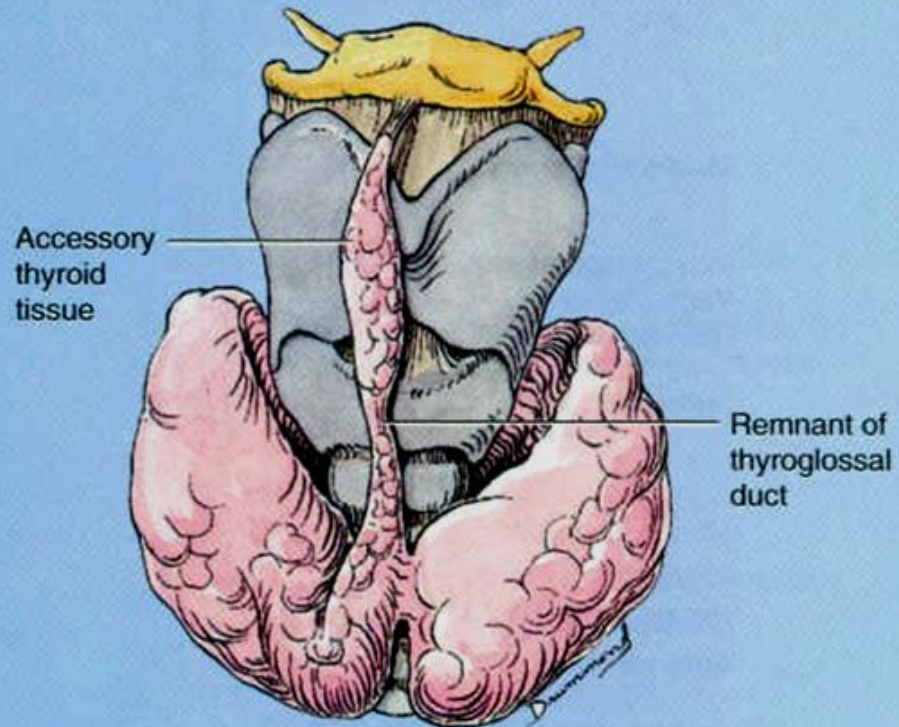


Key

- Potential sites of aberrant thyroid glandular tissue or thyroglossal duct cysts



Absence of isthmus



Parathyroid glands

Position: external to thyroid capsule, but inside its sheath

superior parathyroid glands

– 1 cm sup. to the point of **inf. thyroid artery** into thyroid

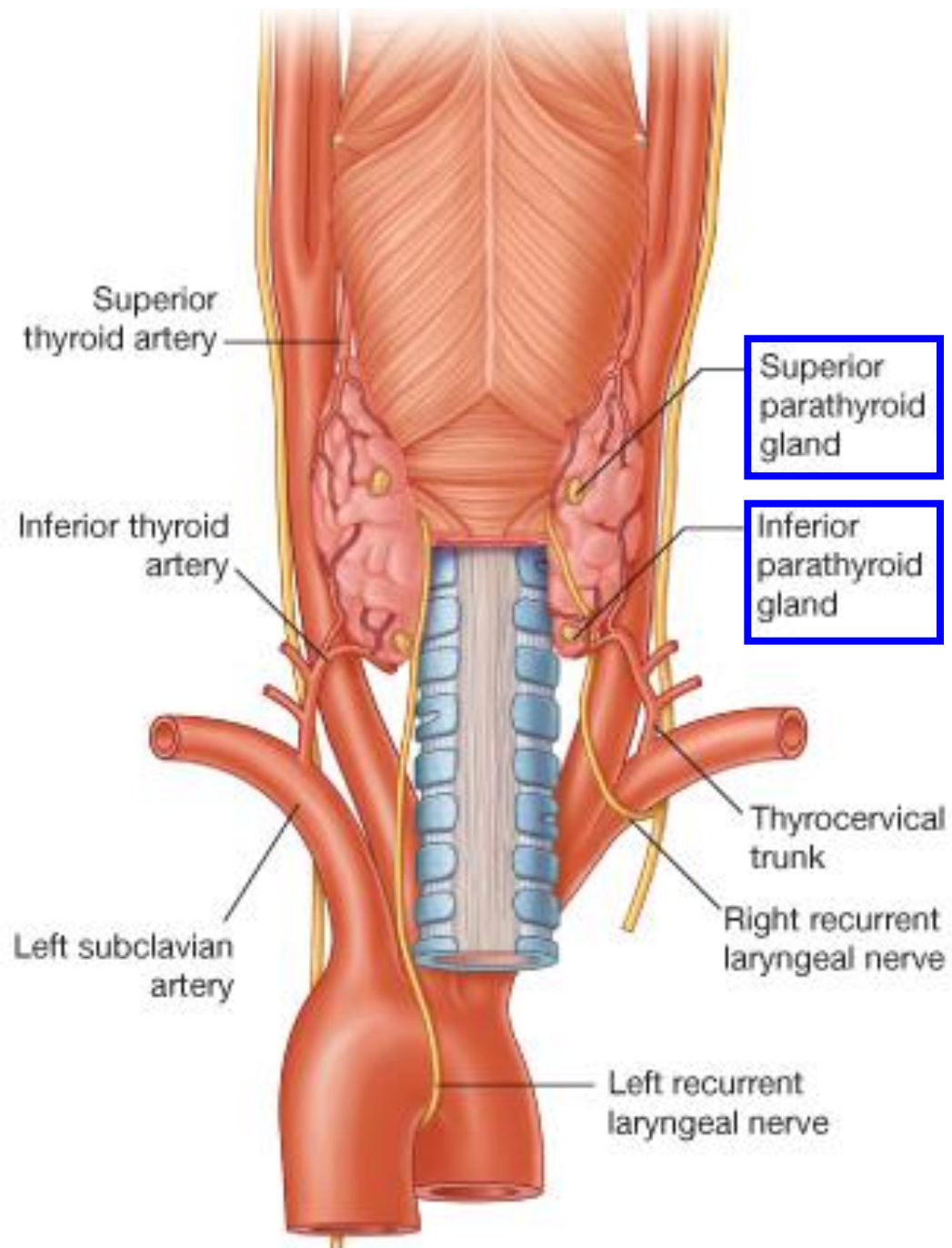
inferior parathyroid glands

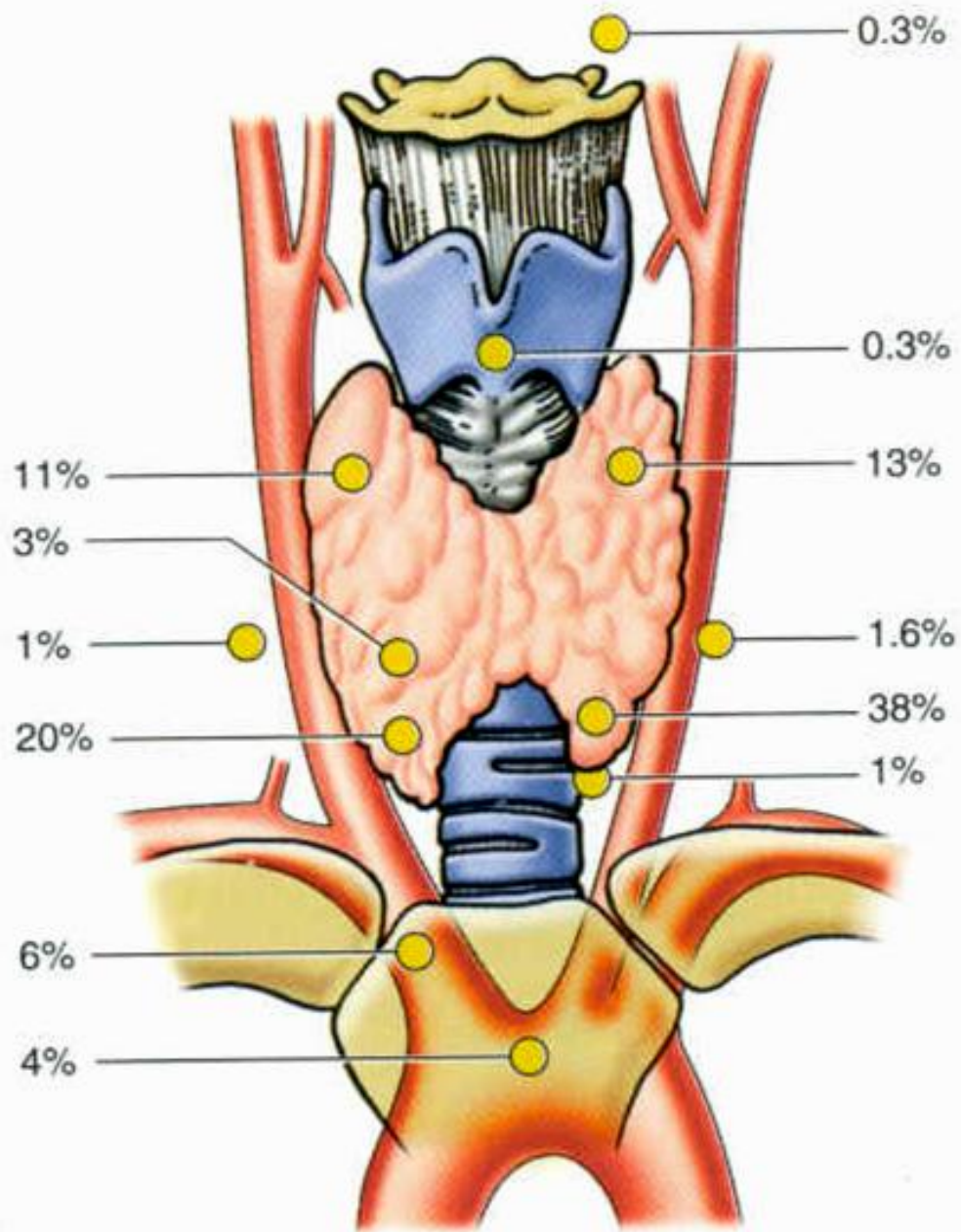
– 1 cm inf. to **inf. thyroid artery** entry point (various position)

Vessels: branches of *inf. thyroid artery* or *sup. thyroid artery*

parathyroid veins → venous plexuses of ant. surface of thyroid

Nerves: thyroid branches of the **cervical sympathetic ganglia**





(B) Anterior view

Figure 8.25. B. (Continued) Sites and frequency of aberrant parathyroid glandular tissue.

Trachea

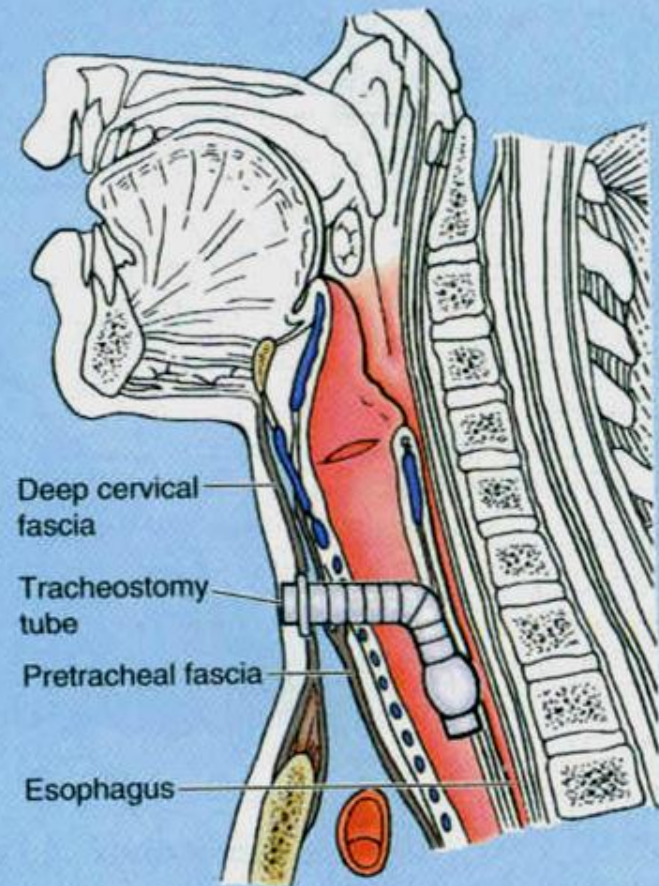
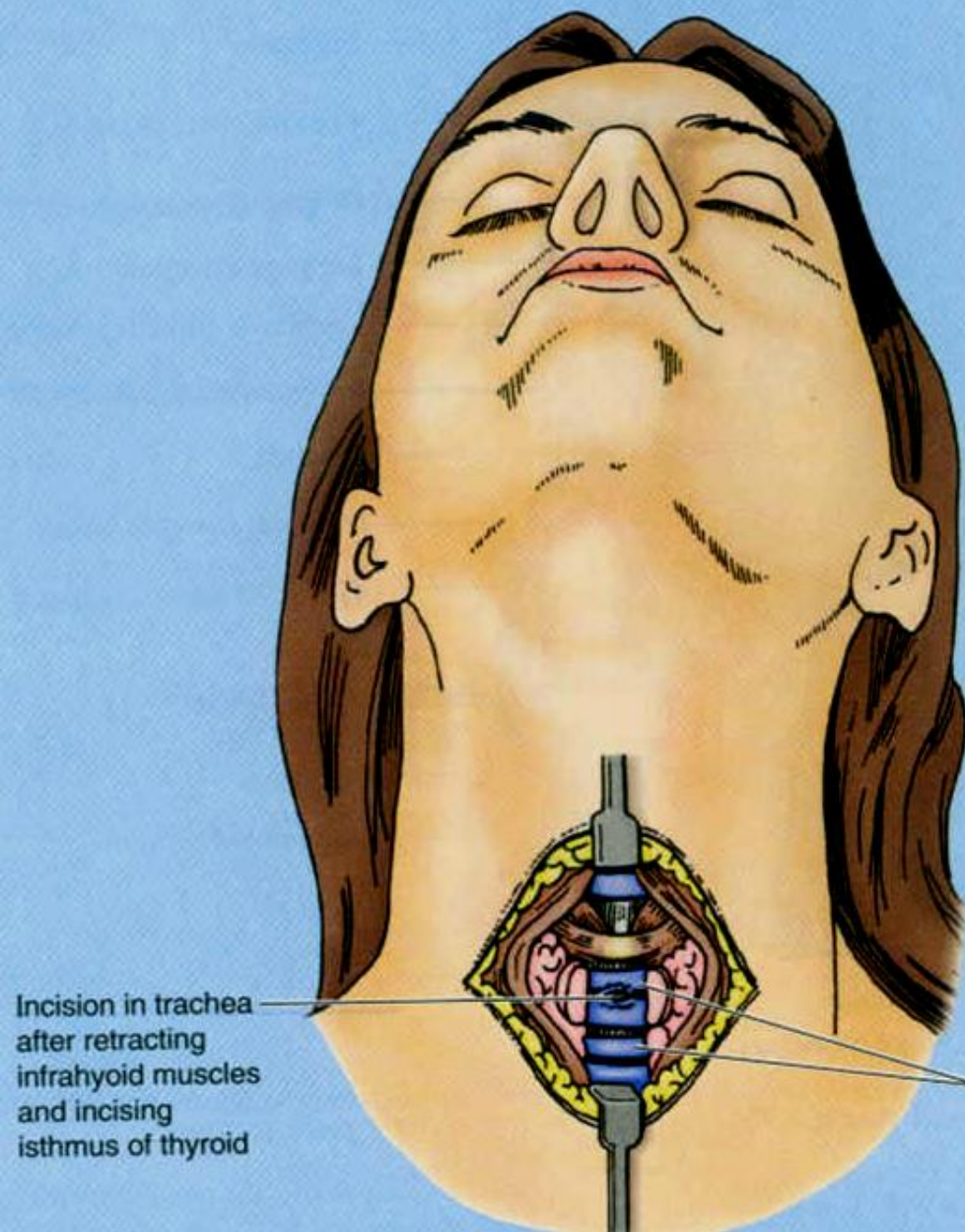
Tracheal rings (C-shape cartilage) + **trachealis** (smooth m.)

Position: **C6** (inf. end of the larynx) – **T4/T5** (sternal angle)

trache`ostomy

– **1st** and **2nd** or **2nd** through **4th** tracheal rings #

**care: inf. thyroid veins, thyroid ima artery,
brachiocephalic vein, thymus and trachea**



Esophagus

Position: from the inf. border of **cricoid cartilage** (C6)
pieces the **diaphragm** enters the stomach

Vessels of the esophagus (cervical part)

Arteries: brs of **inf. thyroid artery**

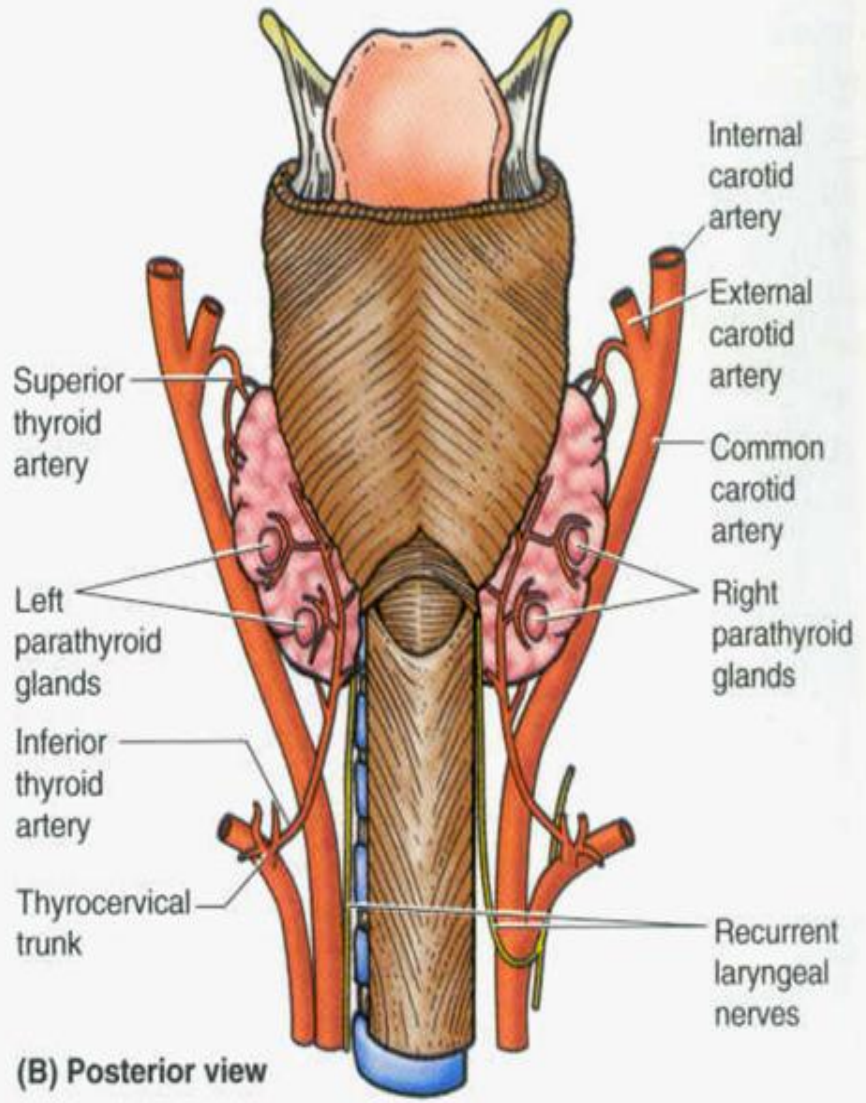
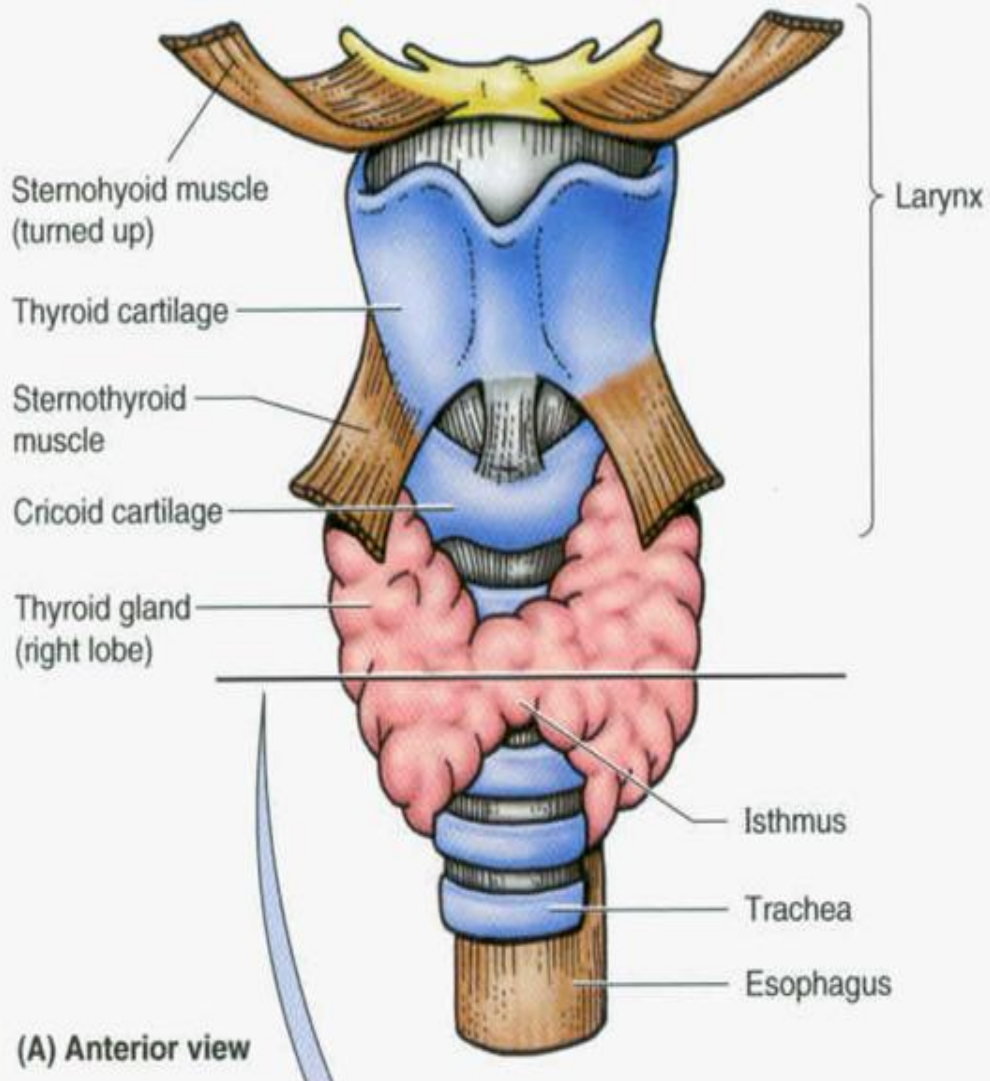
Veins: tributaries of **inf. thyroid veins**

Lymphatics: **paratracheal lymph nodes** and
inf. deep cervical lymph nodes

Nerves of the esophagus (cervical part)

Somatic fibers – **recurrent laryngeal nerve**

Vasomotor fiber – **cervical sympathetic trunks**



Lymphatics in the Neck

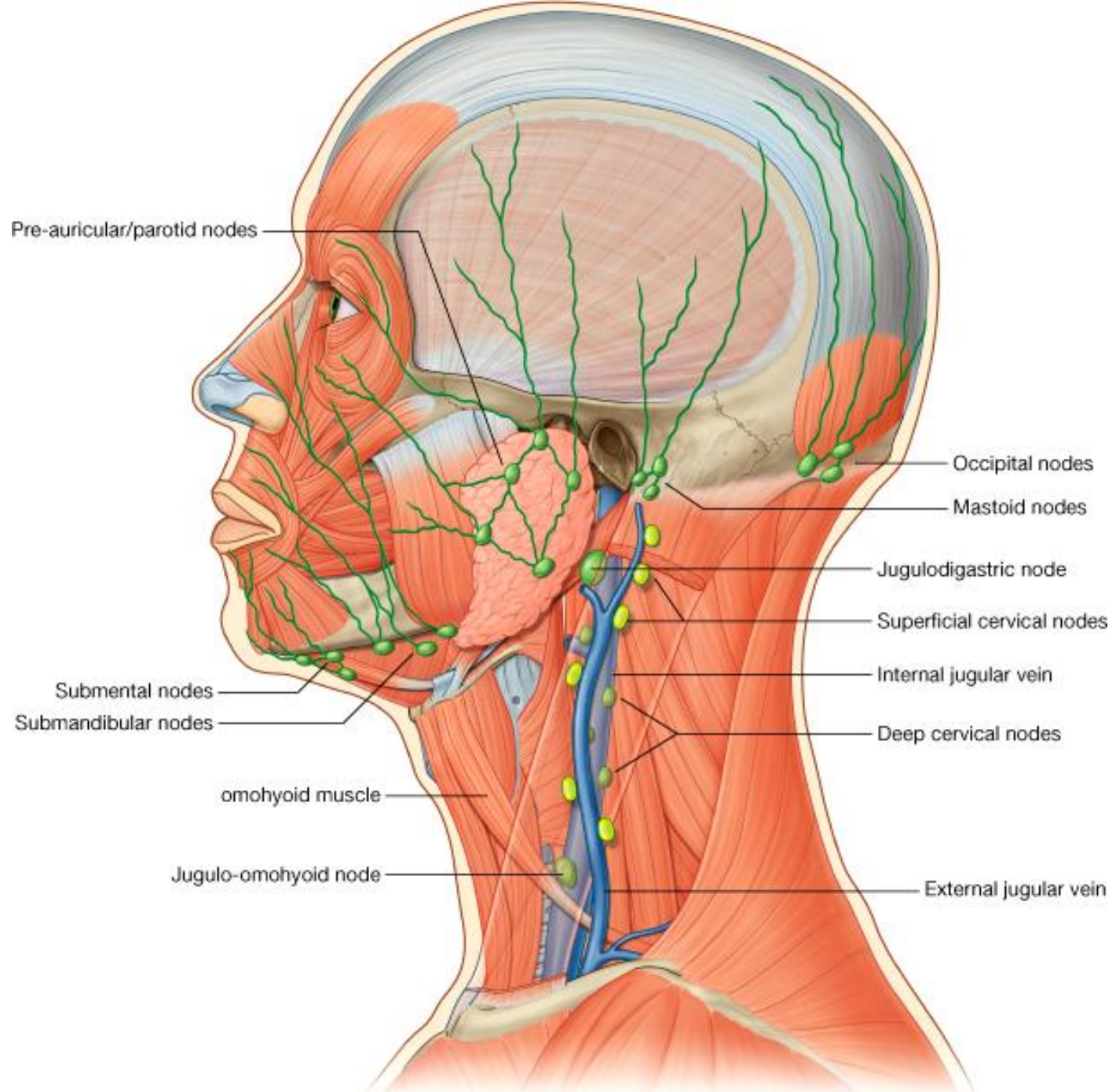
Superficial cervical lymph nodes (along the **EJV**)

→ **inf. deep cervical lymph nodes** (along the **IJV**)

→ left or right jugular lymphatic trunks

→ **thoracic duct** (on the left side)

→ **subclavian vein**



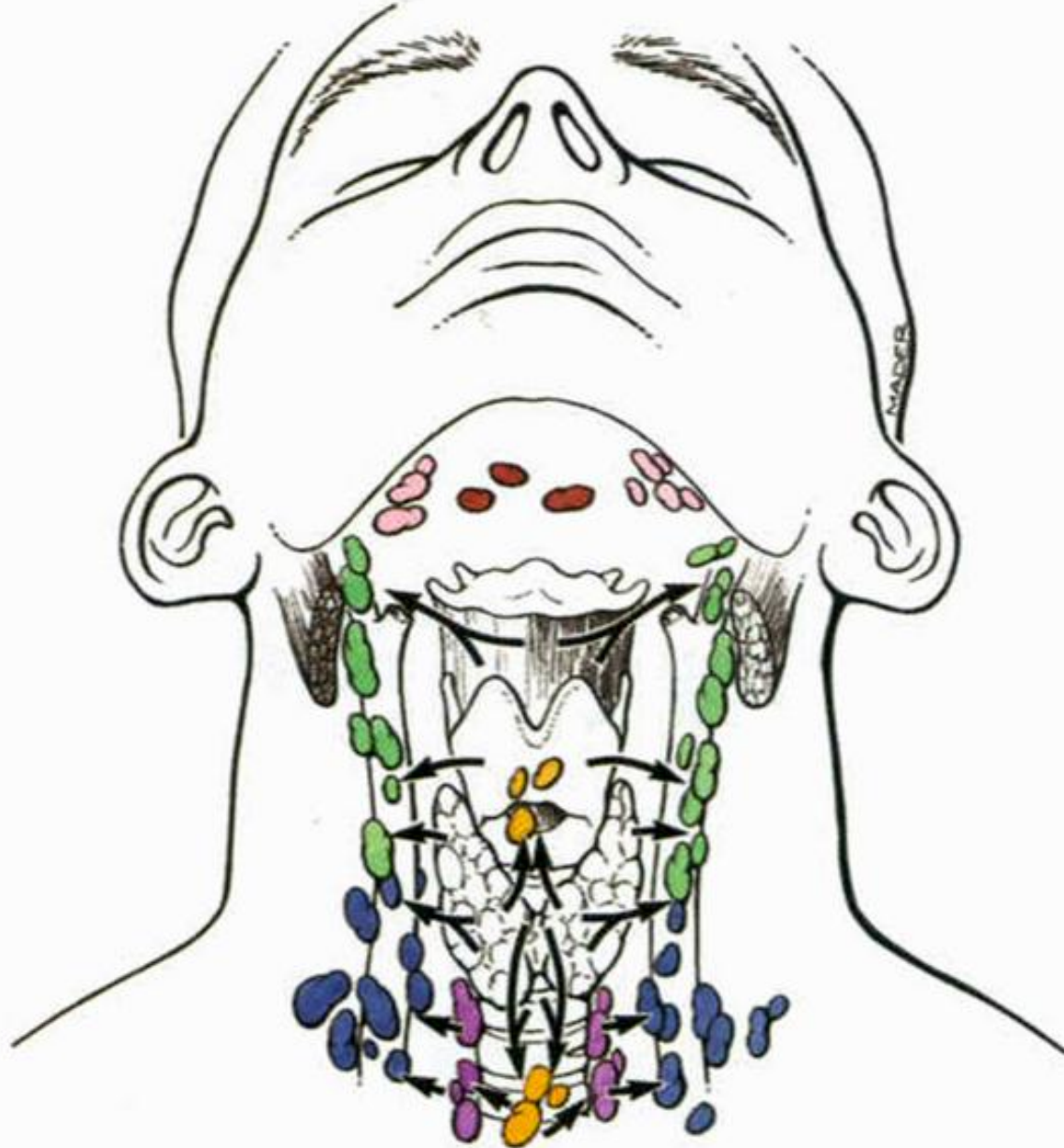
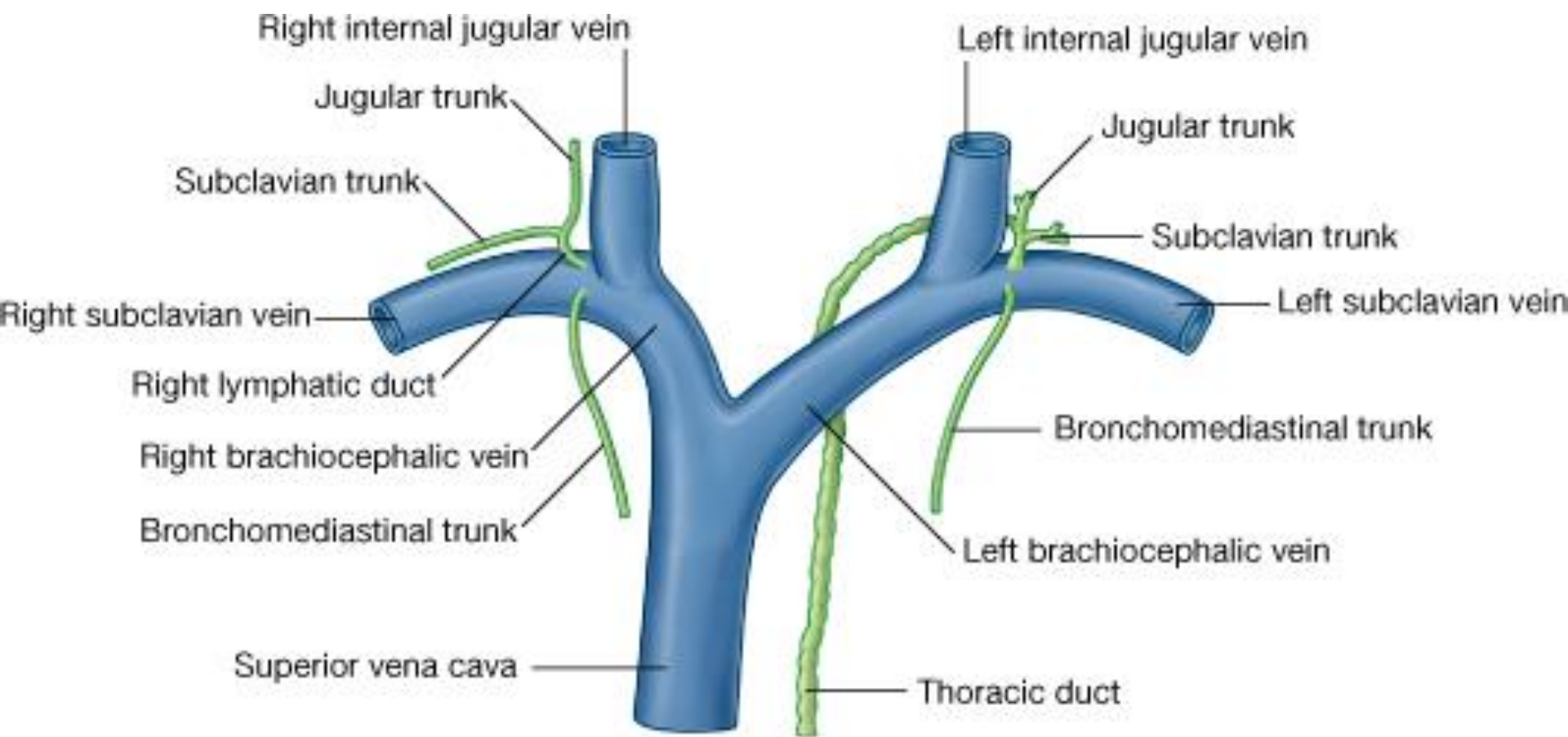


Figure 8.24. Lymphatic drainage of the thyroid gland, larynx, and trachea.

The *arrows* indicate the direction of lymph flow.



Root of the Neck

Arteries in the root of neck

Brachiocephalic trunk

Subclavian artery → vertebral artery,

internal thoracic artery, thyro-cervical trunk

costo-cervical trunk, dorsal scapular artery

Veins in the root of neck

anterior jugular vein, **EJV, IJV**, subclavian vein,
brachiocephalic vein

Root of the Neck

Nerves in the root of neck

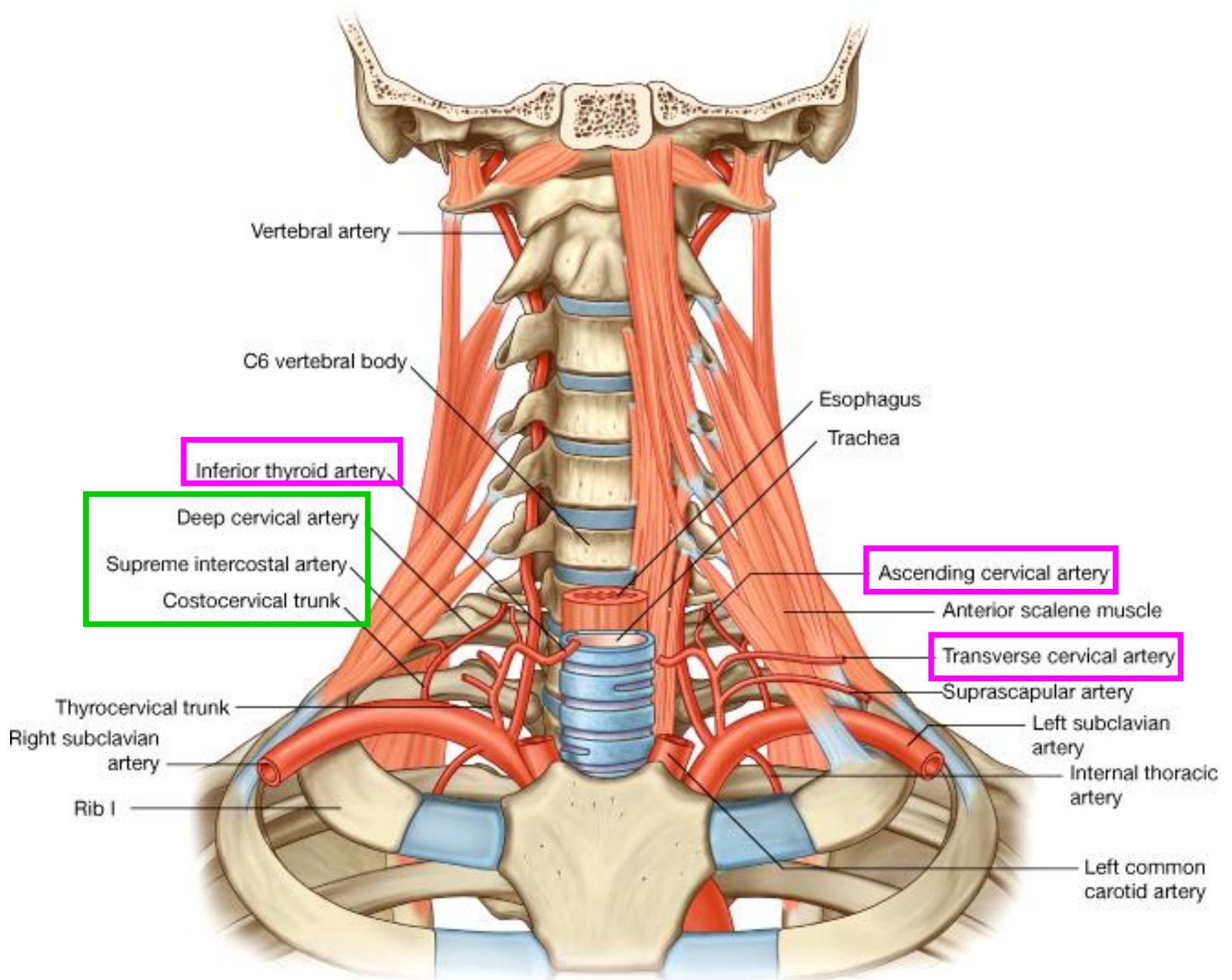
Vagus nerve – **recurrent laryngeal nerve**

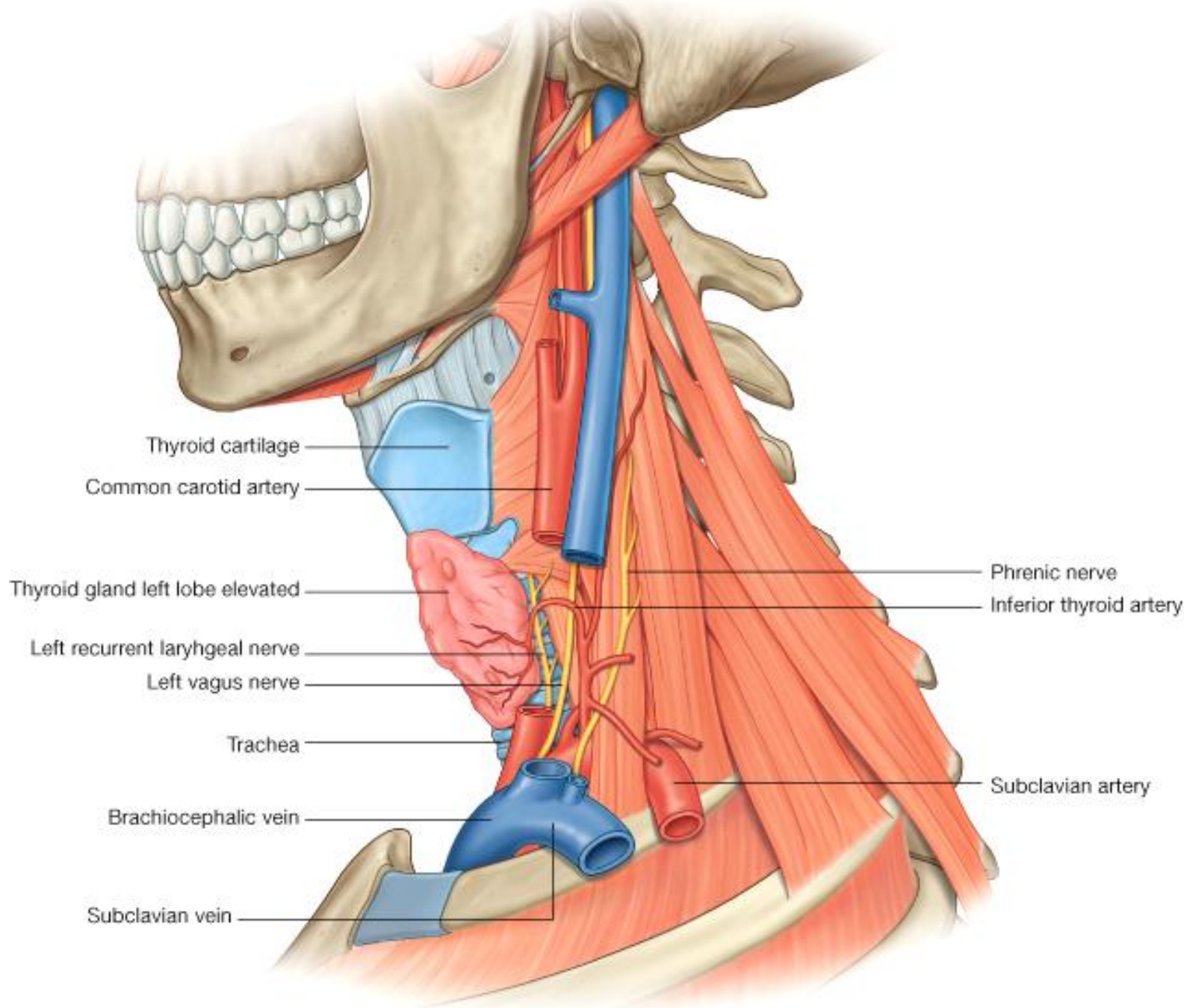
Phrenic nerve

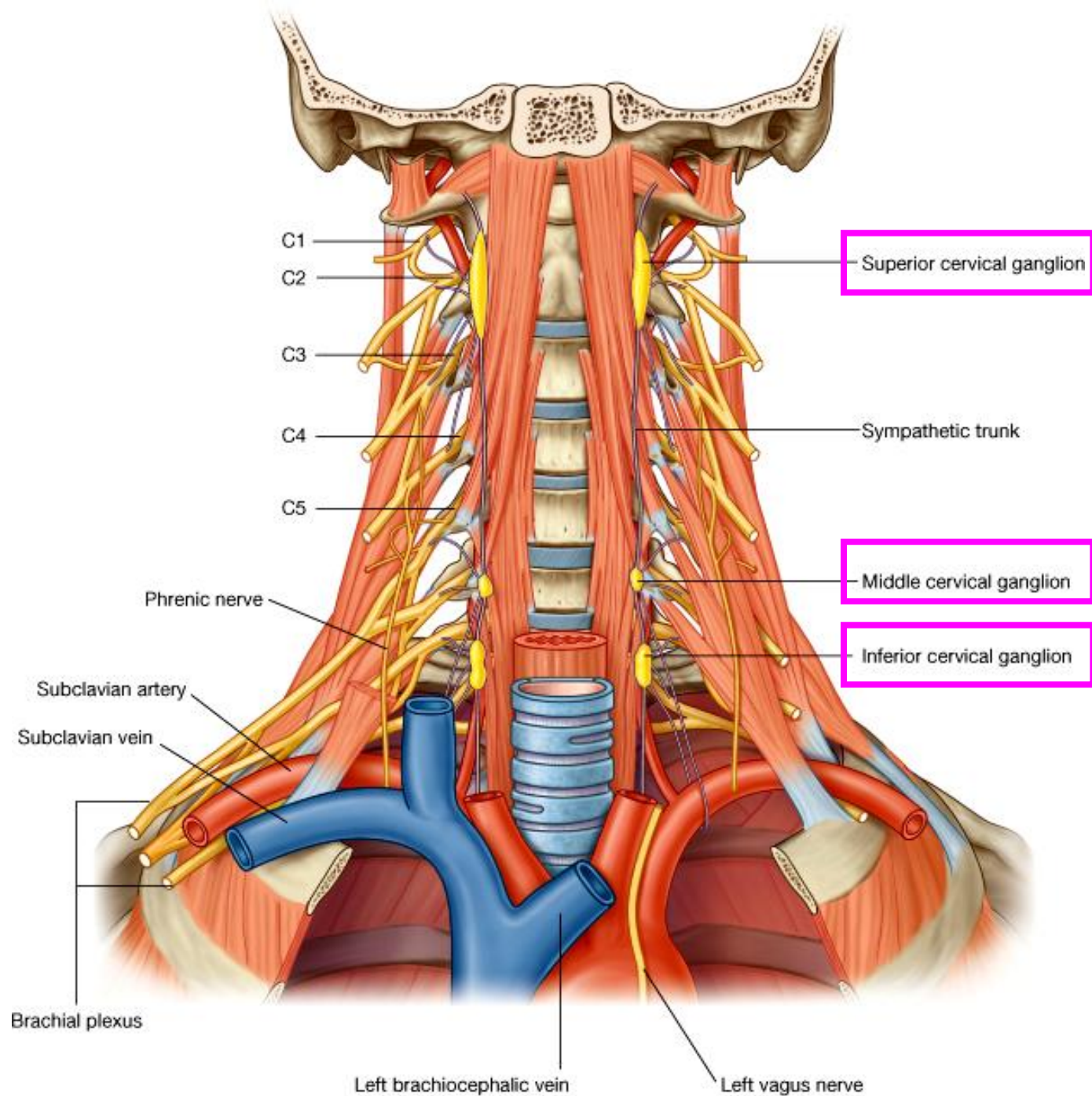
Sympathetic trunk –

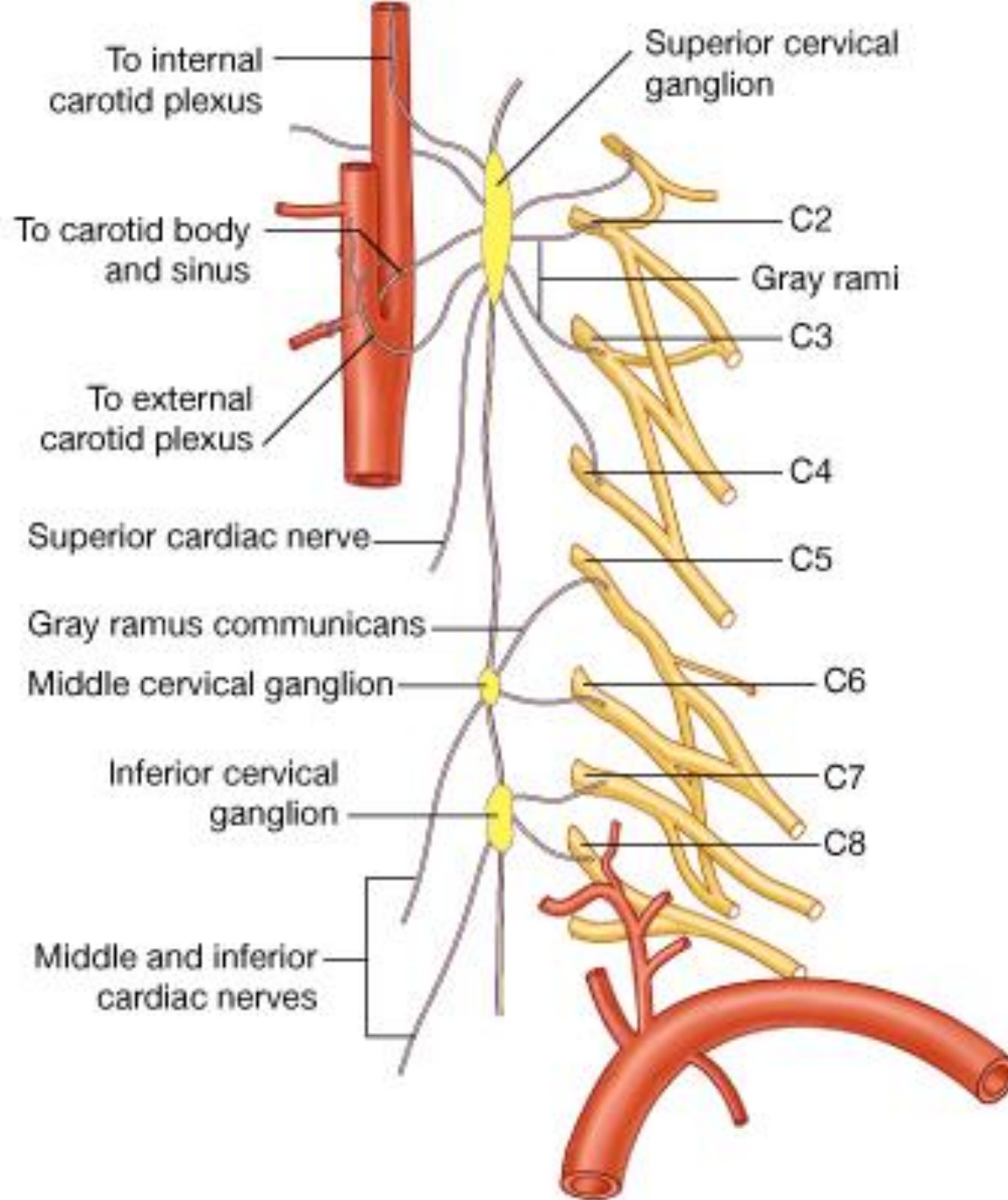
sup., mid. & inf. (cervicothoracic)

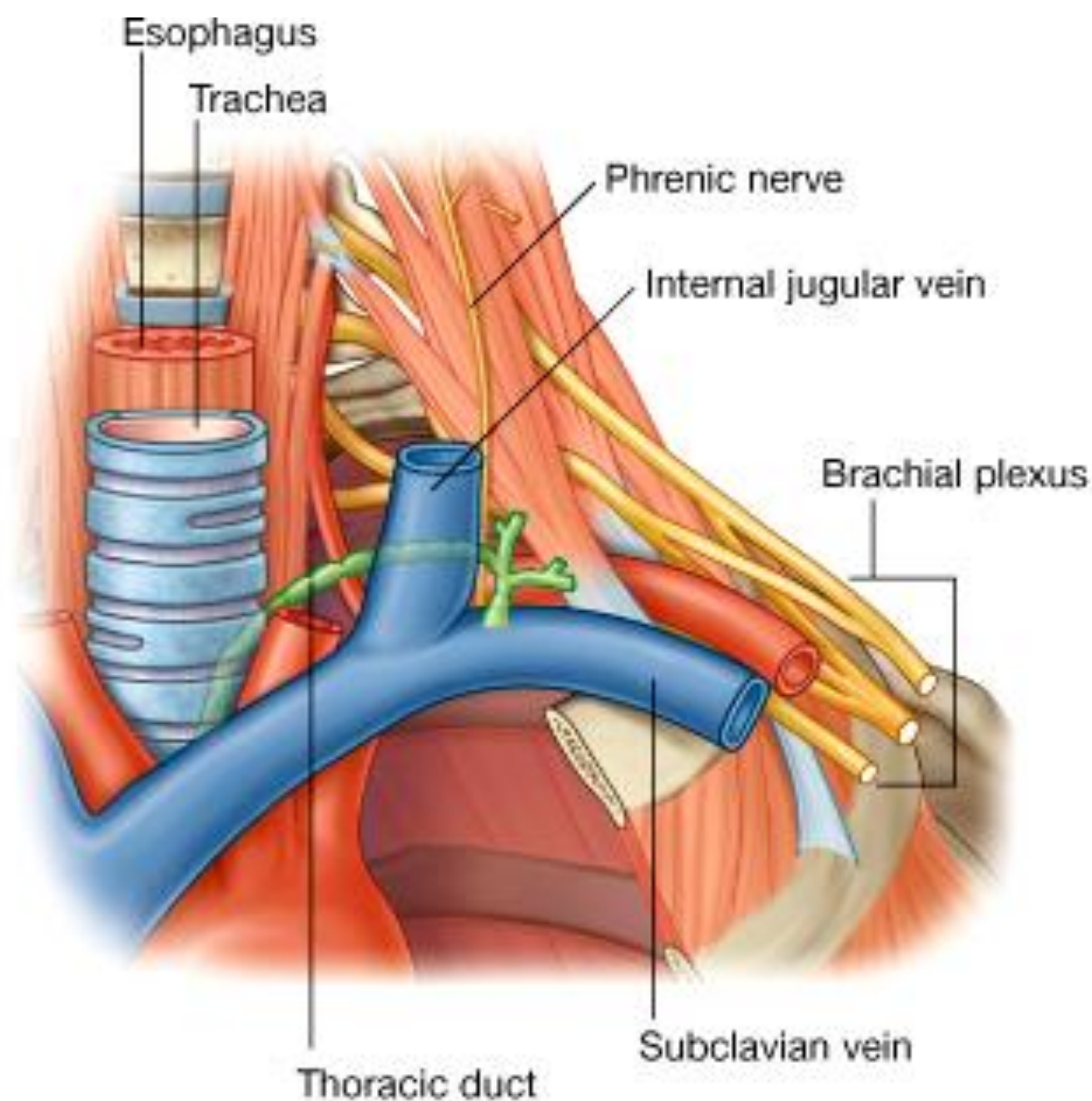
cervical ganglia











Dissection of the neck

Cervical viscera

Thyroid gland

1. reflect the **infrahyoid** and **SCM** muscles to expose the thyroid gland
2. identify **right & left lobes & isthmus**
3. identify **sup. & inf. thyroid arteries;**
sup. mid. & inf. thyroid veins.
4. Cut **isthmus** of the gland and turn the lobes laterally.
5. Display the **recurrent laryngeal nerve**
– post. to the gland on side of trachea
6. Remove one (left) lobe of thyroid gland, and find the **parathyroid glands**

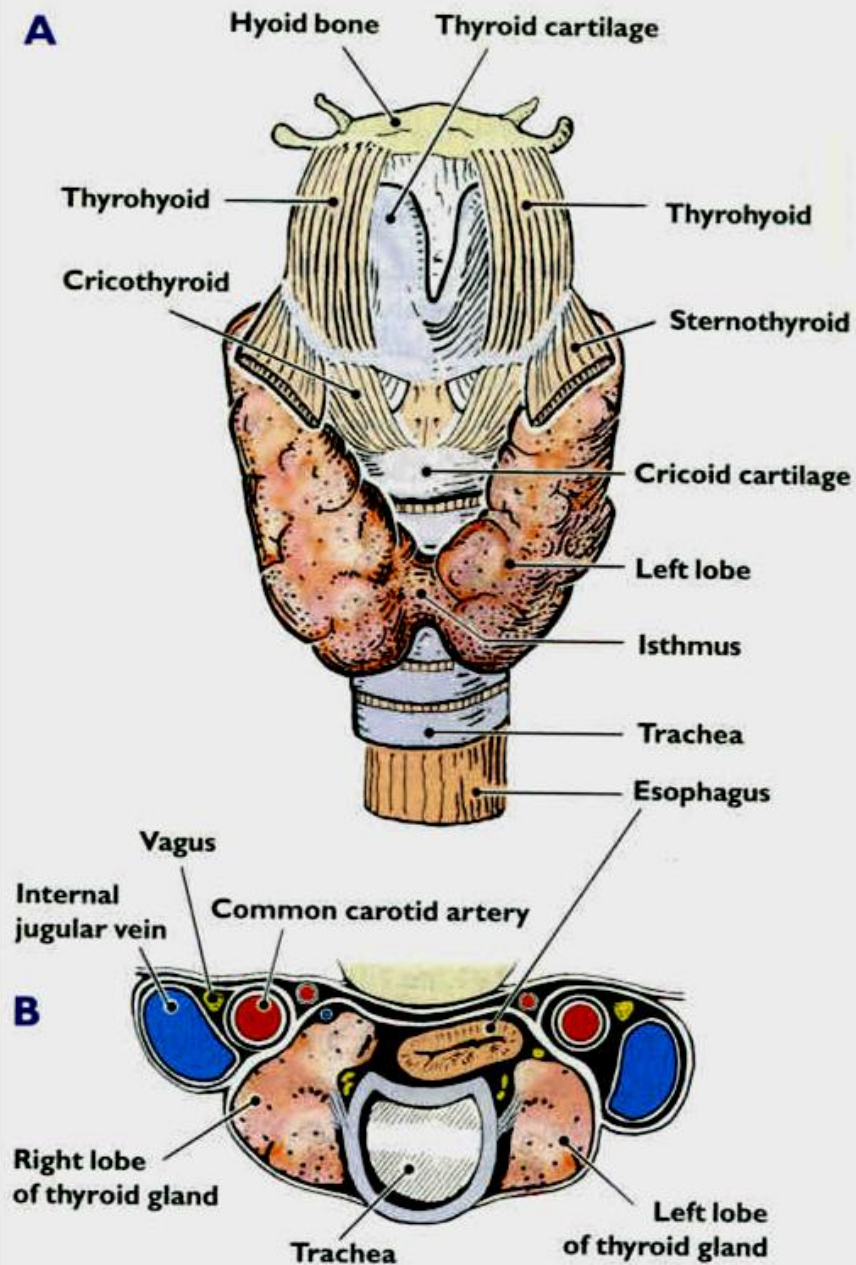


Figure 7.60. The thyroid gland and its relations in anterior view (**A**) and transverse section (**B**).

Root of Neck

1. cut **common carotid artery** and **IJV** (but not the vagus n.) about 2 cm superior to the clavicle, reflect the large vessels superiorly.
2. Carefully trace and find the **thoracic duct** and its opening into the veins
3. Clean the **vagus nerve** and **phrenic nerve**; follow them into thorax.

Root of Neck

4. Trace the **thyro-cervical trunk** and its branches
(inferior thyroid artery, transverse cervical artery
& suprascapular artery)
5. Identify **internal thoracic artery** and **vertebral artery**
(between **longus colli** & **scalenus anterior** m.
and **transverse process of C6**)
6. Examine **sympathetic trunk** &
its ganglia (**sup. mid. inf.**)

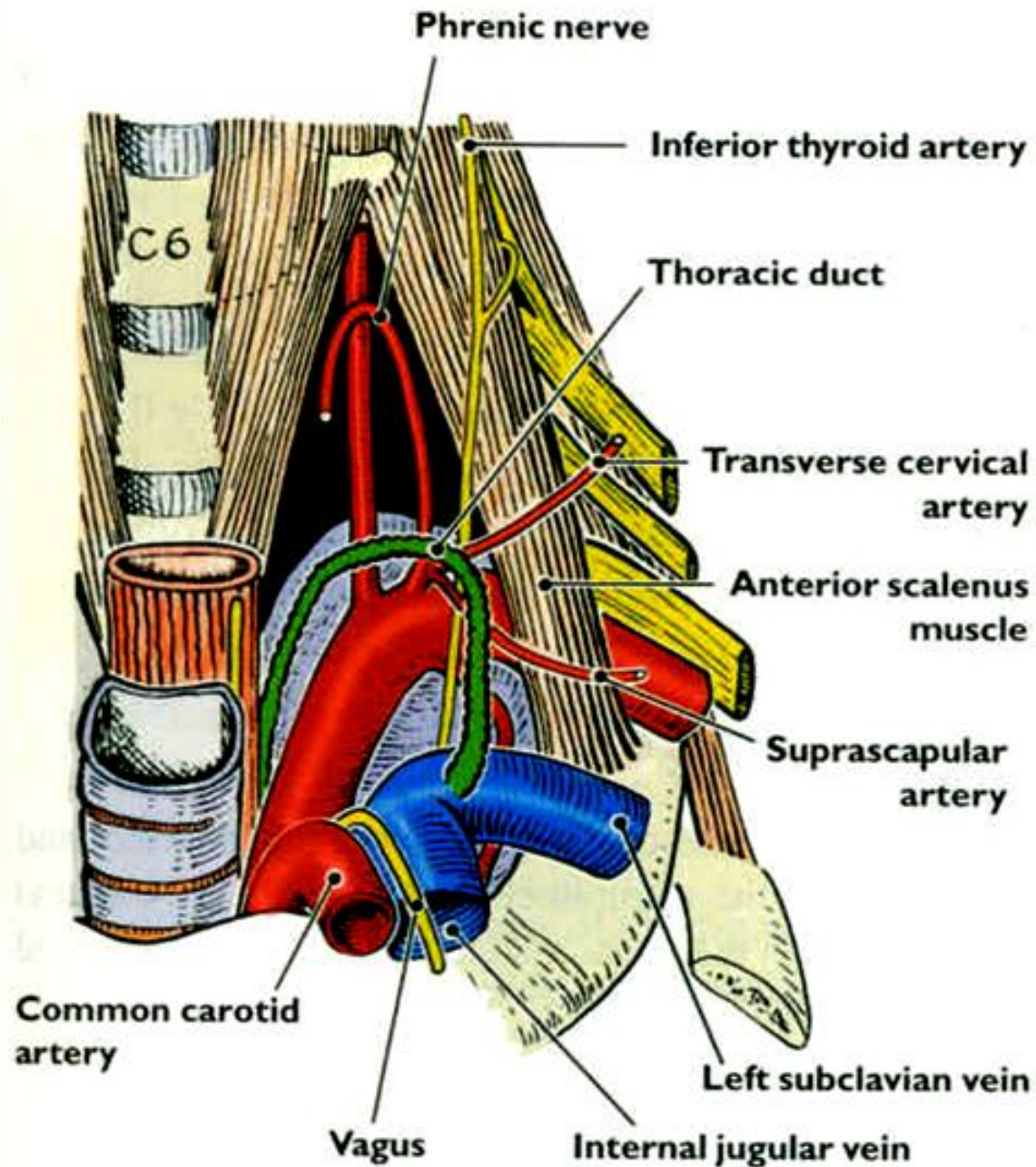


Figure 7.61. Root of the neck: drainage of the thoracic duct.

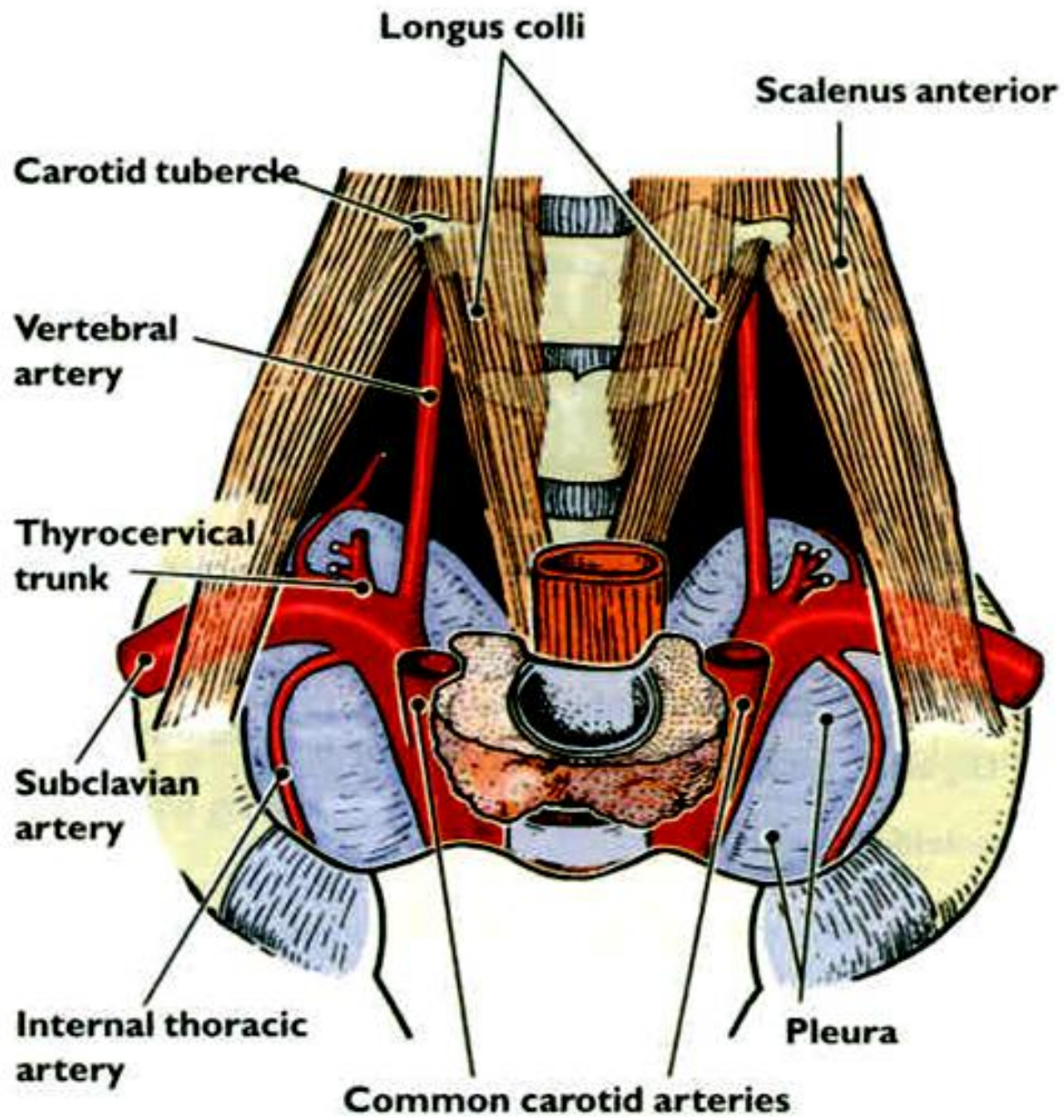


Figure 7.62. Triangle of the vertebral artery: branches of the subclavian artery.