POSTERIOR MEDIASTINUM

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Mediastinum

** It is the space between the two pleural cavities.

** Boundaries of the mediastinum:

- ✓ **Anteriorly:** Sternum.
- ✓ **Posteriorly:** All thoracic vertebrae.
- ✓ **Superiorly:** Thoracic inlet.
- ✓ **Inferiorly:** Diaphragm.

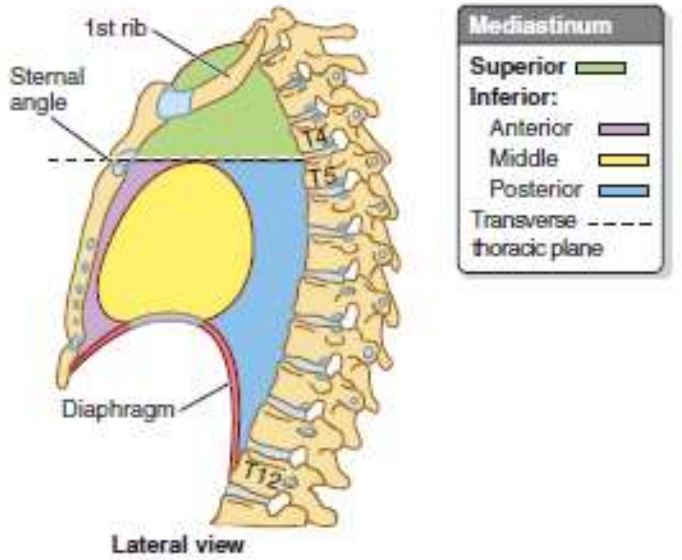
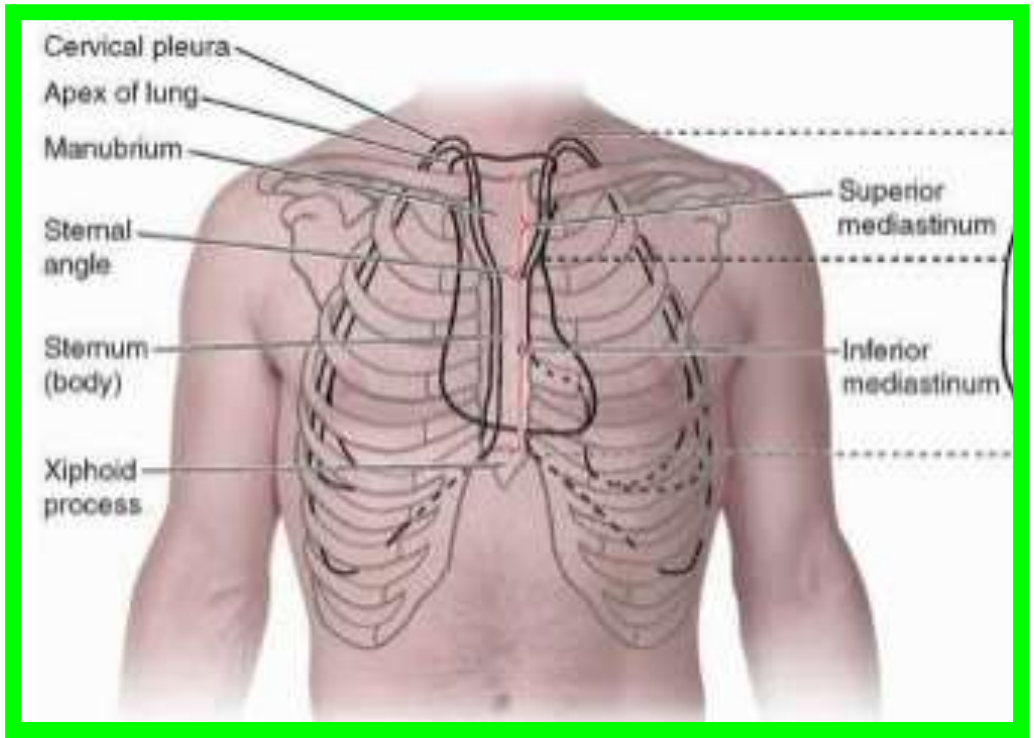


FIGURE 1.23. Subdivisions of mediastinum.

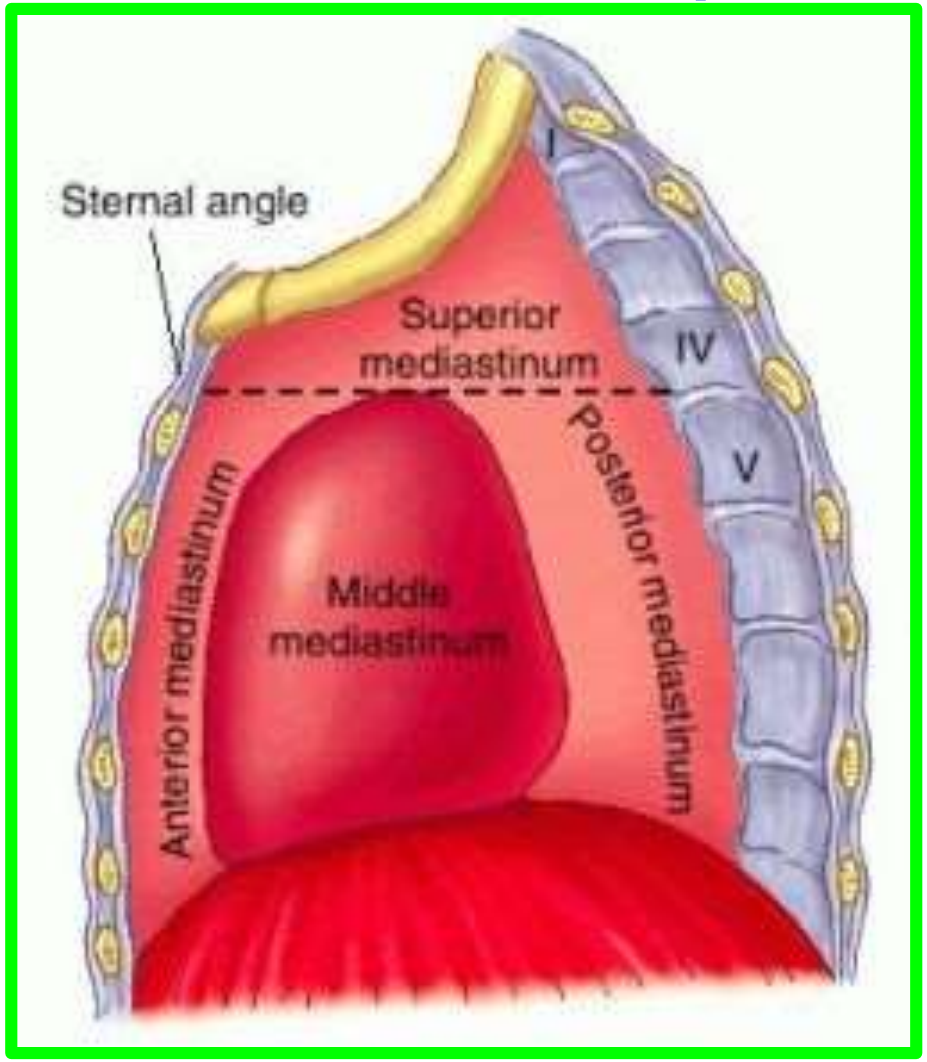


Mediastinum

** The mediastinum is divided by a horizontal imagery line extends from the sternal angle (angle of Louis) to the inter-vertebral disc of T4/T5 into superior and inferior mediastinum.

** The inferior mediastinum is divided by the heart and pericardium into:

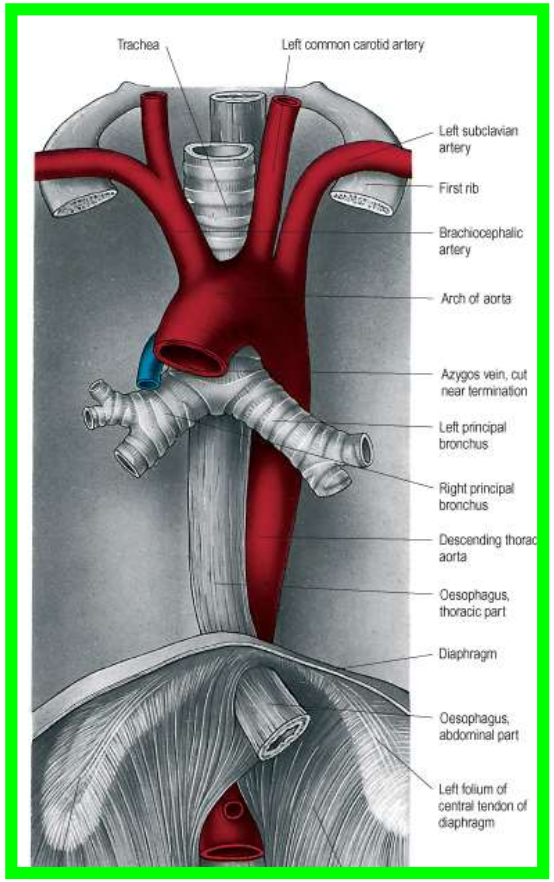
- Anterior mediastinum
- Middle mediastinum
- Posterior mediastinum

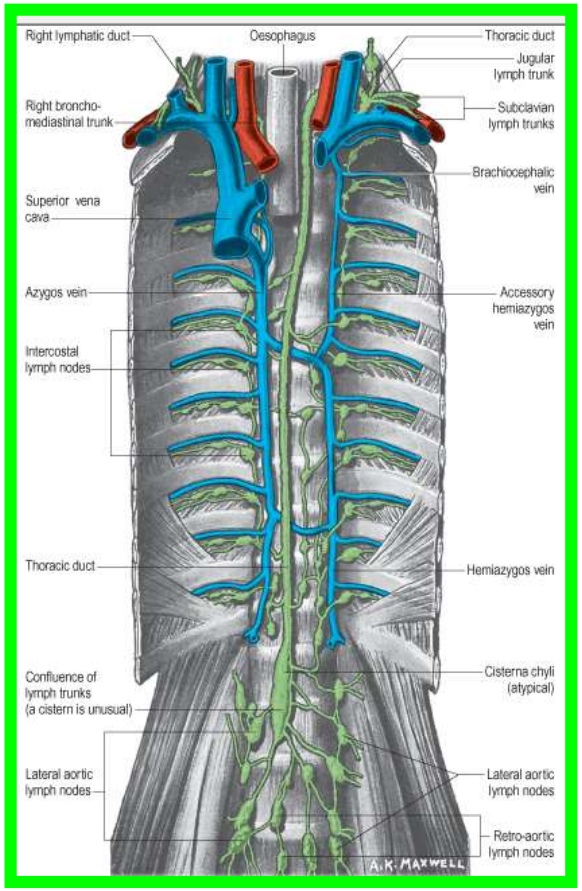


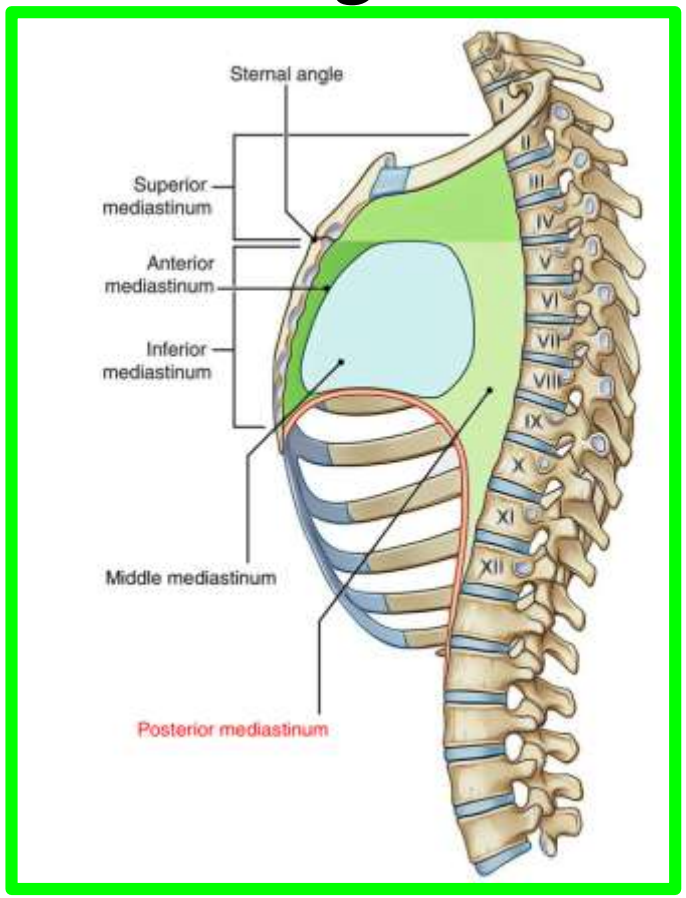
Posterior mediastinum

** Boundaries;

- ✓ **Anteriorly,** pericardium.
- ✓ **Posteriorly,** The bodies of T5 to T12 thoracic vertebrae.
- ✓ **Superiorly,** The horizontal transverse thoracic plane
- ✓ **Inferiorly,** diaphragm.
- ✓ **On each side,** pleura and lung.



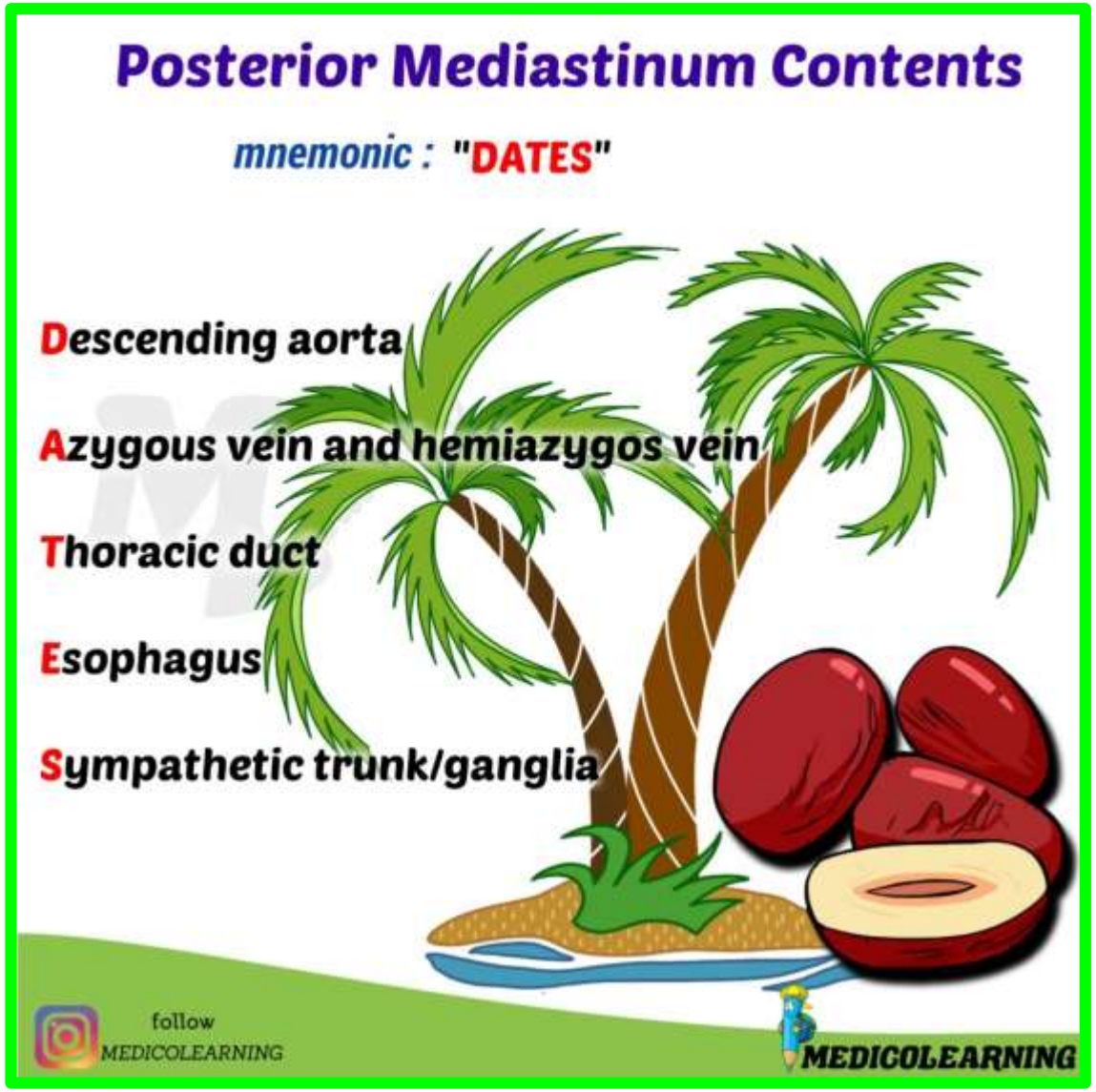




Posterior mediastinum

** Contents

1) Esophagus and oesophageal nerve plexus.
2) Descending thoracic aorta.
3) Thoracic duct.
4) Azygos vein.
5) Hemiazygos vein.
6) Accessory hemiazygos vein.
7) Right and left vagus nerves.
8) Sympathetic chains
9) Posterior mediastinal lymph nodes.
10) Pre-vertebral muscles.
11) Anterior longitudinal ligament.

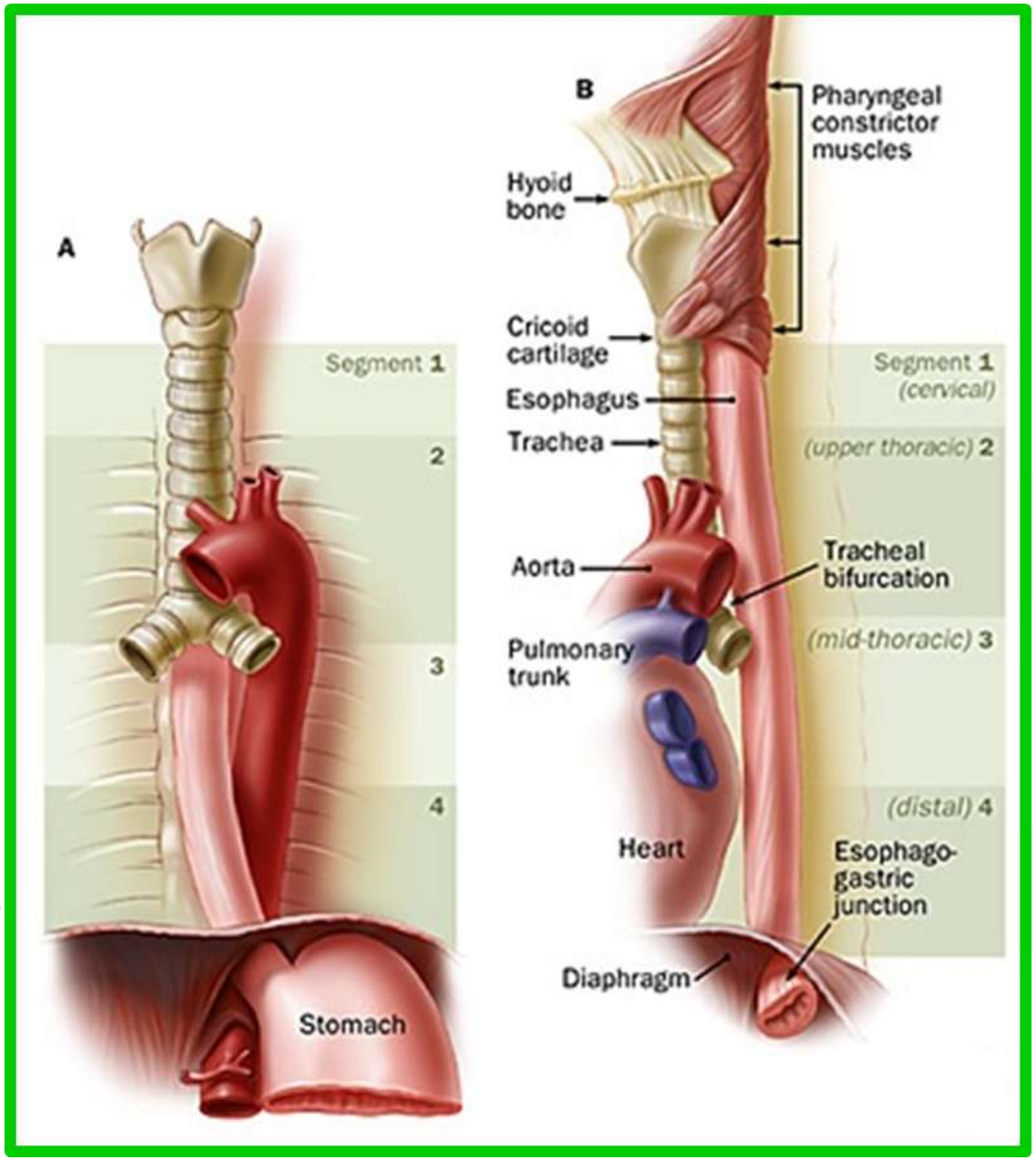


The Esophagus

❖The esophagus is a muscular tube about 10 in. (25 cm) long, with an average diameter of 2 cm that extending from the pharynx to the stomach

❖It begins at the level of the cricoid cartilage, opposite the body of the sixth cervical vertebra.

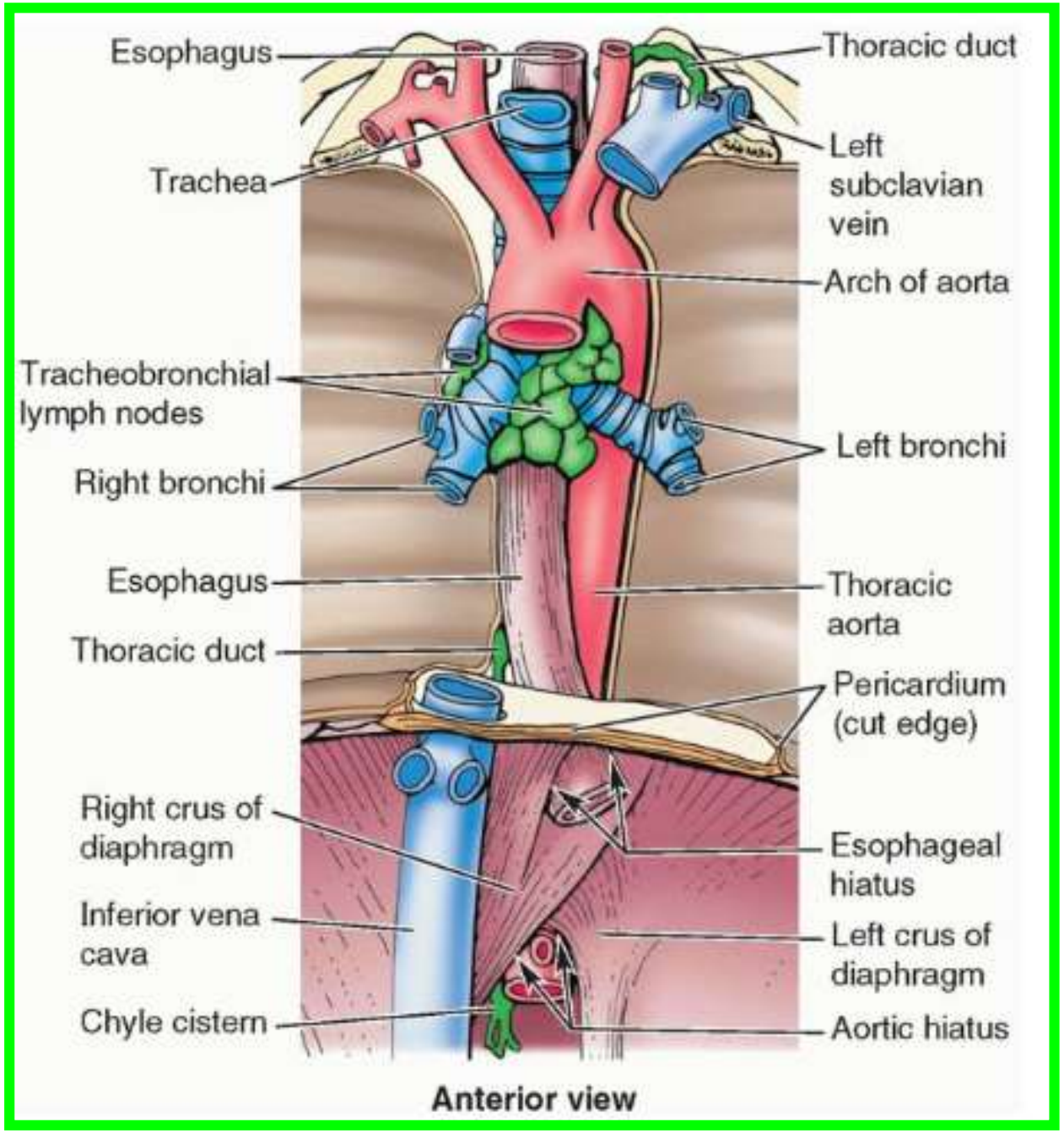
❖ It passes through the diaphragm at the level of the 10th thoracic vertebra to join the stomach at the level of the 7th left costal cartilage and T11 vertebra



The Esophagus

In the thorax, it passes downward and to the left through the superior and then the posterior mediastinum

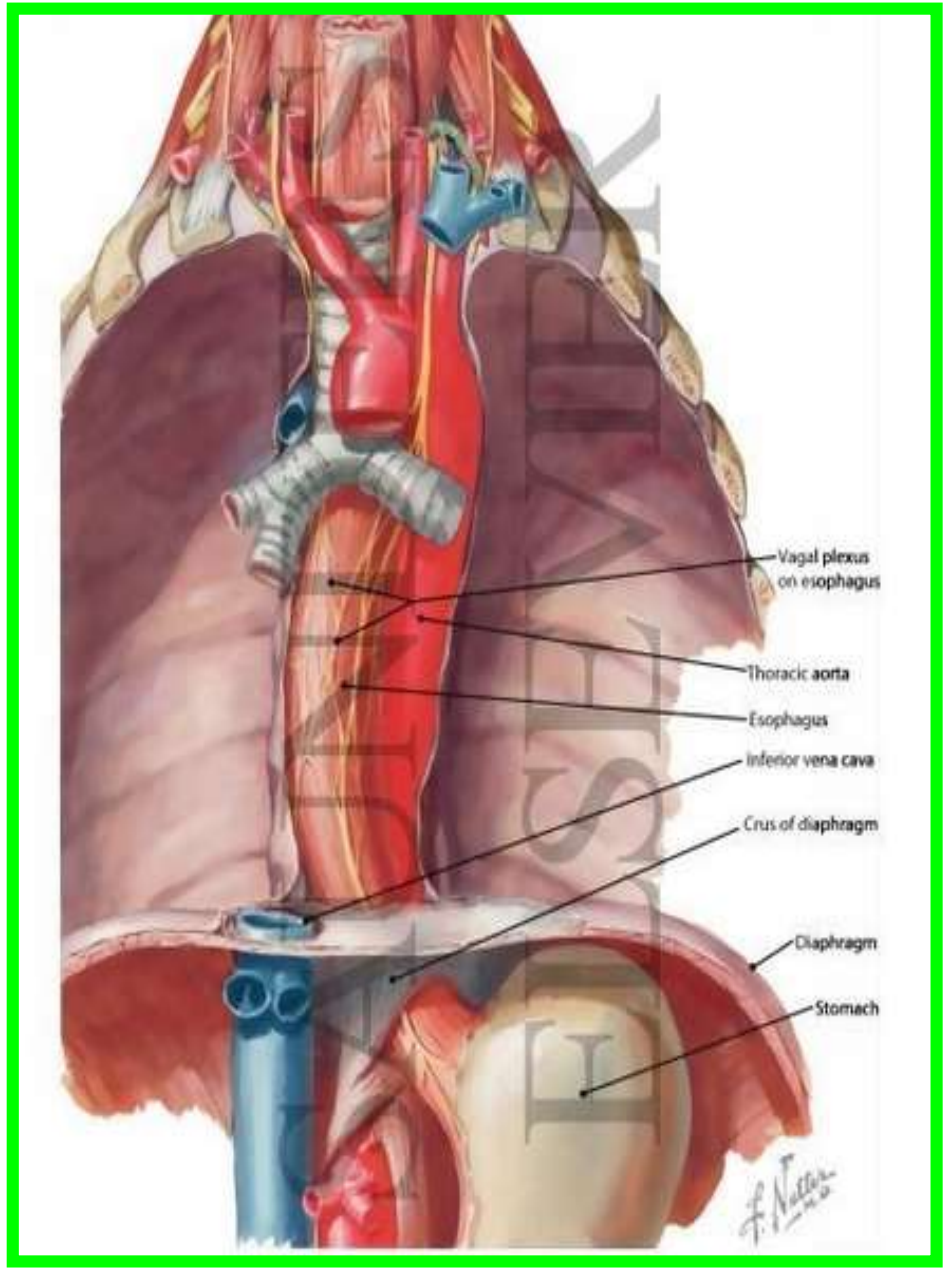
At the level of the sternal angle, the aortic arch pushes the esophagus over to the midline



The Esophagus

■■ Anteriorly:

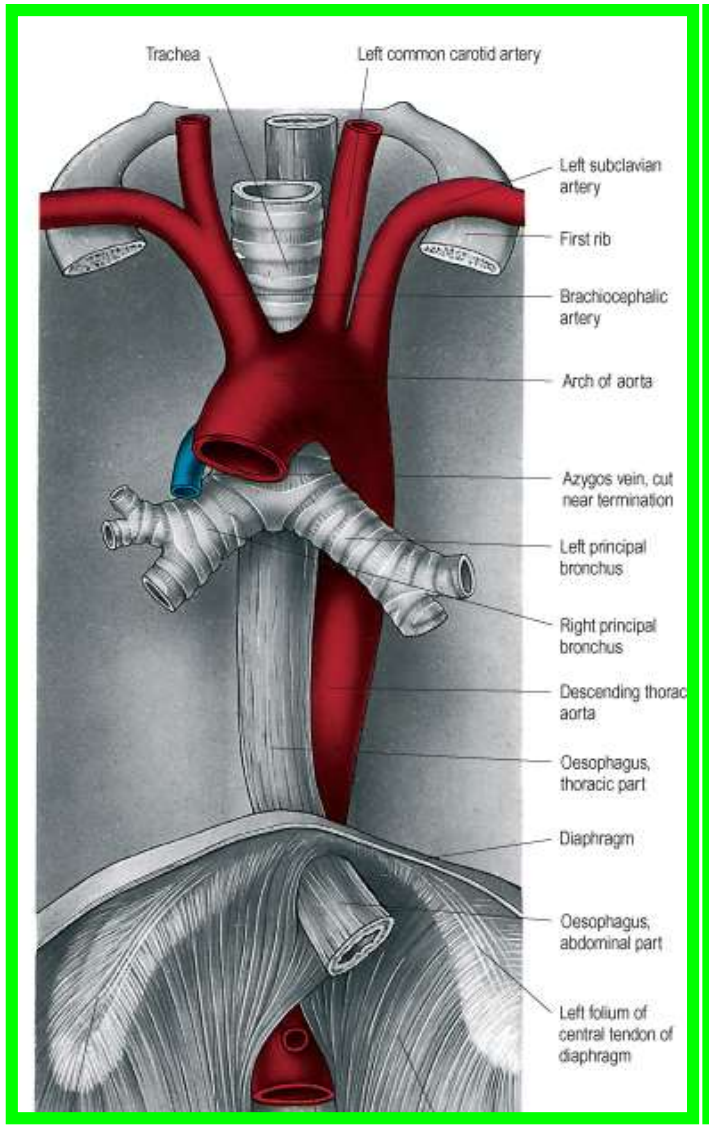
- ✓ The trachea and
- ✓ the left recurrent laryngeal nerve;
- ✓ the left principal bronchus, which constricts it; and
- ✓ the pericardium, which separates the esophagus from the left atrium

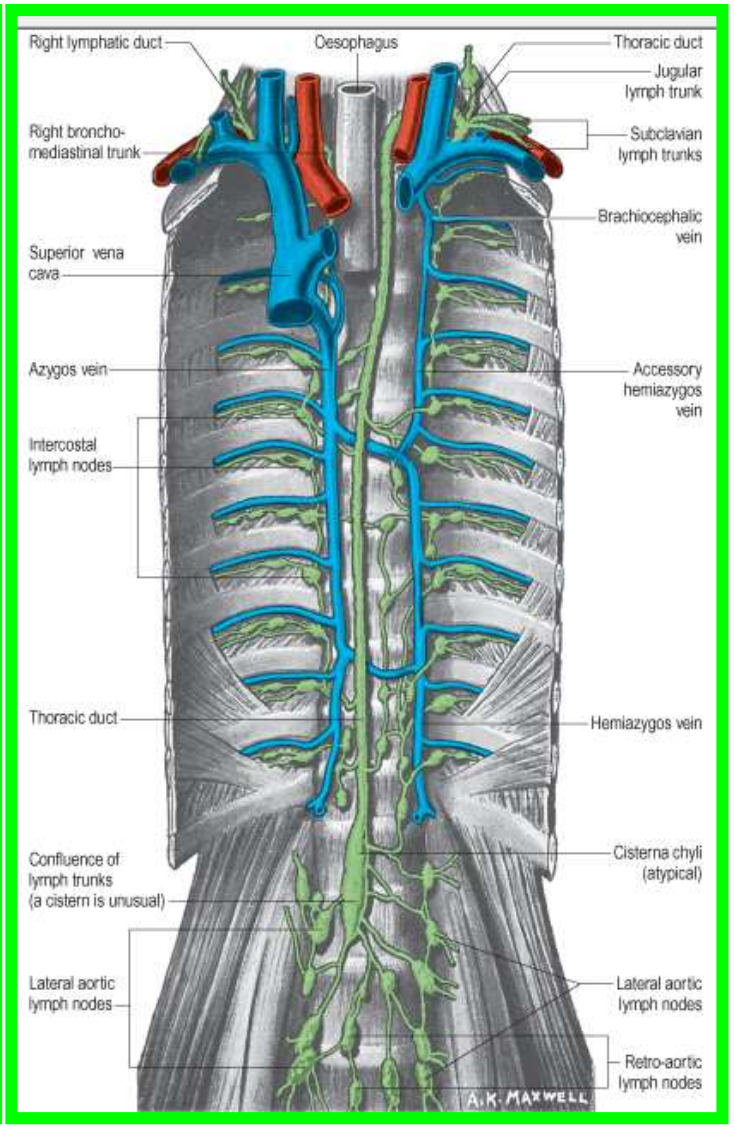


The Esophagus

■■ Posteriorly:

- ✓ The bodies of the thoracic vertebrae;
- ✓ the thoracic duct;
- ✓ the azygos veins;
- ✓ the right posterior intercostal arteries; and, at its lower end,
- ✓ the descending thoracic aorta

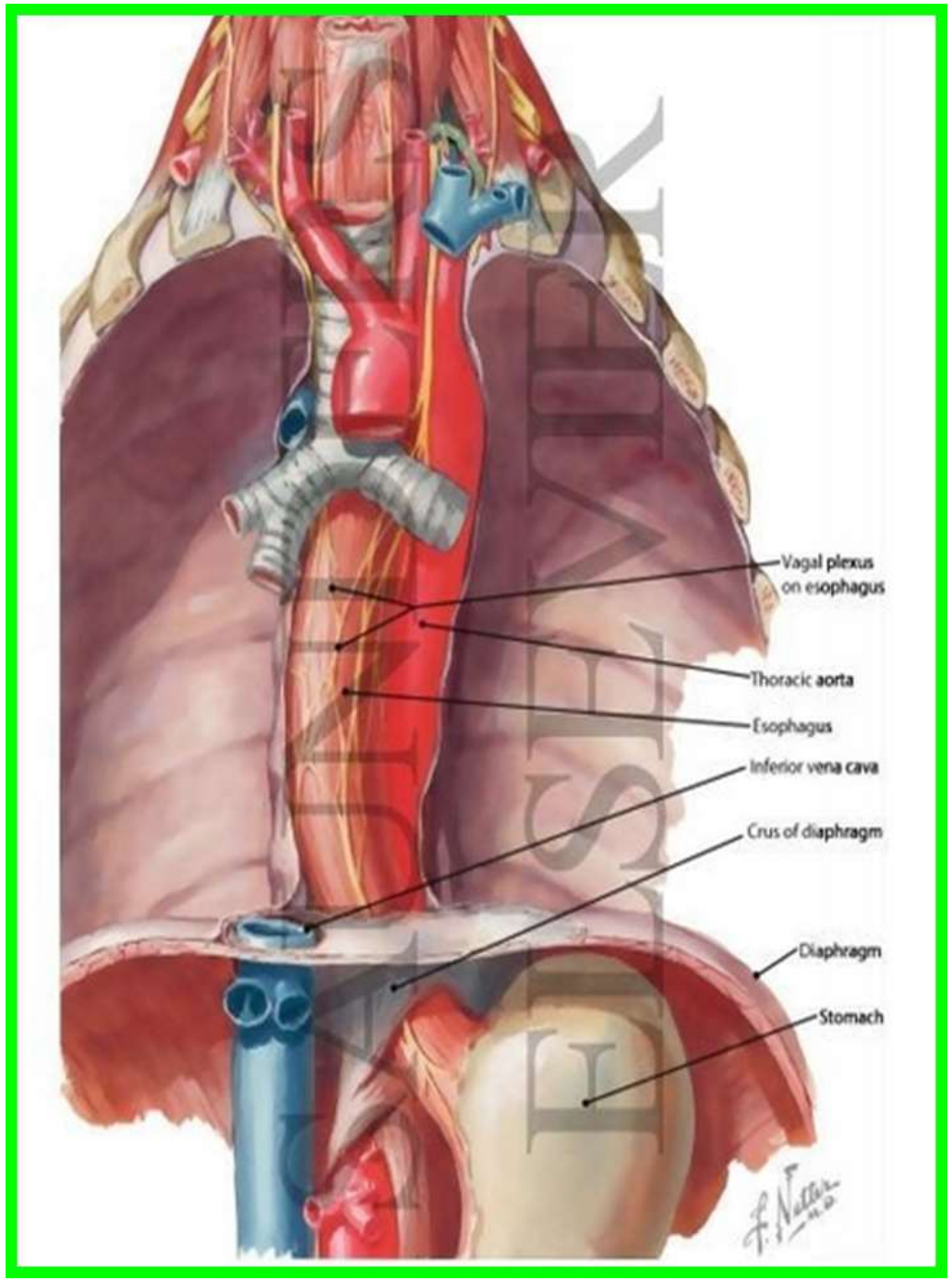




The Esophagus

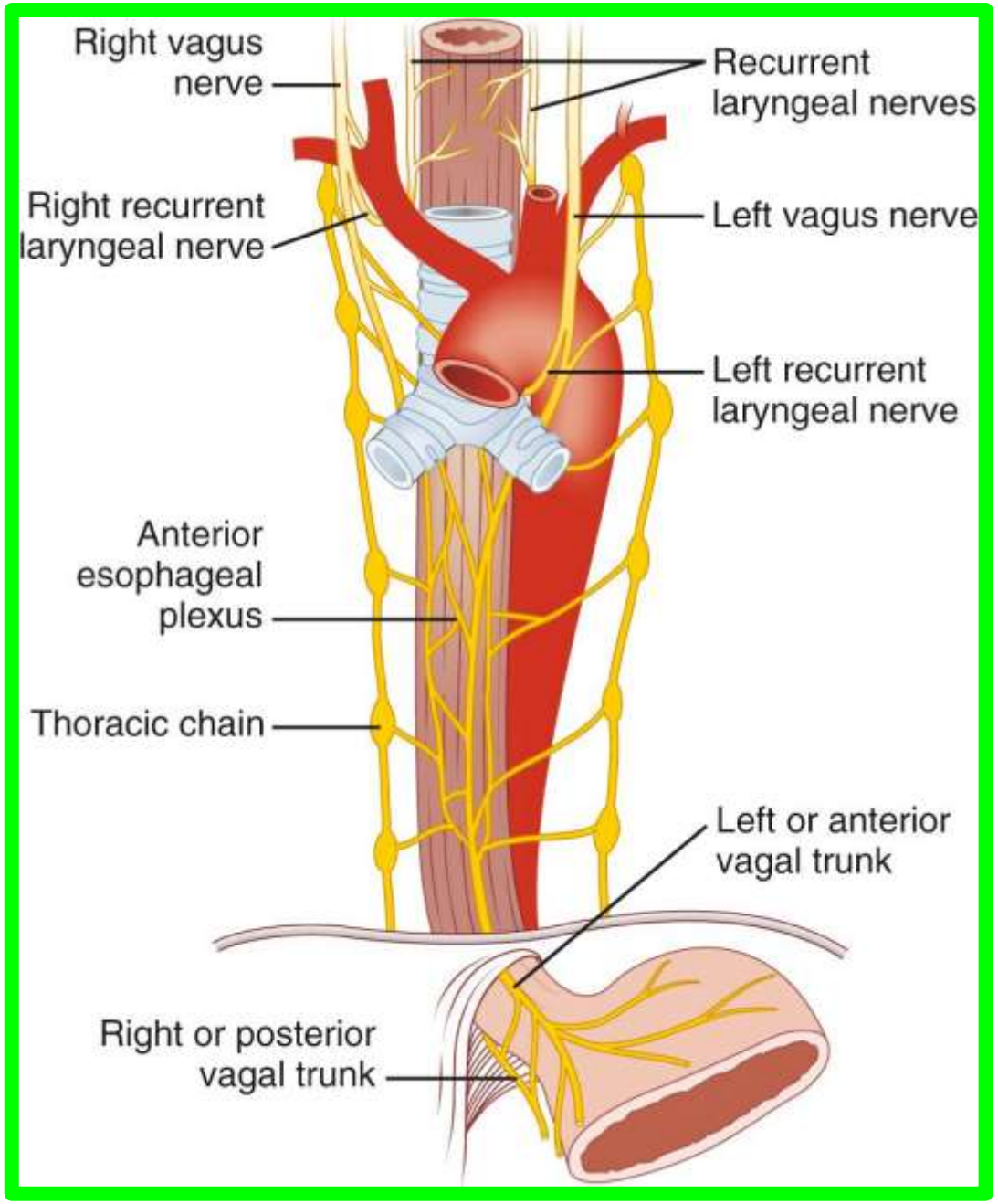
■■ **Right side:** The mediastinal pleura and the terminal part of the azygos vein

■■ **Left side:** The left subclavian artery, the aortic arch, the thoracic duct, and the mediastinal pleura



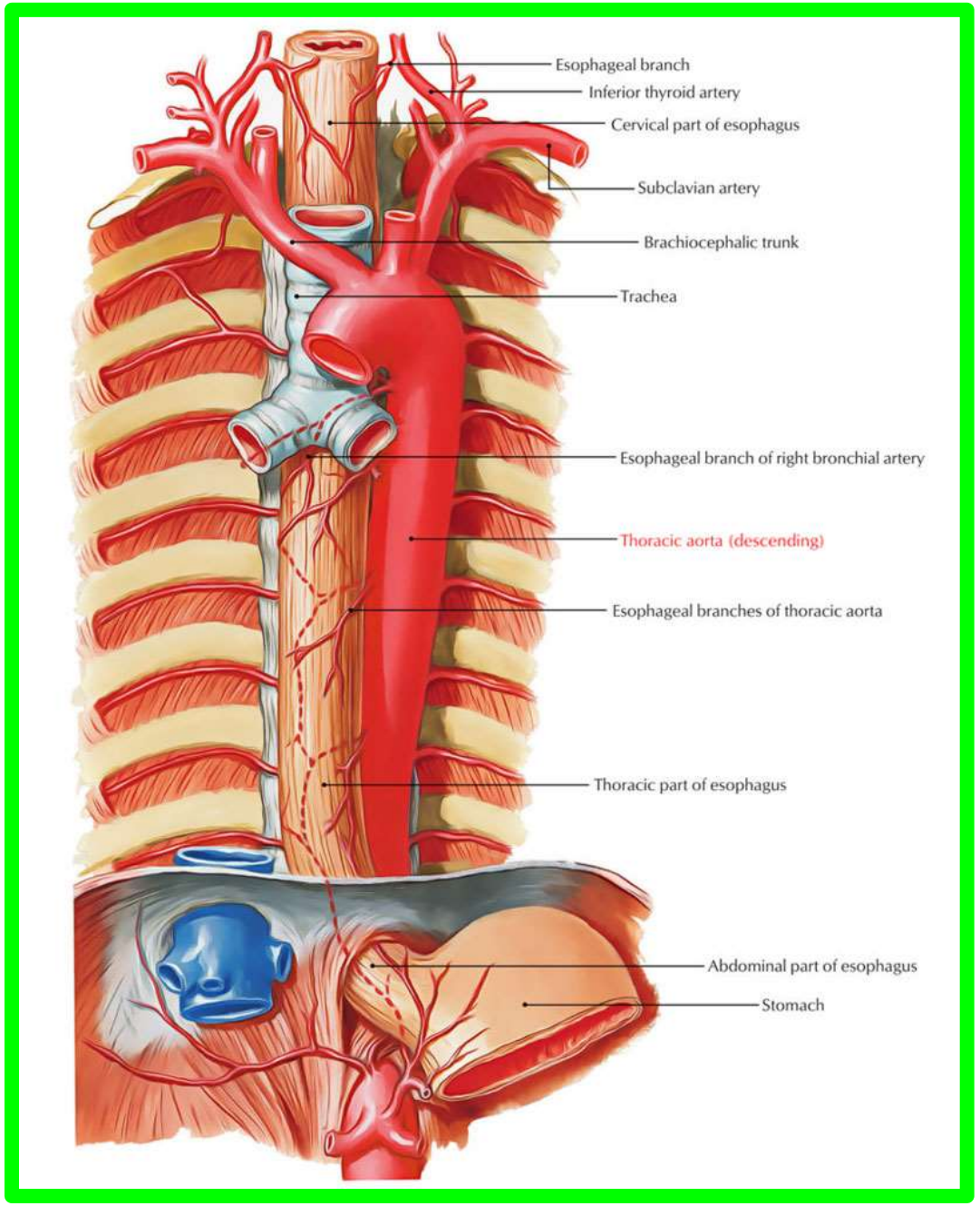
The Esophagus

✓**The left vagus** lies anterior to the esophagus, and **the right vagus** lies posterior.



Descending thoracic aorta

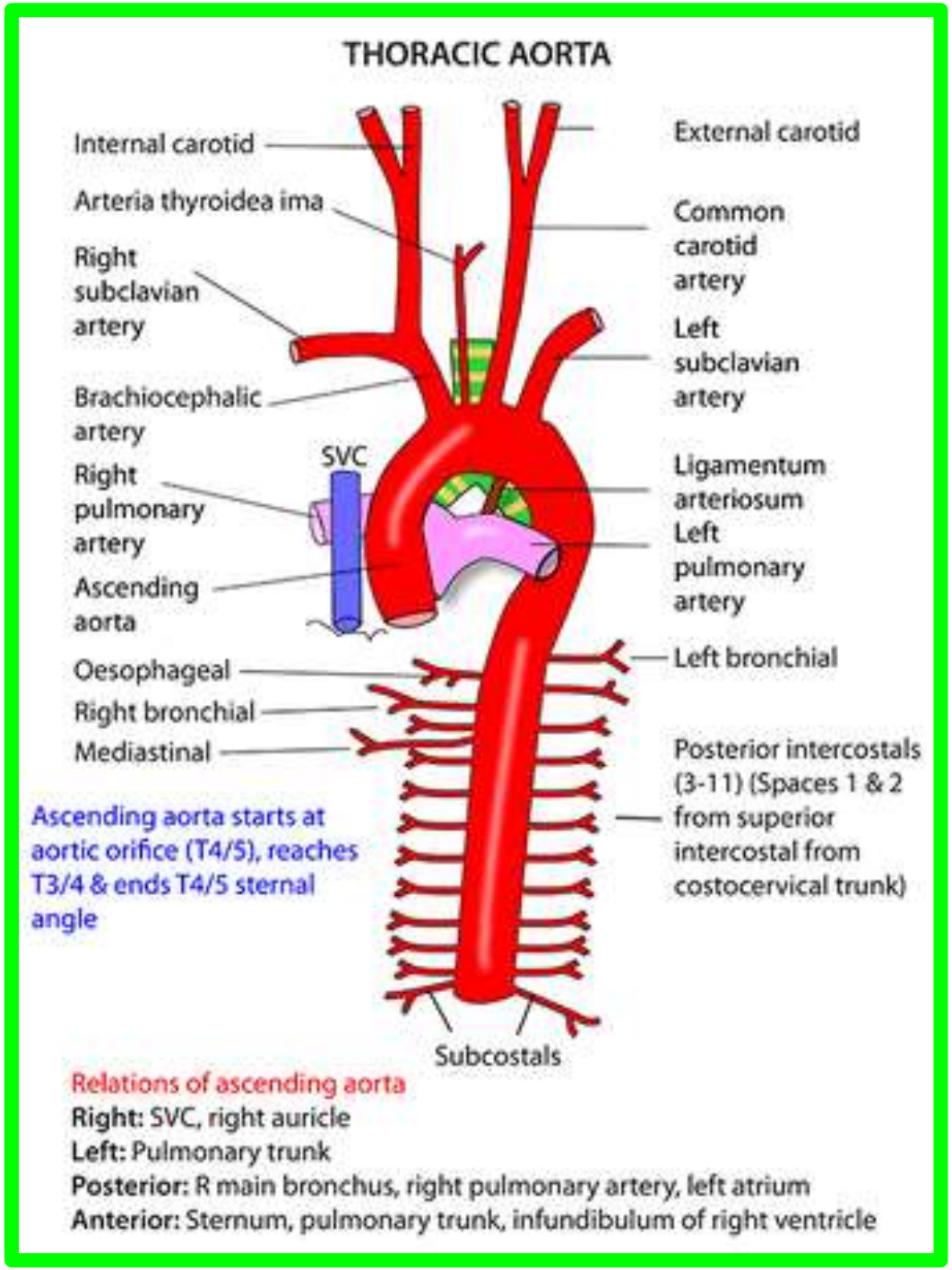
- Begins as a continuation of the arch of the aorta on the left side of the at (level of sternal angle).
- It descends through the posterior mediastinum until reaching the anterior surface of the T12 vertebra.
- it enters the abdomen behind the diaphragm (through the aortic opening) in the midline and becomes continuous with the abdominal aorta.



Descending thoracic aorta

Branches

- The posterior intercostal arteries,
- The subcostal arteries,
- The pericardial arteries.
- The esophageal arteries.
- The bronchial arteries.



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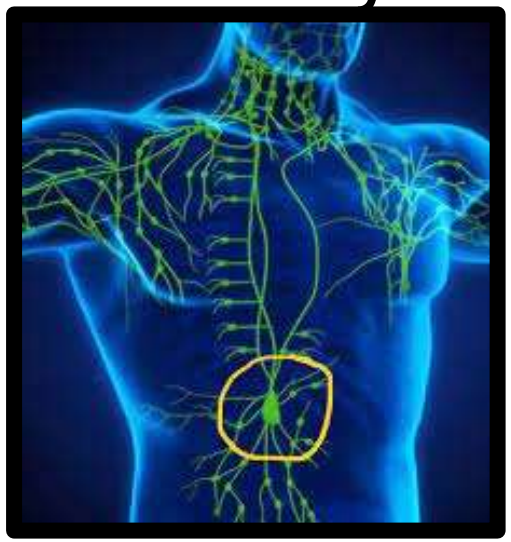
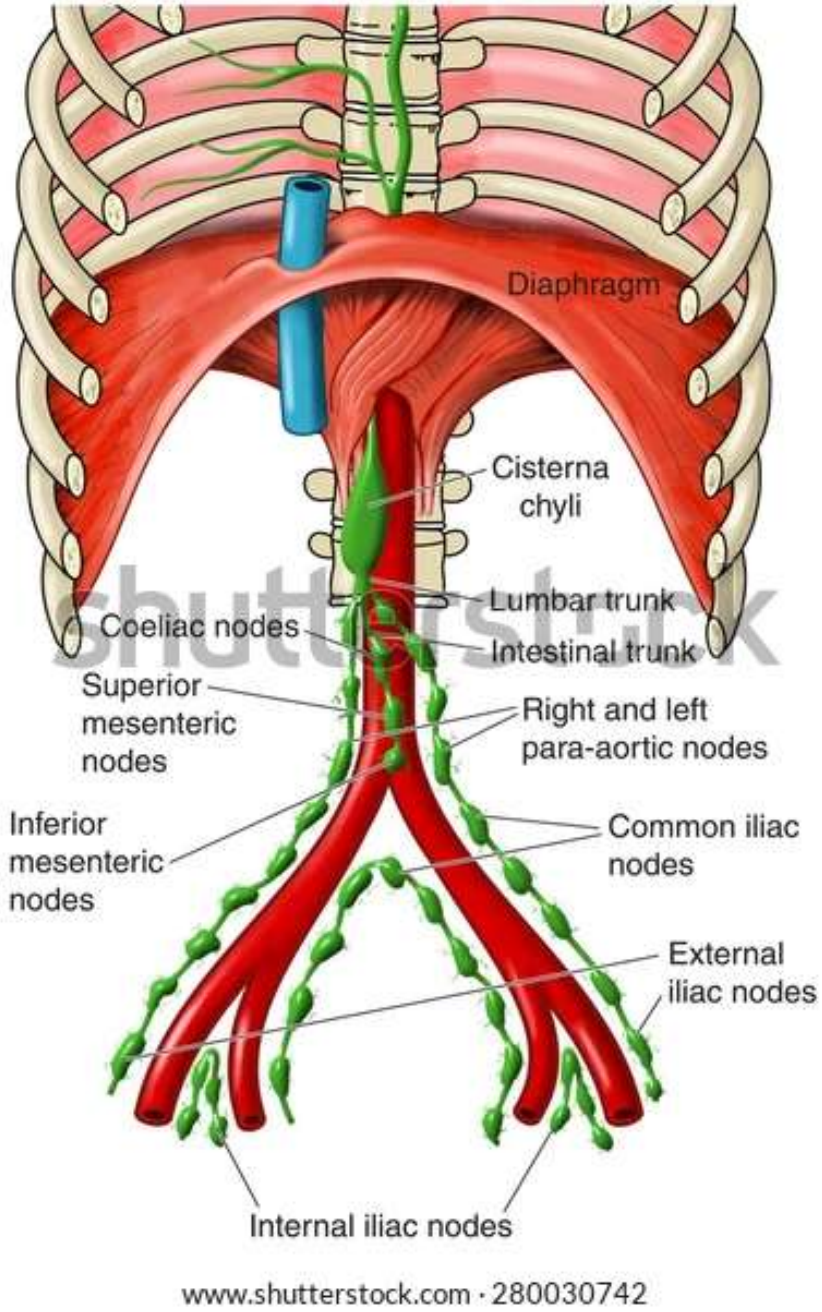
Thoracic Duct

- It is the largest lymphatic vessels in the body.

** Beginning: from the upper end of the cisterna chyli. (Lies anterior to bodies of L1,L2 vertebrae between the right crus of the diaphragm and the aorta)

** Shape: It is a thin-walled vessel which has a beaded appearance due to presence of many valves.





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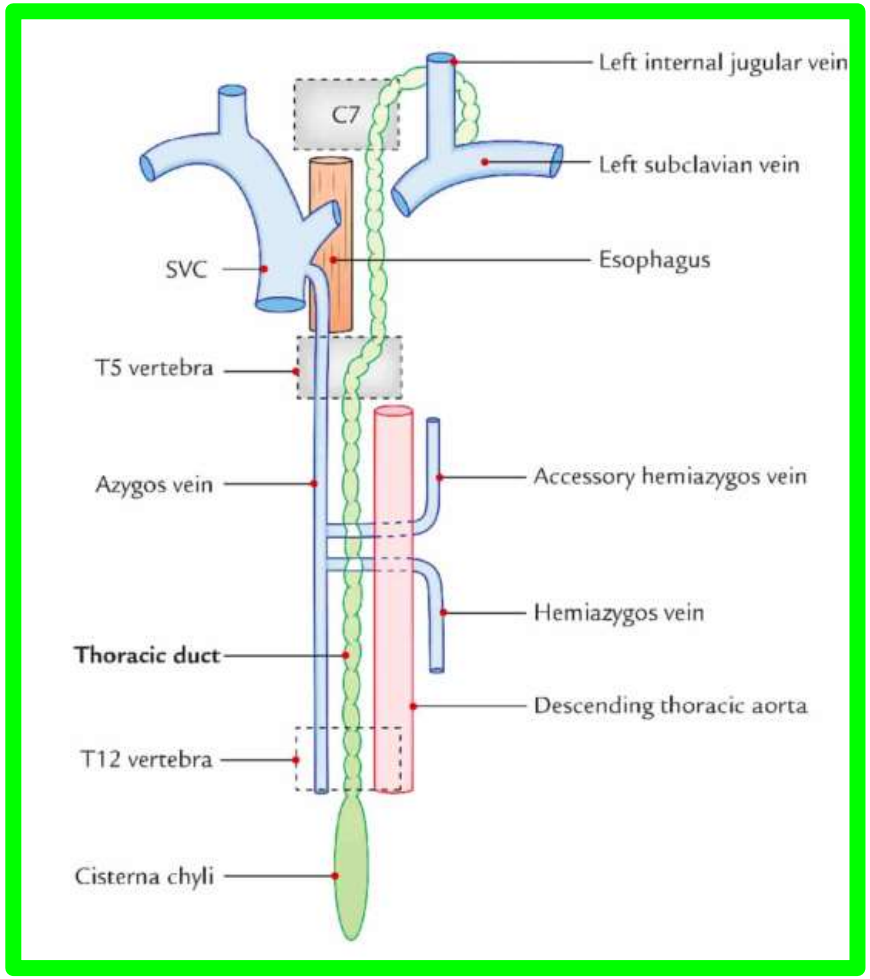
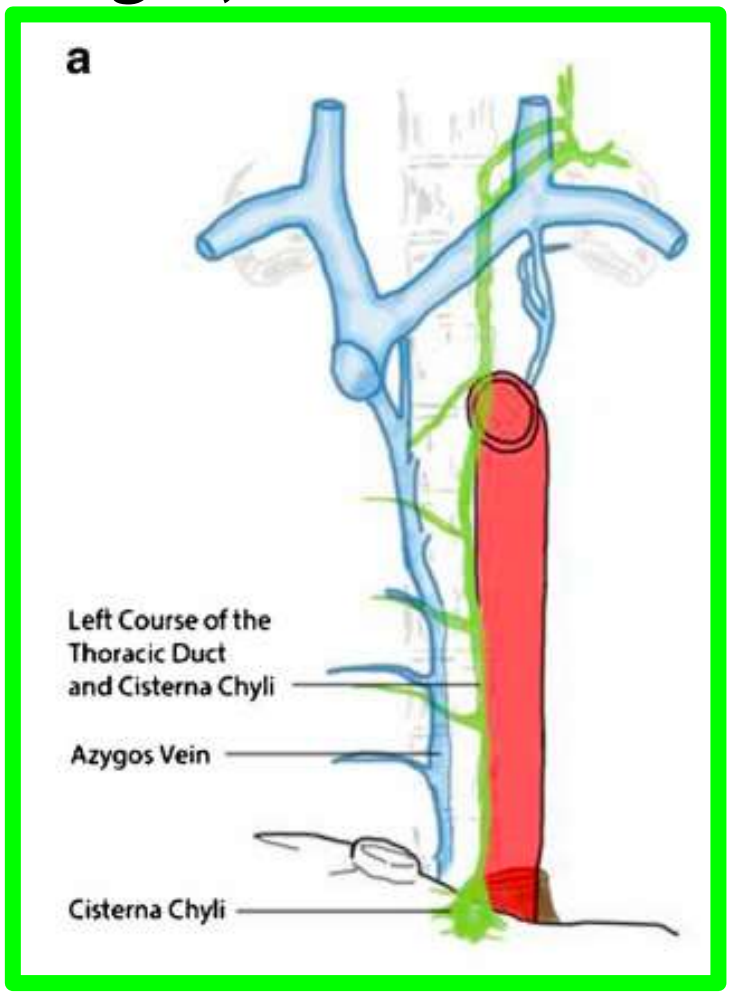
Thoracic Duct

** Course and relations:

1- It enters the thorax through the aortic opening of the diaphragm between the aorta (on the left) and azygos vein (on the right).





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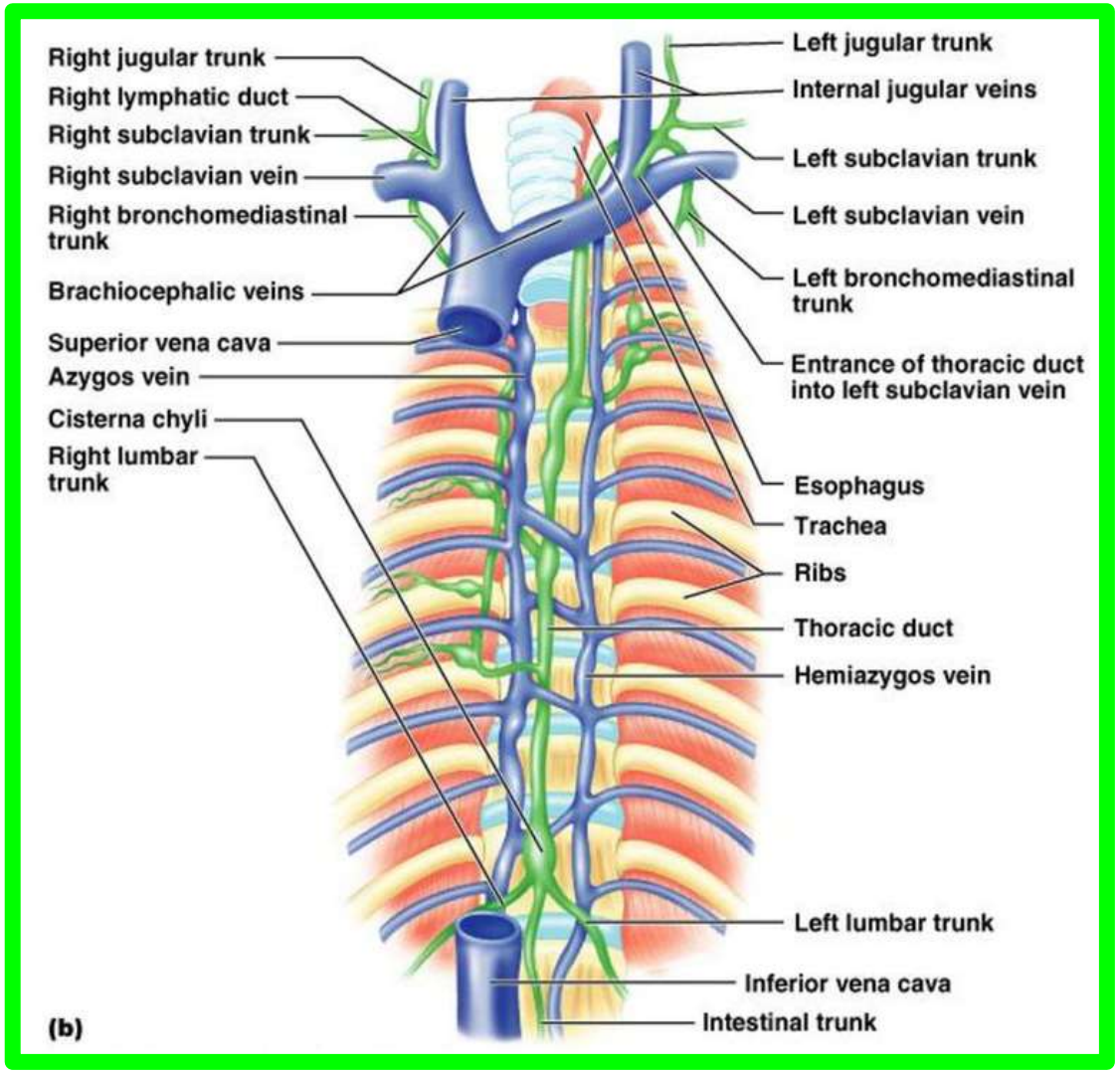
Thoracic Duct

** Course and relations:

2- In the posterior mediastinum, it ascends Between the aorta (on the left) and azygos vein (on the right).

- Behind right border of esophagus.
- In front of the vertebral column, posterior intercostal arteries, and hemiazygos veins.



Thoracic Duct

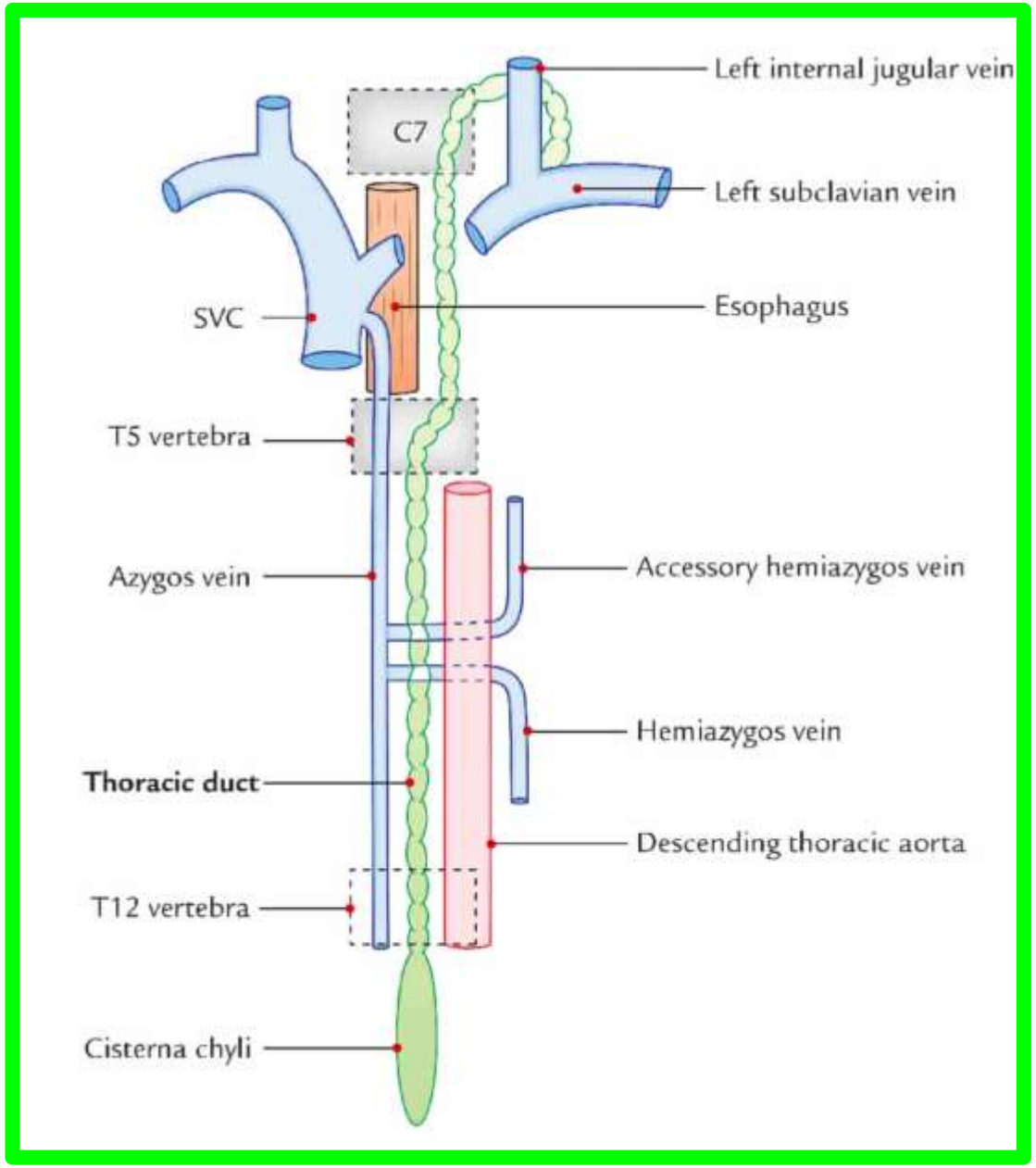
** Course and relations:

3- At the level of T5:

- It crosses the median plane from right to left behind the esophagus.

4- In the superior mediastinum:

- It ascends behind left border of esophagus.

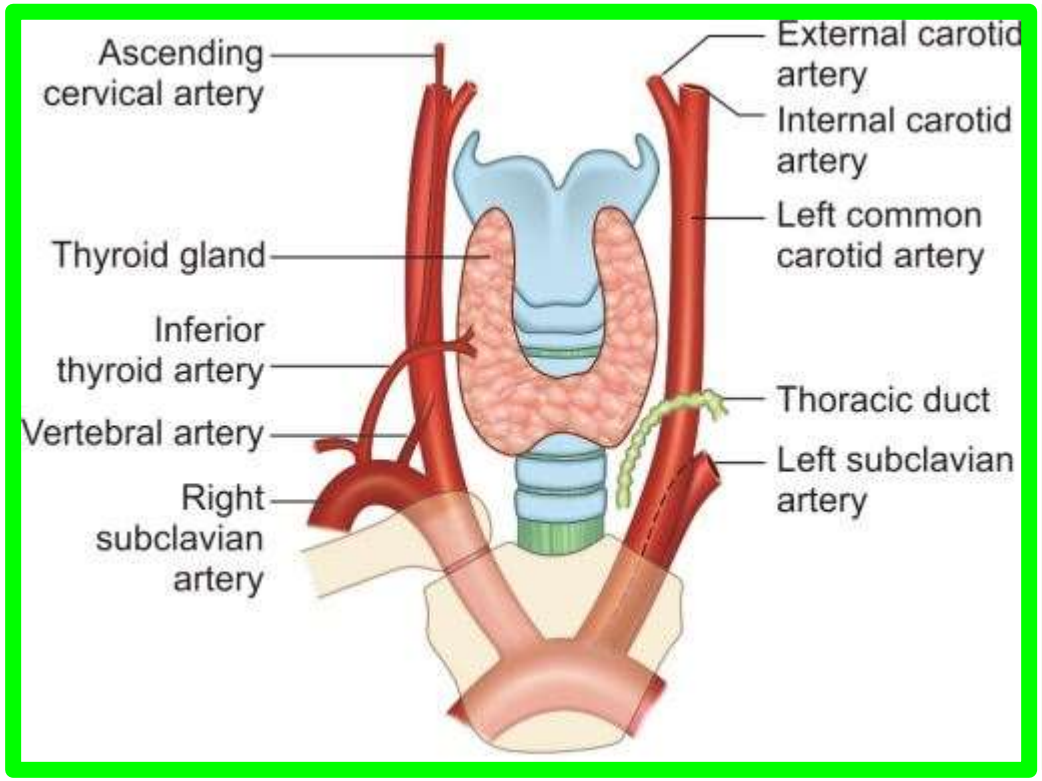


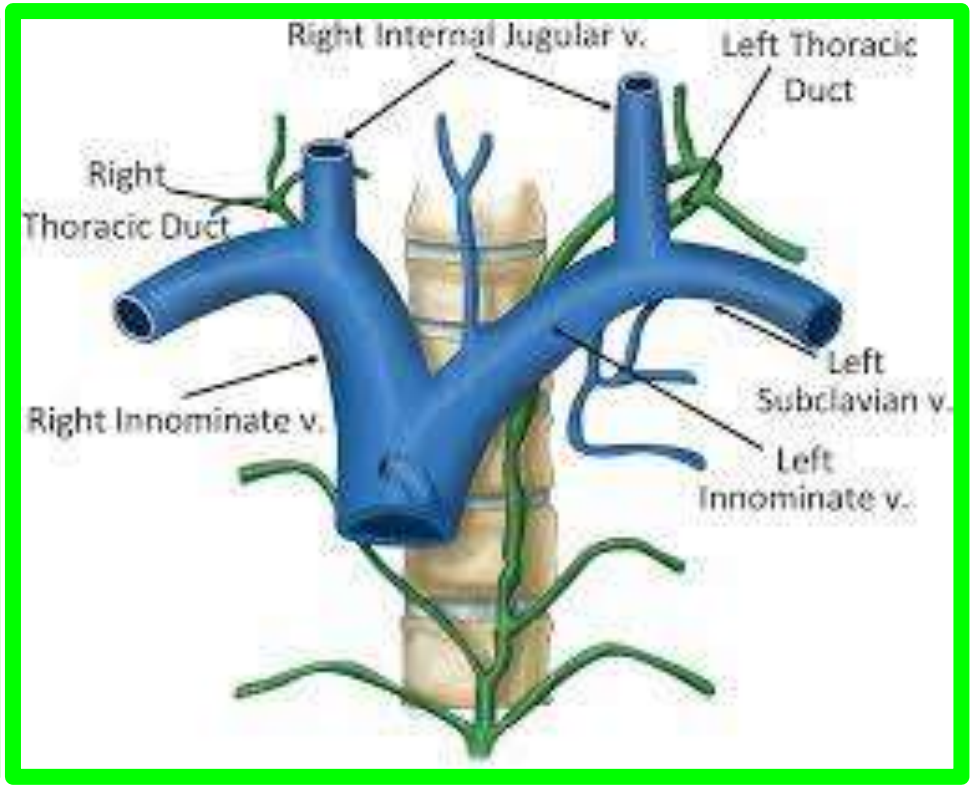
Thoracic Duct

** Course and relations:

5- In the neck, at the level of the C6, It curved behind the carotid sheath.

6- Finally, it descends to end into the junction of the left subclavian and left internal jugular veins.





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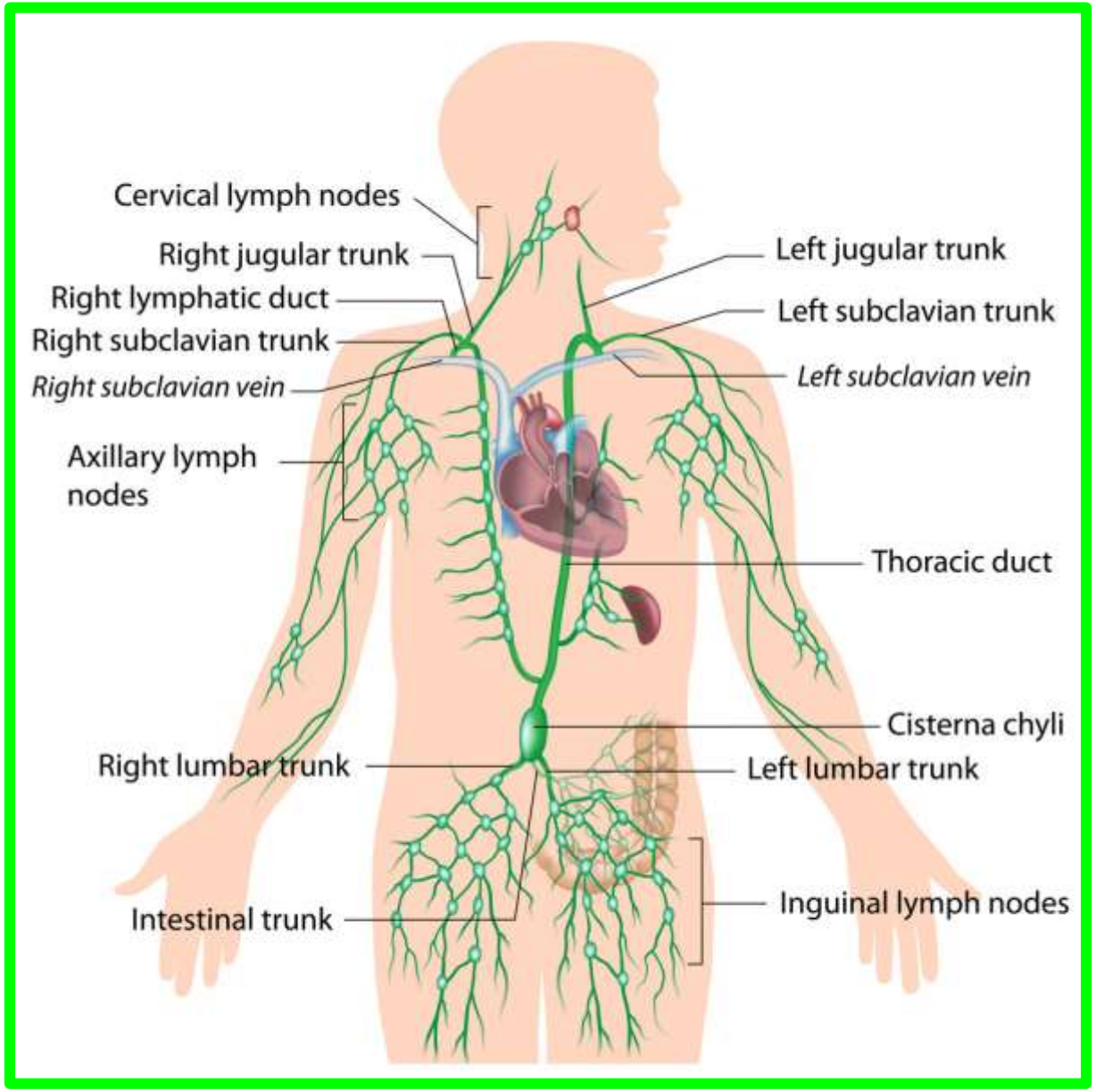
Thoracic Duct

** Tributaries:

1) Cisterna chili, receives lymphatic from the lower part of the body through;

A- Intestinal lymph trunk (from abdomen and pelvis).

B- Right and left lumbar lymph trunks (from 2 lower limbs).



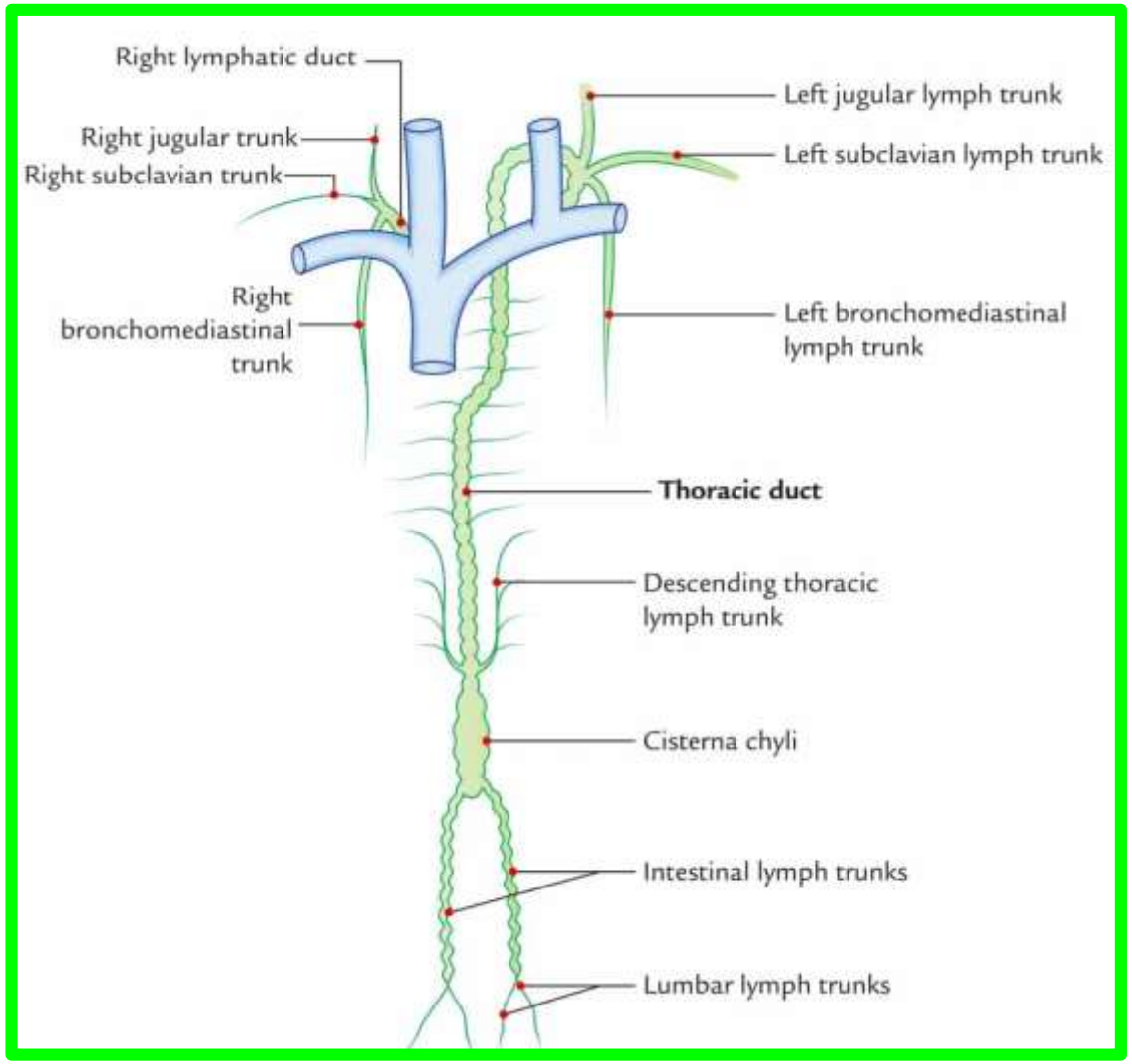
Thoracic Duct

** Tributaries:

2) Left broncho-mediastinal lymph trunk: drains the left 1/2 of the thoracic cavity.

3) Left subclavian trunk: drains the left upper limb.

4) Left jugular lymph trunk: drains the left 1/2 of the head and neck.



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Thoracic Duct

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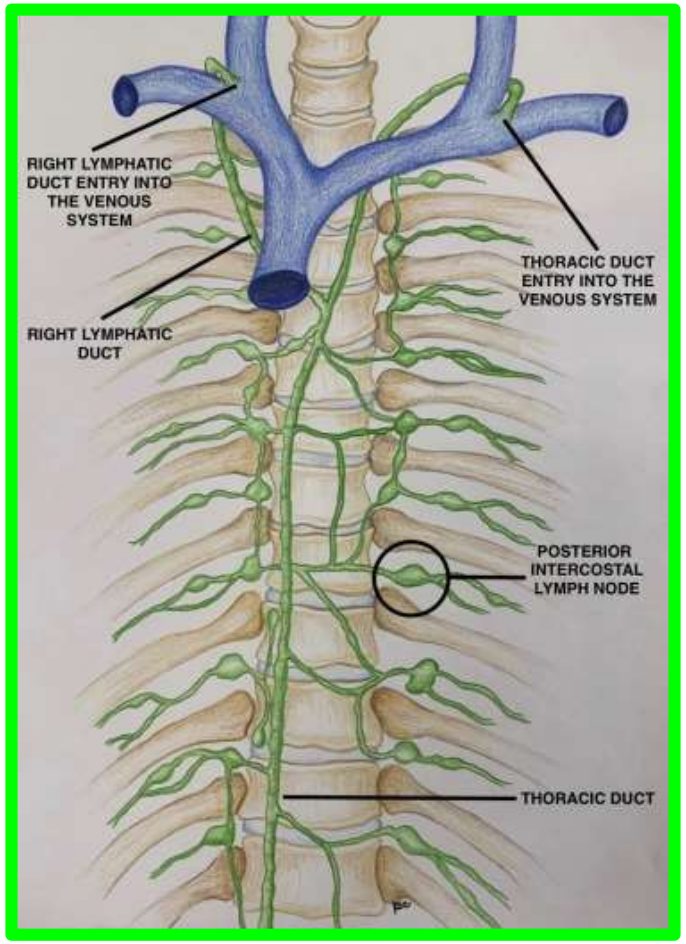
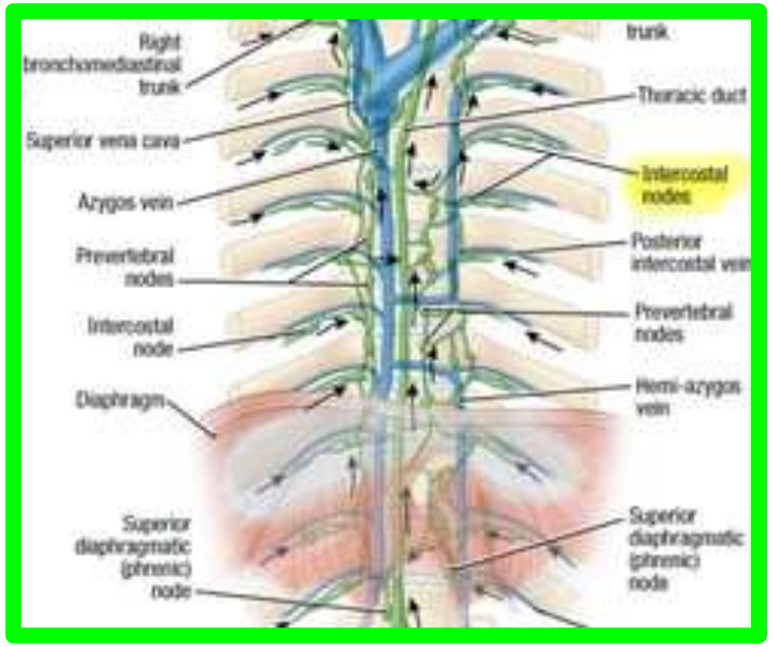
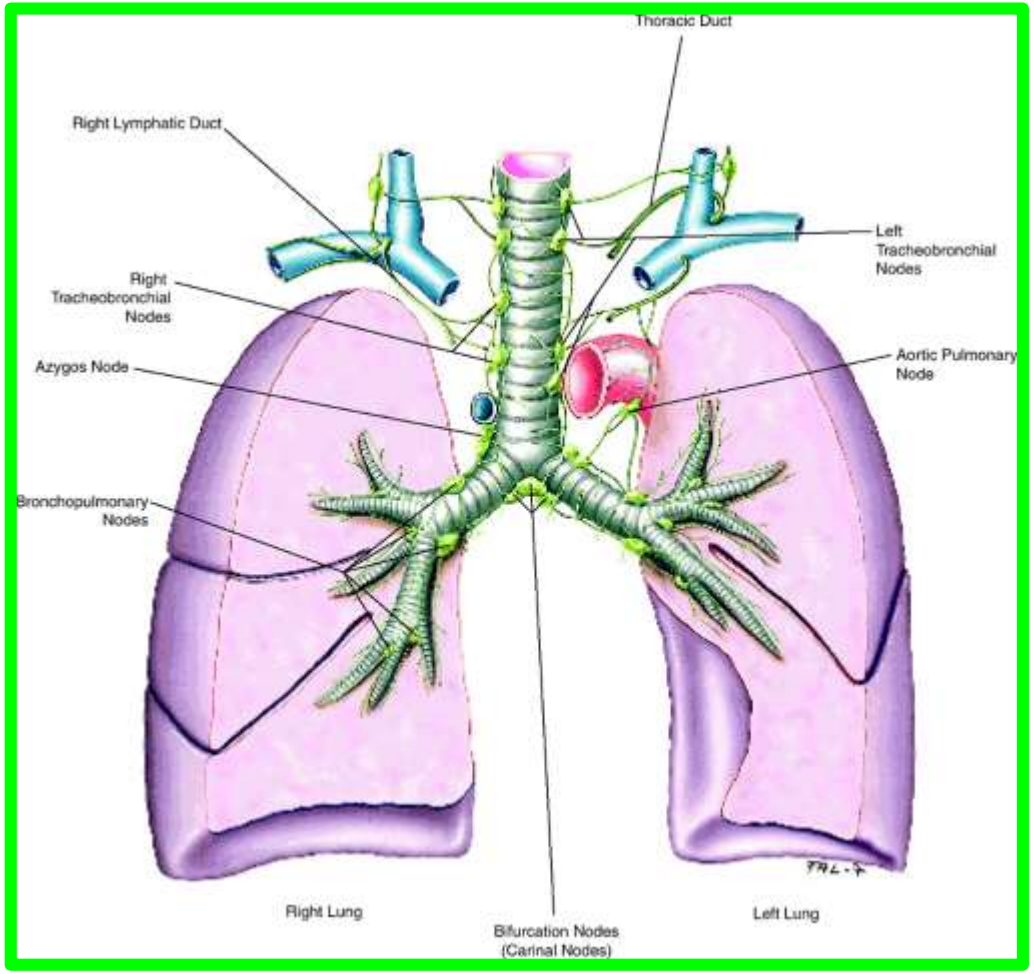
** Tributaries:

5) Efferent from the posterior mediastinal lymph nodes.

6) Efferent from the posterior intercostal lymph nodes.







The Posterior Intercostal Veins

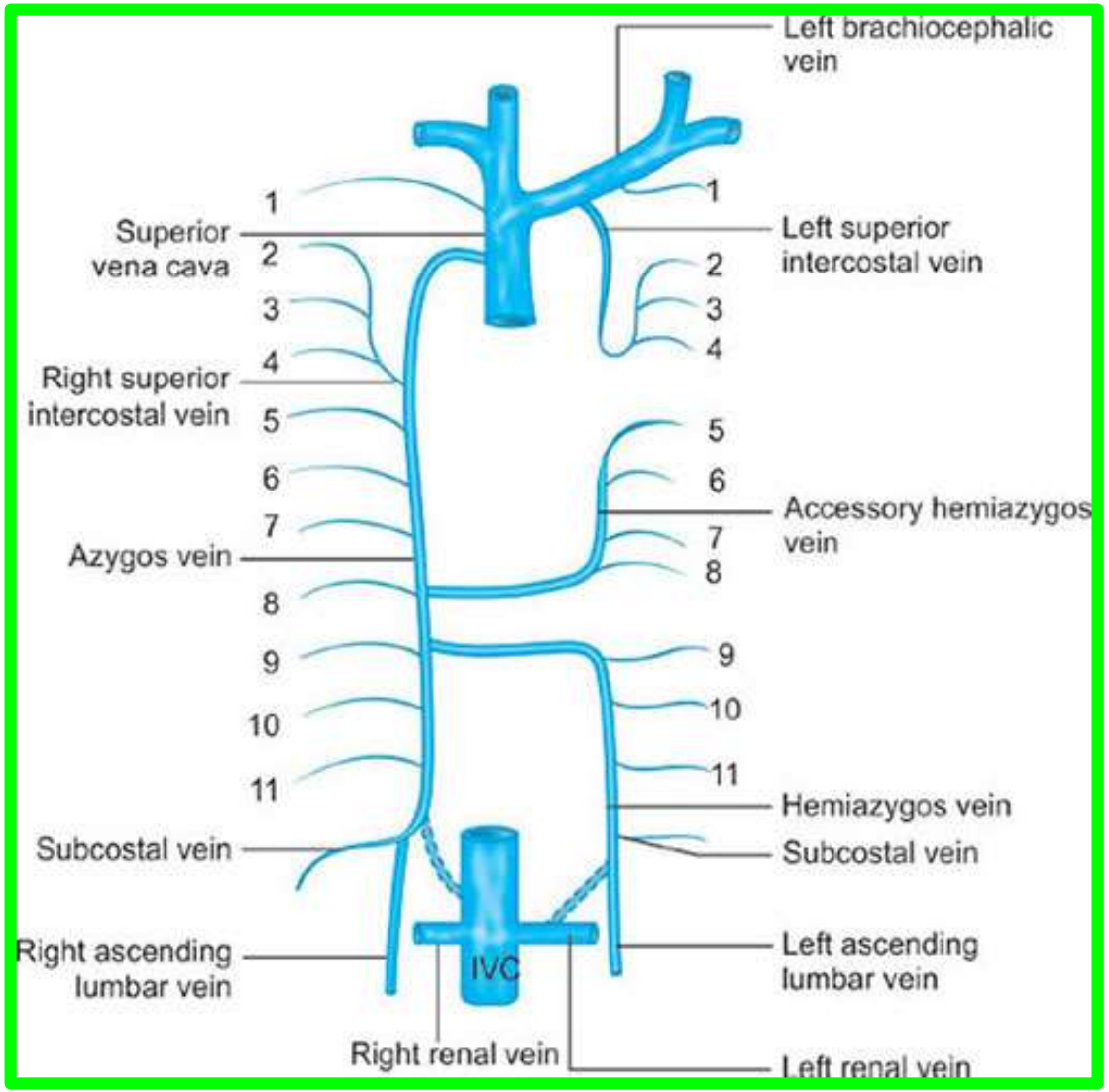
* 11 veins on each side and subcostal vein.

A) On the right side:

I- The first vein drains into the right brachio-cephalic vein.

2- The 2nd and 3rd veins: form the right superior intercostal vein which ends in the arch of azygos vein.

3- From 4th till 11th and subcostal vein: end into the azygos vein.

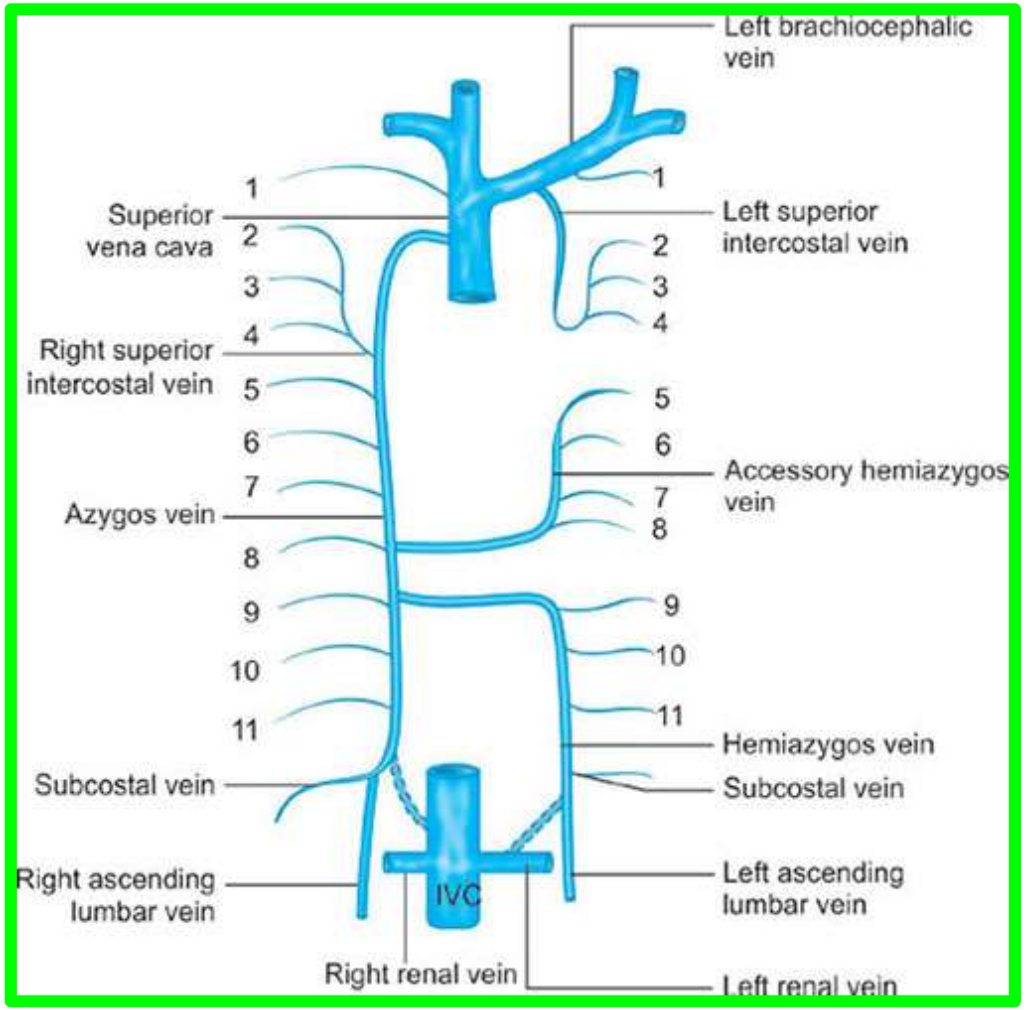


The Posterior Intercostal Veins

B) On the left side:

I-The first vein ends into the left brachio-cephalic vein.

2-The 2nd and 3rd veins: form the left superior intercostal vein which ends into the left brachio-cephalic vein.



3-The left 4th to 8th: end in the accessory (superior) hemiazygos vein.

4- From the 9th to 11th and subcostal vein: end in the hemiazygos vein.

Azygos Vein:

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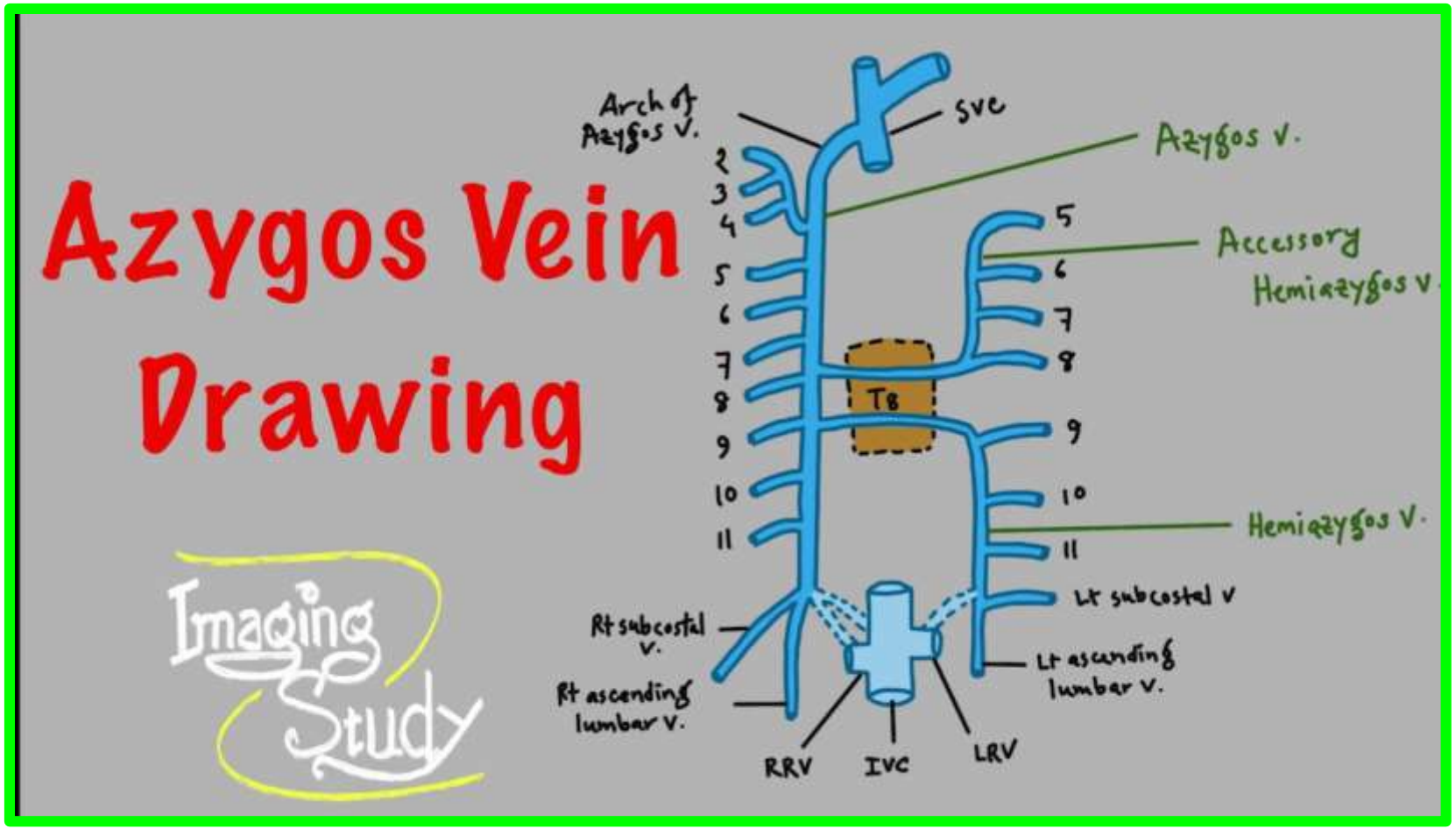
** Beginning: ¬ in the abdomen and arises as follows:

1- From the back of the inferior vena cava.

2- From the union of the right subcostal and right ascending lumbar veins.

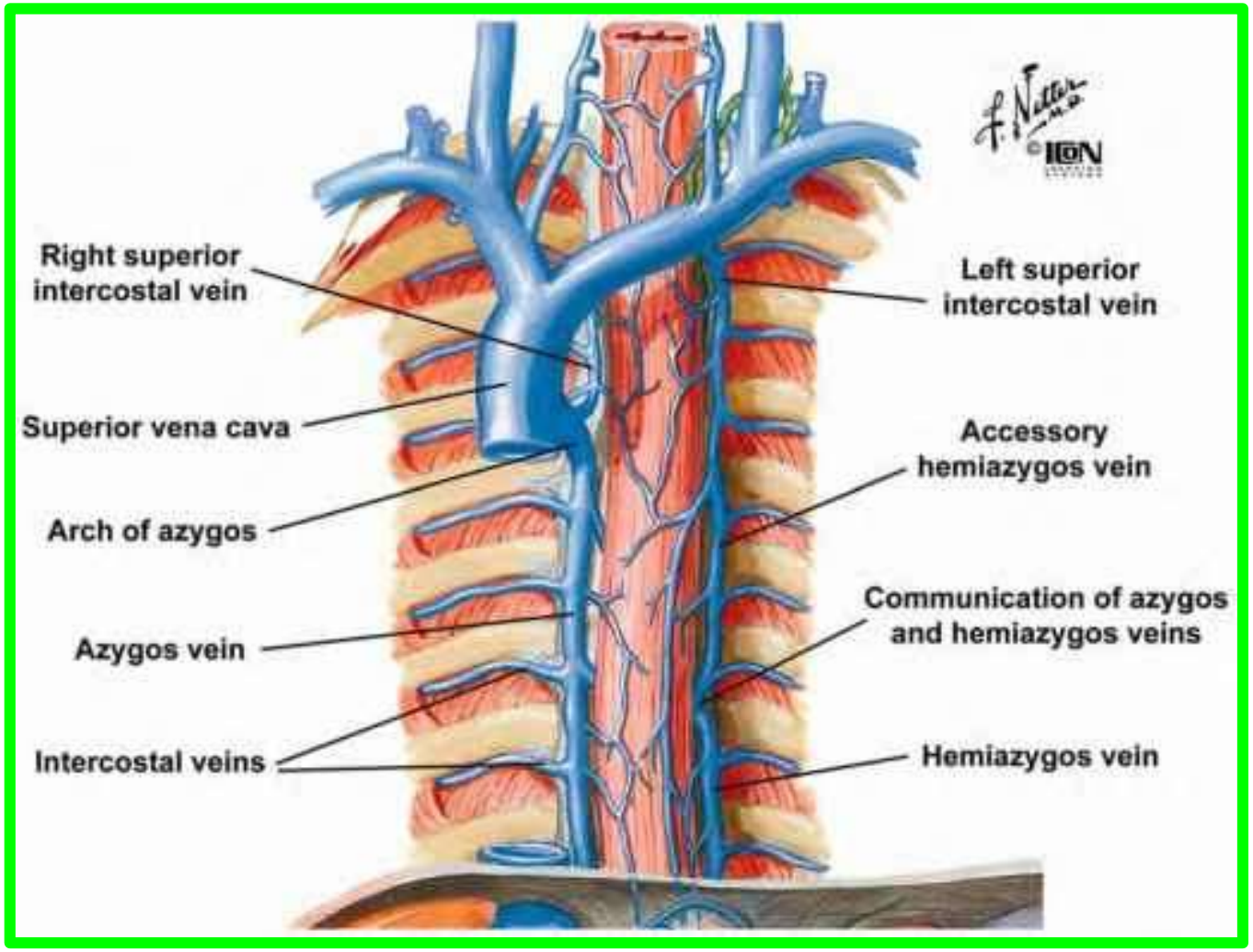


The azygos system of veins

✓on each side of the vertebral column, drains the back and thoracoabdominal walls and mediastinal viscera.

✓The azygos vein forms a collateral pathway between the SVC and IVC

✓ It ascends in the posterior mediastinum, passing close to the right sides of the bodies of the inferior 8 thoracic vertebrae.



The azygos system of veins

✓It arches over the superior aspect of the root of the right lung to join the SVC

❖The azygos vein communicates with:

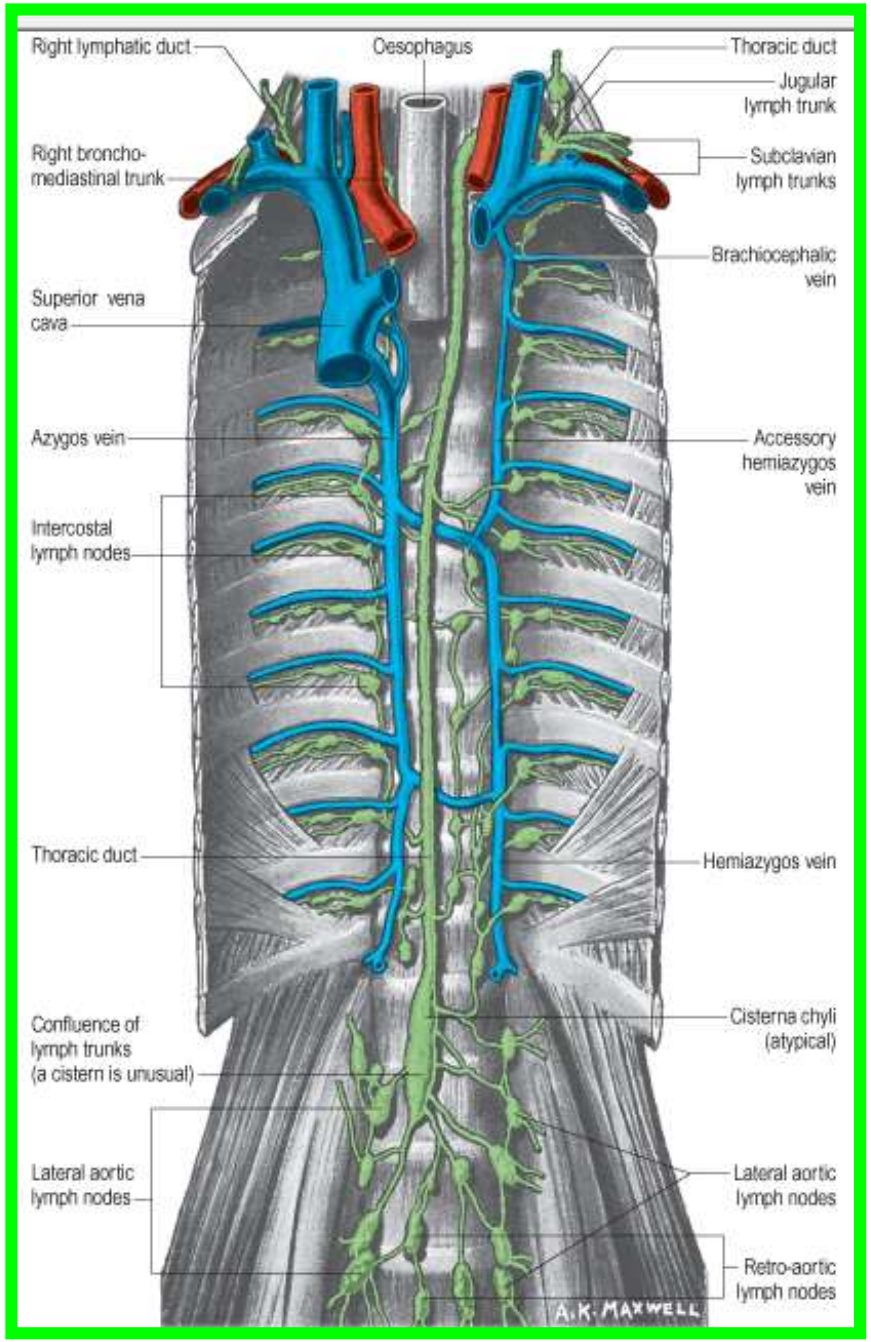
✓The posterior intercostal veins,

✓The vertebral venous plexuses that drain the back, vertebrae, and structures in the vertebral canal.

✓The mediastinal,

✓Esophageal, and

✓Bronchial veins

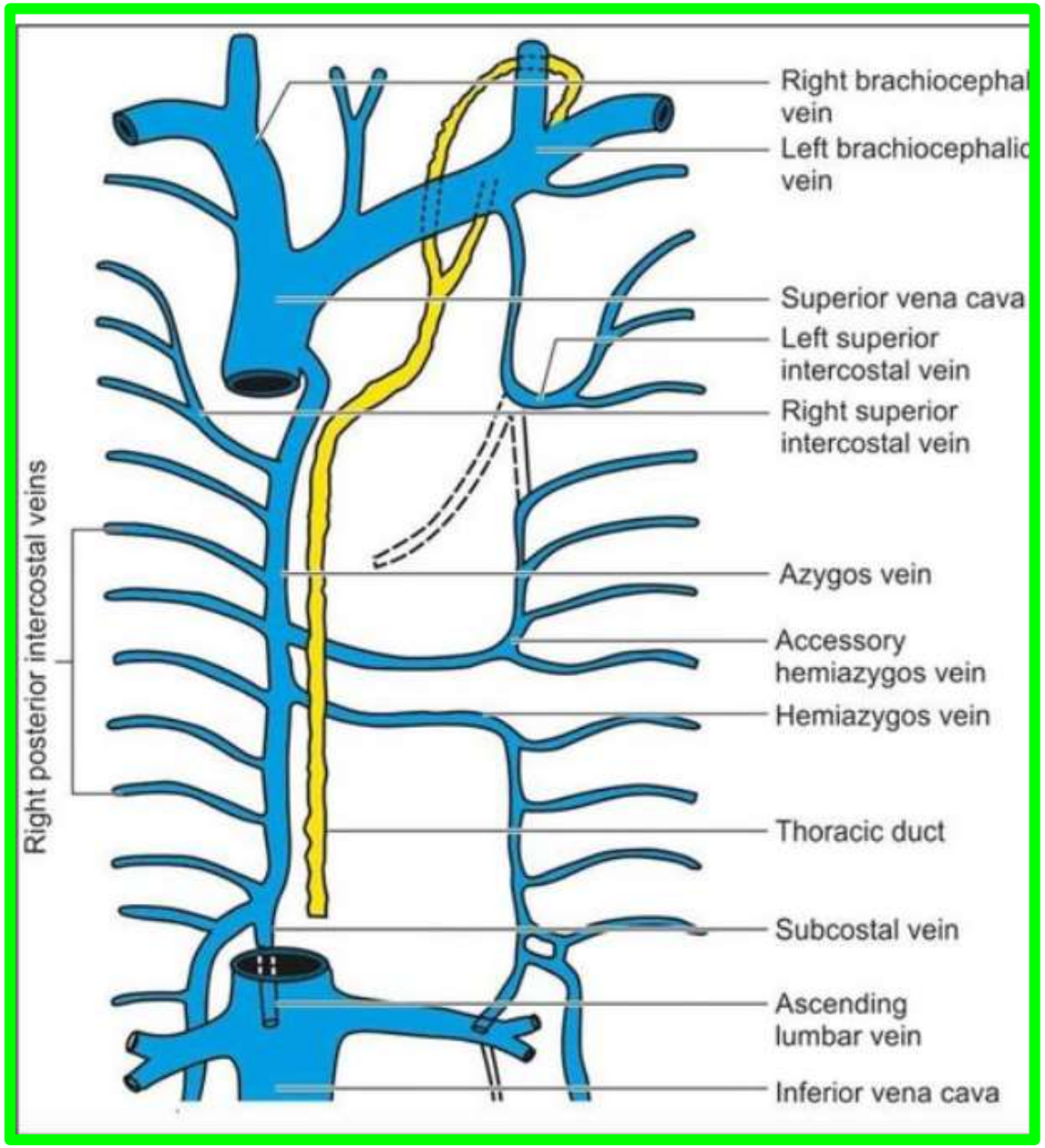


The hemiazygos vein

✓Arises on the left side by the junction of the left subcostal and ascending lumbar veins.

✓ It ascends on the left side as far as the T9 vertebra.

✓Here it crosses to the right, and joins the azygos vein.



The hemiazygos vein

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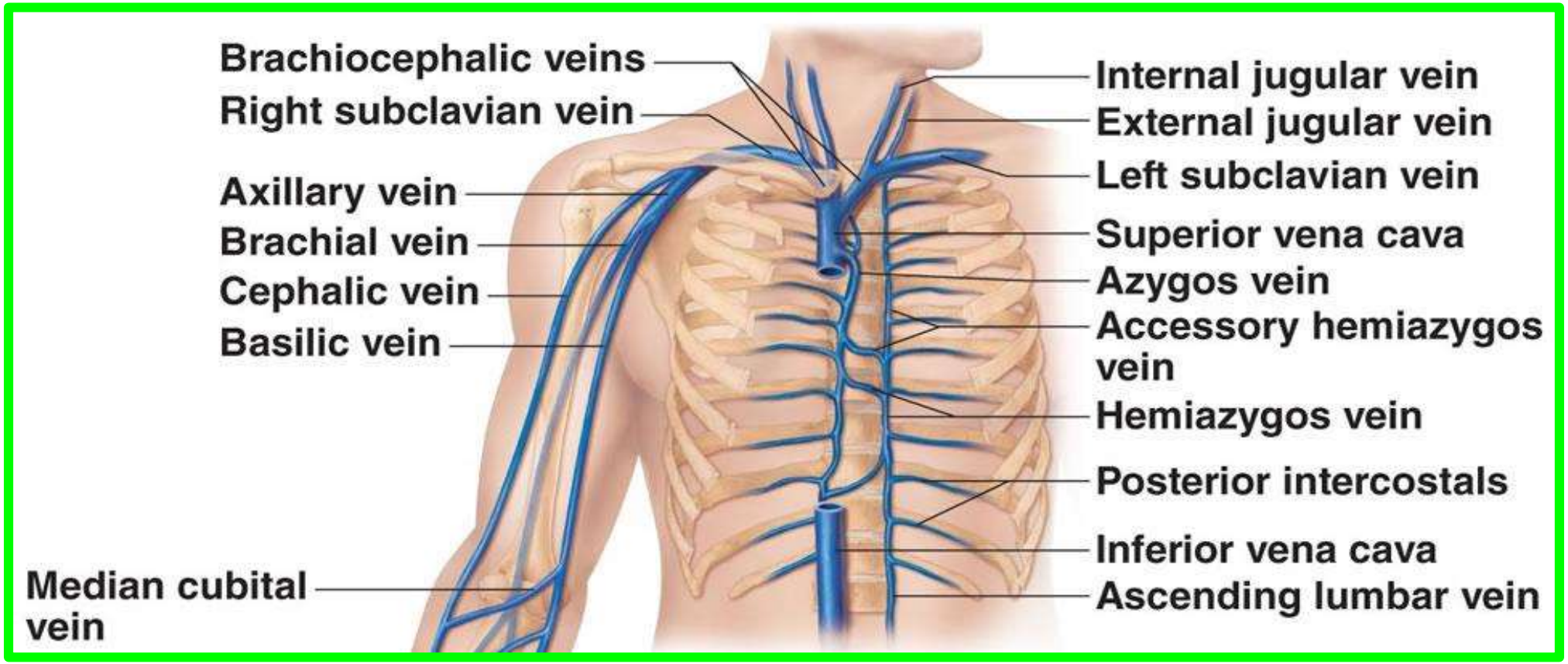
✓**The hemiazygos vein receives:**

- **The inferior three posterior intercostal veins**,
- **The inferior esophageal veins**, and
- **Several small mediastinal veins**.

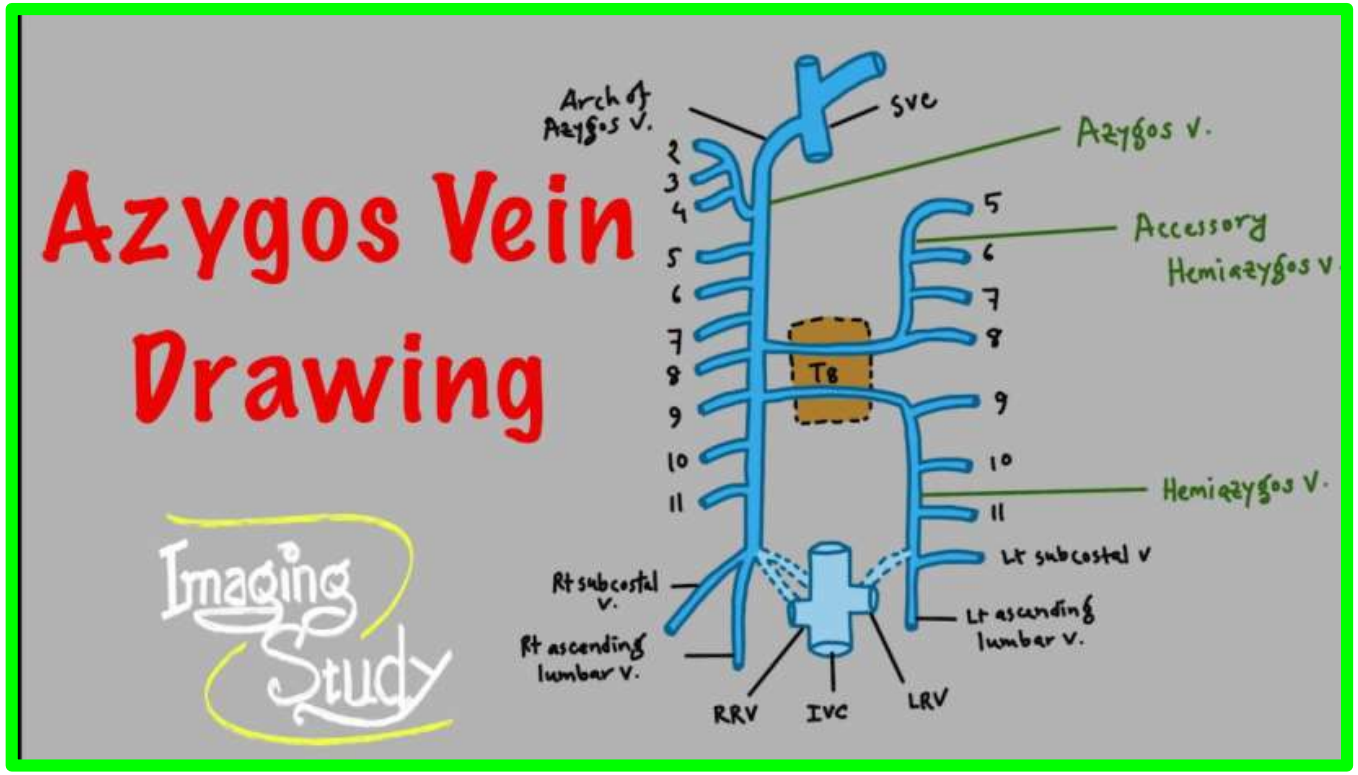


The accessory hemiazygos vein

✓Begins at the medial end of the 4th or 5th intercostal space and descends on the left side of vertebral column from T5 through T8.

✓It receives tributaries from veins in the 4th-8th intercostal spaces and sometimes from the left bronchial veins.

✓ It crosses over the T7 or T8 vertebra to joins the azygos vein.



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