Mediastinum

Lecture 5

تمت المراجعة
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&
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Please check our Editing File.

هذا العمل لا يغني عن المصدر الأساسي للمذاكرة

Objectives

- At the end of the lecture, students should be able to:
- Define the “Mediastinum”.
- Differentiate between the divisions of the mediastinum.
- List the boundaries and contents of each division.
- Describe the relations between the important structures in each division.

- **Text in BLUE was found only in the boys’ slides**
- **Text in PINK was found only in the girls’ slides**
- **Text in RED is considered important**
- Text in GREY is considered extra notes

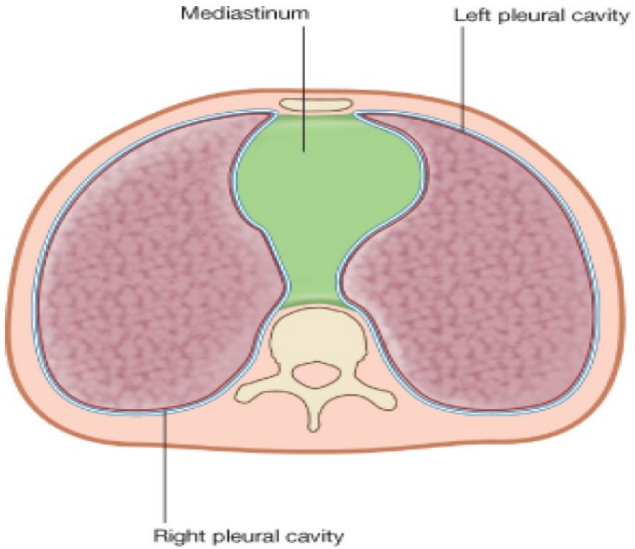
The Mediastinum

Definition

It is a thick movable partition between the two pleural sacs & lungs.

It contains all the structures which lie in the intermediate compartment of the thoracic cavity.

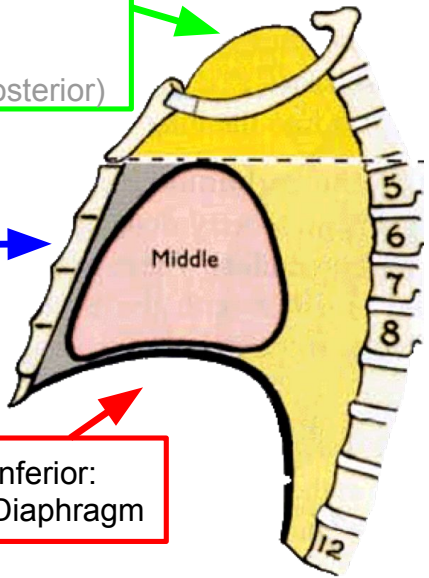
Any structure in the thoracic cavity except the lungs and their pleura



BOUNDARIES OF MEDIASTINUM

Superior:
Thoracic outlet:
manubrium(anterior)
1st Rib (laterally)
1stThoracic vertebra T1(posterior)

Anterior:
Sternum



Posterior:
Thoracic vertebrae

Inferior:
Diaphragm

Lateral:
Lungs & pleura

DIVISIONS OF THE MEDIASTINUM

The mediastinum is subdivided by a Horizontal plane (extending from the Sternal angle* to the lower border of T4) into:

Superior mediastinum (S): above the plane

Inferior mediastinum: below the plane.

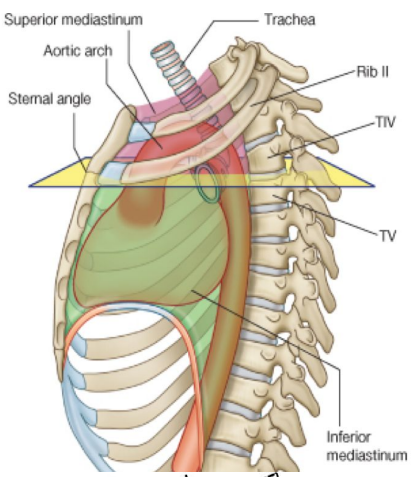
Inferior mediastinum is subdivided into:

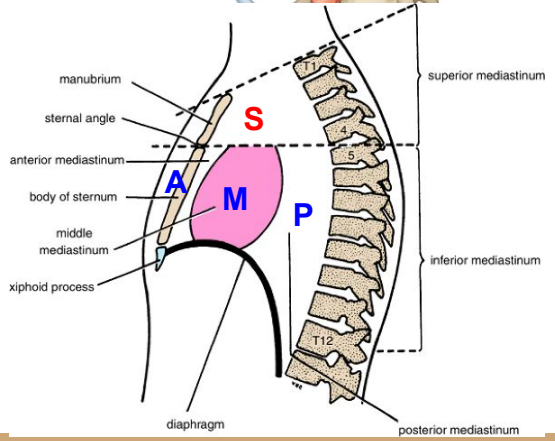
Middle mediastinum (M): contains heart

Anterior mediastinum (A): in front of heart

Posterior mediastinum (P): behind heart

*Sternal angle is at the junction of the manubrium and the body of the sternum



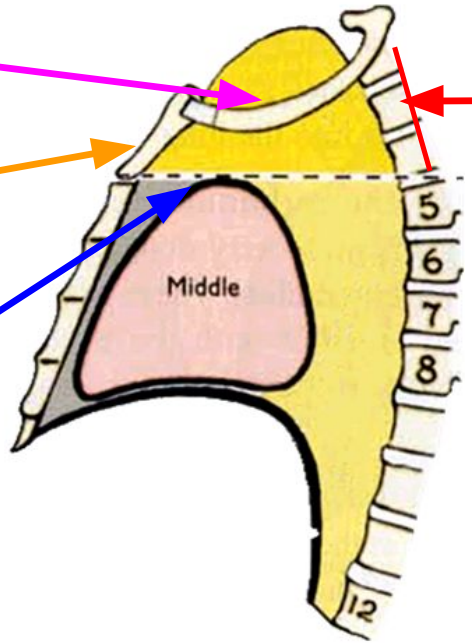


BOUNDARIES OF SUPERIOR MEDIASTINUM

Superior: Thoracic outlet

Anterior: Manubrium of sternum

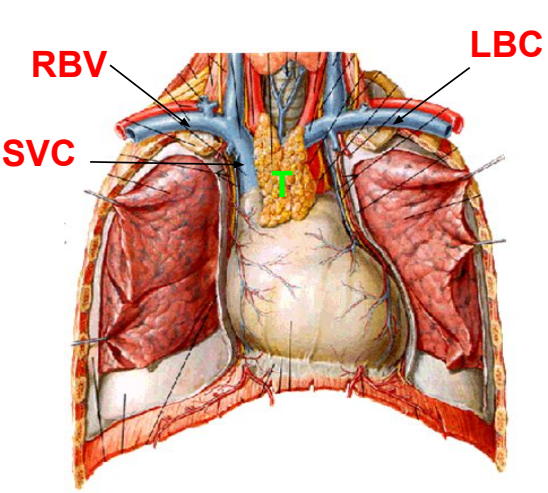
Inferior: Horizontal plane

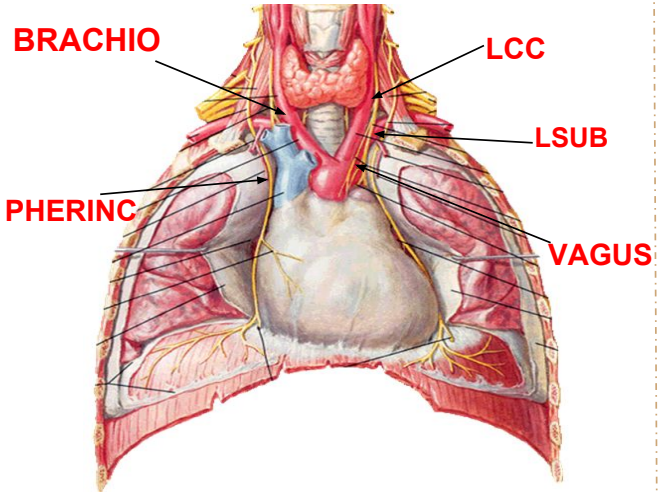


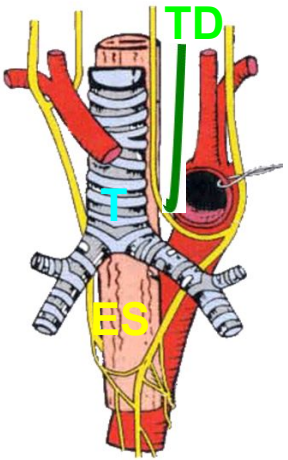
Posterior: Upper 4 thoracic vertebrae

Lateral: lungs & pleurae

CONTENTS OF SUPERIOR MEDIASTINUM







(A) Superficial:

Left brachiocephalic vein and Right brachiocephalic vein join together to give superior vena cava.

Thymus Gland.

Three Veins:

Left brachiocephalic vein

Right brachiocephalic vein

Superior vena cava

(B) Intermediate:

Arch of aorta & its 3 branches:

Brachiocephalic artery.

Left common carotid artery.

Left Subclavian artery

Nerves:

Left & Right Phrenic

Left & Right Vagus

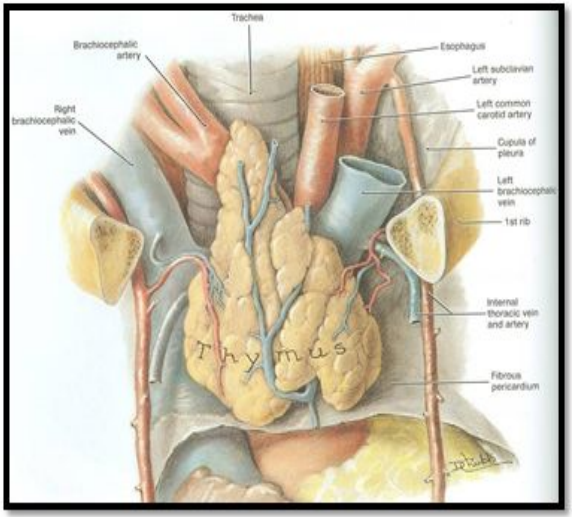
(c) Deep:

Trachea

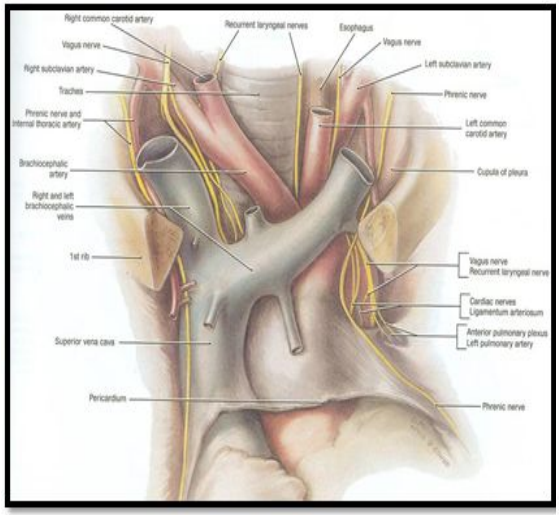
Esophagus

Thoracic Duct

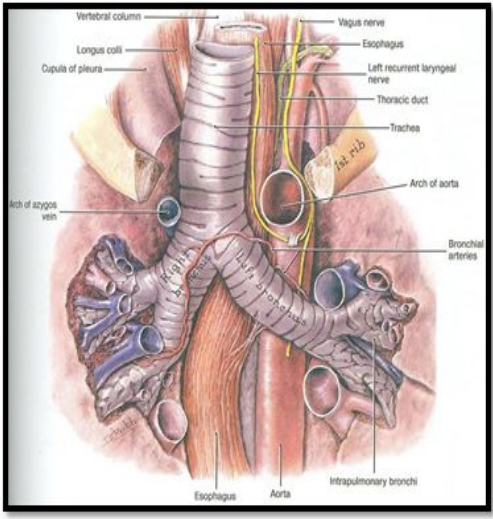
CONTENTS OF SUPERIOR MEDIASTINUM



(A) Superficial:



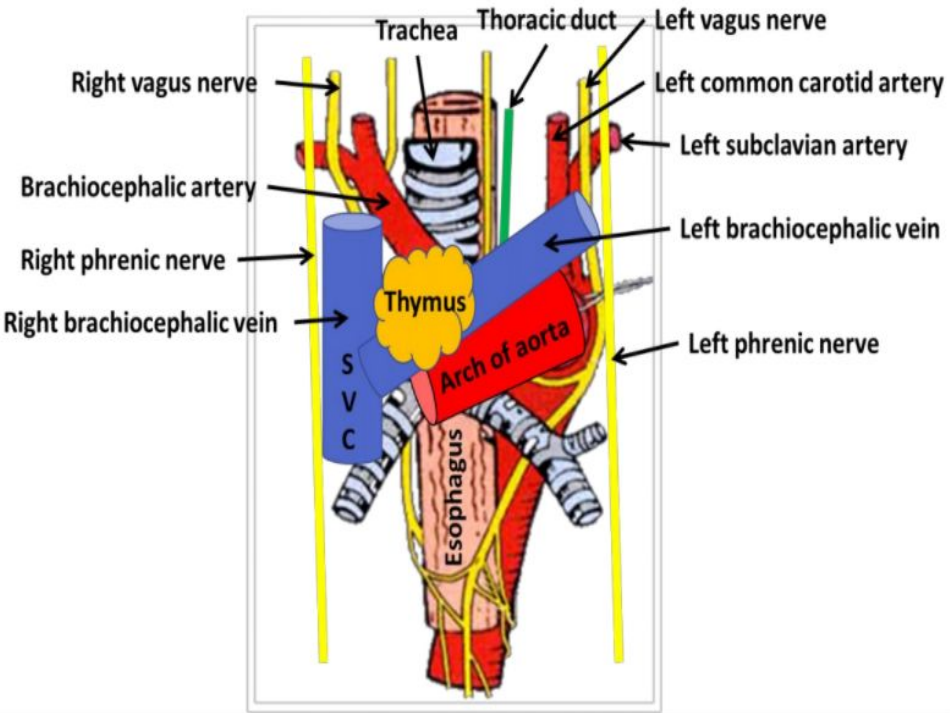
(B) Intermediate:



(C) Deep:

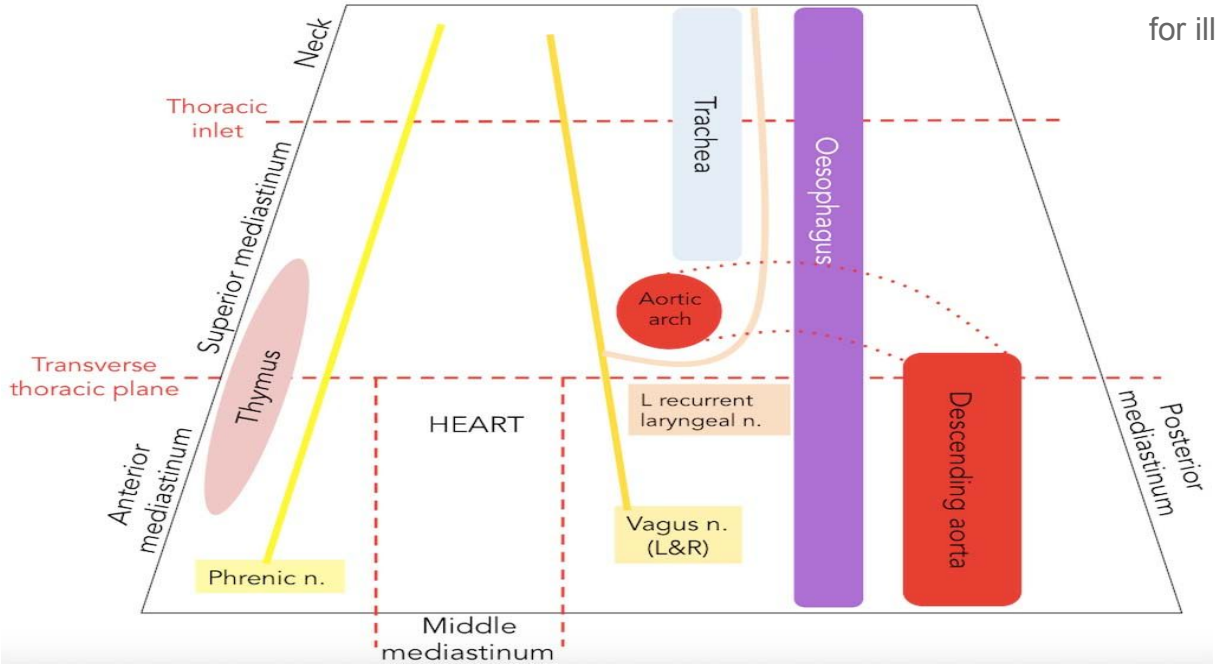
CONTENTS OF SUPERIOR MEDIASTINUM

- **4 ARTERIES: arch of aorta, brachiocephalic, left common carotid, left subclavian**
- **4 NERVES: right & left vagus, right & left phrenic**
- **3 VEINS: right & left brachiocephalic, Superior Vena Cava**
- **2 TUBES: trachea & esophagus**
- **1 GLAND: thymus**
- **1 DUCT: thoracic duct**



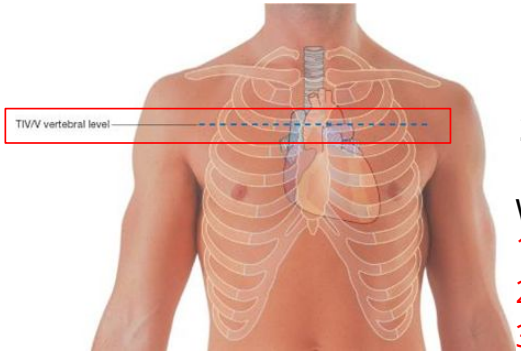
CONTENTS OF SUPERIOR MEDIASTINUM

**Extra picture for illustration



Level of T4

Level Of:



1- Sternal angle

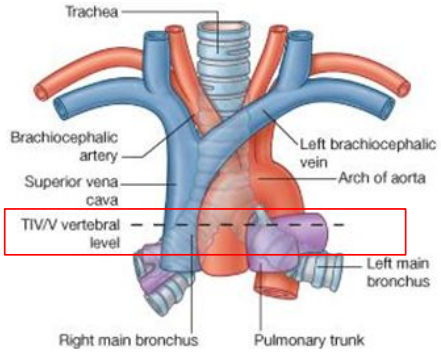
2- Second costal cartilage

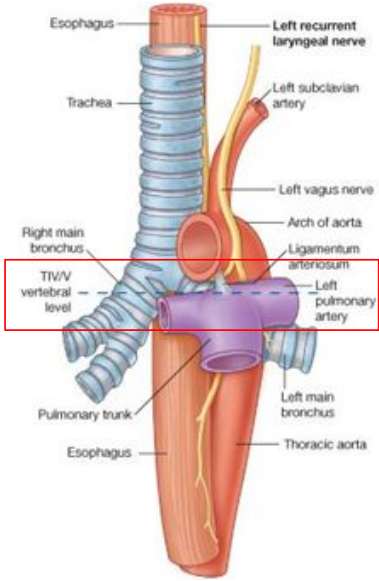
Why is it important?

1-Bifurcation of pulmonary trunk.

2-Beginning & termination of arch of aorta.

3-Bifurcation of Trachea.





Boundaries of Posterior Mediastinum Behind the heart

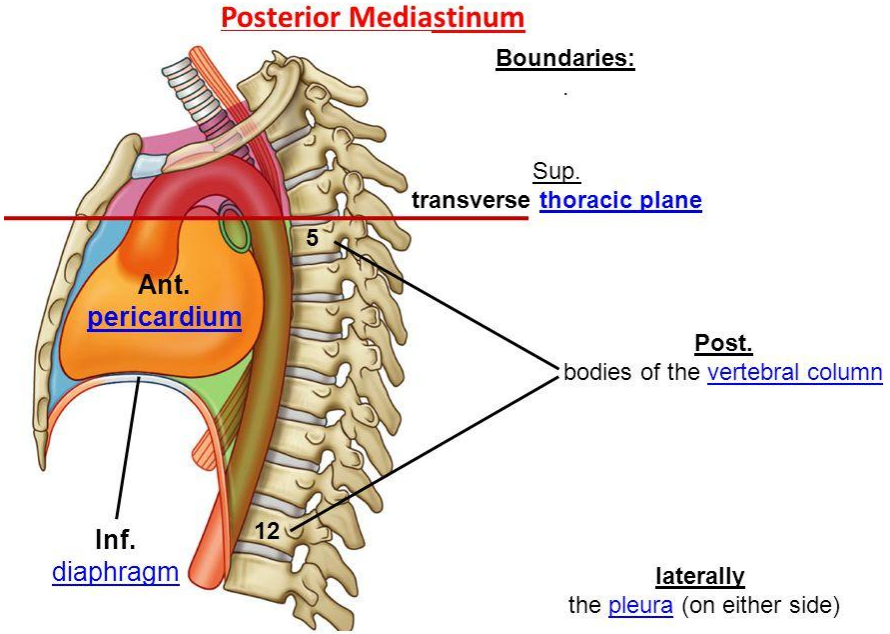
Superior: Horizontal Plane.
*Superior mediastinum.

Inferior: Diaphragm

Anterior: Heart

Posterior: Thoracic vertebrae From T5 to T12

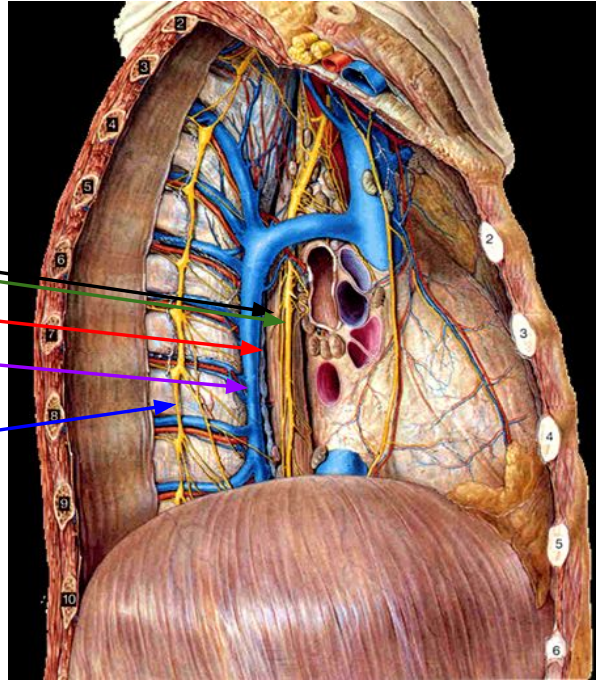
Lateral: Lungs & Pleurae



Contents of Posterior Mediastinum

- Esophagus*
- Vagus nerve*: around esophagus
- Thoracic duct*: posterior to esophagus
- Azygos vein: posterior & to the right of esophagus
- Descending aorta: posterior & to the left of esophagus
- Right & Left sympathetic trunks
- Lymph nodes

*pass through both the superior & posterior mediastina



MIDDLE MEDIASTINUM (الأكبر) contains the heart.

Site: Between anterior & posterior mediastinum

Contents :

1- Heart & Pericardium (all the big vessels entering and leaving the heart)

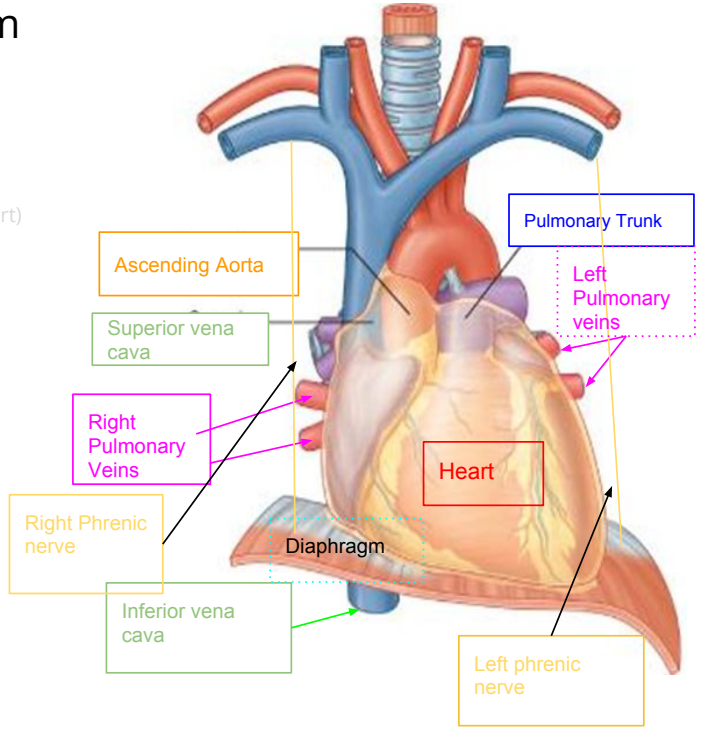
2- Ascending Aorta (from left ventricle)

3- Pulmonary trunk (at the level of T4)

4- Superior*& inferior vena cava

5-Right & Left pulmonary veins

6-Right & Left phrenic nerve



7- lymph nodes (it will be in all the mediastinum) *The superior vena cava appears in BOTH the superior (upper part of SVC) and middle (lower part SVC) mediastinum

ANTERIOR MEDIASTINUM

Boundaries :

Superior: Horizontal plane

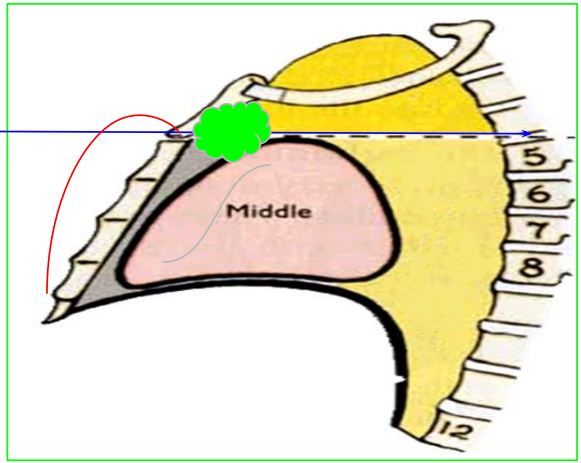
Inferior: Diaphragm

Anterior: Body & xiphoid process of sternum*

Posterior: Heart

Lateral: Lungs & Pleurae

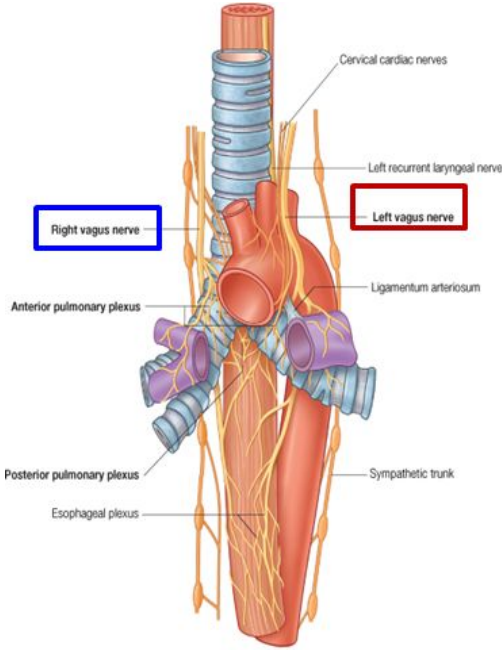
Content: 1- Thymus gland** 2-Lymph Nodes



- *Do not say the manubrium
- **Appears in both the superior and the anterior mediastinum
- ** the thymus is most anterior of superior and most superior of anterior

Vagus nerve

- It is the 10th cranial nerve.
- The right vagus descends to the right side of trachea, forms the posterior esophageal plexus & continues in abdomen as posterior gastric nerve.
- The left vagus descends between left common carotid & left subclavian arteries, forms the anterior esophageal plexus & continues in abdomen as anterior gastric nerve.



Phrenic nerve

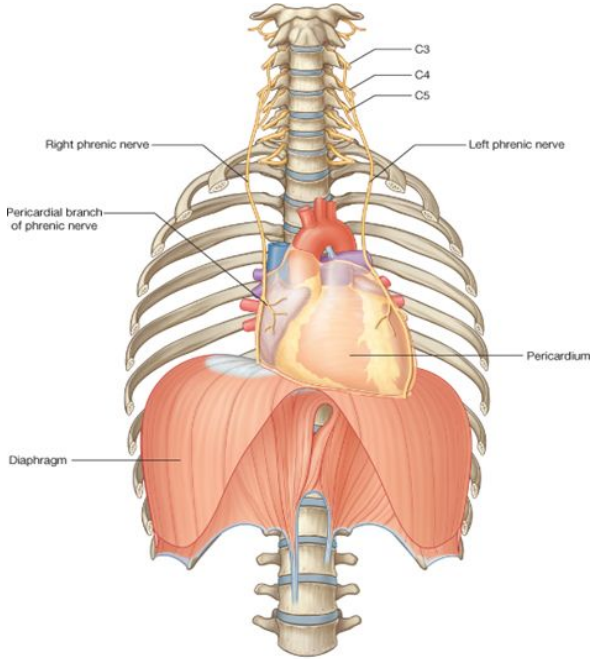
Root value — C3 - C4 - C5

Course in the thorax:

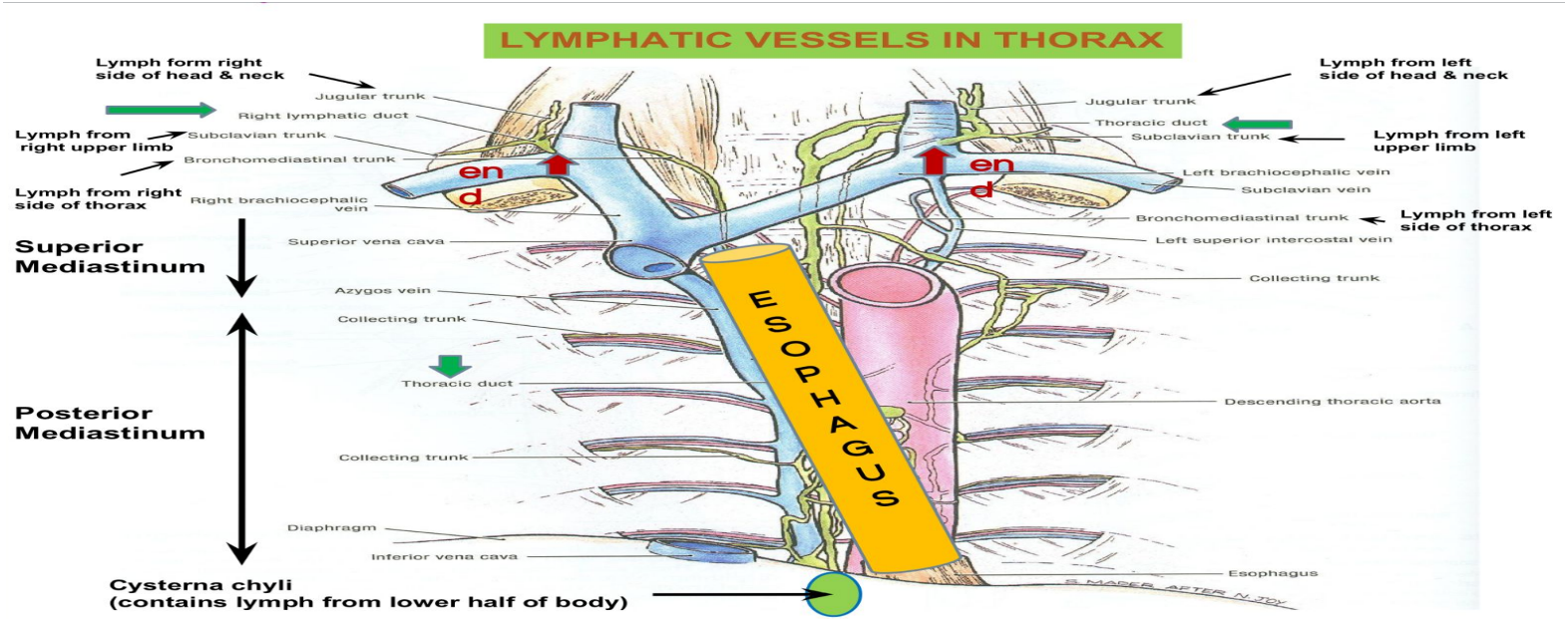
- The right phrenic descends on the right side of SVC and heart.
- The left phrenic descends on the left side of heart.
- Both nerves terminate in the diaphragm.

It supplies:

1. Motor and sensory fibers to diaphragm.
2. Sensory fibers to pleura and pericardium.



Lymphatic vessels in the thorax



Thoracic duct

BEGINNING:

It is the continuation of cisterna chyli (At the level of L1).

COURSE:

It passes through aortic opening of diaphragm.

It ascends in posterior mediastinum (posterior to esophagus).

It ascends in superior mediastinum (to the left of esophagus).

TRIBUTARIES:

It receives:
Lymphatics from all body EXCEPT:

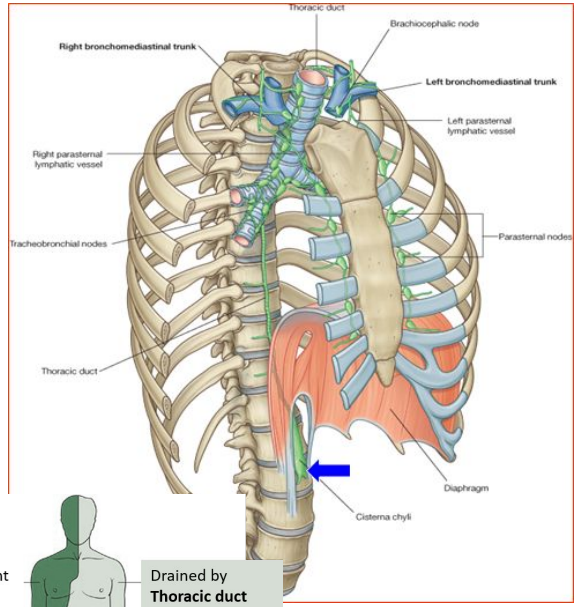
right side of thorax.

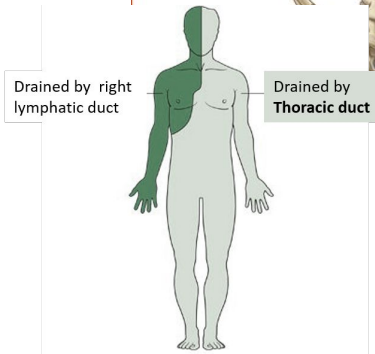
right upper limb.

right side of head & neck.

End:

It ends in the left brachiocephalic vein.





Aorta

Ascending aorta:

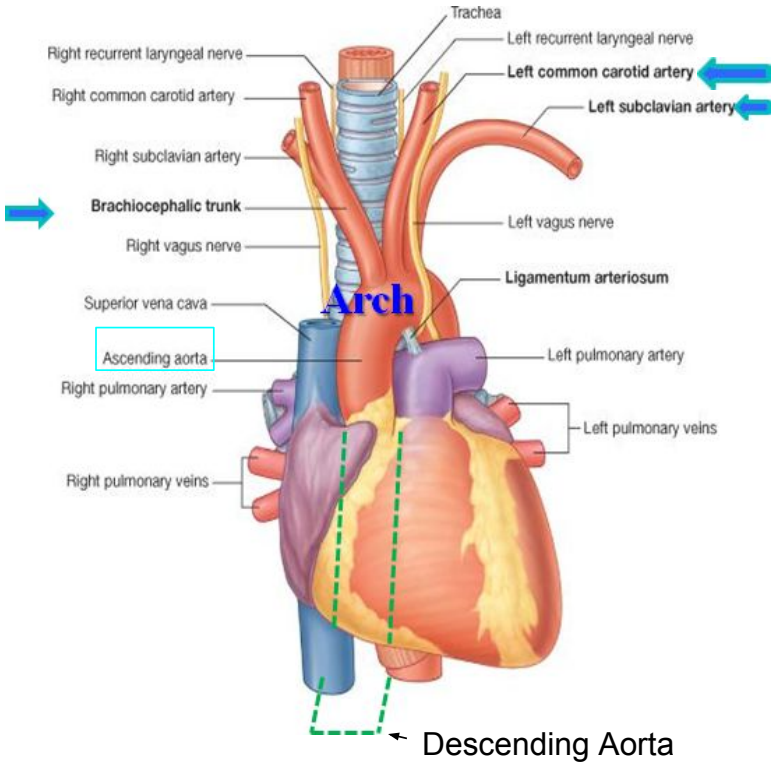
Beginning: at aortic orifice of left ventricle.
Course: in middle mediastinum
End: continues as arch of aorta (at level of T4)

Arch or aorta:

Course: in superior mediastinum
End: continues as descending thoracic aorta (at level of T4)

Descending aorta:

Course: in posterior mediastinum
End: continues as abdominal aorta through diaphragm



Questions

1-How many boundaries surround the mediastinum
A-2 b-3 c-4 d-5

2-How many main divisions for the mediastinum:
A-2 b-3 c-4 d-5

3-The horizontal plane is extending from:

A-sternal angle to the upper border of T4
B-sternal angle to the lower border of T4.
C-manubrium to the lower border of T4
D-manubrium to the upper border of T4

4-Which of the following is the most superior vein of the mediastinum?

A-inferior vena cava B-azygos vein

C-ascending aorta D-brachiocephalic veins

5-How many nerves are in the superior mediastinum?
A-2 B-3 C-4 D-5

6- Which structure appears in both the superior and posterior mediastinum

A-azygos vein B-thymus gland
C- thoracic duct D- descending aorta

7- Which of the following is in the posterior border of the anterior mediastinum:

A- lung pleura B-heart
C- vertebral column D-trachea

8- Which of the following is at the level of T4:

A- Bifurcation of the larynx B-Bifurcation of aorta
C- Bifurcation of pulmonary trunk D-1st costal cartilage

9- The vagus nerve is the:

A- 9th cranial nerve B- 10th cranial nerve
C- 11th cranial nerve D- 8th cranial nerve

10- The phrenic nerve gives only sensory fibers to:

A-diaphragm B-lungs and trachea
C-pleura and pericardium D-esophagus

Answers:
1-D
2-A
3-B
4-D
5-C
6-C
7-B
8-C
9-B
10-C

Team Members

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Abeer Alabduljabbar
Afnan Abdulaziz Almustafa
Ahad Ahmed Algrain
Albandari Alshaye
AlFhadah abdullah alsaleem
Ghaida Alsanad
Lojain Azizalrahman
Maha Barakah
Majd Khalid AlBarrak
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Hamdan Aldossari
Mohammed Alomar
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Hassan Aloraini
Abdullah Alomar
Fahad Alfaiz
Saad Aloqile
Abdulmajeed Alwardi
Rayyan Almousa
Sultan Alfuhaid
Ali Alammari
Fahad alshughaithry
Fayez Ghiyath Aldarsouni
Mohammed Alquwayfili
Saleh Almoaiqel
Abdullah Almeaither
Abduljabbar Al-yamane
Sultan Al-nasser
Majed Aljohani
Zeyad
Al-khenaizan
Mohammed Nouri
Abdulaziz Al-drgam
Fahad Aldhowaihy
Omar alyabis
Akram Alfandi
Abdulhaziz Alabdulkareem