



The Mediastinum

This work is only for revision.

Respiratory Block
ANATOMY
team 435



C O L O R C O D E S

- IMPORTANT NOTES
- EXTRA NOTES
- DEFINITION

The mediastinum

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.

Boundaries

Subdivisions

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

Level of T4 is at the Level of:

- Sternal angle
- Second costal cartilage
- Bifurcation (1) of trachea
- Bifurcation of pulmonary trunk (2)
- Beginning & termination of arch of aorta

PHRENIC NERVES

Root Value: C3,4,5 (3)

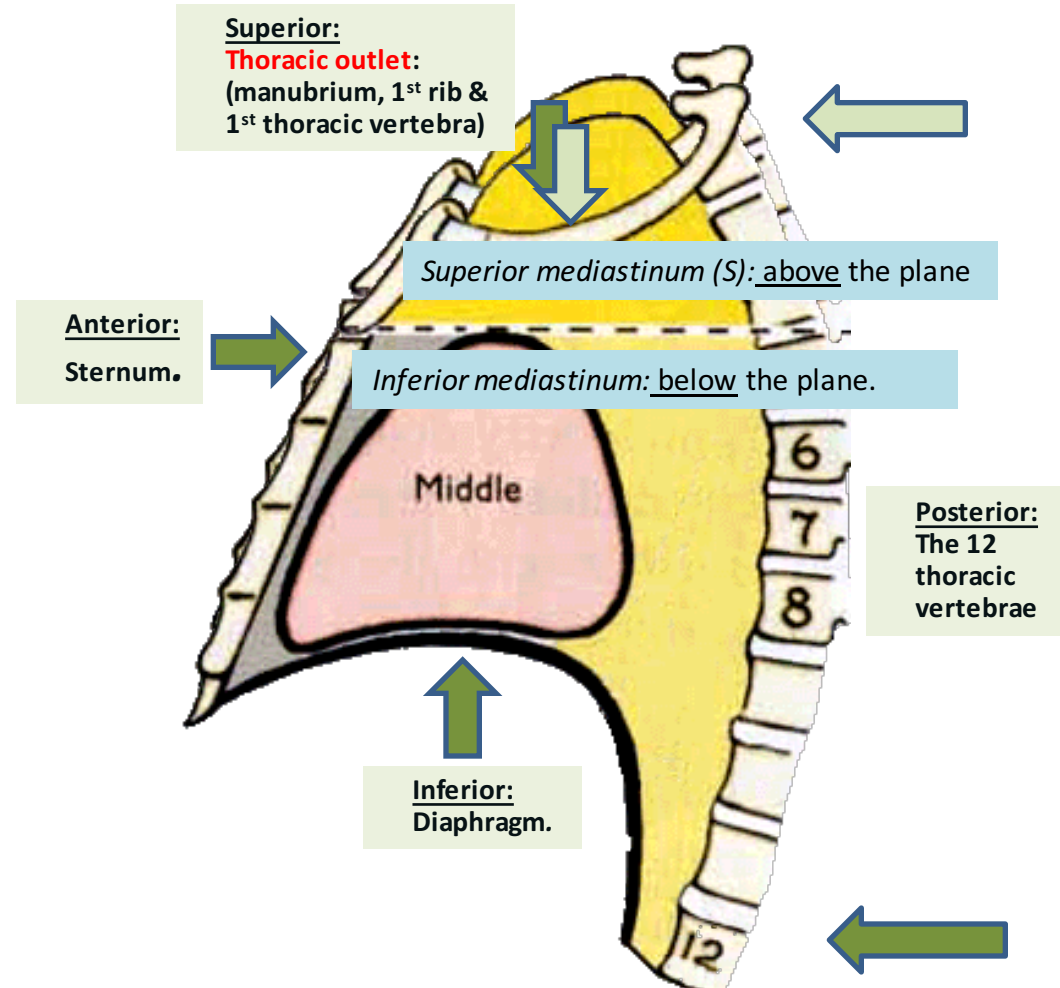
They pass through the Superior & Middle mediastina

Course in Thorax:

- The right phrenic descends on the right side of the Superior Vena Cava & heart.
- The left phrenic descends on the left side of heart.
- Both nerves terminate in the diaphragm

Branches :

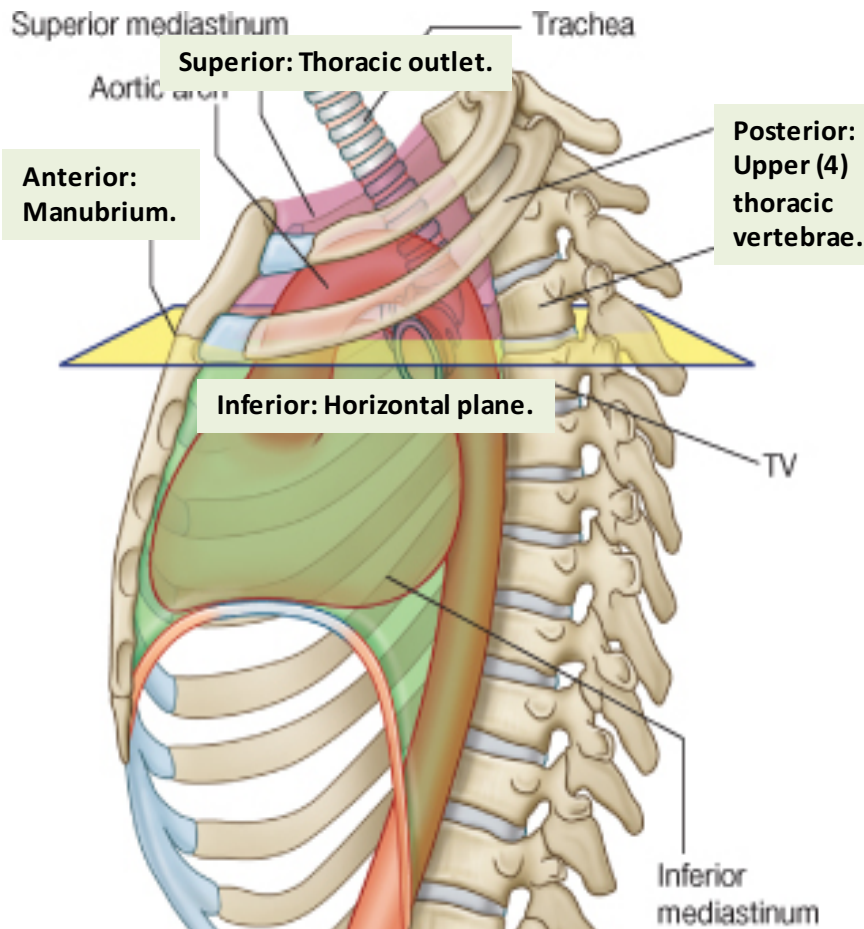
- 1) Motor & Sensory fibers to Diaphragm
- 2) Sensory fibers to pleurae & pericardium



- (1) bifurcation: عُقْدَة
- (2) Pulmonary trunk: a major vessel of the human heart that originates from the right ventricle and branches into the right and left **pulmonary** arteries.
- (3) MNM: three, four, five. keeps the diaphragm alive

Superior Mediastinum

Boundaries



- (1) Both right and left brachiocephalic veins are superficial.
- (2) **Thoracic duct:** the main lymphatic channel for the return of chyle to the venous system.

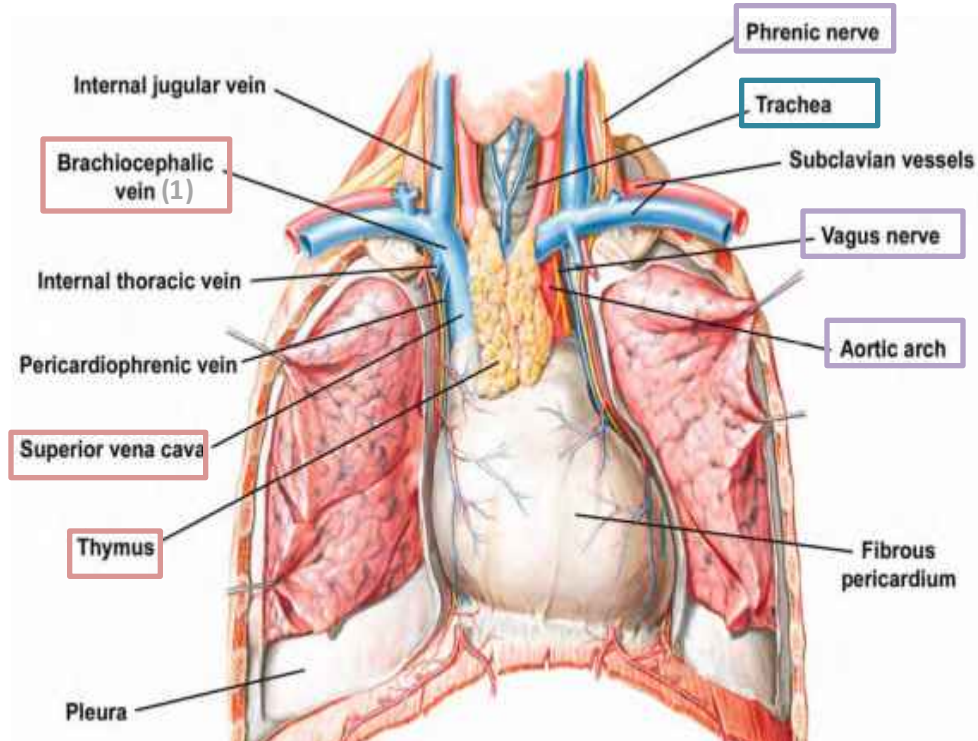
Contents:

(A) Superficial

(B)

(c) Deep

Intermediate



- The aorta has three branches :
1. Brachiocephalic artery.
 2. Left common carotid artery.
 3. Left Subclavian artery

- (c) Deep:
- Trachea
 - Esophagus
 - Thoracic Duct (2)

Inferior Mediastinum

subdivided into:

1-Anterior mediastinum

➤ Boundaries:

Superior: Horizontal plane

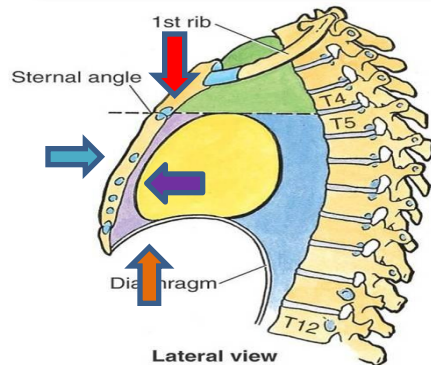
Inferior: Diaphragm

Anterior: Body & xiphoid process of sternum

Posterior: Heart

Lateral: Lungs & Pleurae

➤ Content: thymus gland & lymph nodes

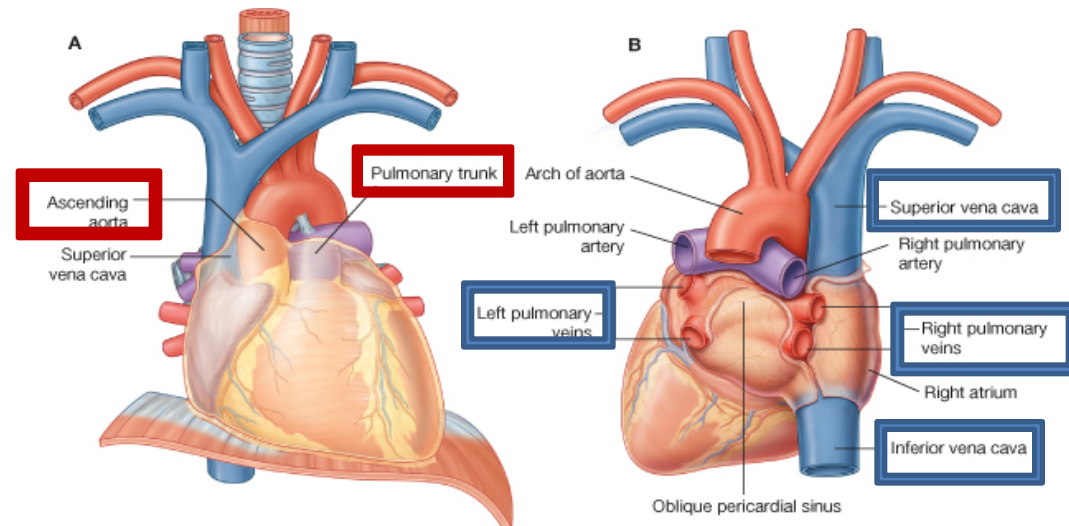


2- Middle mediastinum

Site: Between anterior & posterior mediastina

Content

arteries	veins	Phrenic n	lymph h	heart
----------	-------	-----------	---------	-------

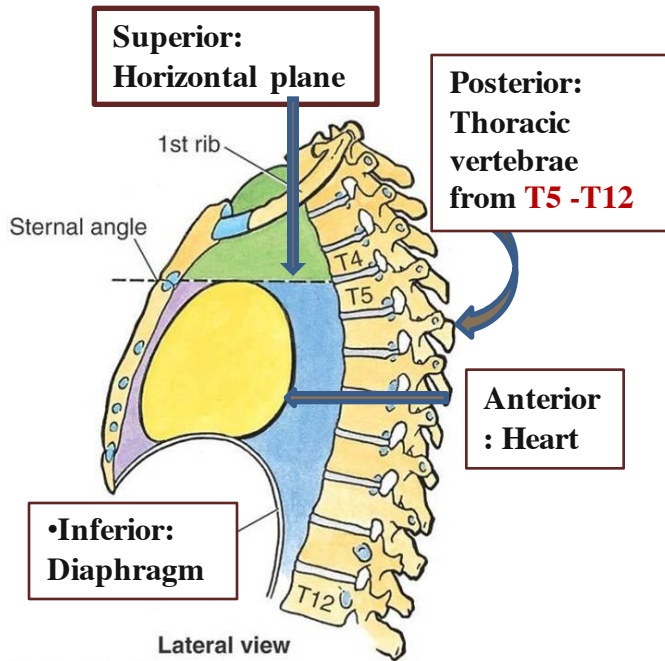


© Elsevier. Drake et al: Gray's Anatomy for Students - www.studentconsult.com

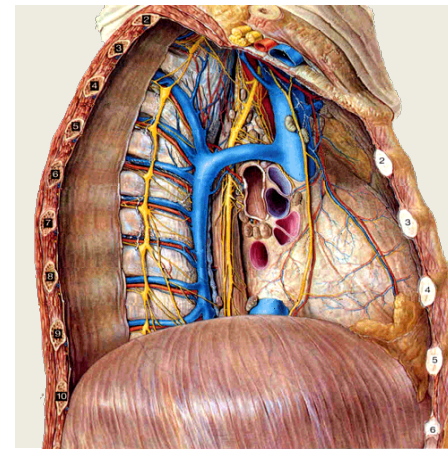


Inferior mediastinum cont.. (3-posterior mediastinum)

Boundaries



contents



1. Esophagus
2. Azygos system of veins
3. R & L Thoracic Sympathetic trunks
4. Mediastinal lymph nodes
5. Vagus nerves
6. Thoracic duct
7. Descending aorta

RIGHT VAGUS NERVE

Descends to the right side of trachea

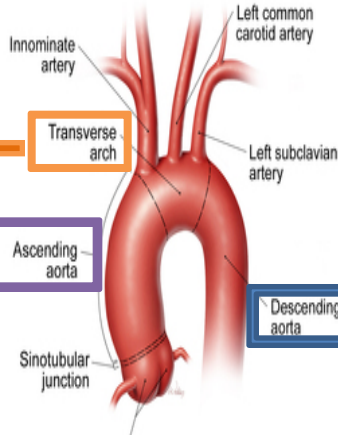
Forms the **posterior** esophageal plexus & continues in abdomen as **posterior** gastric nerve.

LEFT VAGUS NERVE

Descends between left common carotid & left subclavian arteries

Forms the **anterior** esophageal plexus & continues in abdomen as **anterior** gastric nerve

AORTA

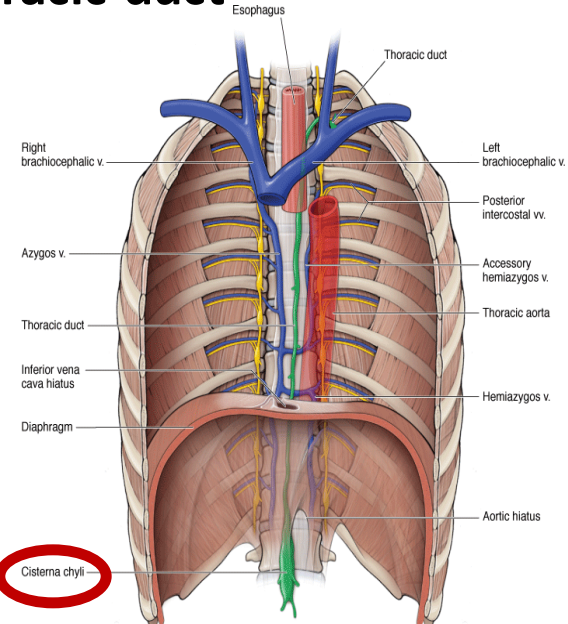


Begins: Aortic orifice of left ventricle
Course: in middle mediastinum
End: continue as arch of aorta (4T)

Begins: level of 4T
Course: in superior mediastinum
Ends: Continues as descending thoracic aorta (4T)

Begins: level of 4T
Course: in posterior mediastinum
End: cont. as abdominal aorta through diaphragm

Thoracic duct



Begins
 it is the continuation of **Cisterna Chyli** (at the level of L1)

course
 - It passes through aortic opening of diaphragm.
 - ascends in Posterior mediastinum (posterior to esophagus).
 - It ascends in Superior mediastinum (left of esophagus).

END
 It opens in the left brachiocephalic vein.

Notes:
 It receives lymphatic from all body **except:**
 Right side of thorax, Right upper limb & Right side of head & neck



Mediastinum

The mediastinum is subdivided by a Horizontal plane (extending from the Sternal angle to the lower border of T (4) into:

Superior mediastinum

Boundaries:

Superior: Thoracic outlet.

Inferior: Horizontal plane.

Anterior: Manubrium.

Posterior: Upper (4) thoracic vertebrae.

Superficial: thymus gland , Three veins: L&R brachiocephalic veins and the Superior vena cava

Intermediate: Arch of aorta & its three branches:

Brachiocephalic artery , L common carotid artery ,
L Subclavian artery

Nerves: : Phrenic and Vagus

Deep: Trachea , Esophagus and Thoracic Duct

Inferior mediastinum

Middle mediastinum: contains Heart

Anterior mediastinum: in front of Heart

Posterior mediastinum: behind Heart

Anterior Mediastinum

Boundaries:

Superior: Horizontal plane
Inferior: Diaphragm
Anterior: Body & xiphoid process of sternum
Posterior: Heart
Lateral: Lungs & pleurae

Contents:

Thymus gland
Lymph nodes

Middle Mediastinum

Site:

Between anterior & posterior mediastina

Contents:

1. Heart & pericardium
2. Ascending Aorta
3. Pulmonary trunk
4. Superior & Inferior vena cava
5. Right & left pulmonary veins
6. Right & left phrenic nerves
7. Lymph nodes

Posterior Mediastinum

Boundaries:

Superior: Horizontal plane
Inferior: Diaphragm
Anterior: Heart
Posterior: Thoracic vertebrae from **T5 -T12**
Lateral: Lungs & pleurae

Contents:

1. *Esophagus,*
2. *Azygos system of veins, posterior & to the right of esophagus*
3. *R & L Thoracic Sympathetic tunks,*
4. *Mediastinal lymph nodes*
5. *Vagus nerves*
6. *Thoracic duct: (posterior to esophagus).*
7. *Descending aorta: posterior & to the left of esophagus*

PHRENIC NERVES

Root Value:

C3,4,5

They pass through the Superior & Middle mediastina

Course in Thorax:

The **right phrenic** descends on the right side of SVC & heart.

The **left phrenic** descends on the left side of heart

Both nerves terminate in the diaphragm

Branches :

- 1) Motor & Sensory fibers to Diaphragm
- 2) Sensory fibers to pleurae & pericardium

VAGUS NERVE

Root Value:

It is the 10th cranial nerve.

It descends through the Superior & Posterior mediastina

Course:

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 subcalavian arteries, forms the **anterior esophageal plexus** & continues in abdomen as **anterior gastric nerve**.

Q1- The heart is located in which anatomical subdivision of the mediastinum?

- anterior
- middle
- posterior
- lateral
- superior

ANSWER: B

Q2- The aortic arch is located in which subdivision of the mediastinum?

- superior
- middle
- posterior
- anterior
- none of the above

ANSWER: A

Q3- Contents of the mediastinum contain all except:

- A- the heart
- B- the great vessels of the heart
- C- the lung
- D- the trachea
- E- the phrenic nerve

ANSWER: C

Q4- The mediastinum is subdivided by a horizontal plane extending from:

- A- sternal angle and the junction (V disk) of vertebrae T5 and T6
- B- sternal angle and the junction (IV disk) of vertebrae T4 and T5
- C- sternal angle and the junction (VI disk) of vertebrae T4 and T5
- D- sternal angle and the junction (IV disk) of vertebrae T5 and T6

ANSWER: B

Q5- What nerve passes closet to the trachea?

- A- vagus
- B- phrenic
- C- superphrenic
- D- superphreaky

ANSWER: A

Q6- What is the sole motor supply to the diaphragm? Hey! Some are sensory!!

- A- the vagus nerve
- B- the phrenic nerve
- C- the super phreaky phrenic nerve
- D- the axillary nerve

ANSWER: B

Q7- The thoracic outlet connects the:

- A- Inferior part of the mediastinum to the diaphragm
- B- Posterior part of the mediastinum to the vertebrae
- C- Superior part of the mediastinum to the neck
- D- Anterior part of the mediastinum to the sternum

ANSWER: C

Q8- Level of T4 is the level of :

- A- sternal angle & 4th costal cartilage
- B- where the bifurcation of trachea and pulmonary trunk occur
- C- sternal angle & 2nd costal cartilage
- D- A & B
- E- B & C

ANSWER: E

Q9: The posterior boundary of the Superior mediastinum is

- A-Upper 5 thoracic vertebrae
- B-Lower 4 thoracic vertebrae
- C-Upper 4 lumbar vertebrae
- D- Upper 4 thoracic vertebrae

ANSWER: D

Q10- How many veins are located in the superficial mediastinum?

- A- 4
- B- 3
- C- 2
- D- 5

ANSWER: B

Q11- What is the anterior border of the posterior mediastinum ?

- A- Pleural
- B- Pericardium
- C- The vertebral body
- D- Xiphoid process of the sternum

ANSWER: B

Q12- The thoracic duct is located at the:

- A- Superficial mediastinum
- B- Intermediate mediastinum
- C- Deep mediastinum
- D- B & C

ANSWER: C

Q13: Which part of the aorta is located within the posterior mediastinum?

- A-Ascending aorta
- B-Aortic Arch
- C-Descending aorta
- D- Abdominal Aorta

ANSWER: C

Q14: The mediastinum is divided into superior and inferior compartments by an imaginary line at what vertebral level?

- A-T3
- B-T5
- C-L5
- D- T4

ANSWER: D

Q15- Tributaries receives lymphatics from all body EXCEPT:

- A- Left side of thorax, UL and left head
- B- Right side of thorax, UL and left head
- C- Left side of thorax, UL and right head
- D-Right side of thorax, UL and right head

ANSWER: D

Q16: what are the root value of phrenic nerve?

A) C3,4,5

B) T3,4,5

C) C1,2,3

D) T1,2,3

Answer: A

Q17: the phrenic nerves innervate the:

A) diaphragm.

B) diaphragm and parietal pleura.

C) diaphragm, parietal pleura and pericardium.

D) diaphragm, parietal pleura, pericardium and intercostals muscles.

Answer: C

Q18: the right common carotid artery is a branch of:

A) the ascending aorta.

B) the aortic arch.

C) the brachiocephalic artery.

D) the right subclavian artery.

Answer: C

Q19: Lymph nodes can be found in which mediastinal compartment(s)?

- A) Anterior
- B) Middle
- C) Posterior
- D) All of the above

Answer: D

Q20: The aorta is located in which mediastinal compartment(s)?

- A) Anterior only
- B) Anterior and middle
- C) Middle only
- D) Middle and posterior
- E) Posterior

Answer: D (middle: ascending aorta, posterior: descending aorta)

Q21: Which feature is found only in the left lung?

- A) Cardiac notch
- B) Horizontal fissure
- C) Oblique fissure
- D) Superior lobar bronchus
- E) Three lobes

Answer: A

Q22: where do the right and left phrenic nerves terminate?

- A) right: in T12, left: in diaphragm
- B) right: in diaphragm, left: in T12
- C) both in T12
- D) both in diaphragm.

Answer: D

Q23: which of the following parts of mediastinum contain the heart?

- A) superior.
- B) posterior.
- C) middle.
- D) anterior.

Answer: C

Q24: which of the following contain the thymus gland?

- A) anterior mediastinum and superior mediastinum
- B) middle mediastinum.
- D) posterior mediastinum.

Answer: A

Q25: the phrenic nerve pass through?

- A) the superior and middle mediastinum.
- B) the superior and anterior mediastinum.
- C) the middle and anterior mediastinum.
- D) the middle and posterior mediastinum.

Answer: A

Q26: mediastinum lie in which compartment of thoracic cavity?

- A) anterior
- B) intermediate
- C) posterior
- D) Lateral

Answer: B

Q27: which one of these is in superficial compartment of superior mediastinum ?

- A) trachea
- B) vagus n.
- C) left brachiocephalic v.
- D) brachiocephalic artery

Answer: C

Q28: level of T4:

- A) manubrium
- B) fourth costal cartilage
- C) sternum
- D) sternal angle

Answer: D

Q29: anterior boundary of mediastinum ?

- A- sternum
- B- manubrium
- C- upper four ribs
- D- vertebrae

Answer: A

Q30: inferior boundary of superior mediastinum ?

- A- diaphragm
- B- vertical plane
- C- horizontal plane
- D- heart

Answer: C

SAQ's:

1)What are the boundaries of anterior mediastinum?

Superior: horizontal plane

Inferior: diaphragm

Anterior: body and xiphoid process of sternum Posterior: heart

Lateral: lung and pleurae

2)what are the contents of middle mediastinum?

-heart and pericardium.

-ascending aorta.

-pulmonary trunk.

-superior and inferior vena cava.

-right and left pulmonary veins.

-right and left phrenic nerves.

-lymph nodes.

3)what are the boundaries of posterior mediastinum?

Superior: horizontal plane.

Inferior: diaphragm.

Anterior: heart

Posterior: thoracic vertebrae from T5-T12

Lateral: lung and pleurae.

هذا العمل إجتهد من طلاب و طالبات
إن أصبنا فمن الله وإن أخطأنا فمن أنفسنا ومن الشيطان

TEAM MEMBERS:

Raghda Alqassim
Luluwah Alsagheir
Muneerah Alhussaini
Fatima Alden
Alhanouf Aljaloud
Deema Alrajhi

TEAM LEADERS:

Ghaida Aljamili
Abdullah Alfuraih

- For questions and suggestions
you can contact us on
Anatomy435@gmail.com

