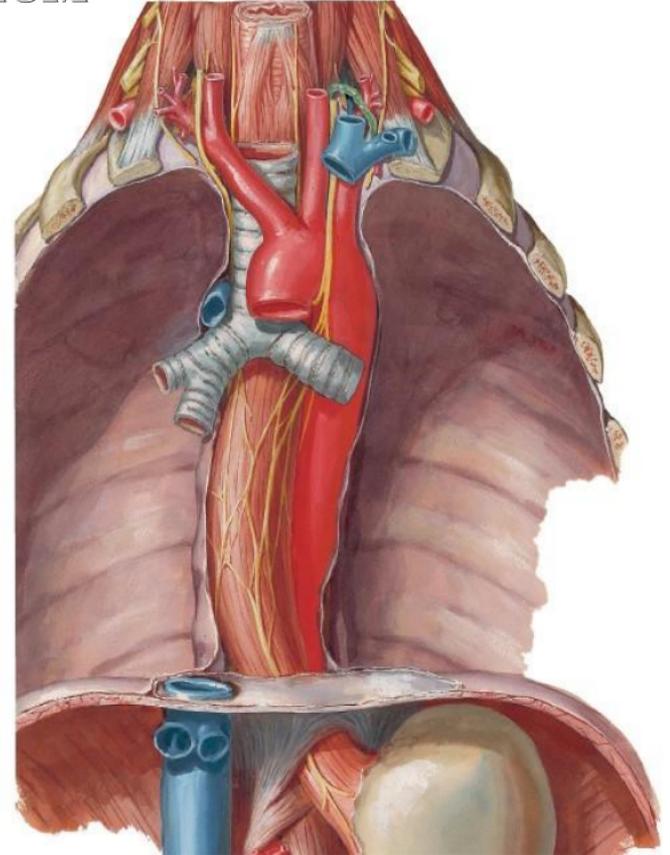


# MEDIASTINUM & PERICARDIUM

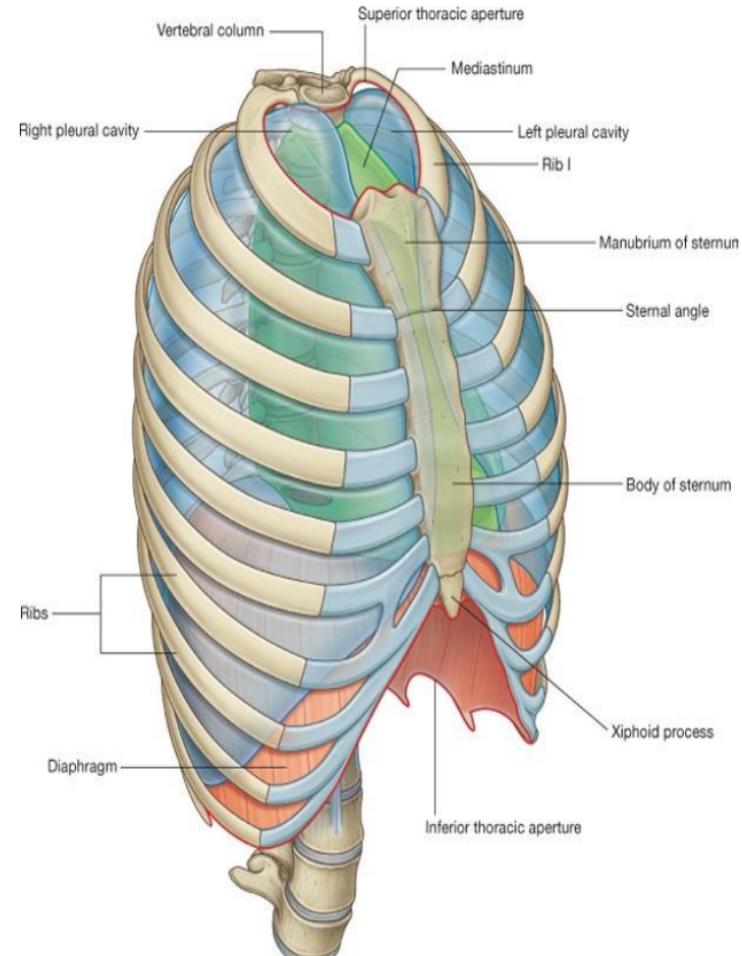
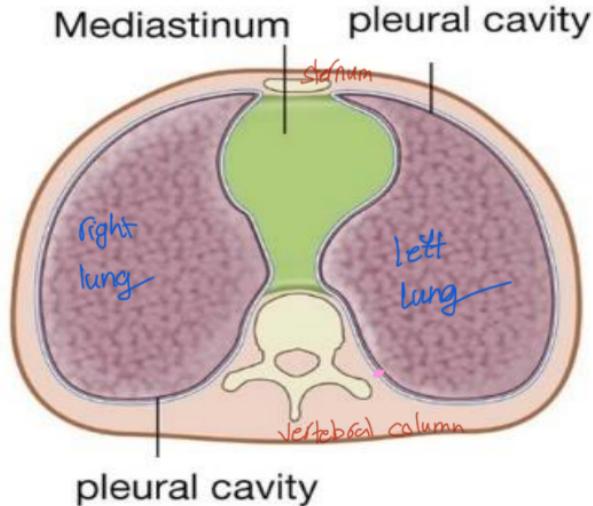
BY  
DR ABULMAATY MOHAMED  
ASSISTANT PROFESSOR  
HEAD OF  
ANATOMY & EMBRYOLOGY  
DEPARTMENT  
MUTAH UNIVERSITY



# MEDIASTINUM

**Def.**

Central septum ( ) the 2 lungs  
extend from sternum to vertebral column  
& from thoracic inlet to diaphragm



# MEDIASTINUM

## Divisions

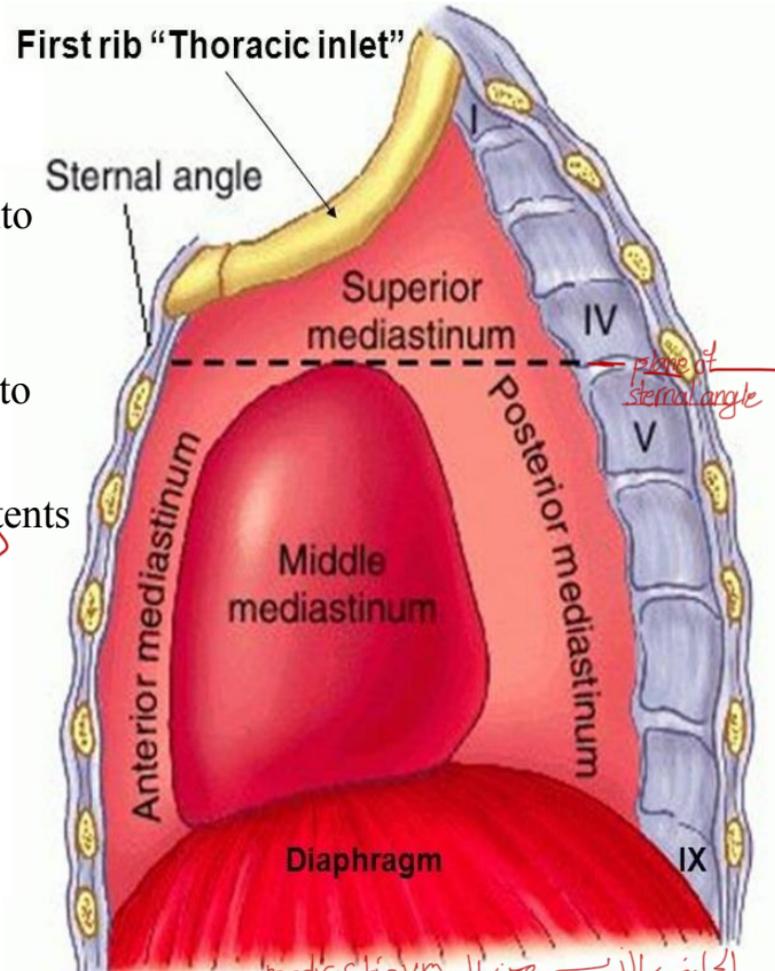
divided by **plane of sternal angle**  
(from lower border of manubrium to T4 /T5) into

- 1- **superior mediastinum** : above this plane
- 2- **inferior mediastinum** : below this plane.  
it is further divided into

a- **ant. mediastinum** : ant. to pericardium

b- **middle mediastinum** : pericardium & its contents  
(Heart + pericardium)

c- **post. mediastinum** : post. to pericardium



الجانبة اليسرى من الـ mediastinum  
رئيتي الصلوة والرئة

# SUPERIOR MEDIASTINUM

## Boundaries

Ant. : manubrium sterni

Post. : upper 4 thoracic vertebrae & IVDs

above : thoracic inlet

below : plane of sternal angle

on sides: 2 lungs & pleurae *مخ جانِبِ اِي قِزَمِ مِاِستِاِستِاِ*

## Inferior mediastinum :

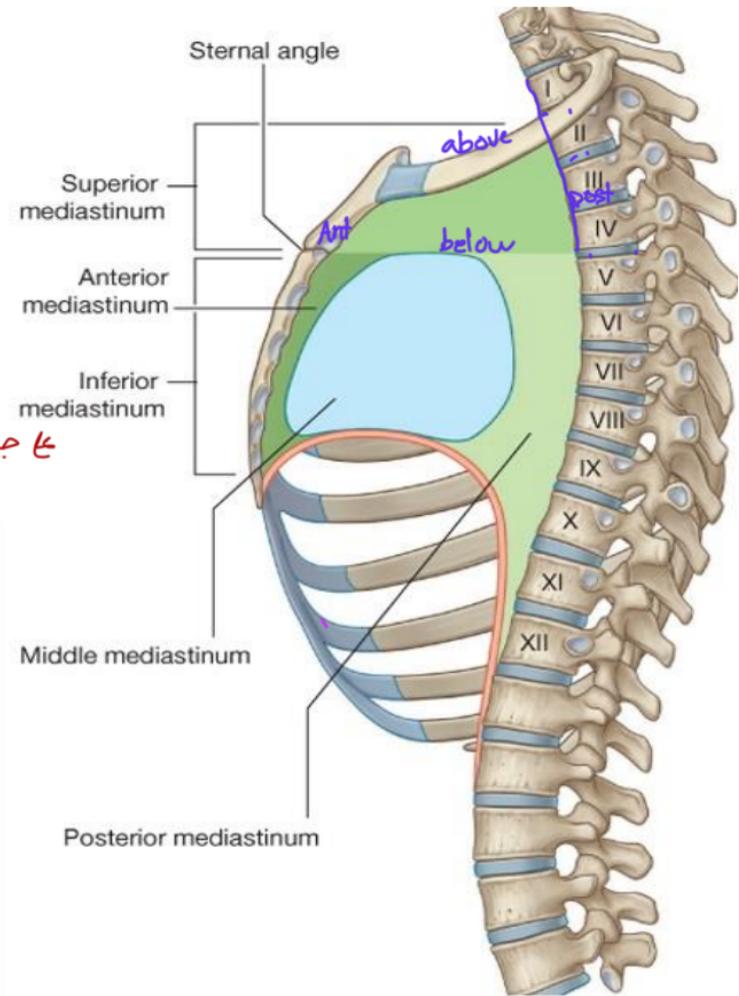
*مخ جانِبِ اِي كِلِ لُغِ + پِلِورا*

*فِوَقِ اِي كِلِ : پِلِانِ اِي سِتاِرنِ اِنِجِلِ*

*كِتاِ اِي كِلِ : دِاِغِرامِ*

*قِابِلِ قِاِئِمِ وِوِرا*

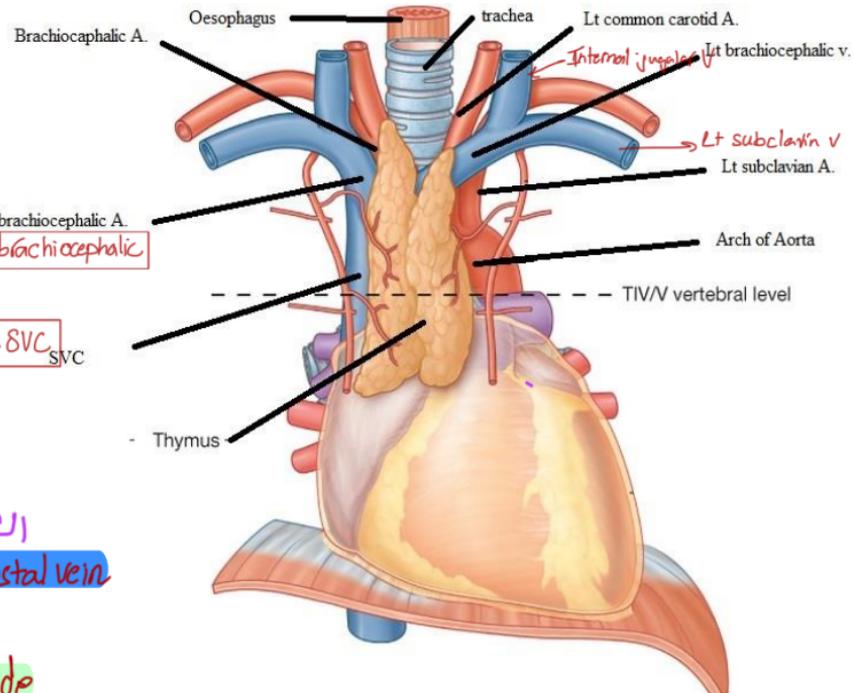
ant body of sternum	posterior: middle + diaphragm <i>عِتاِزِ اِي اِنِجِلِ</i>	middle: ant	قام
middle	lower 8	post	مِرا



# SUPERIOR MEDIASTINUM

## المحتويات Contents

- **Thymus gland** *تضمحل مع الوقت*
- **Lt brachiocephalic v.** *internal jugular + Subclavin = brachiocephalic*
- **Rt brachiocephalic v.**
- **upper 1/2 of SVC** *left brachiocephalic + Right one = SVC*
- **end of arch of azygos**
- **Rt phrenic n.** *venous system* *جانب ال*
- **arch of aorta & its 3 branches** *الشرايين المركزية*
- **Lt. vagus & Lt phrenic n. & Lt sup. intercostal vein**
- **Trachea & Rt. vagus on its rt side** *وعلى يمينها*
- **Oesophagus & thoracic duct on its left side** *وعلى يسارها*
- **Lt recurrent laryngeal n. ( ) esophagus & trachea**



**★ VERY ★  
★ IMPORTANT ★**

*العظمى حول الشرايين الأربعة*  
Relations of 4 arteries

Hilum of thorax

*الشرايين المركزية*  
Left common carotid  
Left subclavin  
Brachiocephalic

ducts

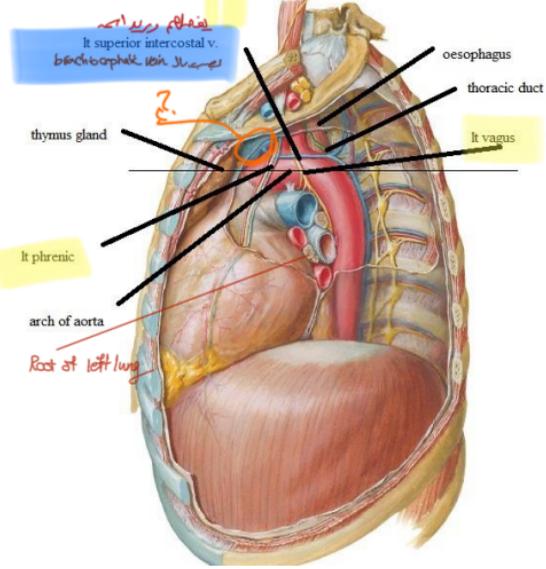
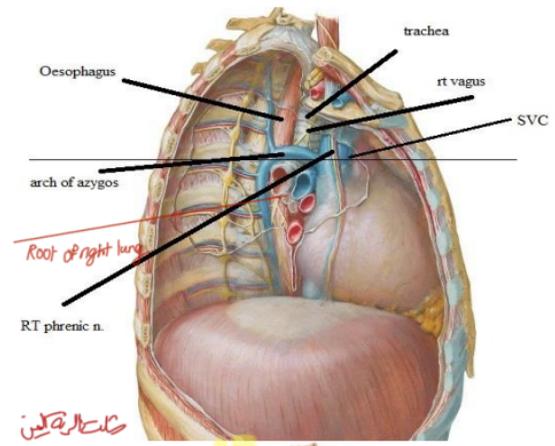
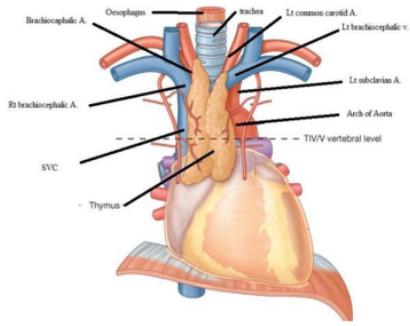
*منه ال SC: ٢٤ في  
اذا يترك تتوضف الدش روع على الرقبه*  
~~RT LN~~

# SUPERIOR MEDIASTINUM

برایات محور

## Contents

- Thymus gland
- Lt brachiocephalic v.
- Rt brachiocephalic v.
- upper 1/2 of SVC.
- end of arch of azygos
- Rt phrenic n.
- arch of aorta & its 3 branches
- Lt. vagus & Lt phrenic n. & Lt sup. intercostal V.
- Trachea & Rt. vagus on its rt side
- Oesophagus & thoracic duct on its left side
- Lt recurrent laryngeal n.( ) esophagus & trachea



Thymus  
Veins = اعصاب  
Arteries = اوعية  
Ducts = قنوات

# POSTERIOR MEDIASTINUM

## Boundaries :

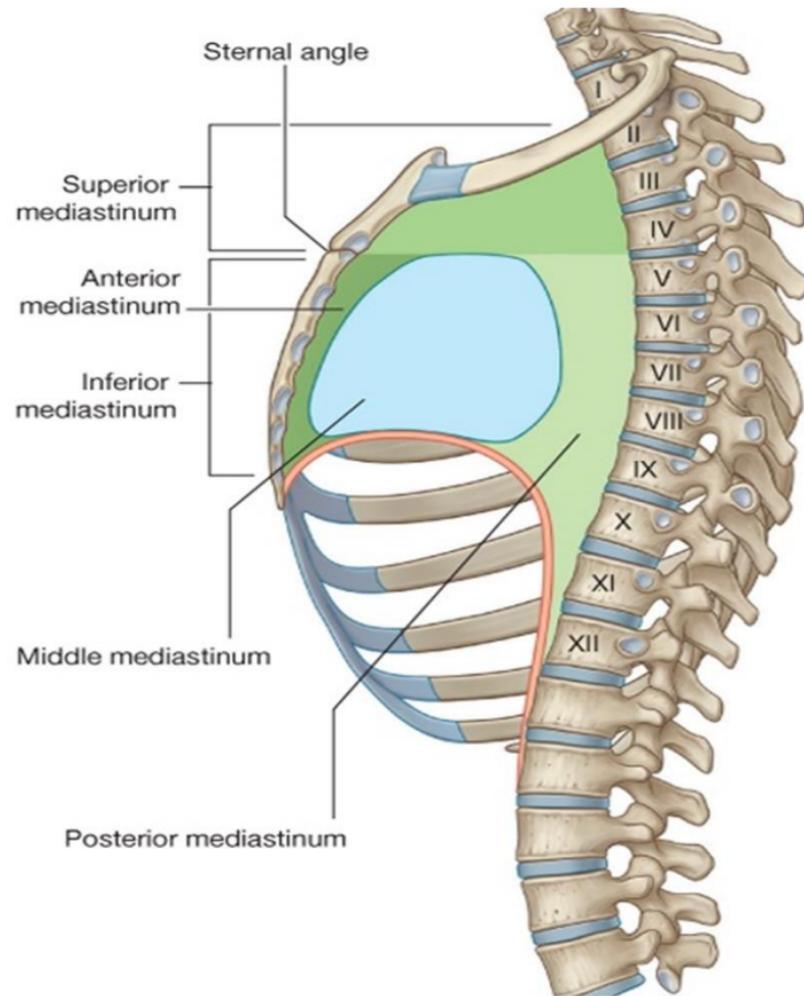
**Ant.** : pericardium & diaphragm

**Post.** : lower 8 thoracic vertebrae & IVDs

**Above** : plane of sternal angle

**Below** : diaphragm.

**on sides**: 2 lungs & pleurae



# POSTERIOR MEDIASTINUM

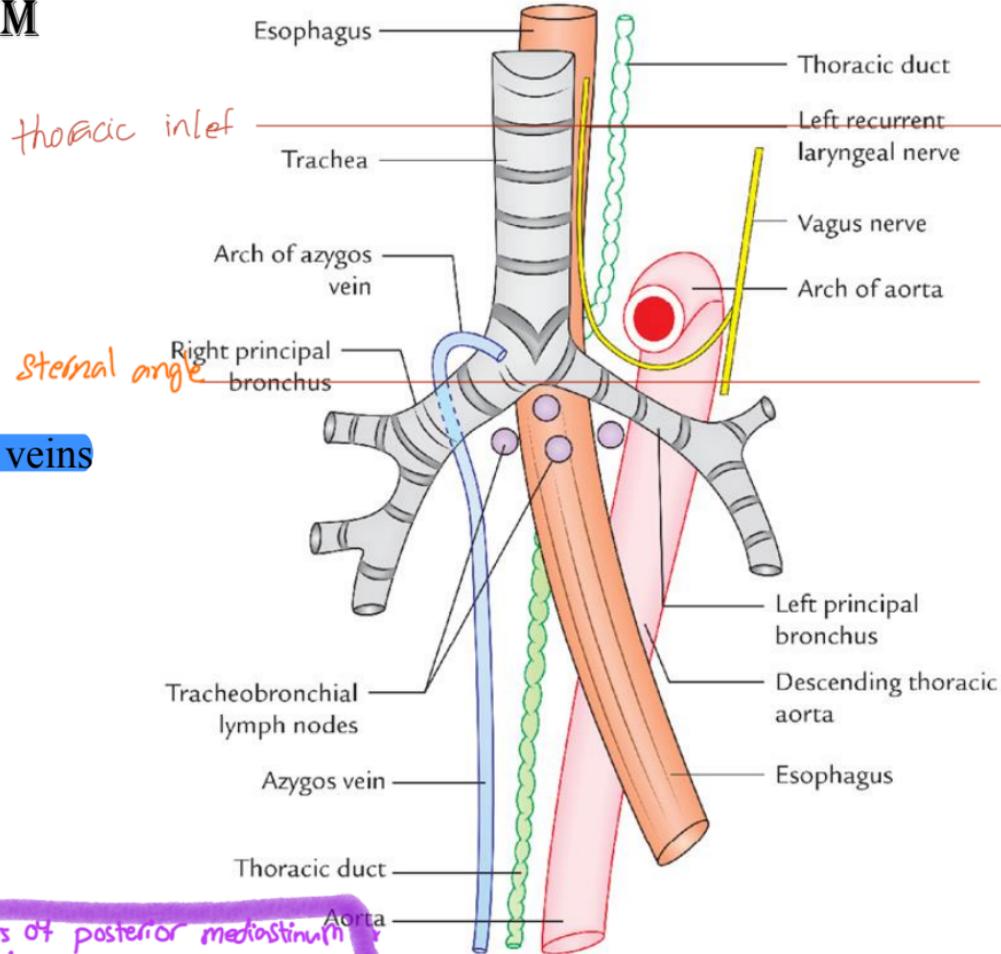
Contents : (no date)

- 1- descending thoracic aorta
- 2- esophagus & 2 vagi forming the oesophageal plexuses
- 3- thoracic duct
- 4- azygos vein
- 5- inferior & superior hemiazygos veins
- 6- posterior mediastinal l.n.

- 2 vagi posterior mediastinal l.n.
- N - nerves + nodes
  - D - descending
  - A - Azygos system
  - T - Thoracic Duct
  - E - Esophagus

Contents of superior mediastinal  
Hilum of thorax

Contents of posterior mediastinum  
No Date



Trachea  
القصبة الهوائية

# MIDDLE MEDIASTINUM

## Boundaries

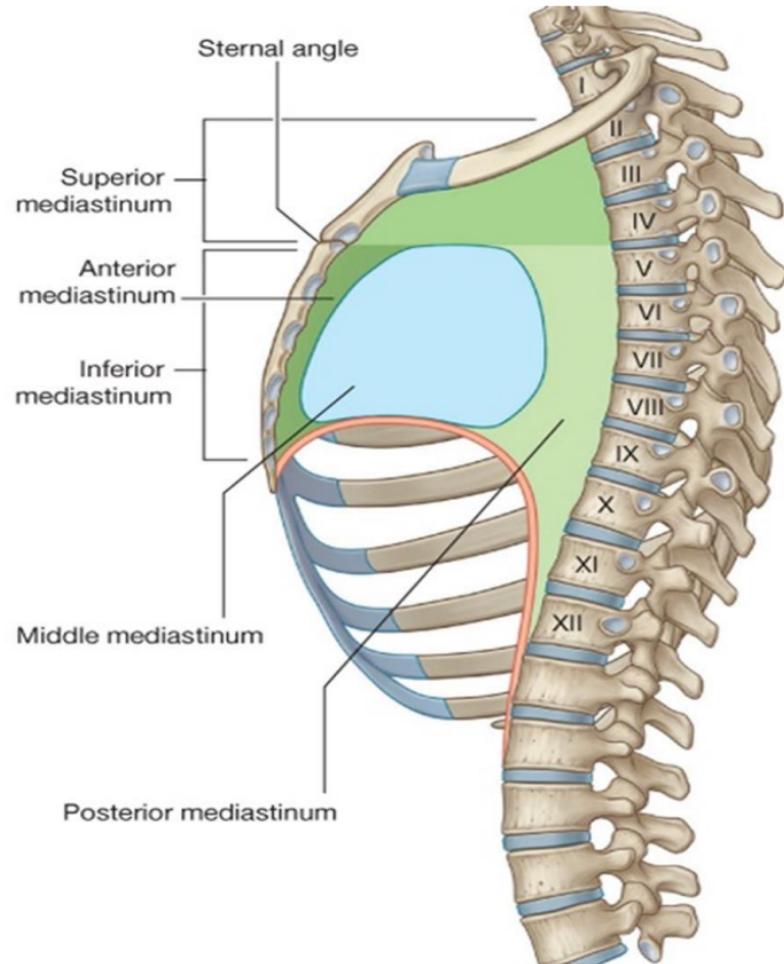
**Ant.** : ant. mediastinum

**Post.** : post. mediastinum

**above** : plane of sternal angle

**below** : diaphragm

**on sides**: 2 lungs & pleurae



# MIDDLE MEDIASTINUM

pericardium

١) بالي حجاب

٢) والي بزره

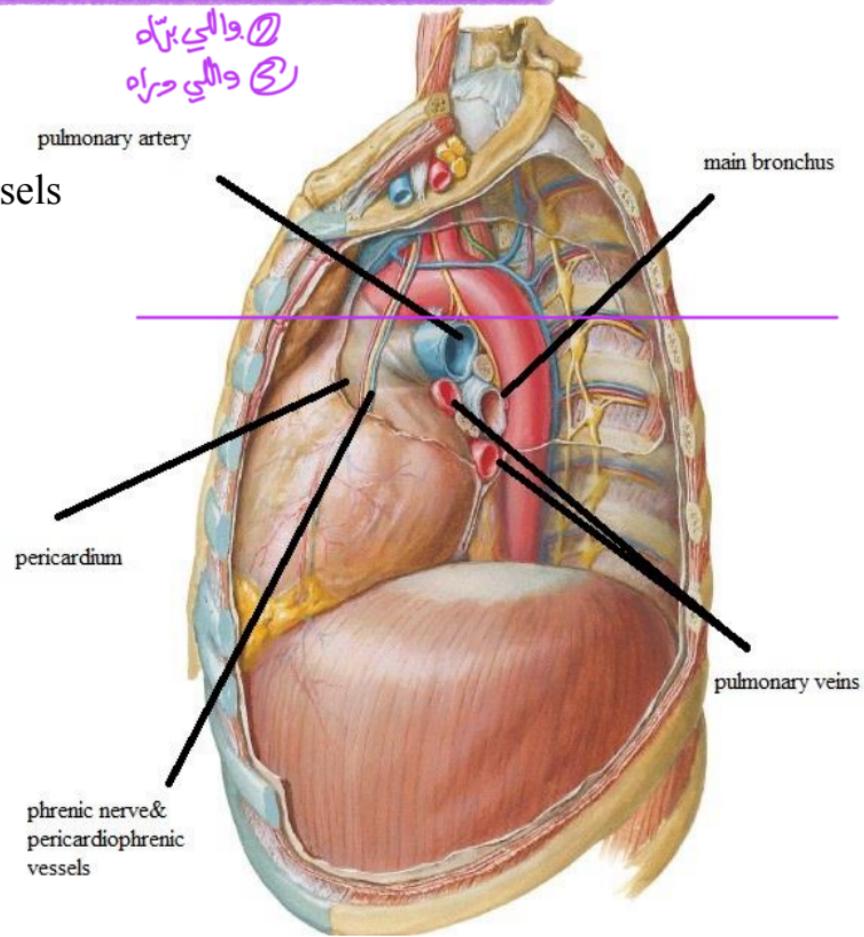
٣) والي دراه

## Contents:-

- 1- Pericardium & its contents???
- 2- Phrenic nerves & pericardiophrenic vessels
- 3- Main bronchi & pulmonary arteries & pulmonary veins

heart +  
الأوعية الدموية فيه

الأرباع التي كانوا  
Inlet  
VAB



# ANTERIOR MEDIASTINUM

## Boundaries

Ant. : body of sternum

Post. : pericardium

above : plane of sternal angle

below : diaphragm

on sides: 2 lungs & pleurae

## Contents:-

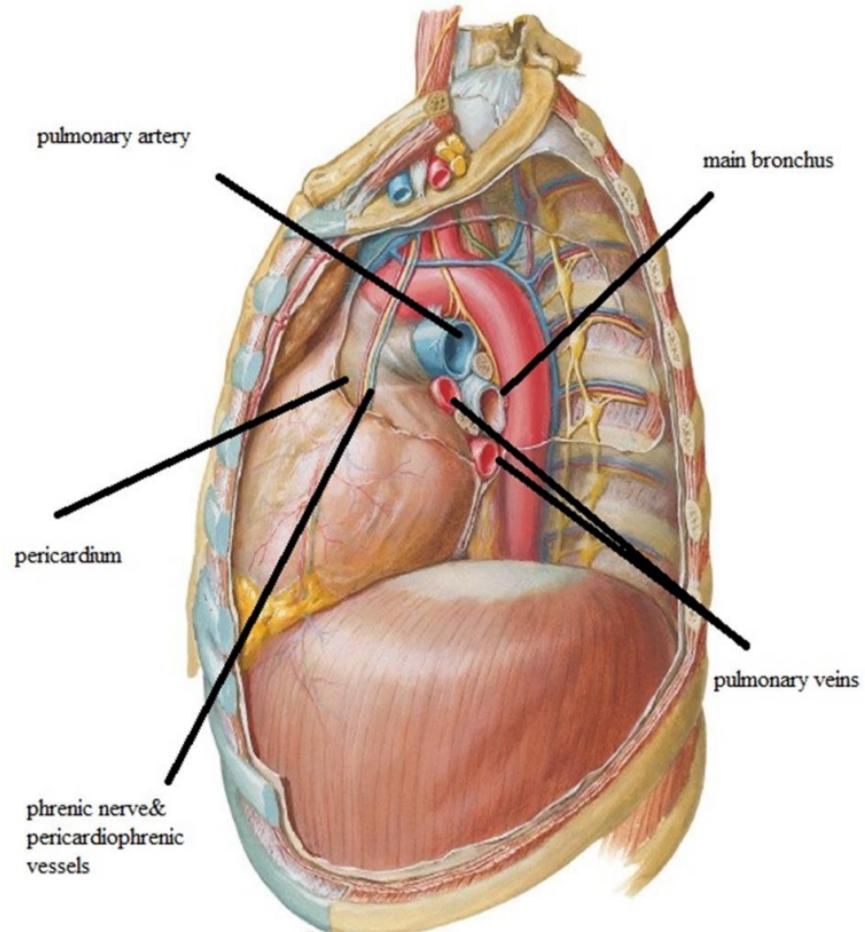
1- **Sternopericardial ligaments** :-

connect pericardium to  
body of the sternum

2- **Thymus**

3- **Fat & 2-3 mediastinal l.n.**

دماغ



**•VERY•  
IMPORTANT**

# IMPORTANT LANDMARKS

## Events at level of sternal angle

- 1-Termination of trachea
- 2-beginning & Termination of aortic arch
- 3-Termination of pulmonary trunk
- 4- Termination of azygos arch in SVC

پولمونری ڈائریکشن  
پولمونری ڈائریکشن

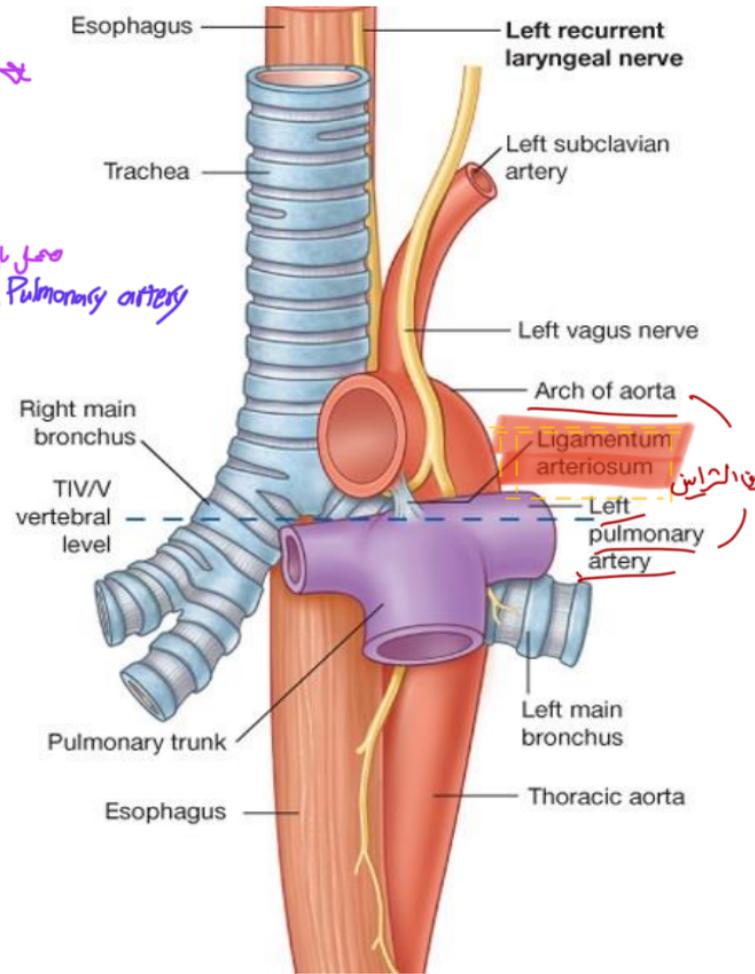
deoxygenated blood  
پولمونری ڈائریکشن  
Pulmonary artery

## Structures below bifurcation of trachea

- a-deep cardiac plexus
- b-tracheobronchial L.Ns

## Structures below the arch of aorta

- a-ligamentum arteriosum
- b-Lt recurrent laryngeal n.  
hooks around ligamentum arteriosum
- c-superficial cardiac plexus



2CC → 6CC

# PERICARDIUM

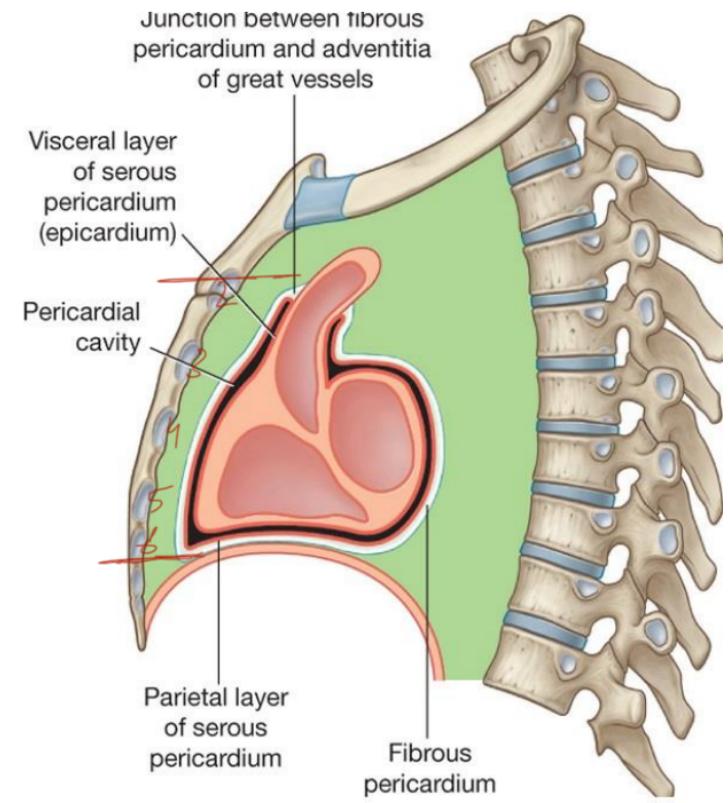
middle mediastinal

Def.: - fibro serous sac envelope the heart & proximal part of great vessels حويبي القلب

Site: - middle mediastinum behind the sternum & costal cartilage 2-6

Structure:

- 1-Fibrous pericardium
- 2-serous pericardium



# FIBROUS PERICARDIUM

**shape:** conical with its base rests on diaphragm  
& apex(reach sternal angle)

## Functions

- 1- Keep central position of heart *حافظ على القلب مكانه*
- 2- Prevent overdistention of the heart *منع التمدد الزائد للقلب*

## fixation:

- fuse below with the **central tendon of diaphragm**
- fuse above with **adventitia of great vessels**
- Attach anteriorly to body of sternum by the **sternopericardial ligaments**

*من الـ anterior mediastinum*

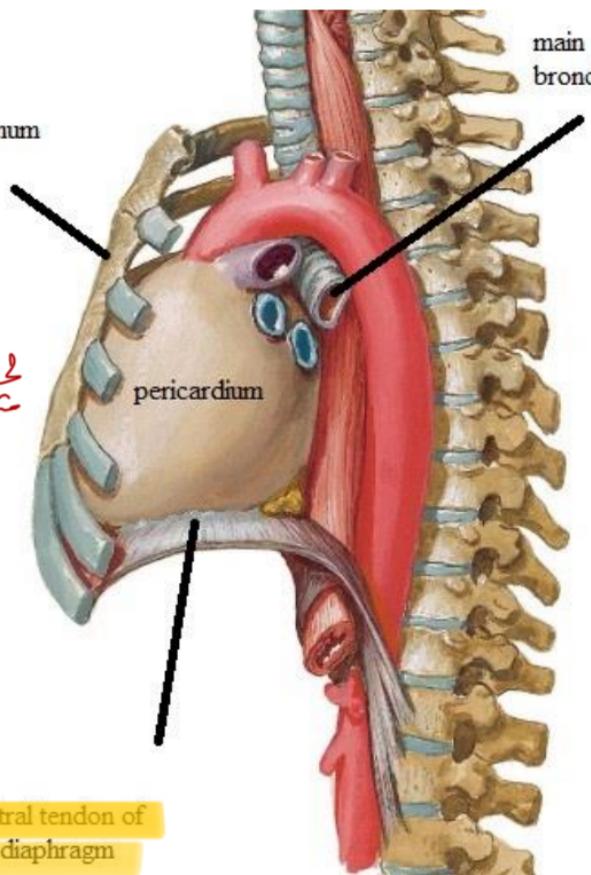


sternum

main bronchus

pericardium

central tendon of the diaphragm



# SEROUS PERICARDIUM

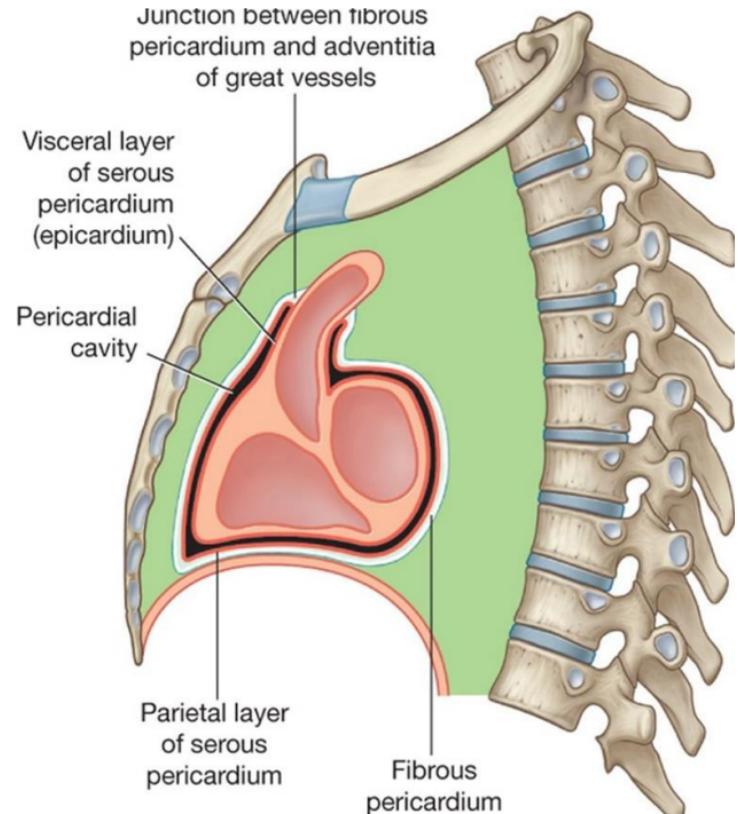
**Def.:** closed serous sac invaginated by heart & great vessels so divide into

1-Visceral layer (epicardium):-  
covers heart & root of big vessels

2-parietal layer:-  
lines fibrous pericardium

3-Pericardial cavity:-  
in ( ) contains thin film of serous fluid

**Functions:** - lubrication of heart



# SEROUS PERICARDIUM

القاسم وابع كرمطان الحسنة  
Pericardial Sinuses:

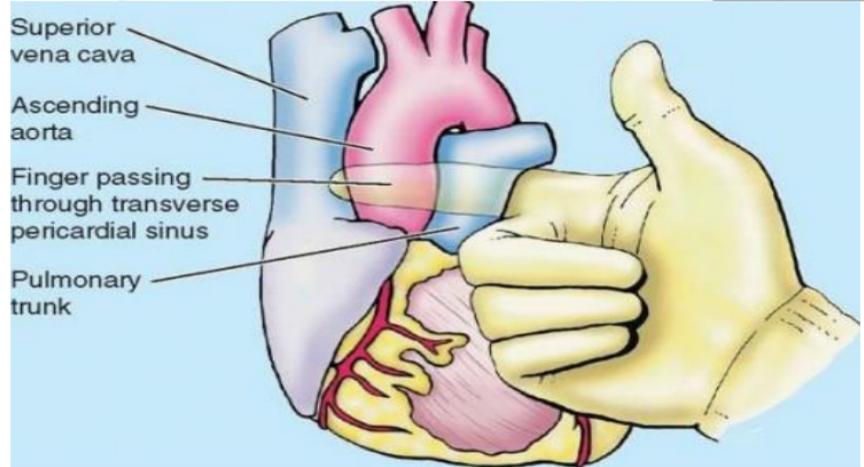
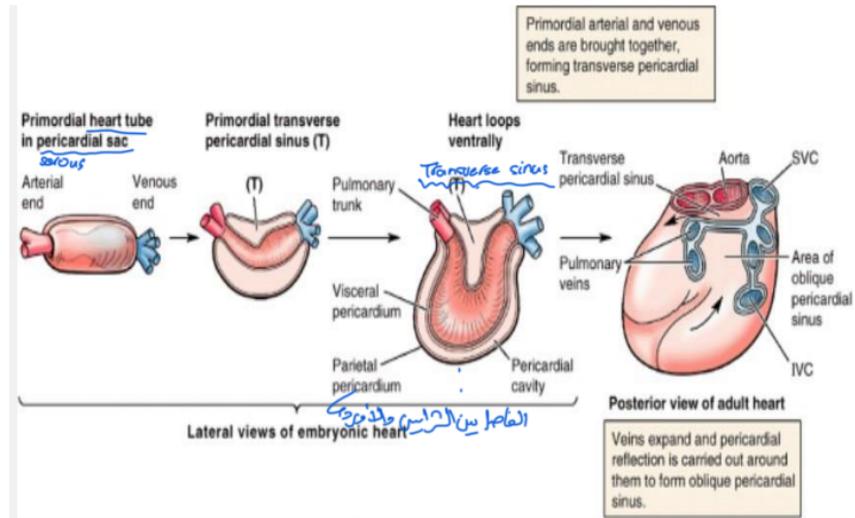
1-Transverse sinus:

Boundaries:

Ant.: ascending aorta & pulmonary trunk

post. : S.V.C

Below: - 2 atria specially the lt  
to demonstrate the sinus pass your finger  
( ) ascending aorta & SVC



# SEROUS PERICARDIUM

توجد

**Pericardial Sinuses:**

2-Oblique sinus

**Boundaries:**

**Ant.:**

visceral layer of serous pericardium on back of Lt atrium

**Post. :**

Parietal layer of serous pericardium & Fibrous pericardium

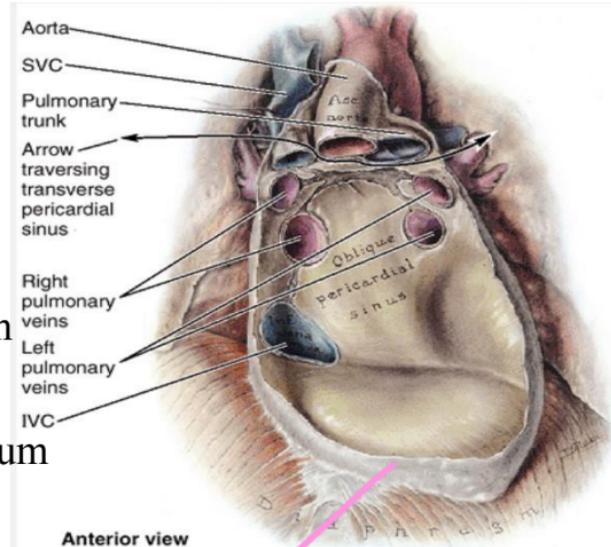
**Above:** reflection of visceral layer of pericardium  
from back of Lt atrium onto parietal layer of serous pericardium

**Below:** continuous e' pericardial cavity

**Lt Side:** 2 Lt pulmonary veins

**RT side:** 2 Rt pulmonary veins & IVC

To demonstrate oblique sinus: - push your fingers below diaphragmatic surface then upwards behind the back of Lt atrium



fibrous pericardium

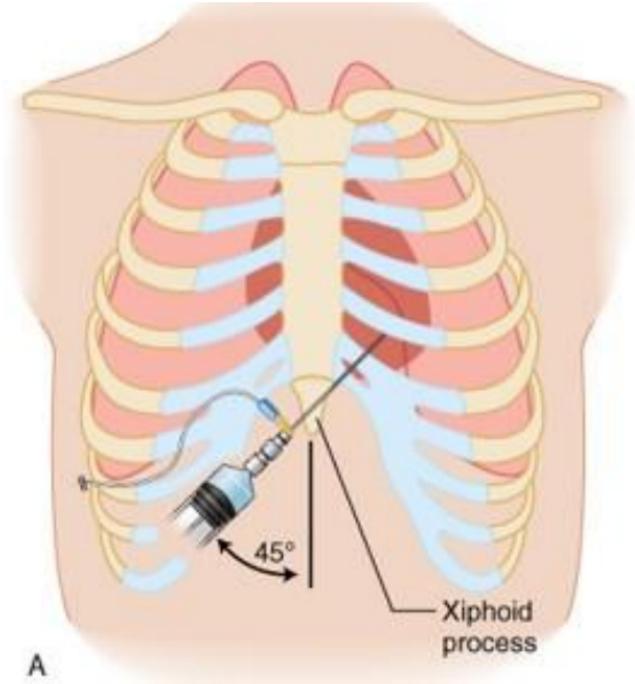
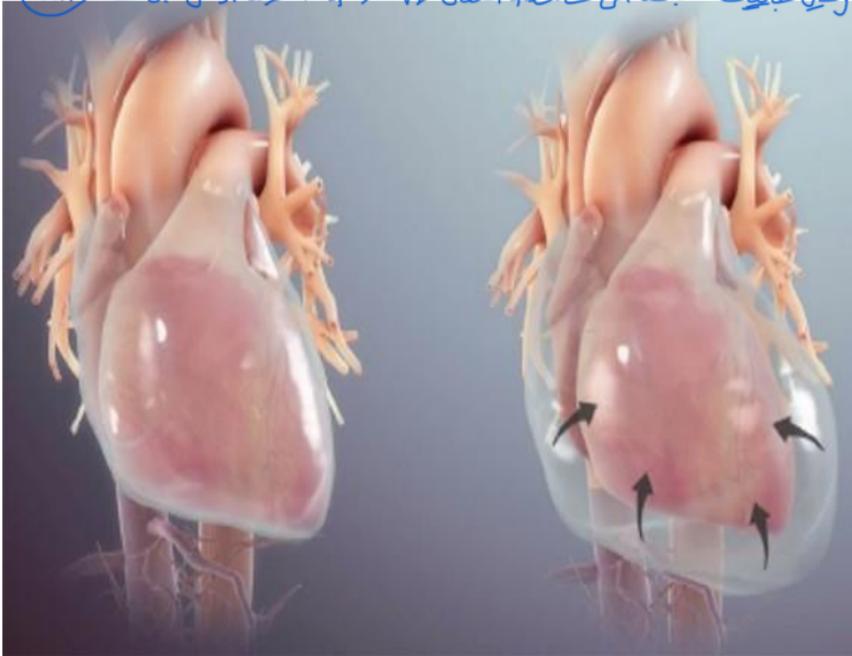


# PERICARDIAL EFFUSION

القلب متساوي مع عرف سكرت  
ويضغط على الأوردة كما يمتلئ من راح يوصل الدم عنده

**DEF.** - accumulation of fluid in pericardial cavity which may be aspirated by a needle inserted to the left of xiphoid process directed upwards & to Lt (in area of pericardial notch)

10% للمرضى حادياتك : باختناض الضغط امتحان VD / إذا أعفقت برائل يموت



A

# BLOOD SUPPLY OF PERICARDIUM

فسي السائل

1-Fibrous pericardium & parietal layer of serous pericardium :- *حاضوا دم من قدام وورا*

Arteries:-

Internal thoracic: - pericardiophrenic-musculophrenic-

Descending thoracic aorta *كانت مره*

Veins: -

internal thoracic & azygos *برف و مره*

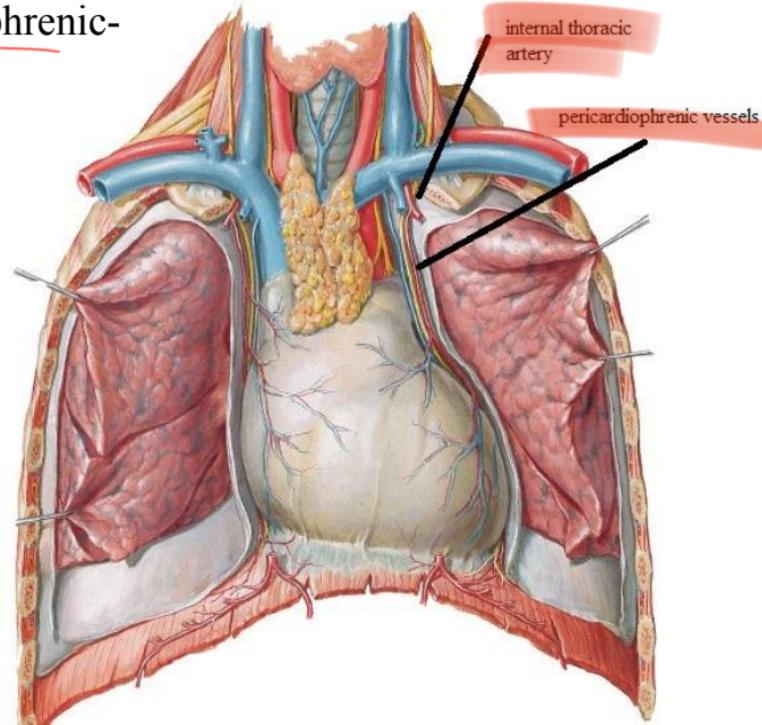
2-Visceral layer of serous pericardium :-

Arteries:-

Coronary arteries

Veins:- drained by cardiac veins

*تحتياً بال posterior mediastinum*



# NERVE SUPPLY OF PERICARDIUM

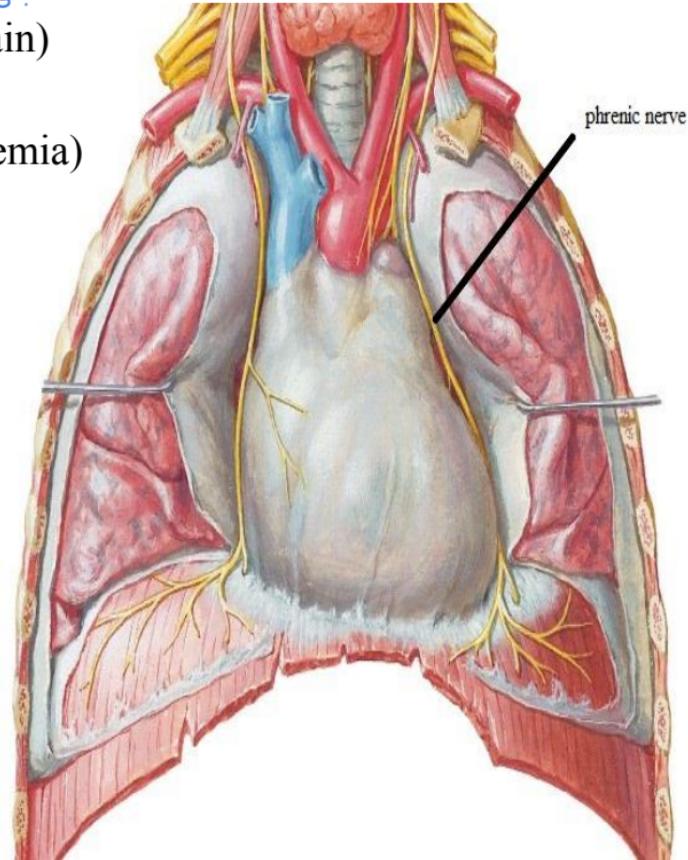
1-fibrous & parietal layer of serous : *جسواتي الجلد*

phrenic n. & intercostal nerves (sensitive to pain)

2- visceral layer of serous : *الغيم حشر مستقيم*

autonomic cardiac plexuses (sensitive to ischemia)

★ VERY ★  
IMPORTANT



r  
Shoulder  
gall bladder



**THANQ**

لتَحْقِيقَةِ أَوْصَى اسْتِغْلَاظٍ مِنَ الْمَلْفِ لِنَعْرِفَ الْأَتِيَّ:

بِالْأَحْمَرِ ← هَاهُمْ

بِالْأَحْمَرِ ← هَاهُمْ كَذَلِكَ لَكِنْ بِرَجَاءِ أَحَلِّ

بِالْبُنْفَاجِيِّ ← مَنِيَّةٌ / mnemonic / طَرِيْقَةٌ لِتَسْهِيْلِ الْكِنْفِ

بِالْبَرَقَاتِيِّ ← تَسْأَلُ أَتْنَاءَ الدِّرَابَةِ / الْمُعَافَرَةِ وَاجَابَتِهِ

بِاقِي الْأَلْوَانِ دَلَالَتُهَا لَيْسَتْ ثَابِتَةٌ لَكِنْ بَعْضُ الْأَحْيَانِ قَدْ تَكُونُ مَعْرُوفَةٌ

مِثْلَ الْأَخْضَرِ لِلْعَقْدِ اللَّيْمِ الْفَاوِيَّةِ

---

الْأَحْمَرُ لِلْمَعْرُوفَةِ يَرِدُ ذَلِكَ مِنَ الدُّكْتُورِ بِالتَّصْهِيرِ أَوْ التَّمْيِيزِ أَوْ لِلْمَحَظَةِ بِرُجْعِيَّتِهَا أَتْنَاءَ الدِّرَابَةِ

---

وَعَلِيَّ لَيْسَتْ كُلُّ كَلِمَةٍ مَذْكُورَةٍ بِالْمَلْفِ قِيلَتْ مِنْ قَبْلِ الدُّكْتُورِ، بَعْضُهَا مَوْجُودٌ لِتَسْهِيْلِ الدِّرَابَةِ، مِثْلَ تَرْجُمَةِ بَعْضِ الْكَلِمَاتِ ...  
لِأَنَّ أَصْبَتْ فَضْنَ الْمَلِكِ وَإِنْ أَخْطَأْتَ فَمِنْ نَفْسِي وَمِنْ الشَّيْطَانِ وَالْحَيَاةِ بِاللَّهِ

وَاللَّهُ وَلِيُّ الْمُؤْمِنِينَ ۝