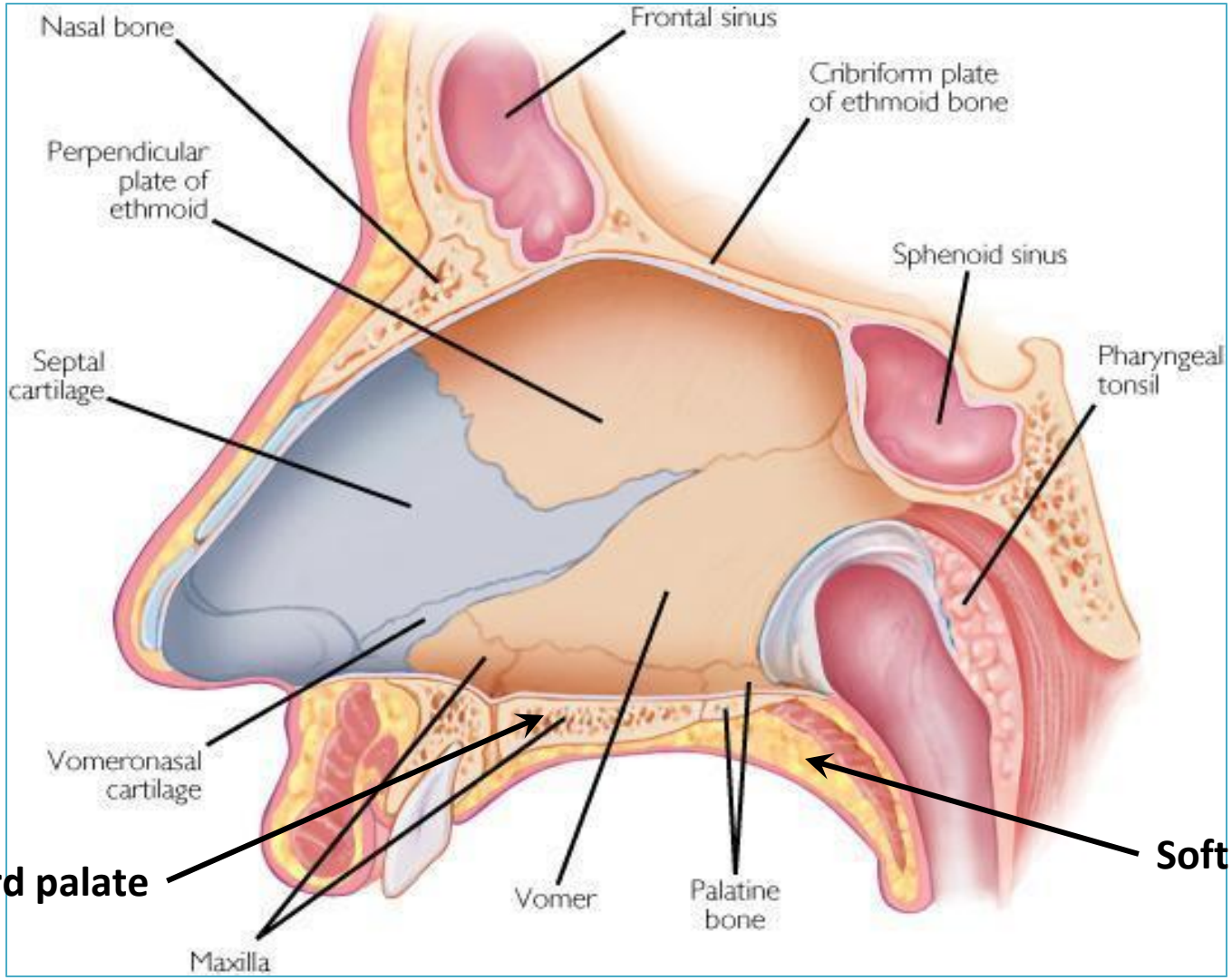
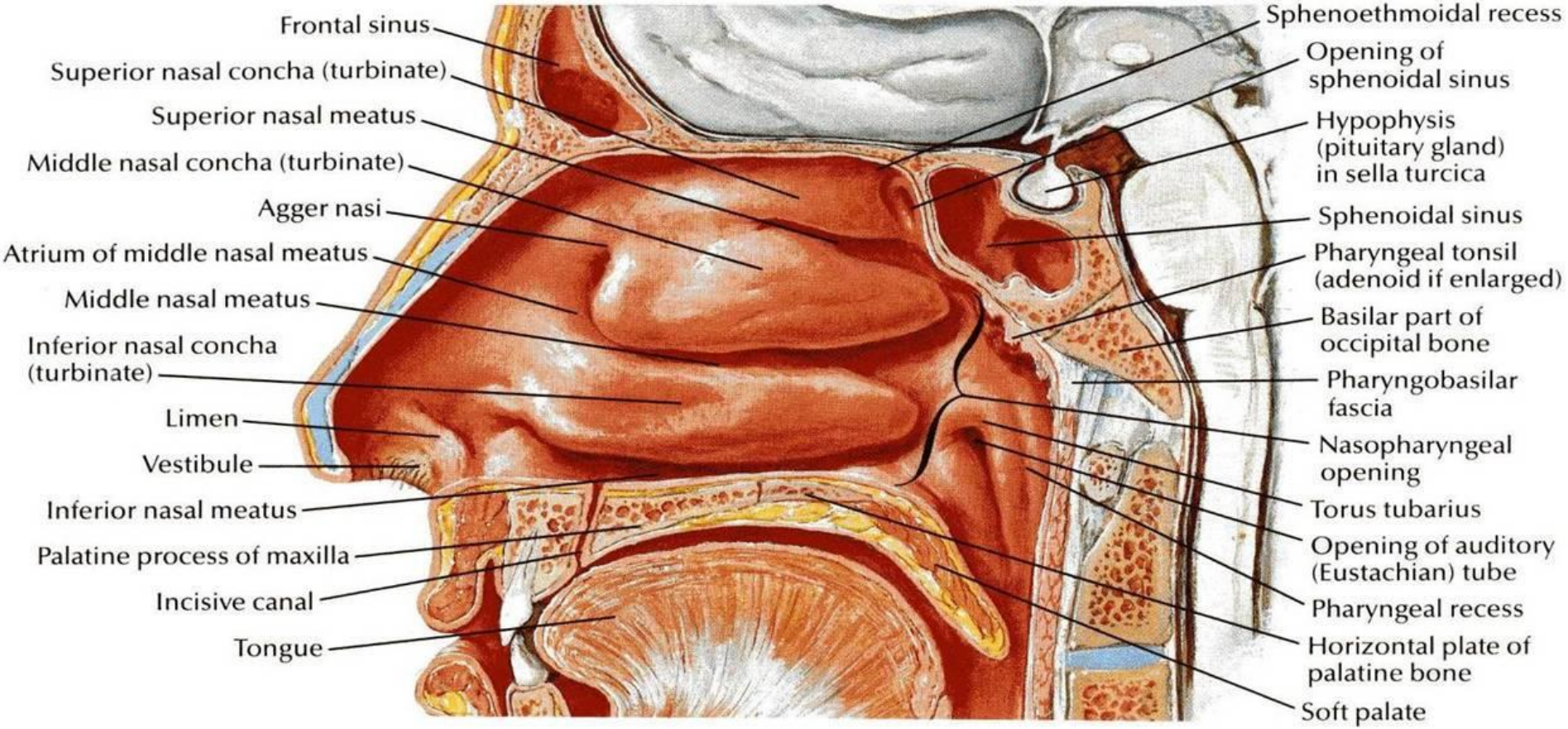
RESPIRATORY BLOCK

PROF. AHMED FATHALLA IBRAHIM
and edit by team Radiology 434

NASAL CAVITY



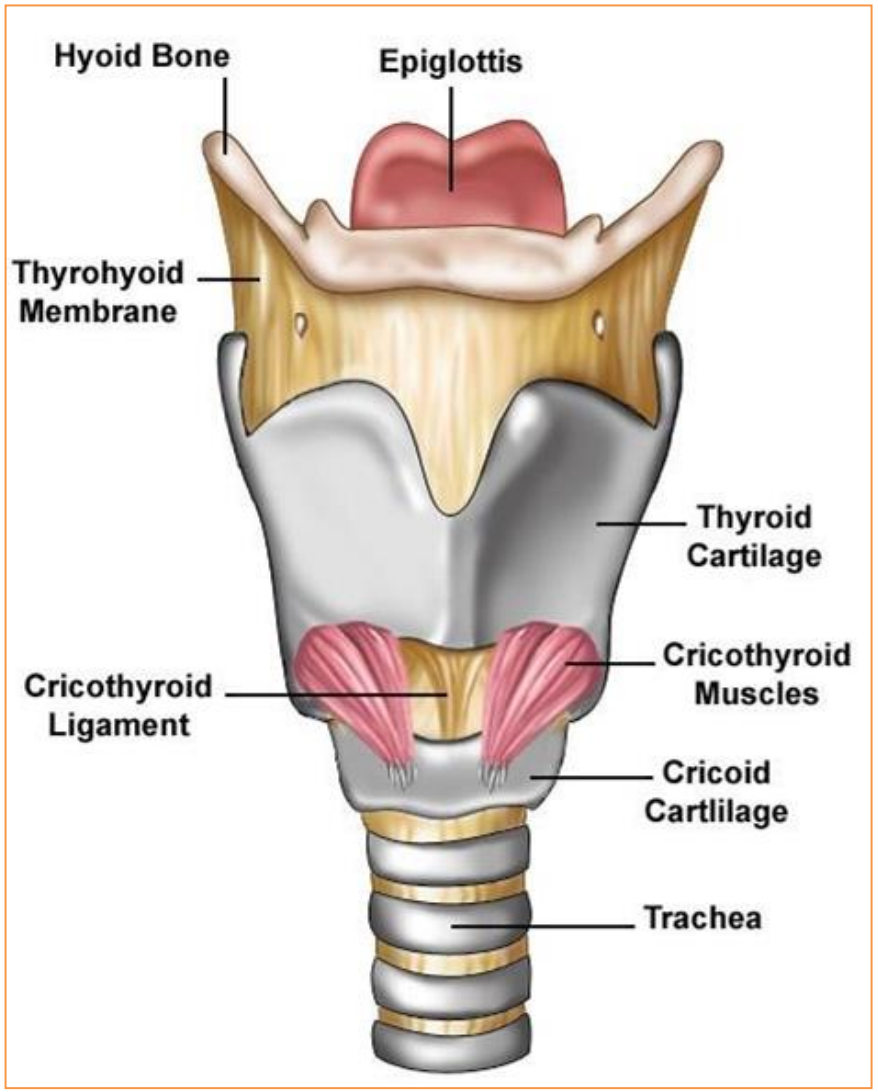
NASAL CAVITY



LARYNX, TRACHEA

-Level of beginning and termination of larynx, trachea and pharynx

-Cartilages of larynx



Beginning and termination

§1- Pharynx extends from the base of the skull to level of the 6th cervical vertebra, where it is continuous with the esophagus.

2- Larynx extends from laryngeal inlet to lower border of the cricoid cartilage.

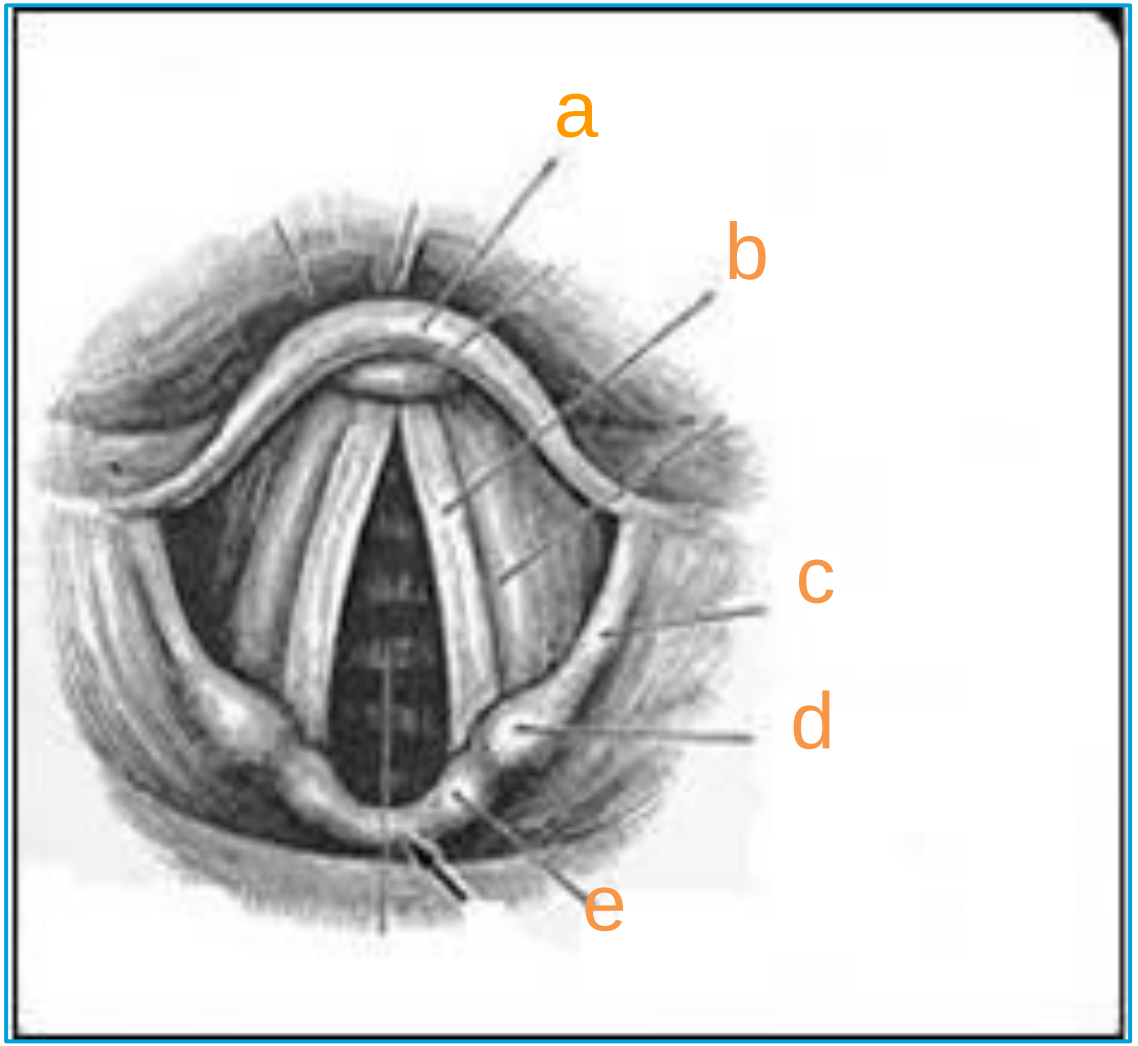
3- Trachea :_

Begins: In the neck below the cricoid cartilage of the larynx **(C6).**

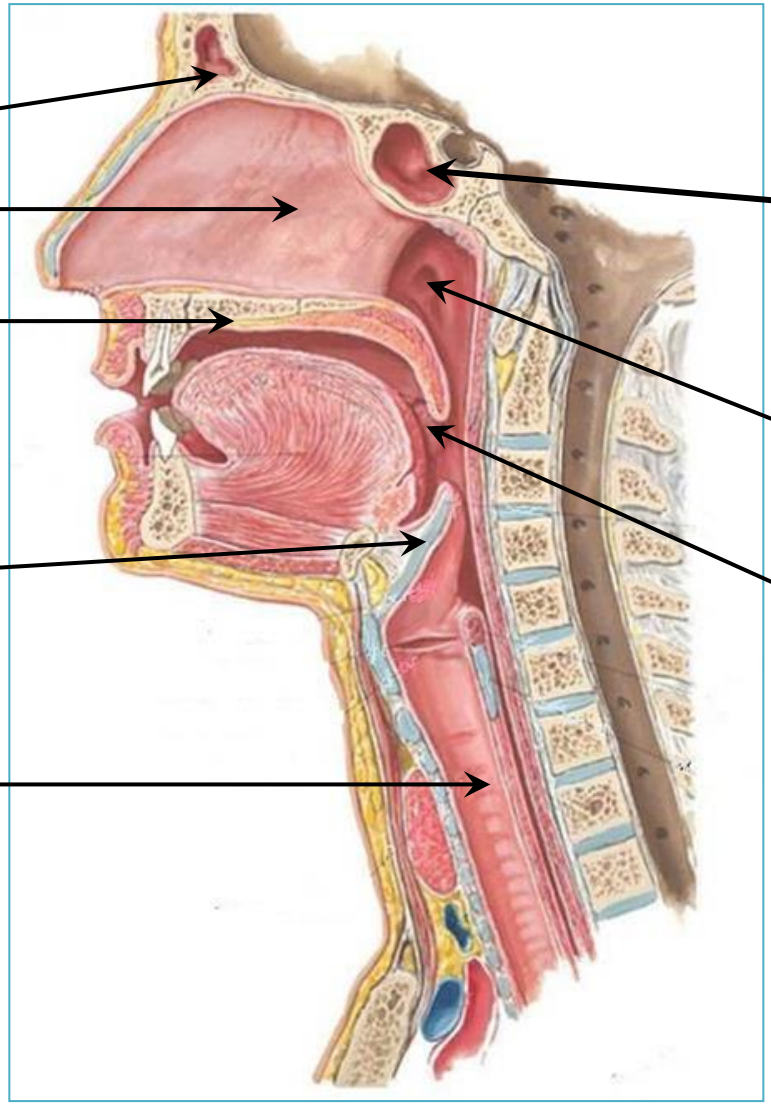
Ends: In the thorax at the level of sternal angle (lower border of **T4)**, by dividing into **right** and **left principal (**main, primary**)** bronchi

Larynx

a.epiglottis.
b.Vocal cord.
c.Aryepiglottic fold.
d.Cuneiform cartilage.
e.Corniculate cartilage.



NASAL CAVITY, LARYNX, PHARYNX, TRACHEA



N.B.: Site of drainage of the sinuses – important structures in the wall of pharynx- blood supply – lymphatic drainage

Innervation of Pharynx

Nerve Supply

Sensory:

- Nasopharynx: Maxillary nerve
- Oropharynx: Glossopharyngeal nerve
- Laryngopharynx: Vagus nerve

Motor Nerve Supply:

- All the muscles of pharynx are supplied by the pharyngeal plexus. except ; the Stylopharyngeus is supplied by the glossopharyngeal nerve

Blood vessels and lymphatics

Arterial supply:

- Ascending pharyngeal artery
- Ascending palatine artery
- Facial artery
- Maxillary artery
- Lingual artery

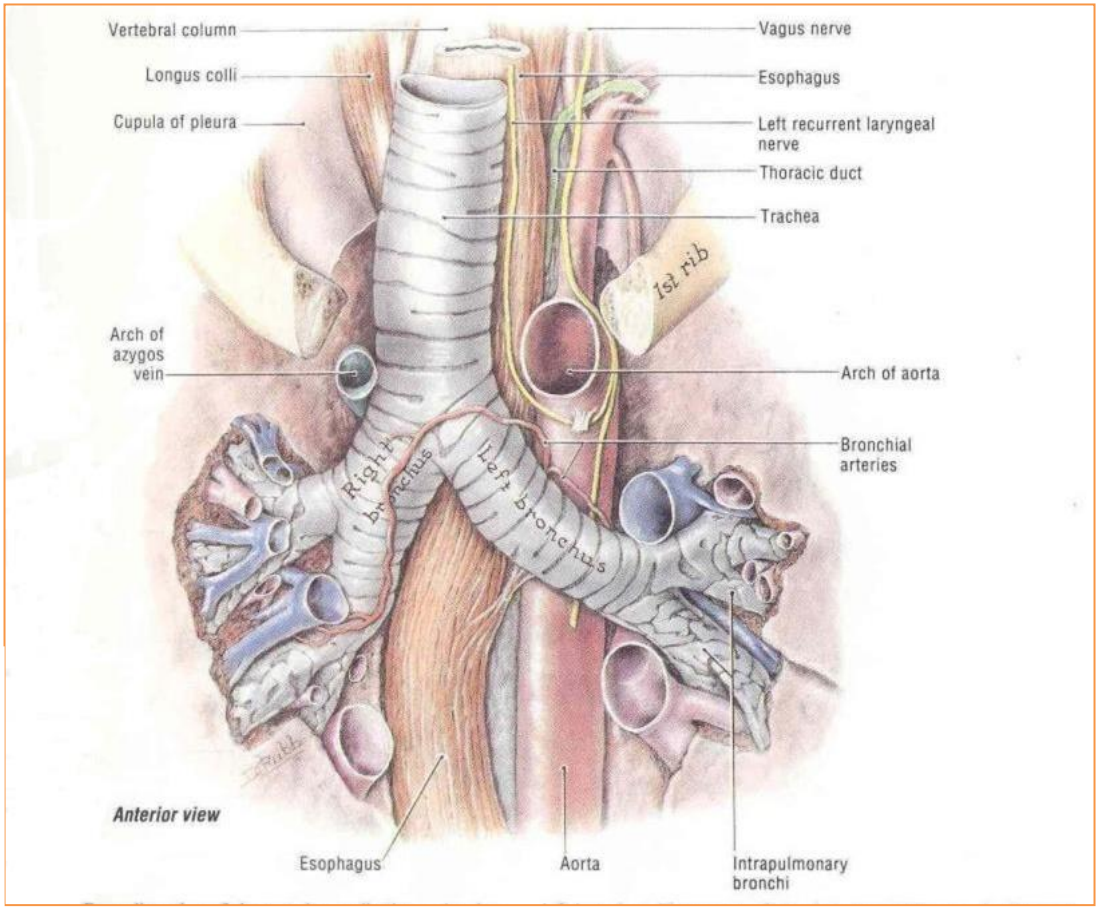
The Veins :

drain into pharyngeal venous plexus, which drains into the internal jugular vein

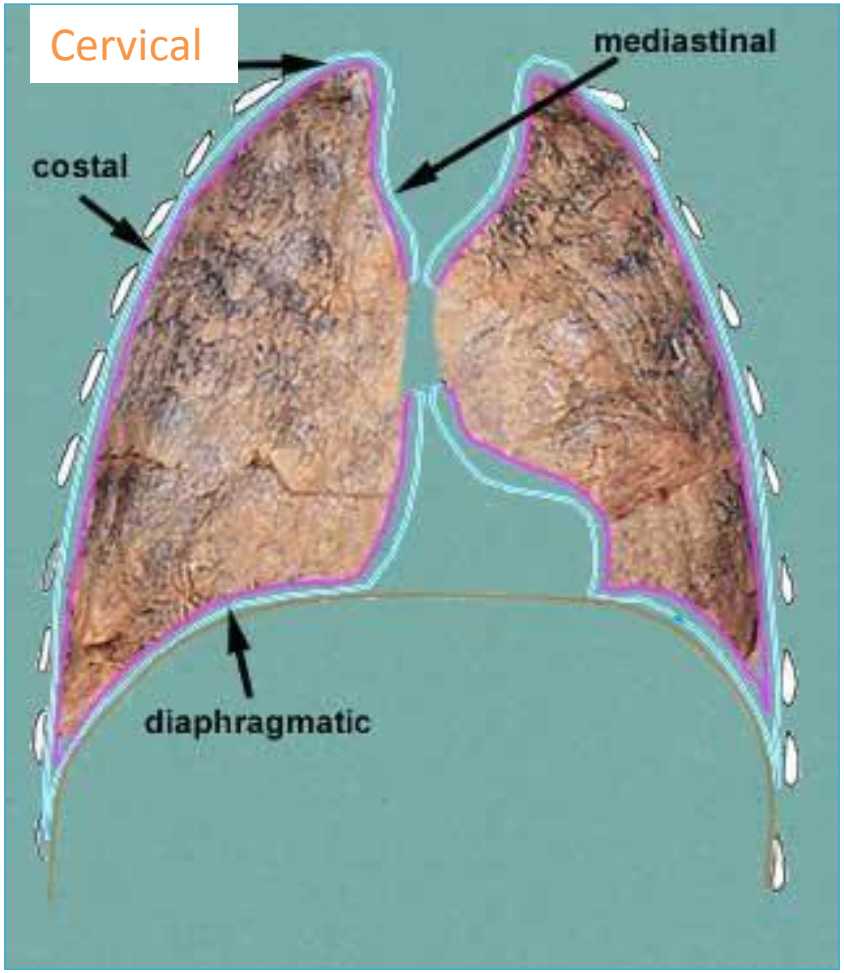
The lymphatics :

drain into the deep cervical lymph nodes either directly, or indirectly via the retropharyngeal or paratracheal lymph nodes

TRACHEA & BRONCHI



LUNG & PLEURA



Nerve supply- Surface Anatomy

Innervation of lung

- Pulmonary plexus at the root of lung….is formed of autonomic fibers from sympathetic & parasympathetic fibers.

1- Sympathetic Fibers

From … Sympathetic trunk…

Action: Broncho-dilatation / and vasoconstriction.

2- Parasympathetic Fibers

From…..Vagus nerve ….

Action: Broncho-constriction and secretomotor to bronchial glands /and vasodilatation

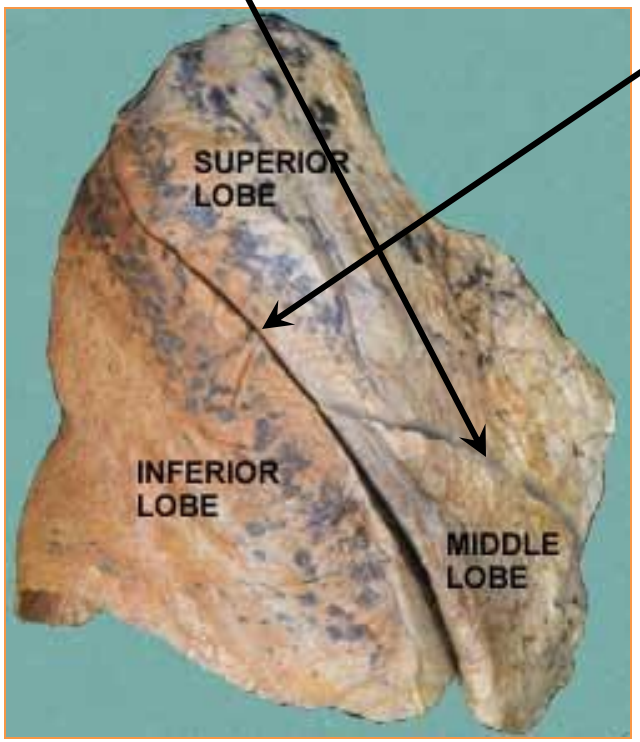
surface of anatomy

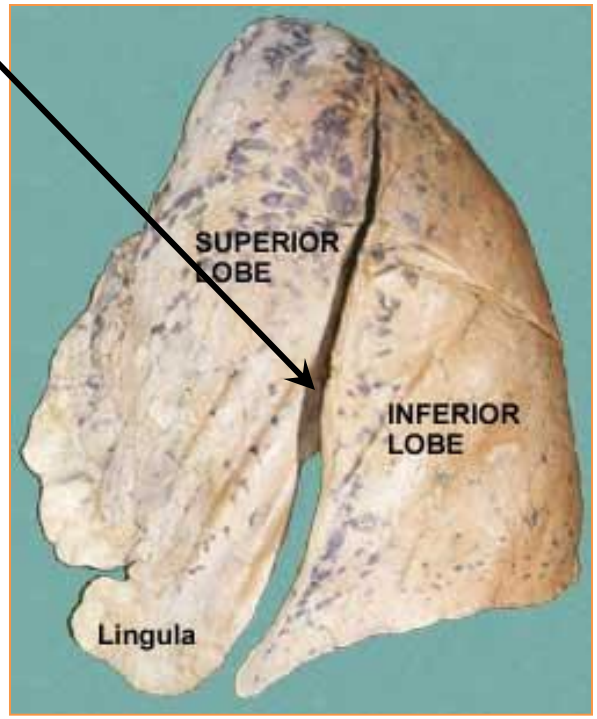
- **Apex:**
- lies one inch above the medial 1/3 of the clavicle.
- **Right pleura:**
- **The anterior margin** extends vertically from sternoclavicular joint to 6th costal cartilage.
- **Left pleura:**
- **or margin** extends from sternoclavicular joint to the 4th costal cartilage, **The anteri**or deviates for about 1 inch to left at **6th costal** cartilage to form the **cardiac notch.**
- **Inferior margin :**
- Passes around the chest wall, on the **8th** rib in midclavicular line, **10th** rib in **mid-axillary line** and finally reaching to the last thoracic spine.
- **Posterior margin :** along the vertebral column from the apex to the inferior margin.

LUNG & PLEURA

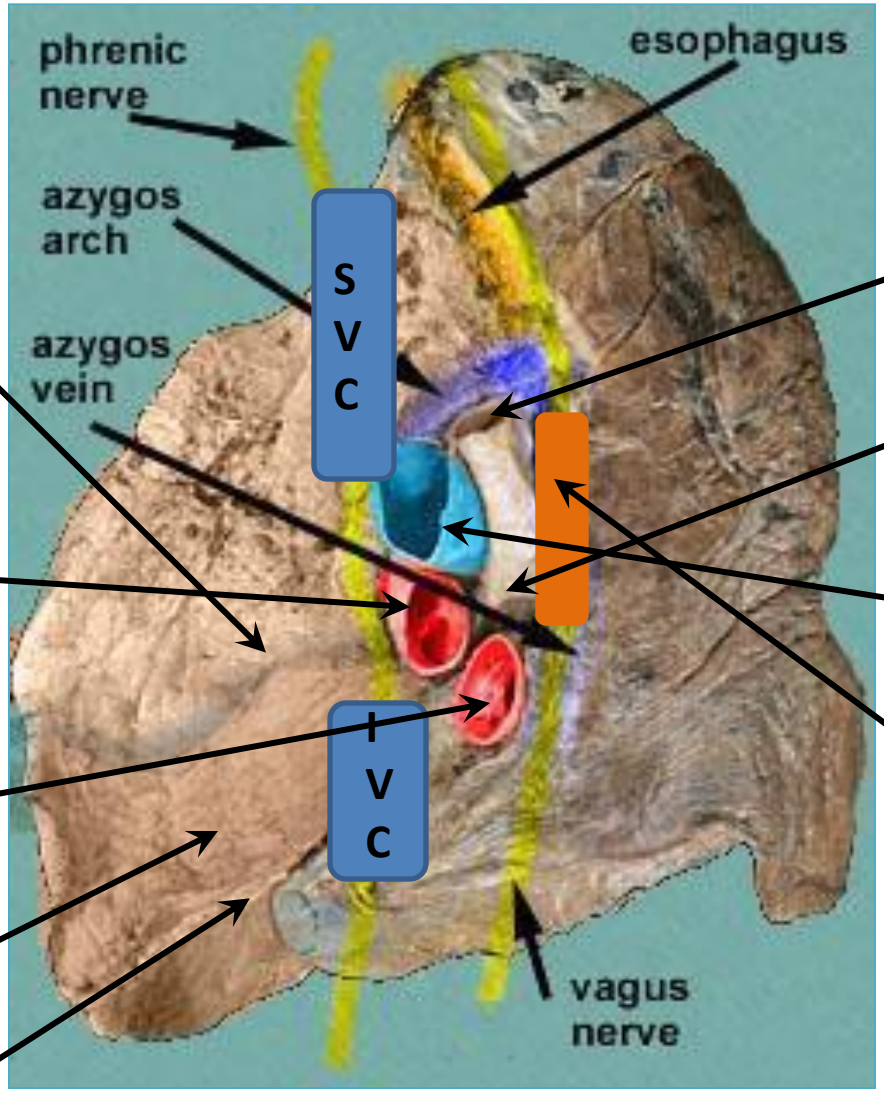
Transverse (horizontal) fissure

Oblique fissure





RIGHT LUNG



Transverse fissure

Superior pulmonary vein

Inferior pulmonary vein

Cardiac impression

Oblique fissure

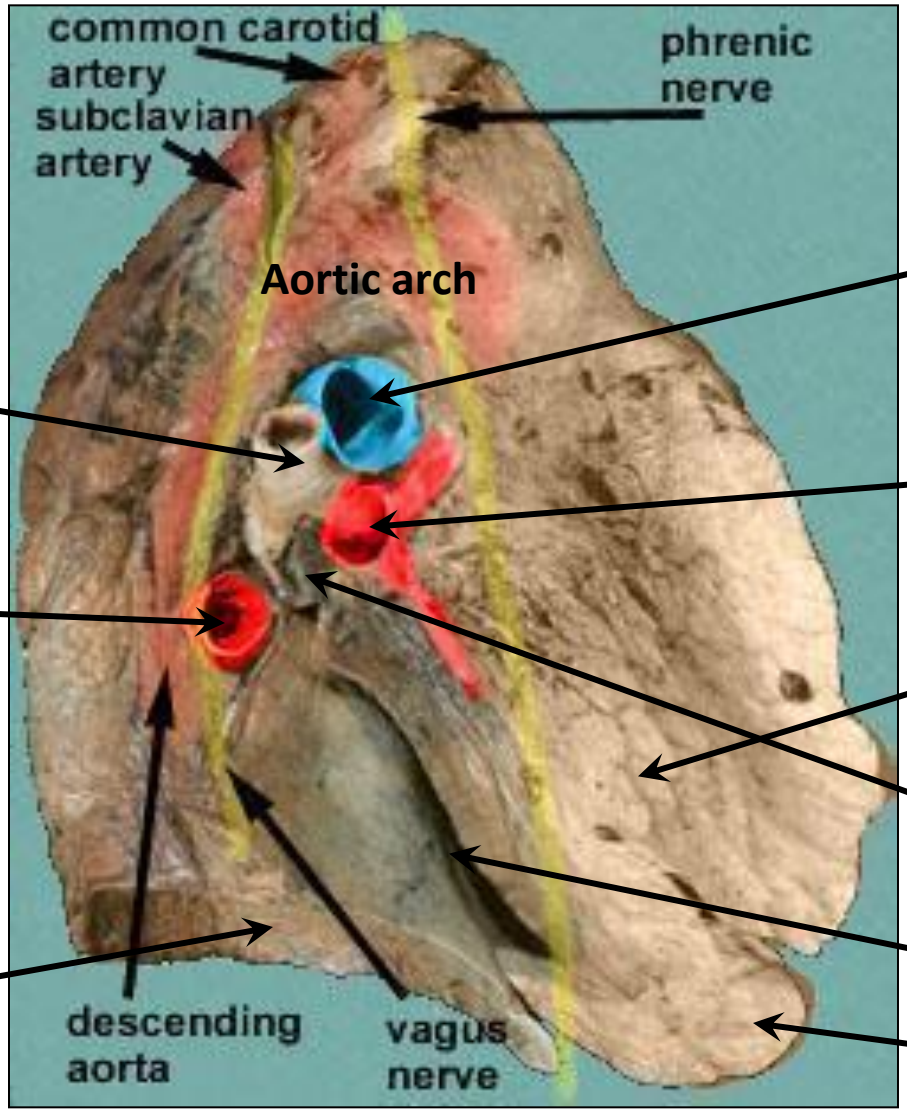
Superior lobar bronchus

Inferior lobar bronchus

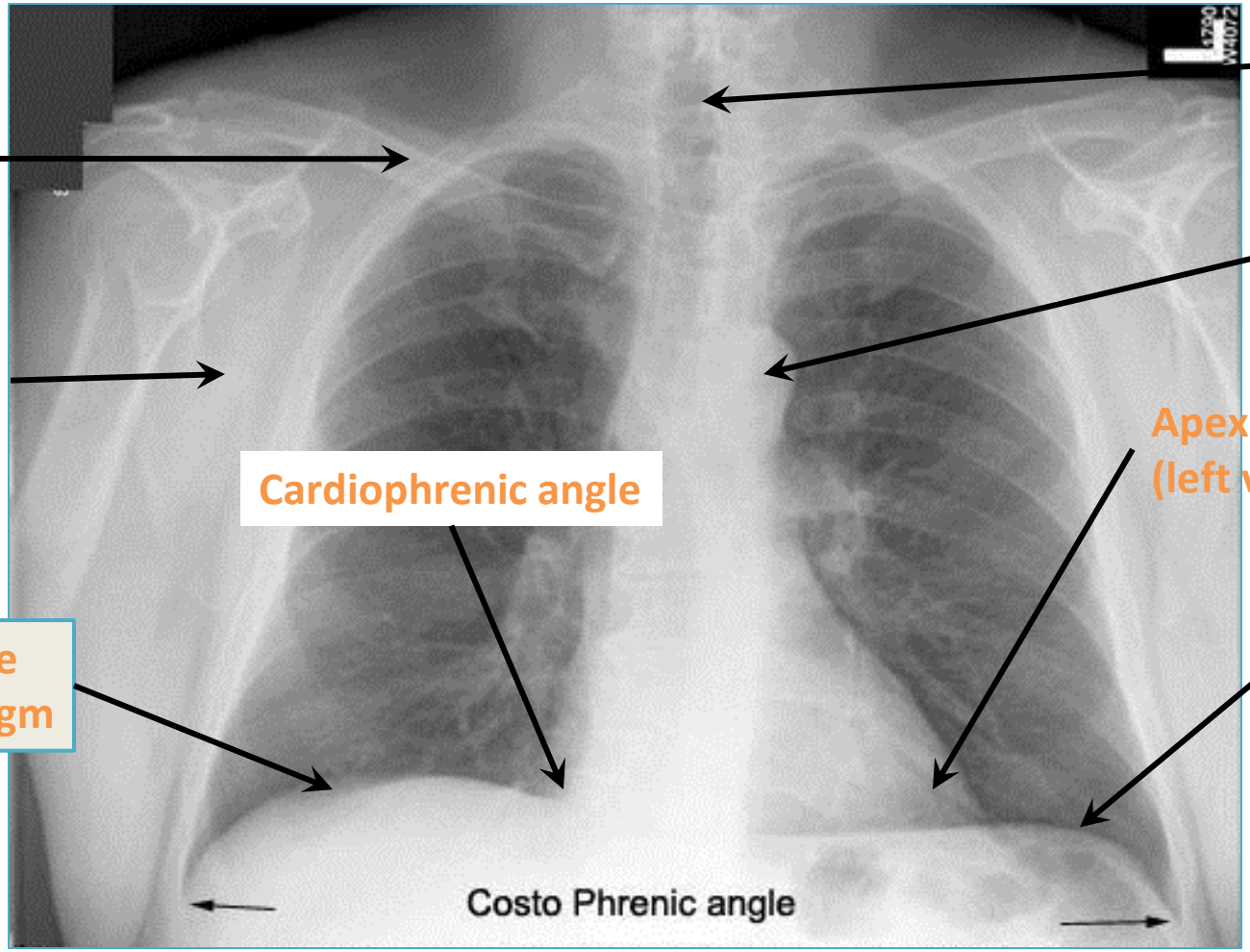
Pulmonary artery

Esophagus

LEFT LUNG

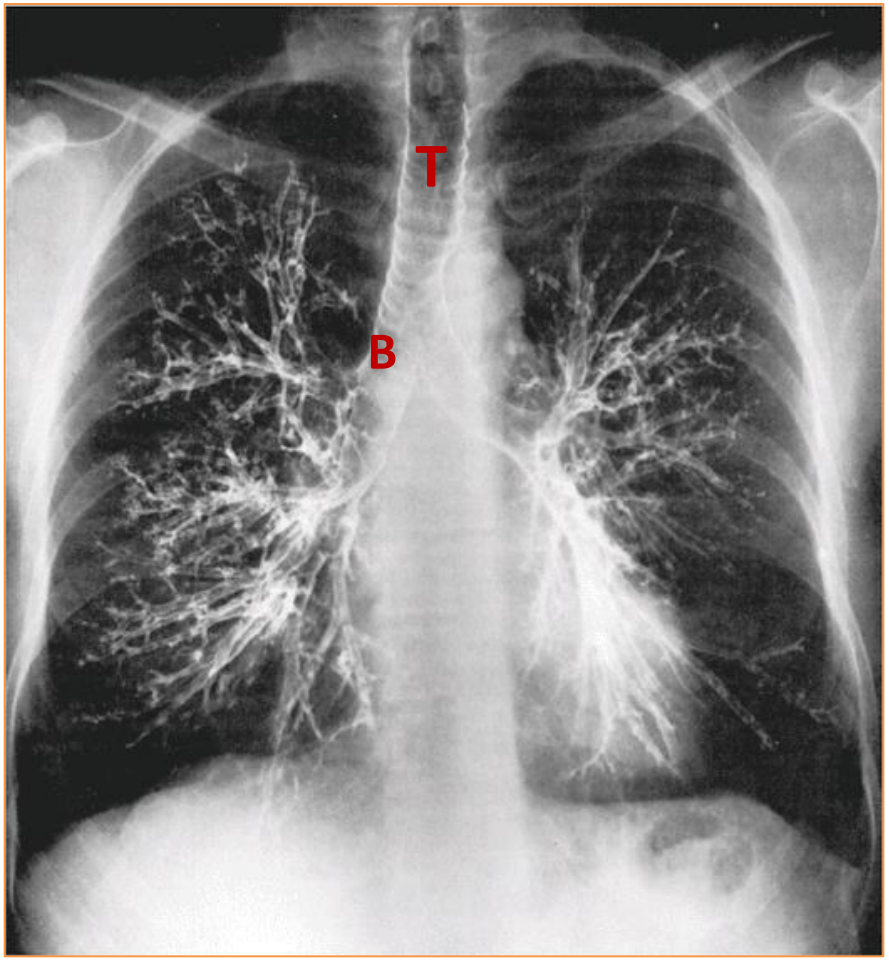

common carotid artery
subclavian artery
phrenic nerve
Aortic arch
Pulmonary artery
Bronchus
Superior pulmonary vein
Inferior pulmonary vein
Cardiac impression
Pulmonary ligament
Area related to diaphragm
descending aorta
vagus nerve
Oblique fissure
Lingula

RADIOLOGY

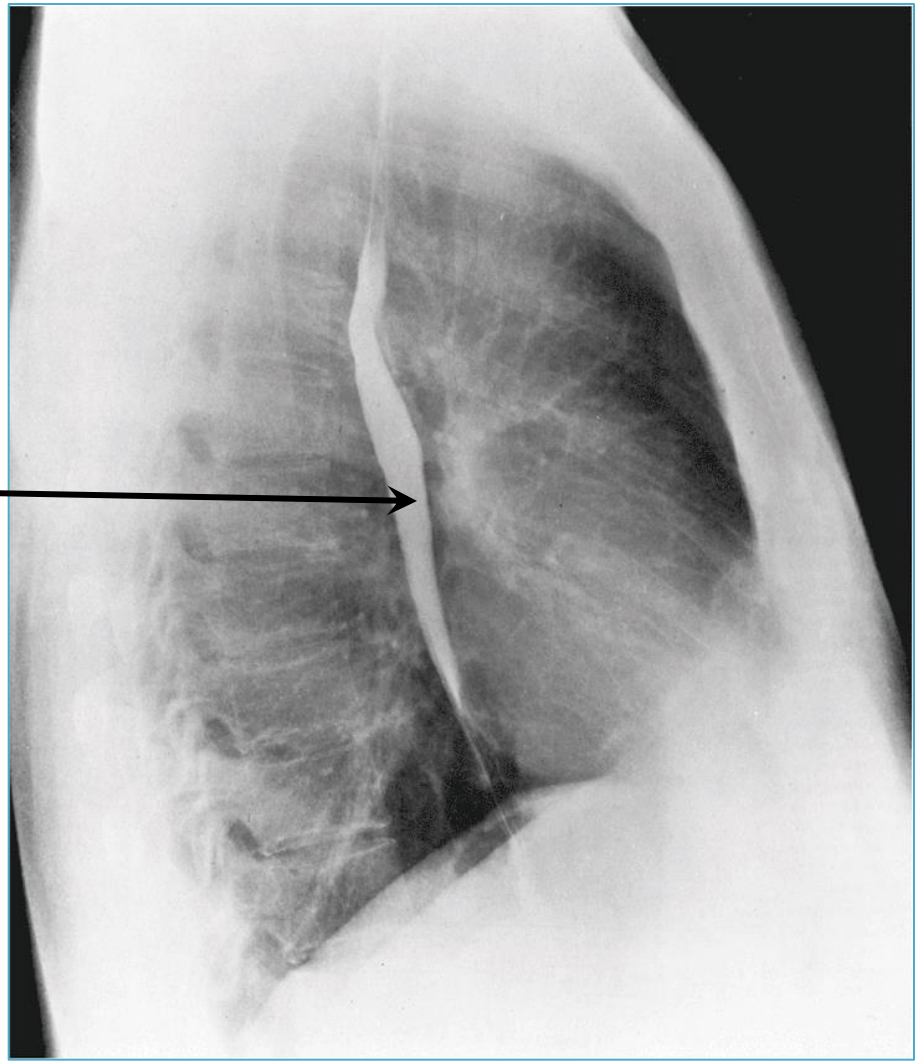


- Remember that The transverse diameter of the heart should not exceed half the width of thoracic cage.

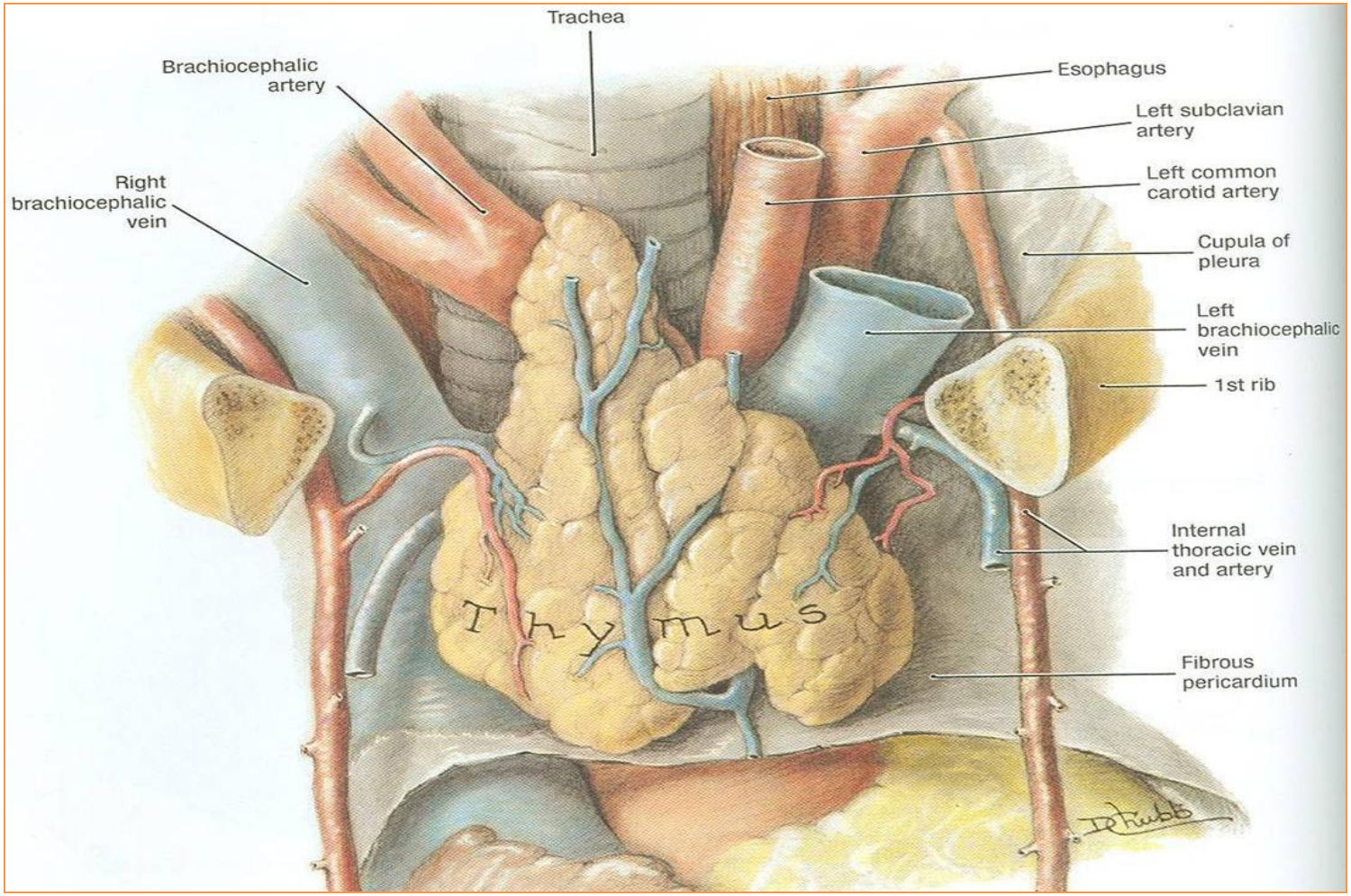
RADIOLOGY



RADIOLOGY



MEDIASTINUM
Contents



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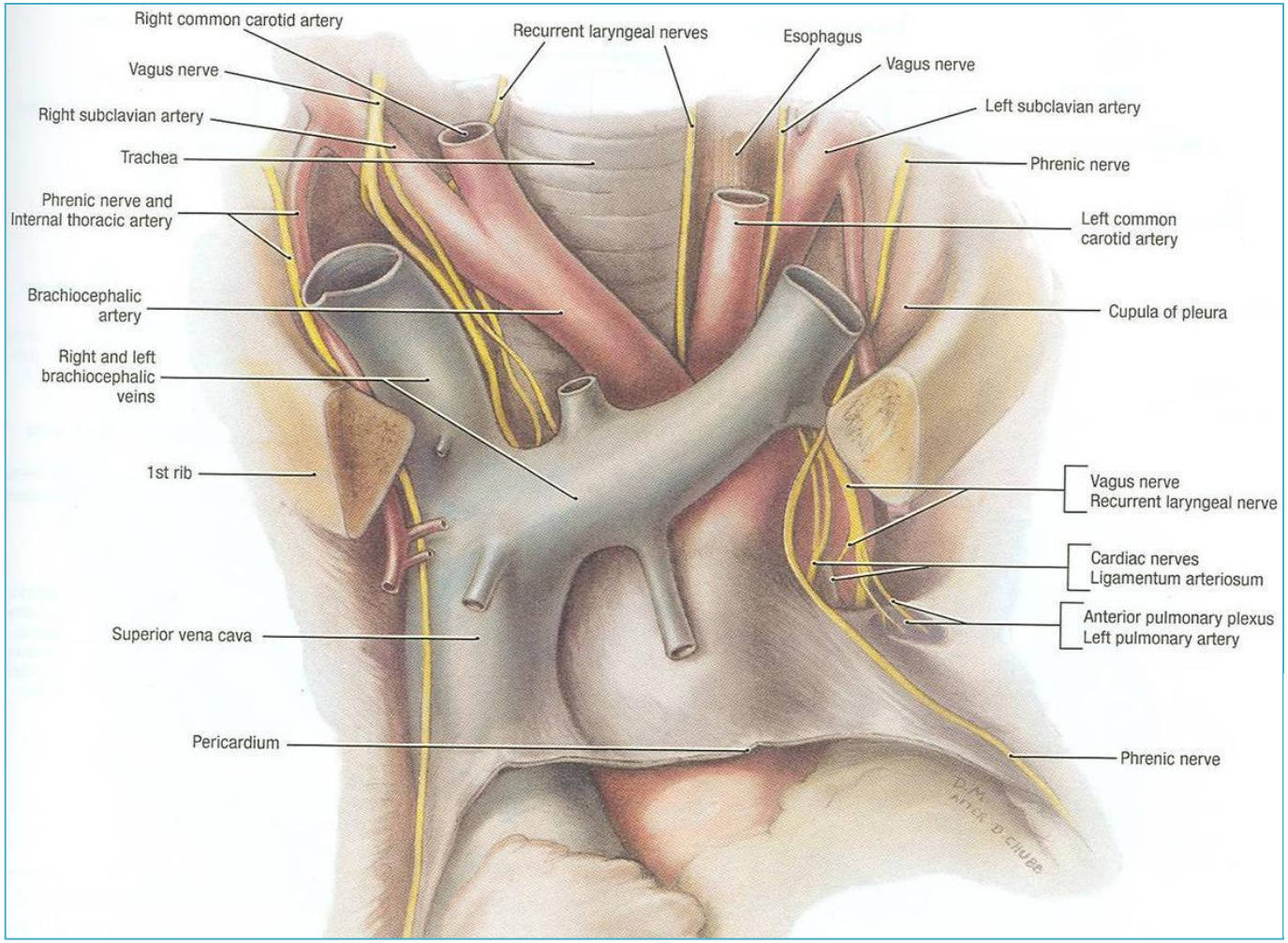

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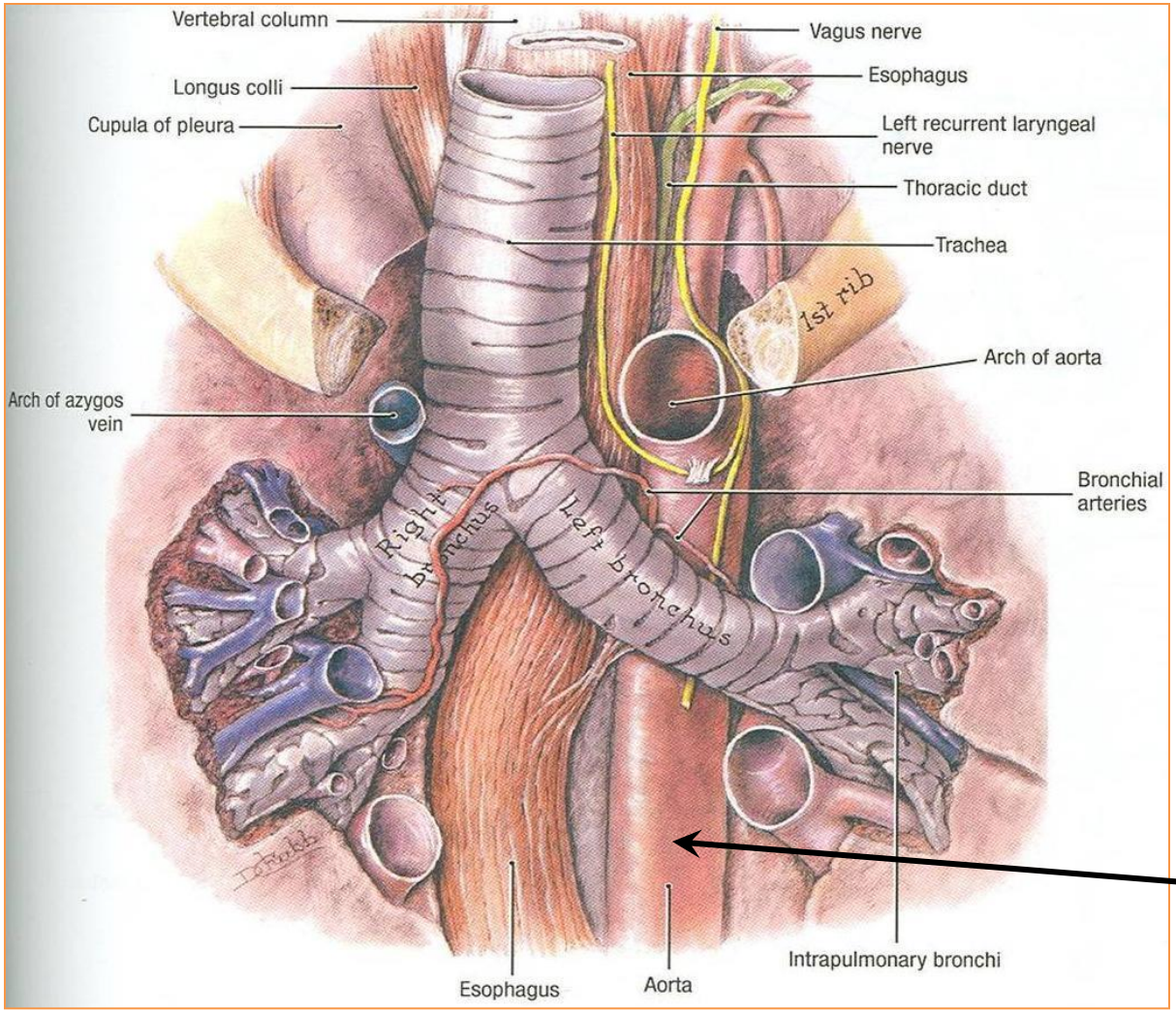
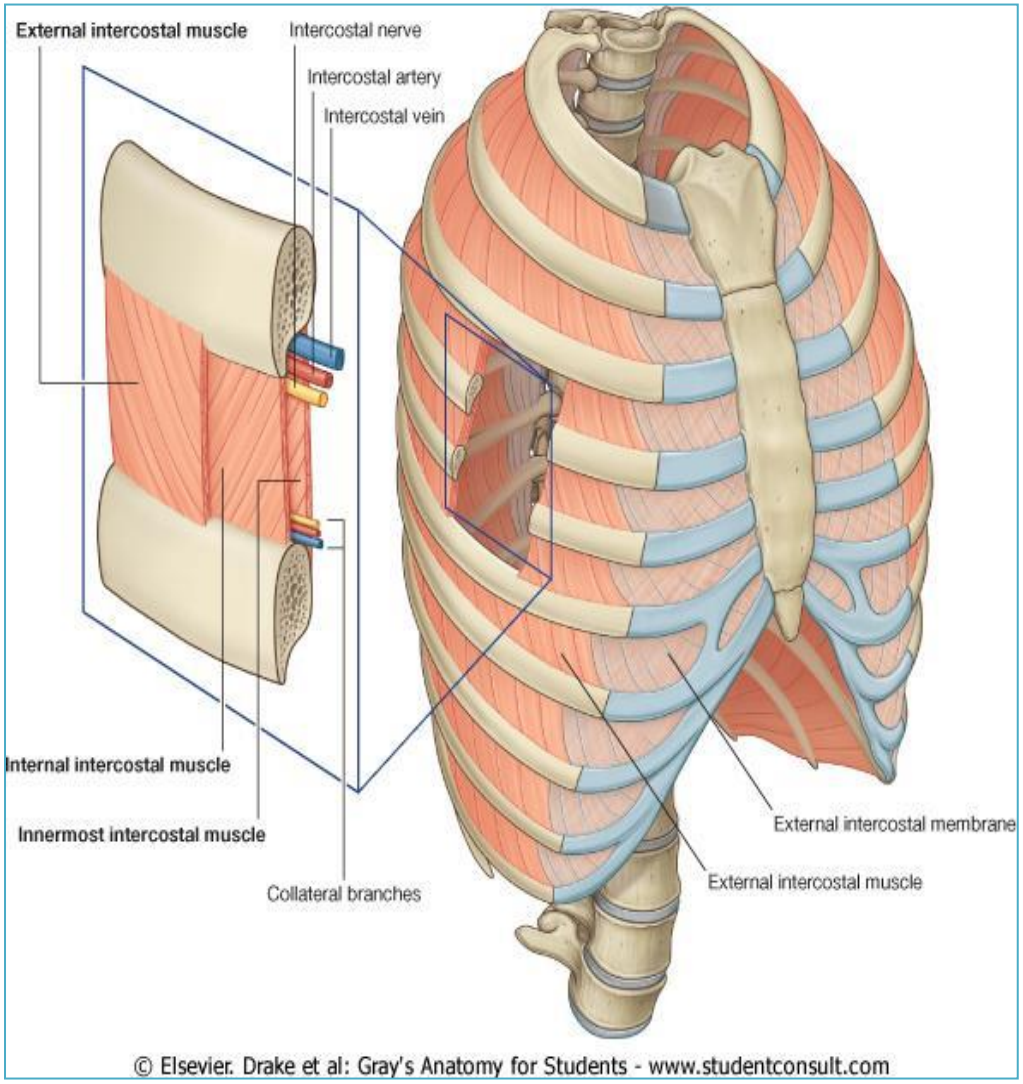
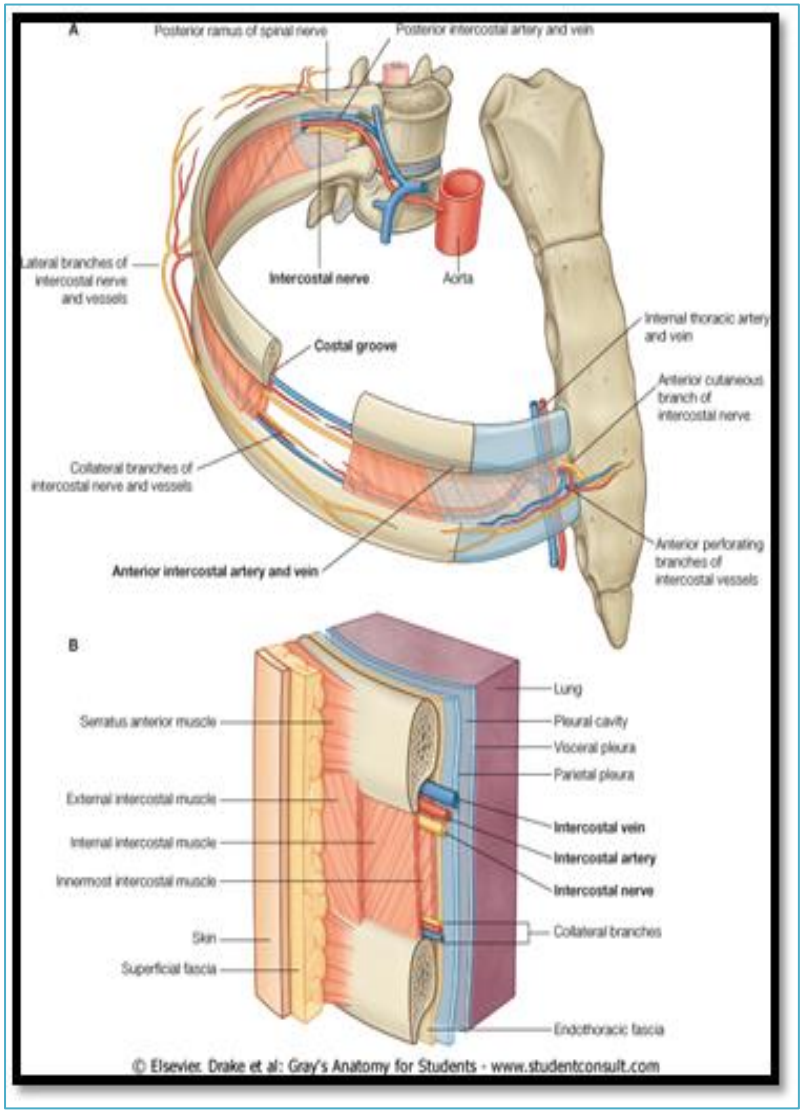


N.B.:
LEVEL OF T4

Descending aorta

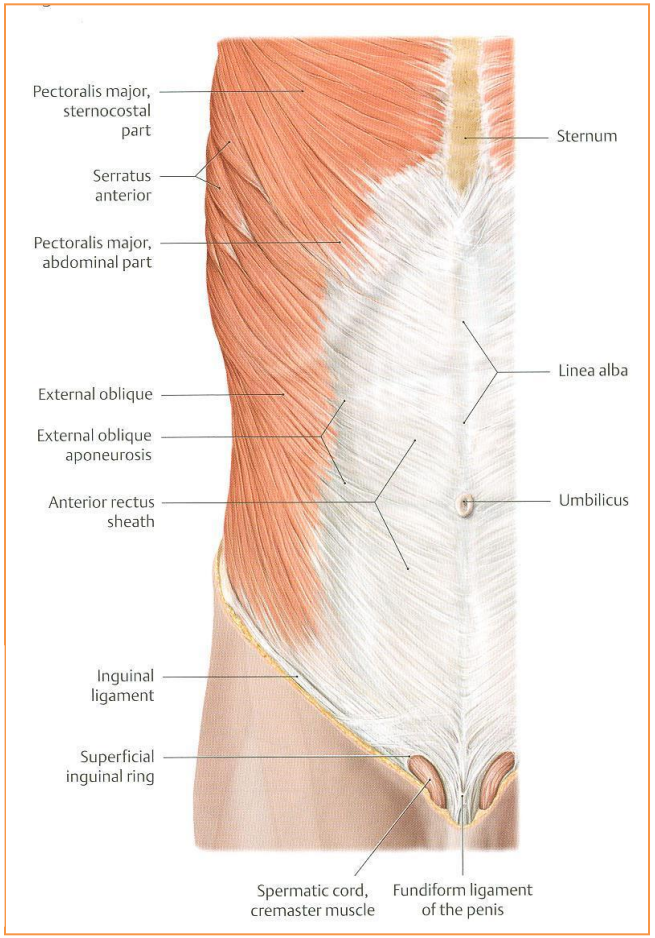
MUSCLES INVOLVED IN RESPIRATION
Action- Nerve supply

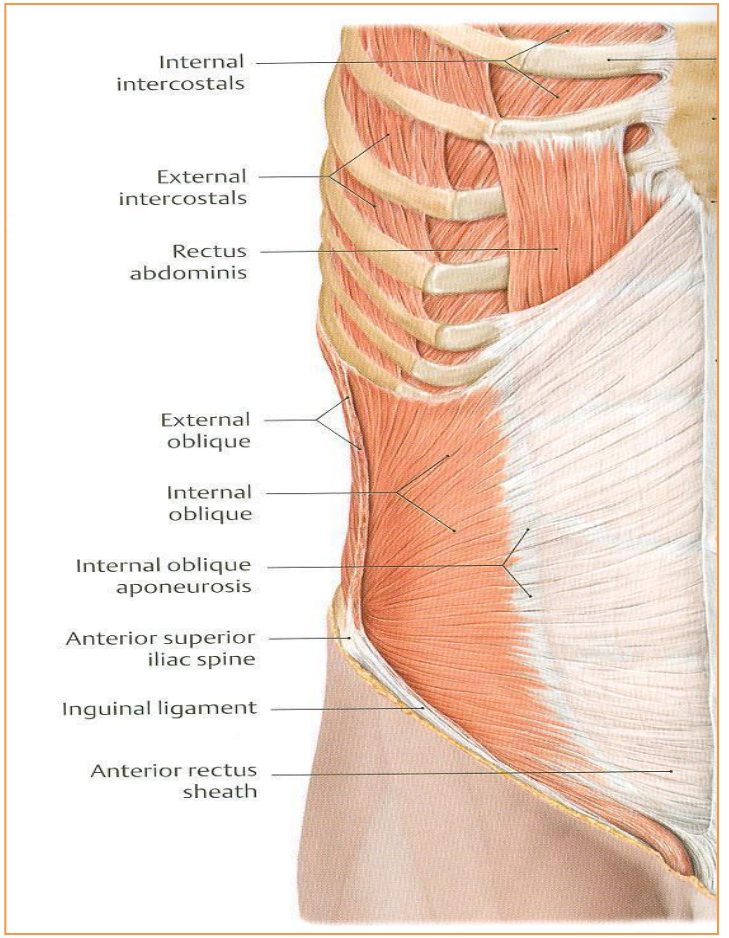




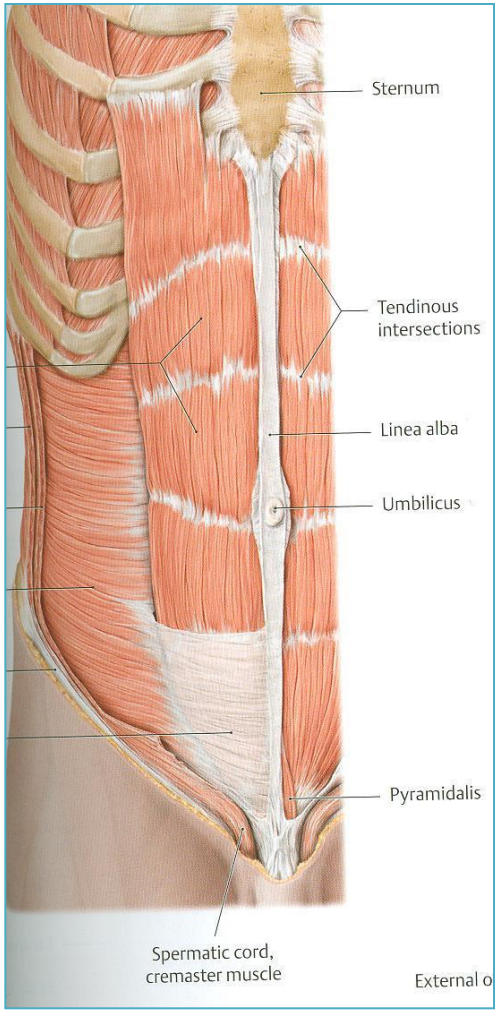
MUSCLES INVOLVED IN RESPIRATION

Action- Nerve supply

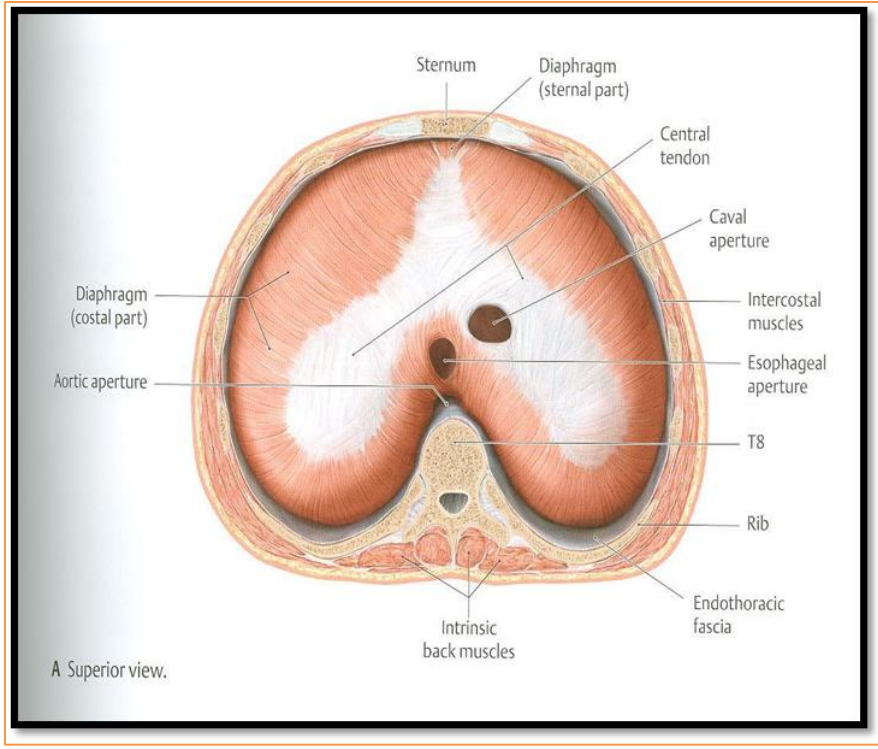


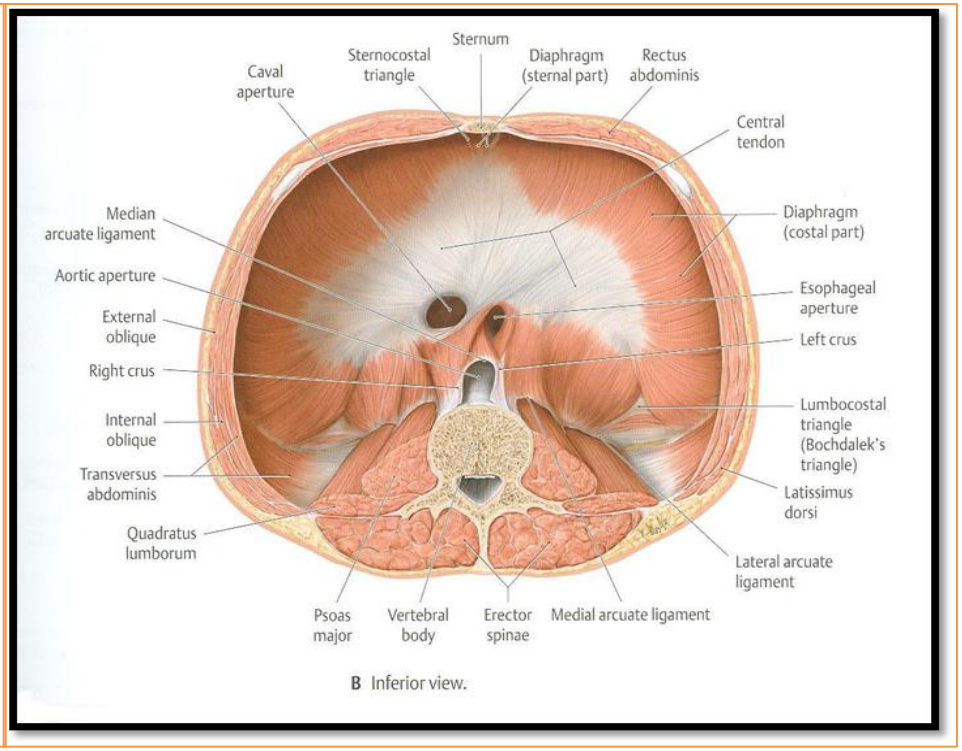


MUSCLES INVOLVED IN RESPIRATION
Action- Nerve supply



DIAPHRAGM
Action- Nerve supply



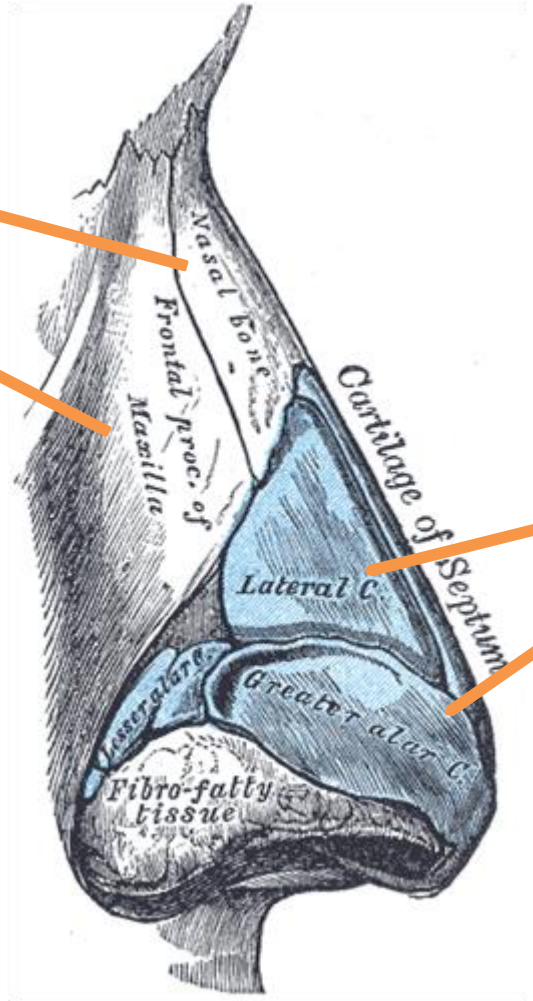


الشرائح التالية ليست من ضمن مراجعة الدكتور ، انما هي اجتهاد الفريق وذلك استجابة لنصائح الدفعات السابقة ..

Nose

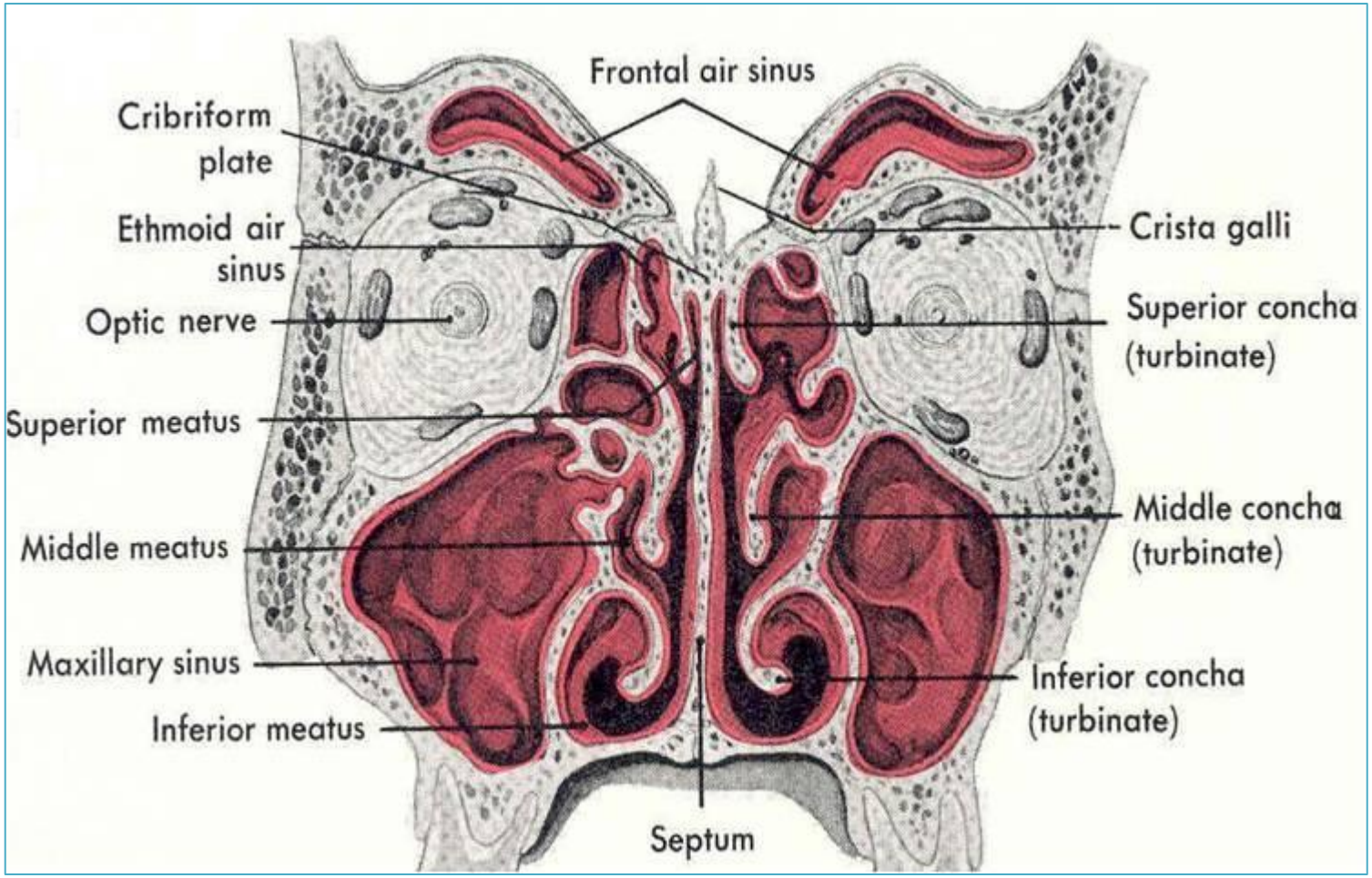
Formed above by:

Bony skeleton

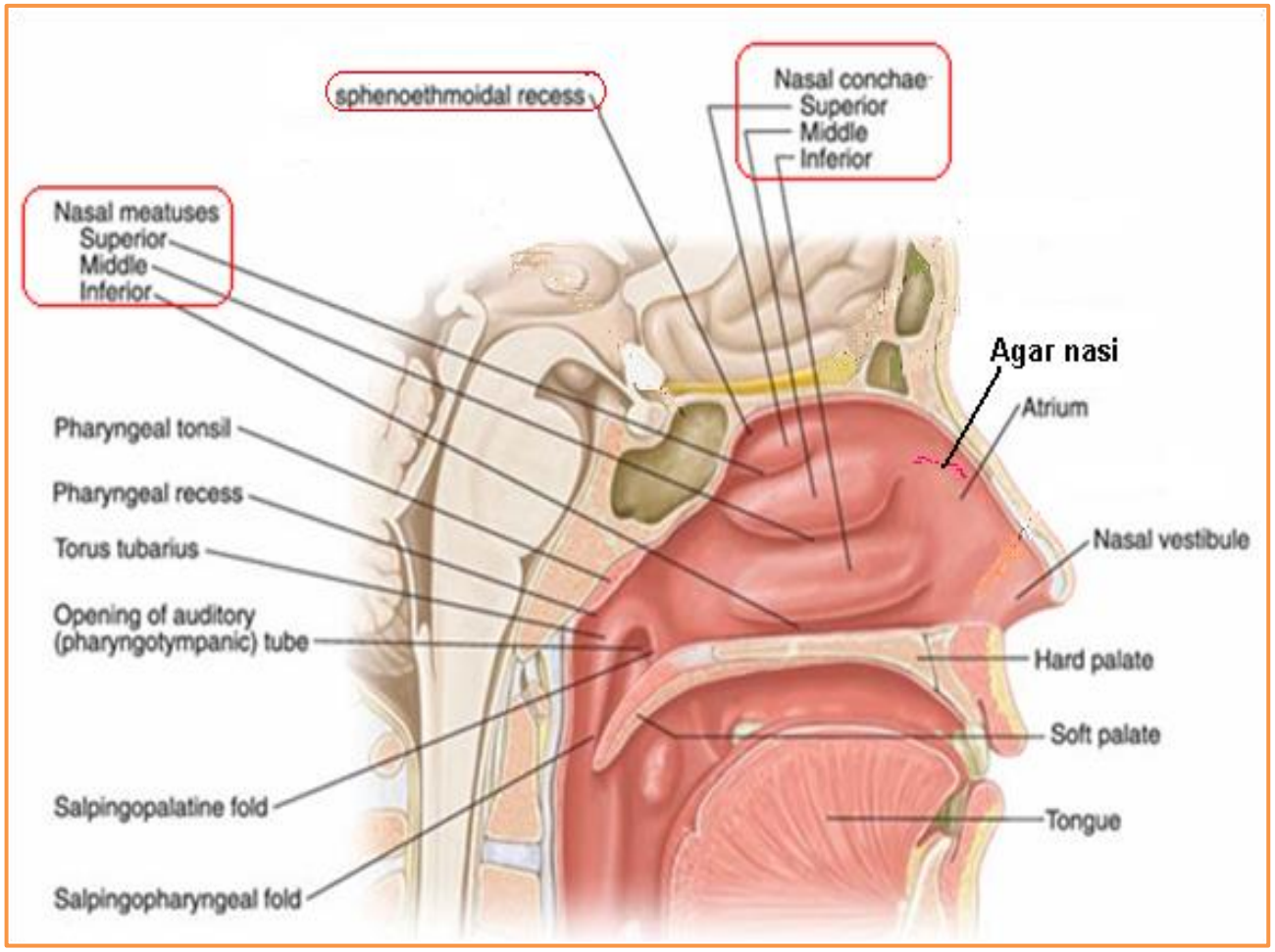


Formed below by plates of hyaline cartilage

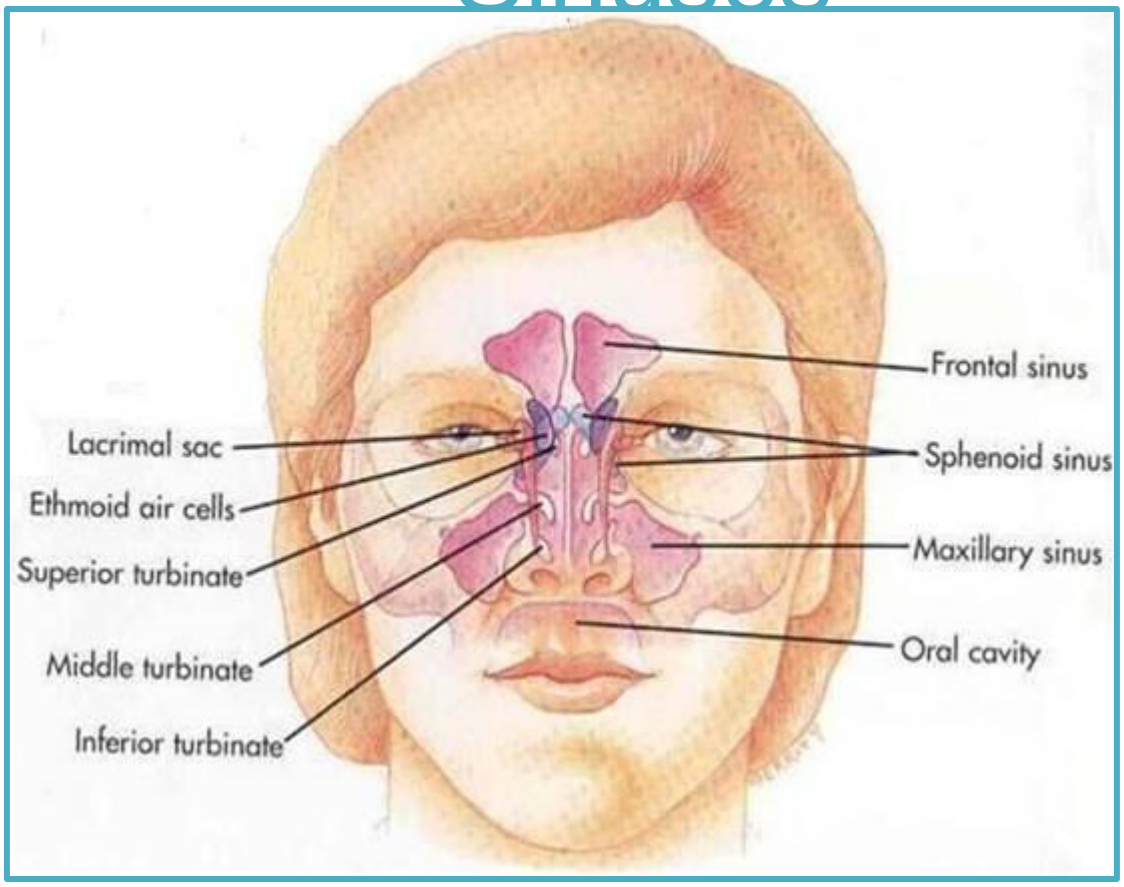
NASAL CAVITY



NASAL CAVITY



Paranasal Sinuses



§ Air filled cavities located in the bones around the nasal cavity:

- ethmoid
- sphenoid
- frontal bones
- maxillae.

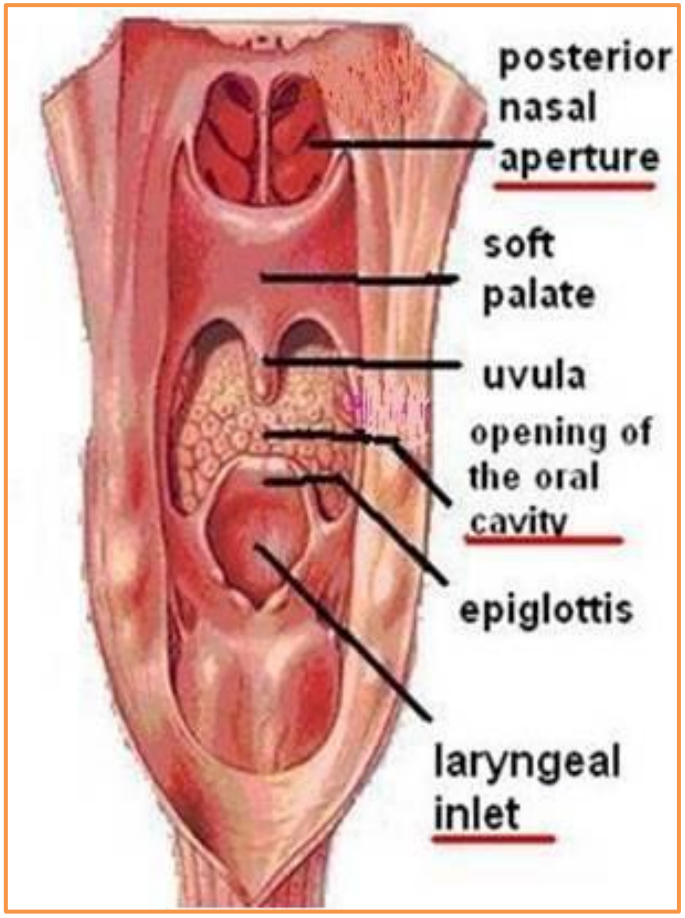
Pharynx

§ Muscular tube lying behind the nose, oral cavity & larynx.

§ Extends from the base of the skull to level of the 6th cervical vertebra, where it is continuous with the esophagus

§ The anterior wall is deficient and shows (from above downward):

- Posterior nasal apertures.
- Opening of the oral cavity.
- Laryngeal inlet.



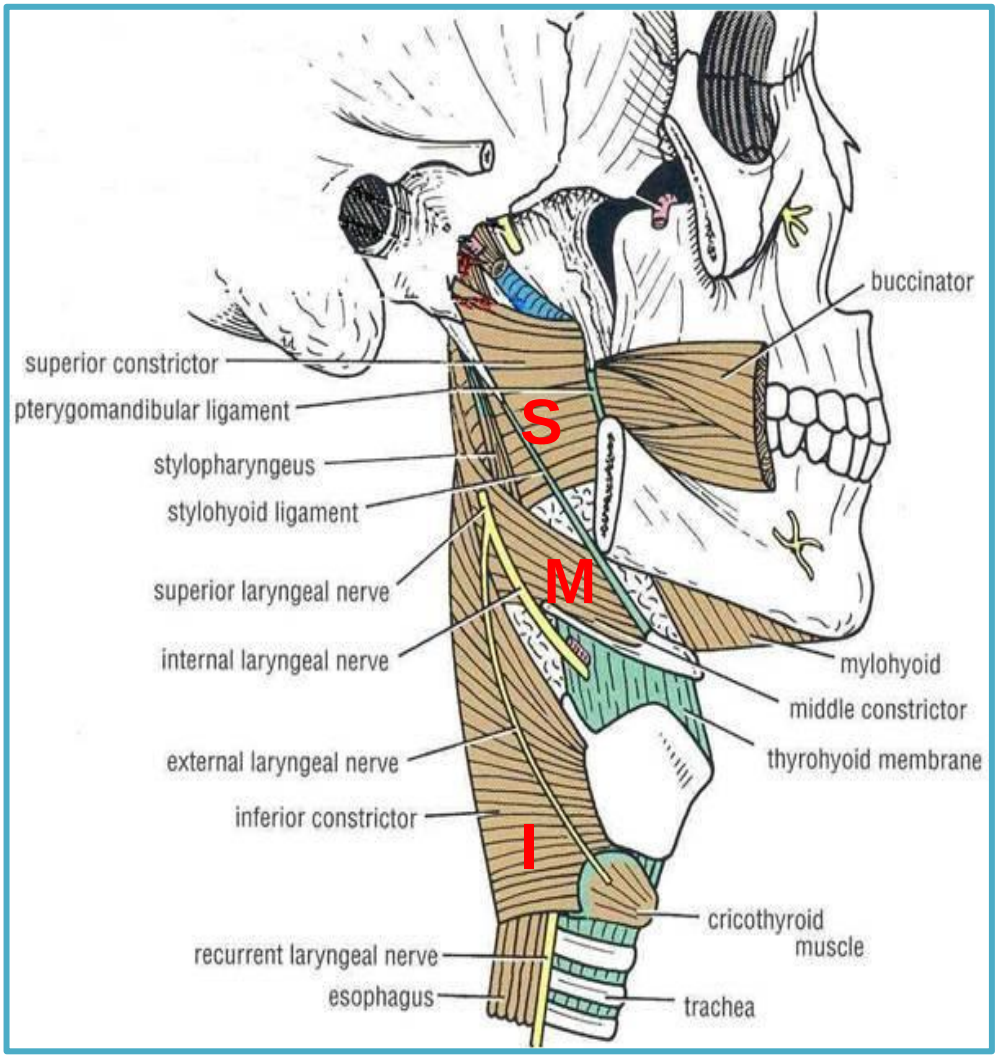
Circular (Constrictor) Muscles

§Three in number:

- **Superior constrictor,**
- **Middle constrictor &**
- **Inferior constrictor**

Functions:

- Propel the bolus of food down into the esophagus.
- lower fibers of the inferior constrictor (Cricopharygeus) act as a sphincter, preventing the entry of air into the esophagus between the acts of swallowing.



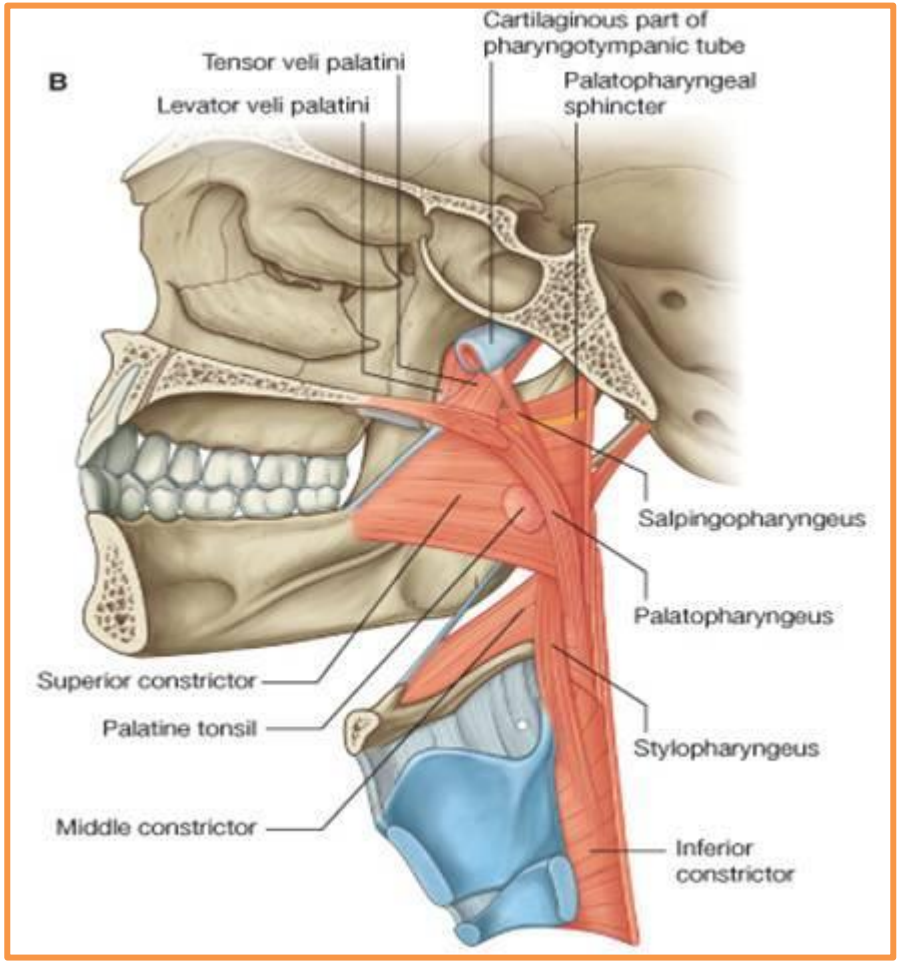
Longitudinal Muscles

§Three in number:

- Stylopharyngeus
- Salpingopharyngeus
- Palatpharyngeous

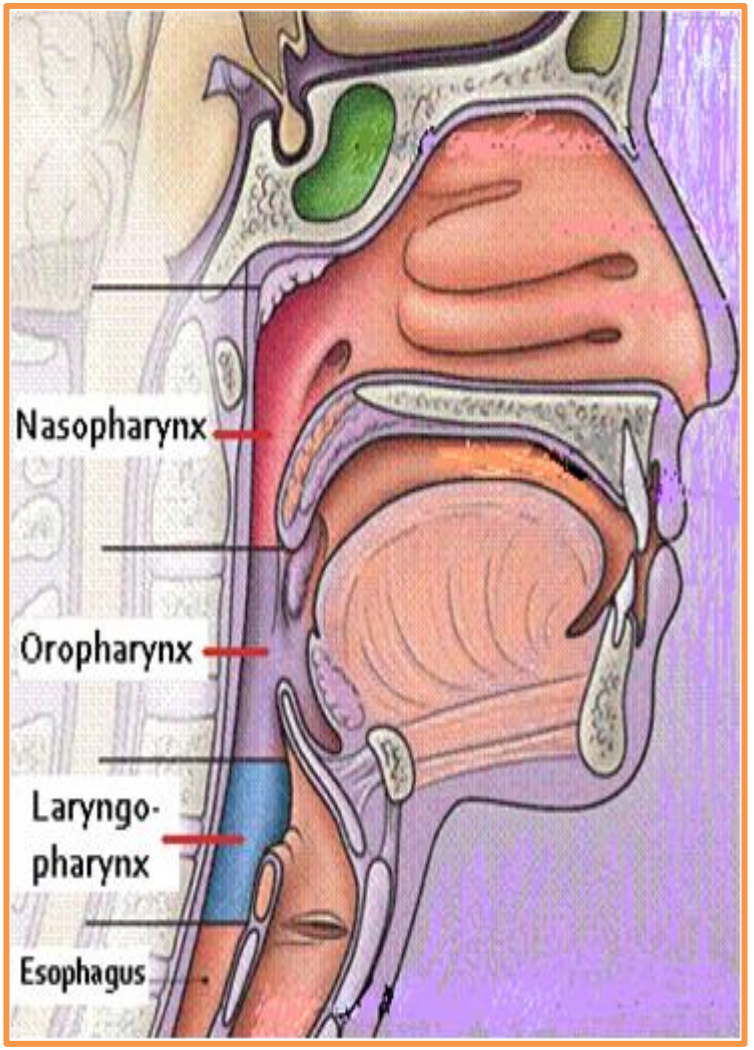
§Function:

- Elevate the larynx & pharynx during swallowing

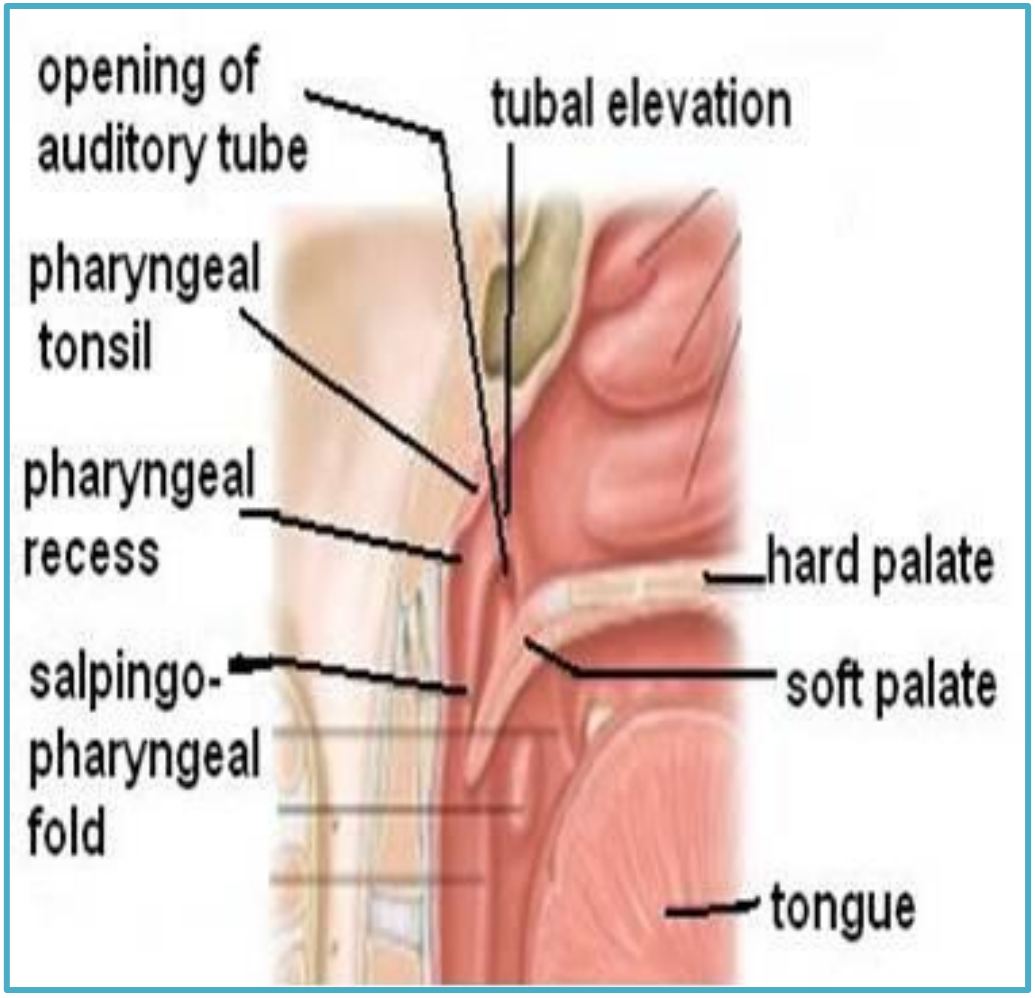


§Pharynx is divided into three parts:

- **Nasopharynx.**
- **Oropharynx.**
- **Laryngopharynx**.



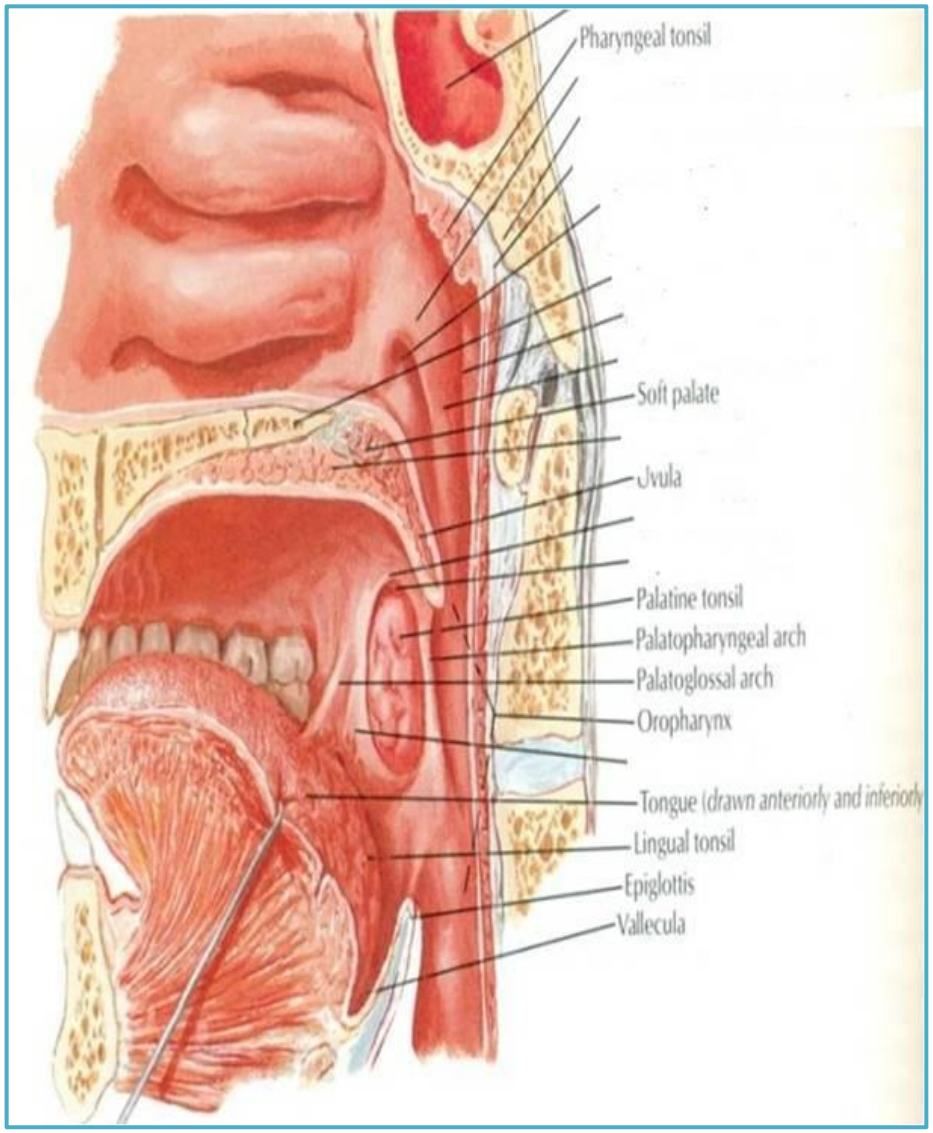
Nasopharynx



Oropharynx

Lateral wall shows:

- Palatopharyngeal fold.
- Palatoglossal fold
- Palatine tonsil located between them in a depression called the ‘tonsillar fossa



LARYNX

•**The cartilaginous skeleton** is composed of:

1.**Thyroid**

2.**Cricoid** **3 Single**

3.**Epiglottis**

.....

4. Arytenoid

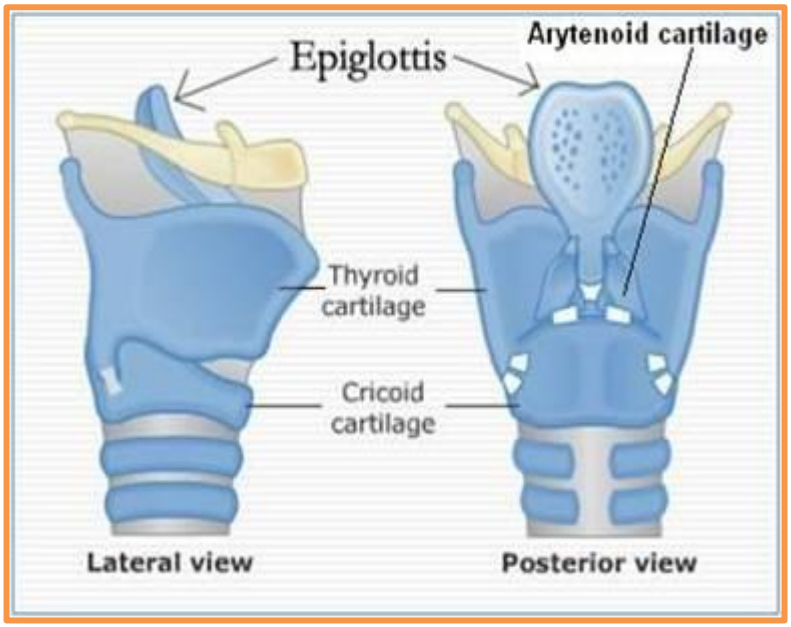
5. Corniculate **3 Paired**

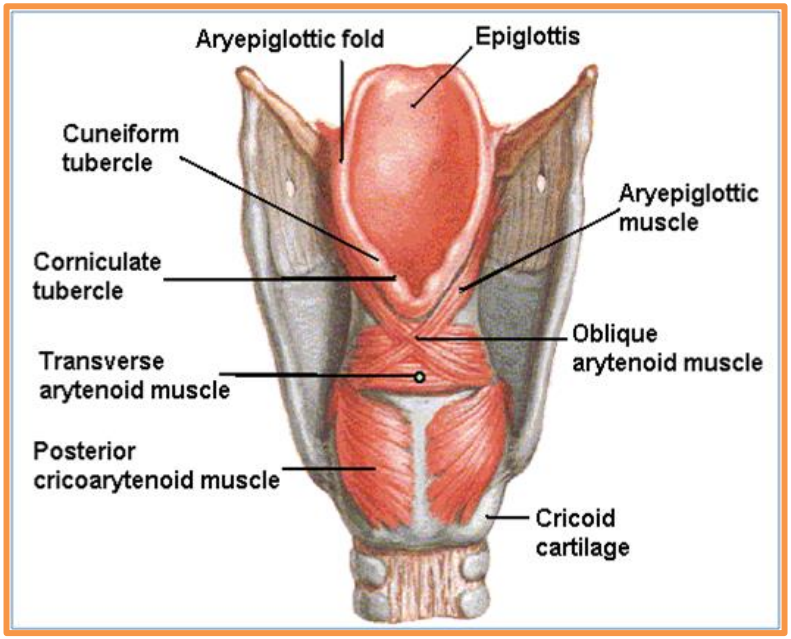
6. Cuneiform

•All the cartilages, are **hyaline** except the **epiglottis** which is **Elastic** cartilage.

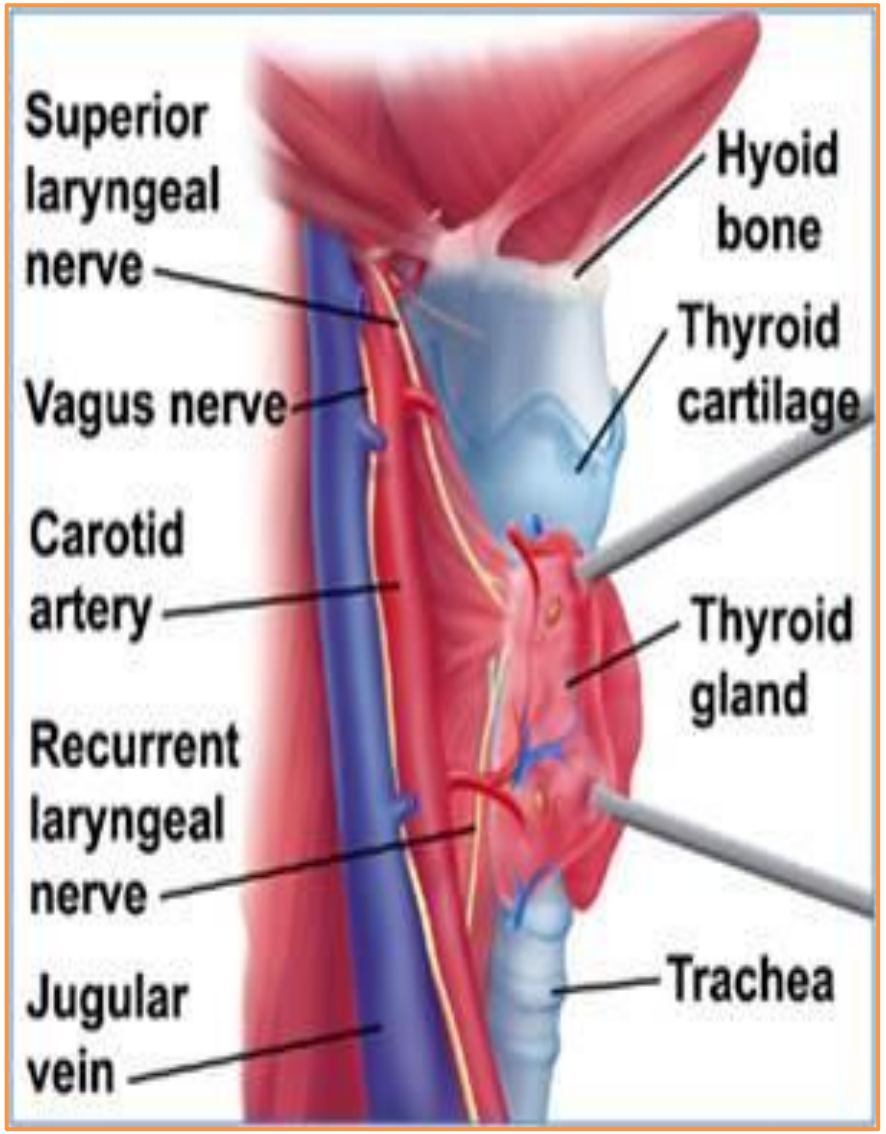
•The cartilages are:

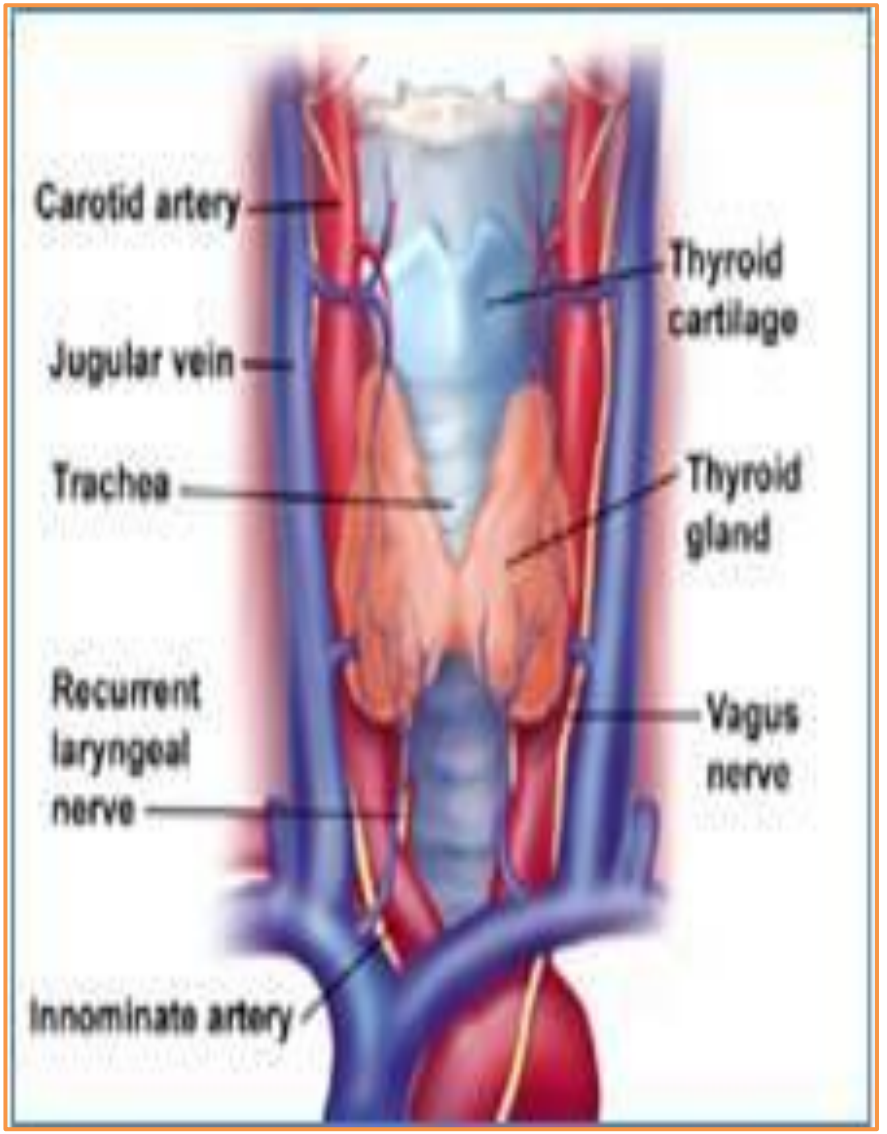
- **Connected by joints, membranes & ligaments.**
- **Moved by muscles**





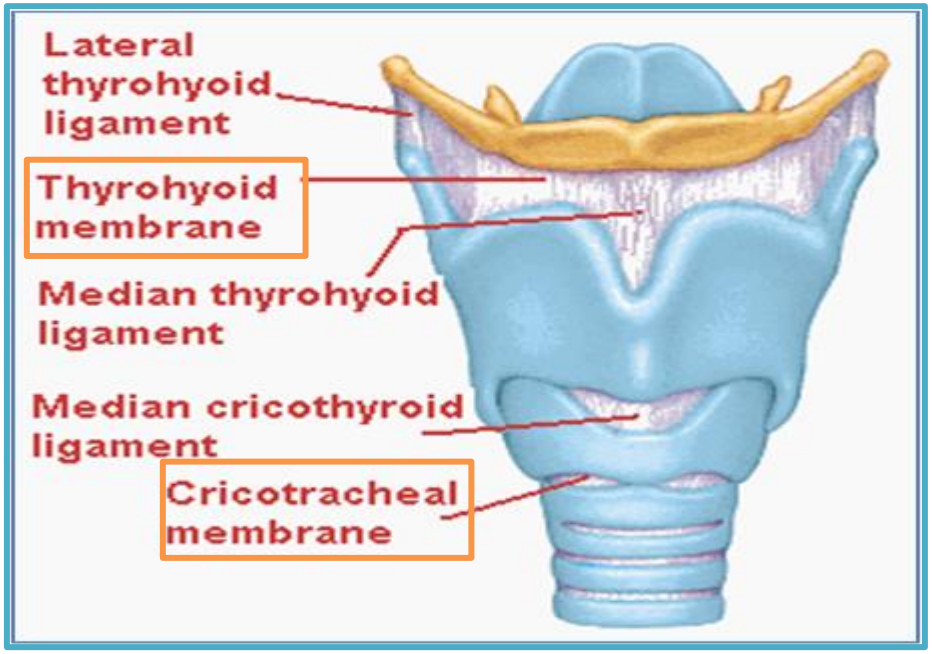
Blood vessels of larynx

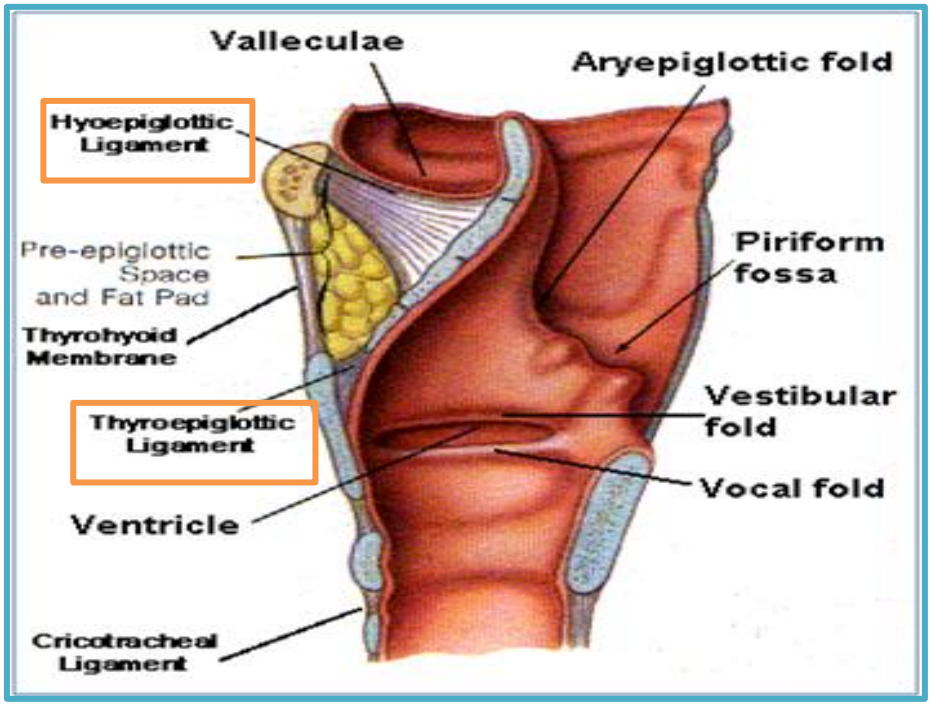




LARYNX

- Thyrohyoid membrane.
- Cricothyroid membrane.
- Cricotracheal membrane
- Hyoepiglottic ligament.
- Thyroepiglottic ligament





Posteroanterior chest radiograph

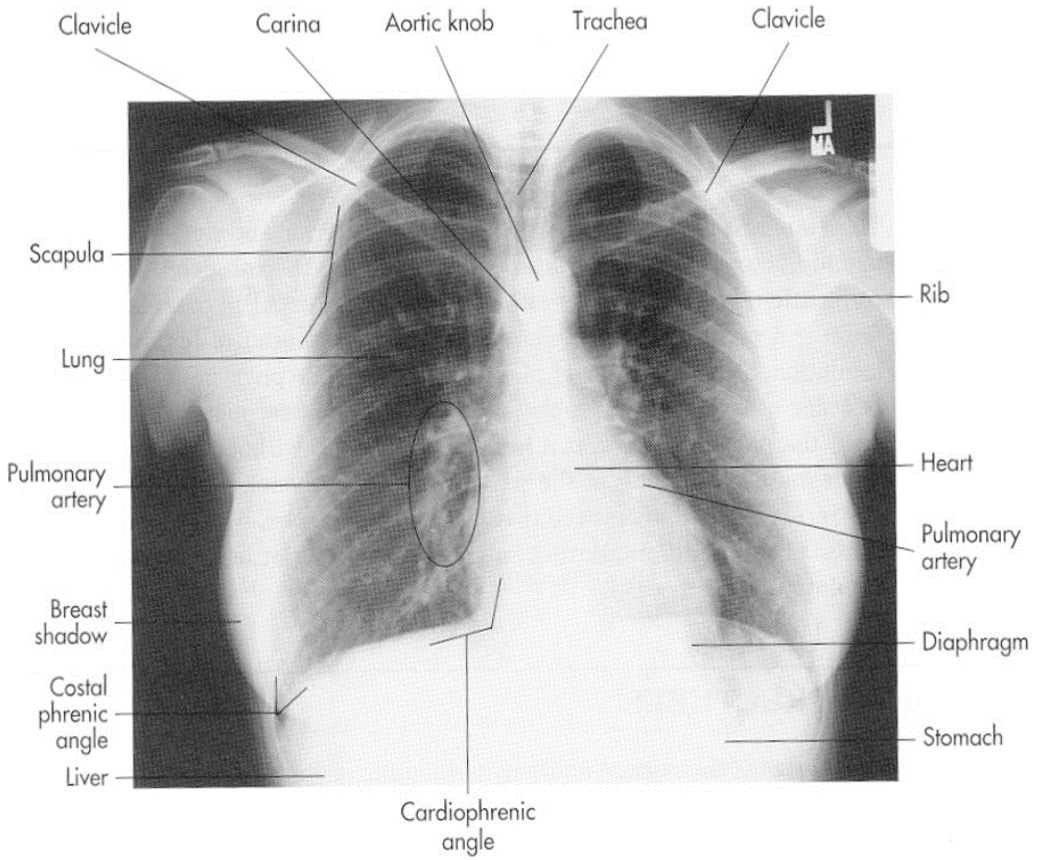
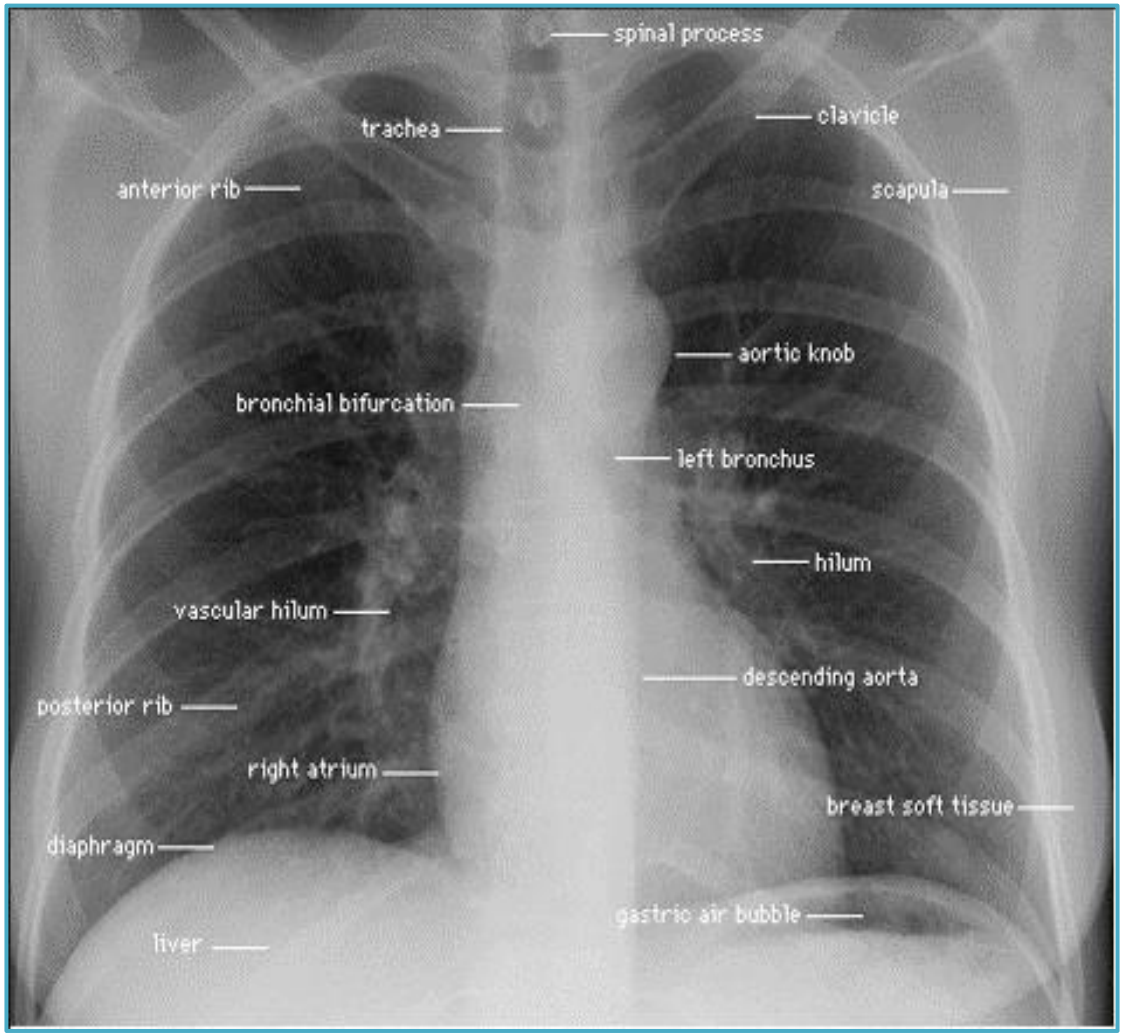
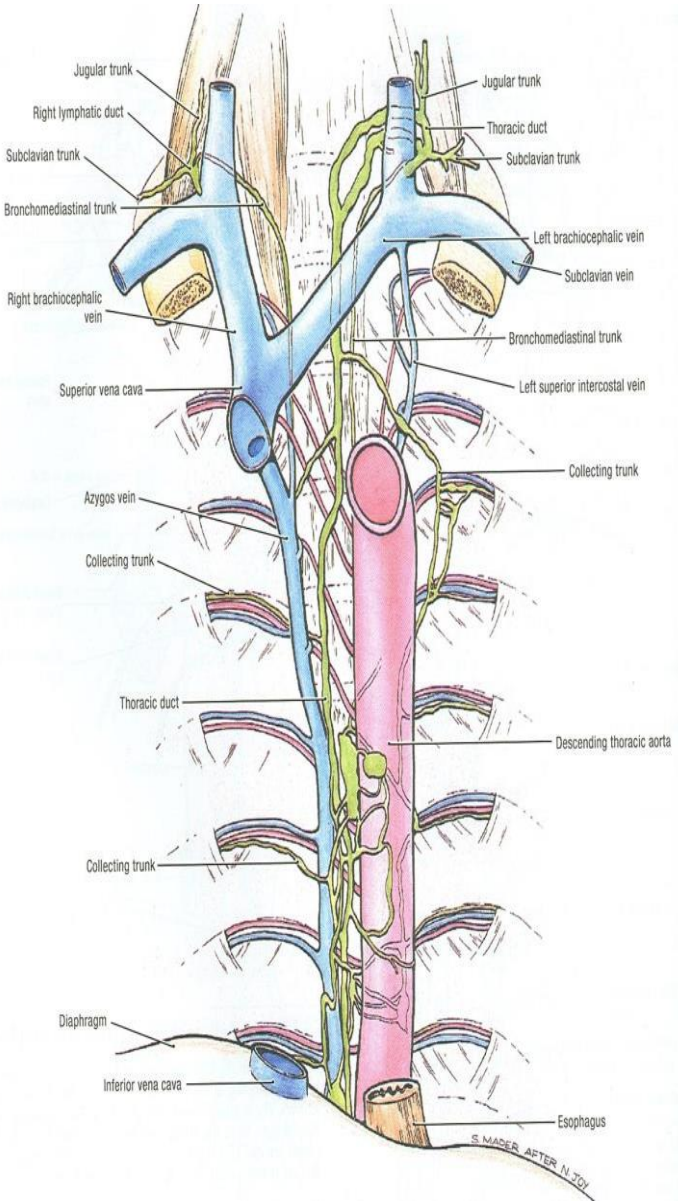


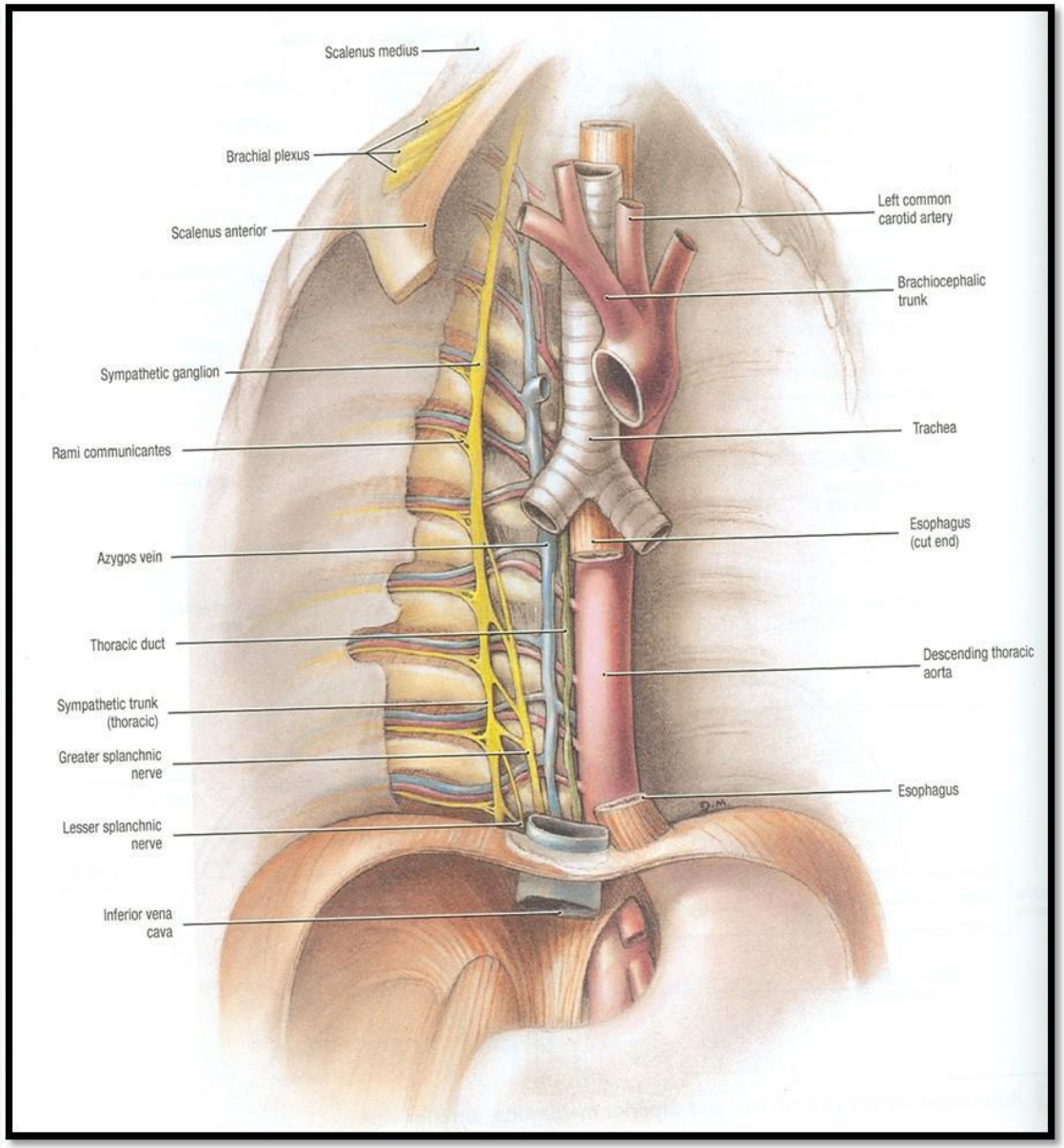
Fig. 3-1 Normal position of anatomical structures on a posterior or anterior chest radiograph.

Posteroanterior chest radiograph (Mediastinum)

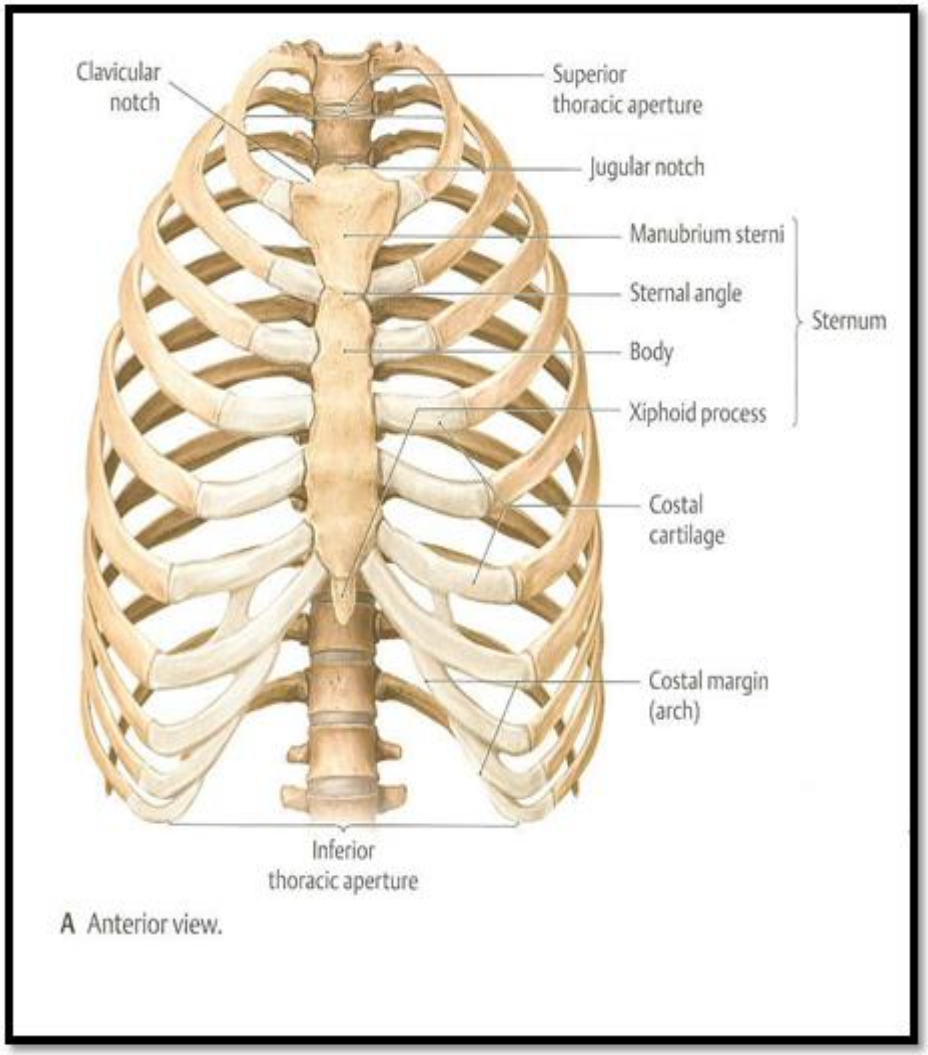


Mediastinum

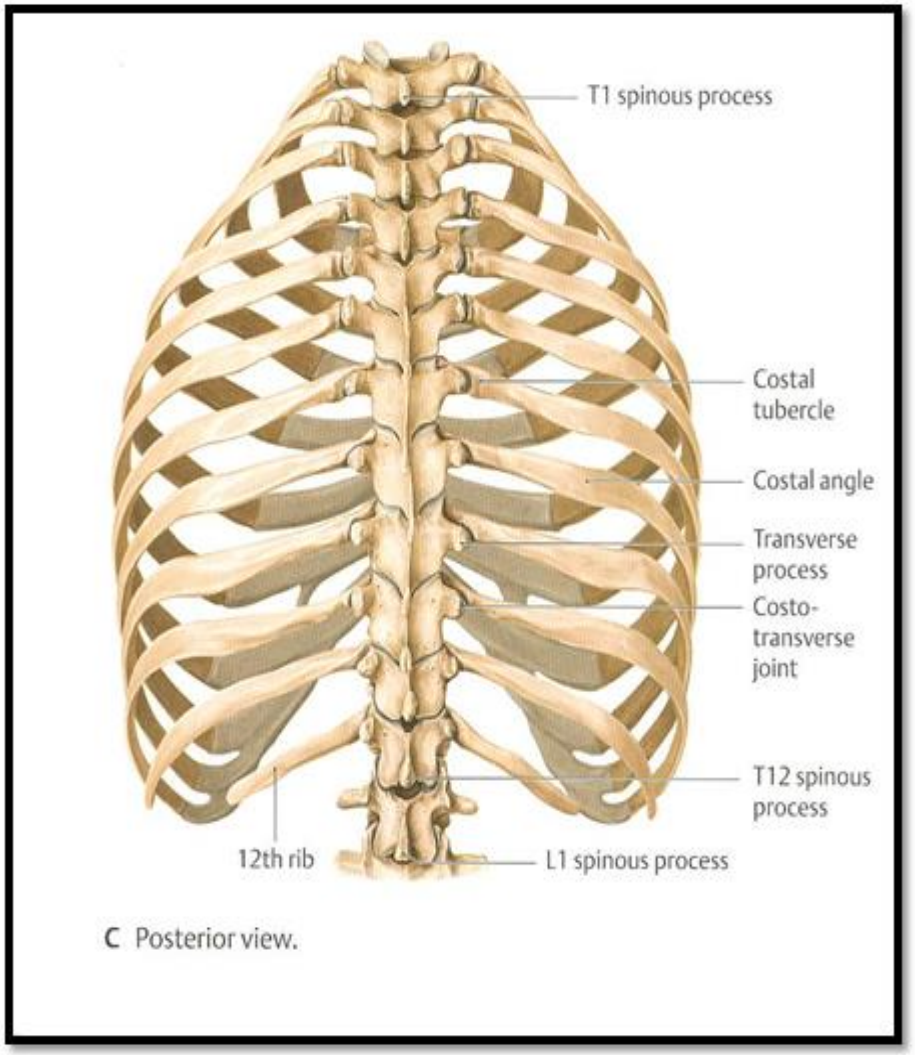




Thoracic cage



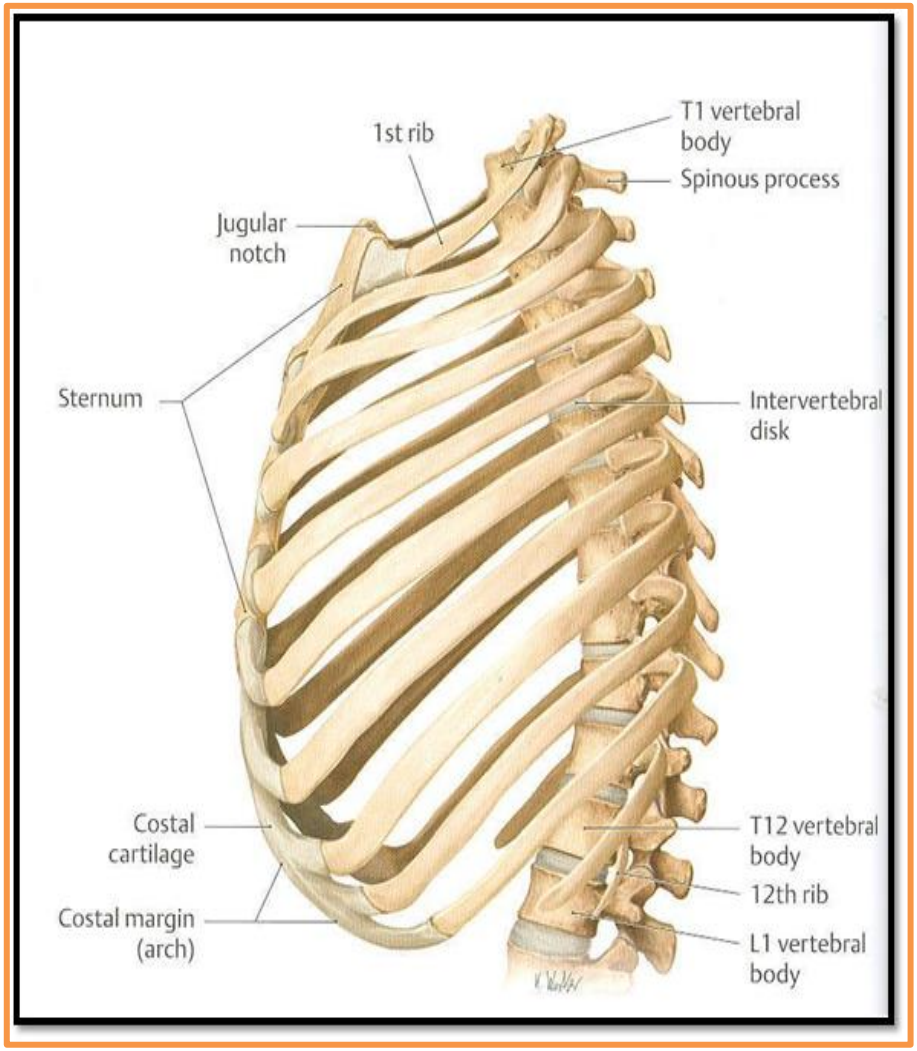
A Anterior view.

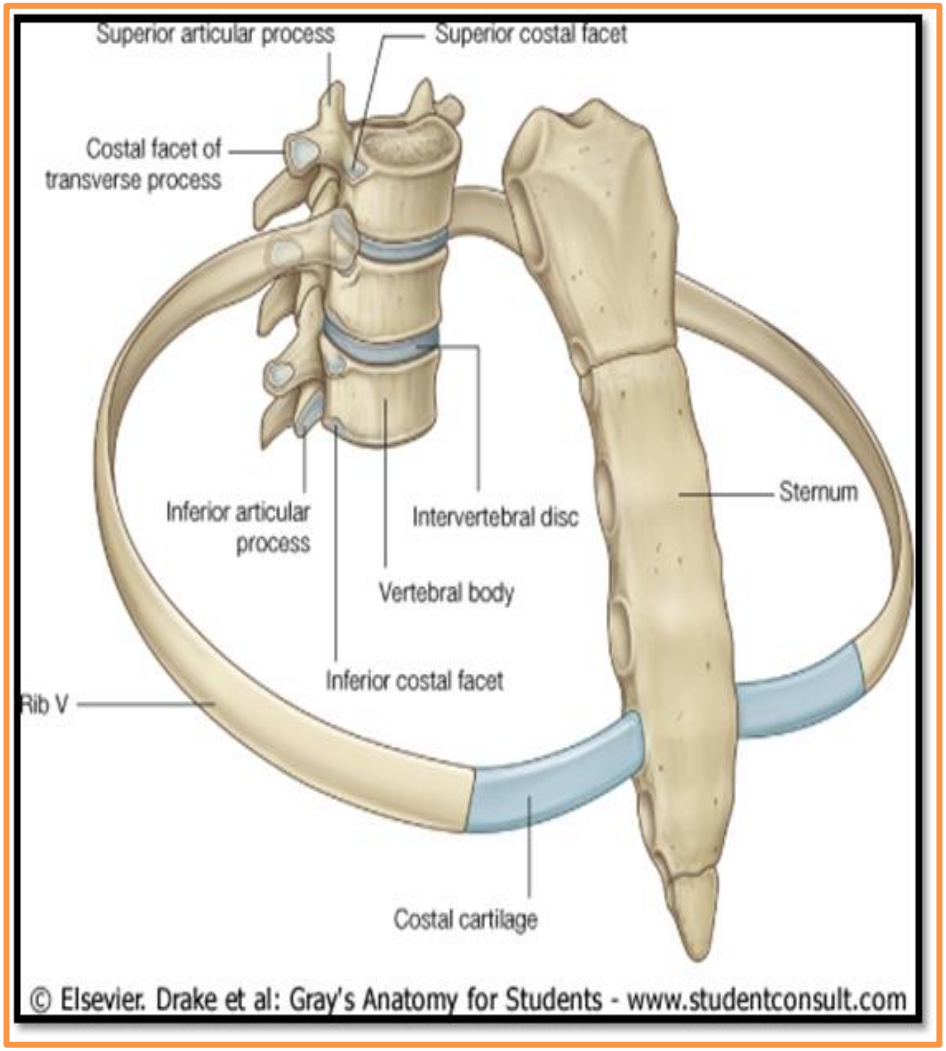


C Posterior view.

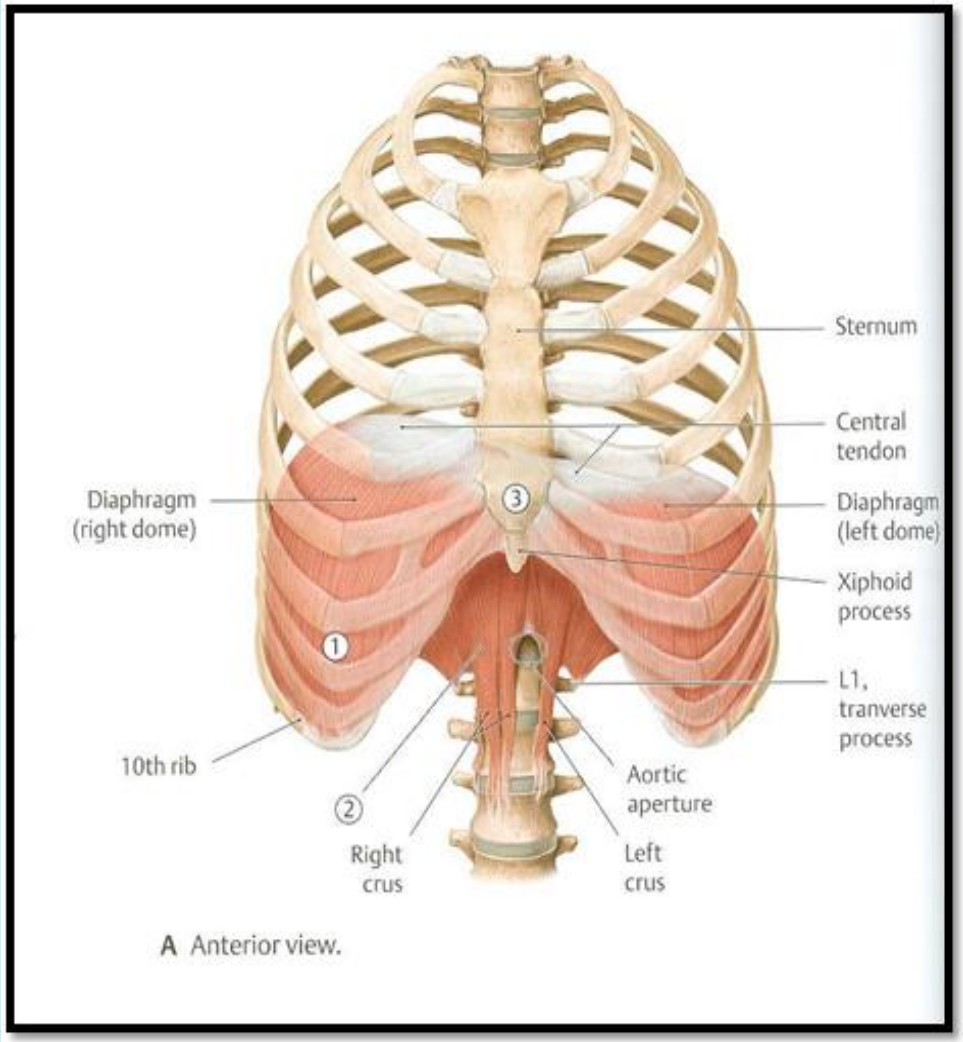
Note :Thoracic cage is conical in shape and contains two apertures (above and below)

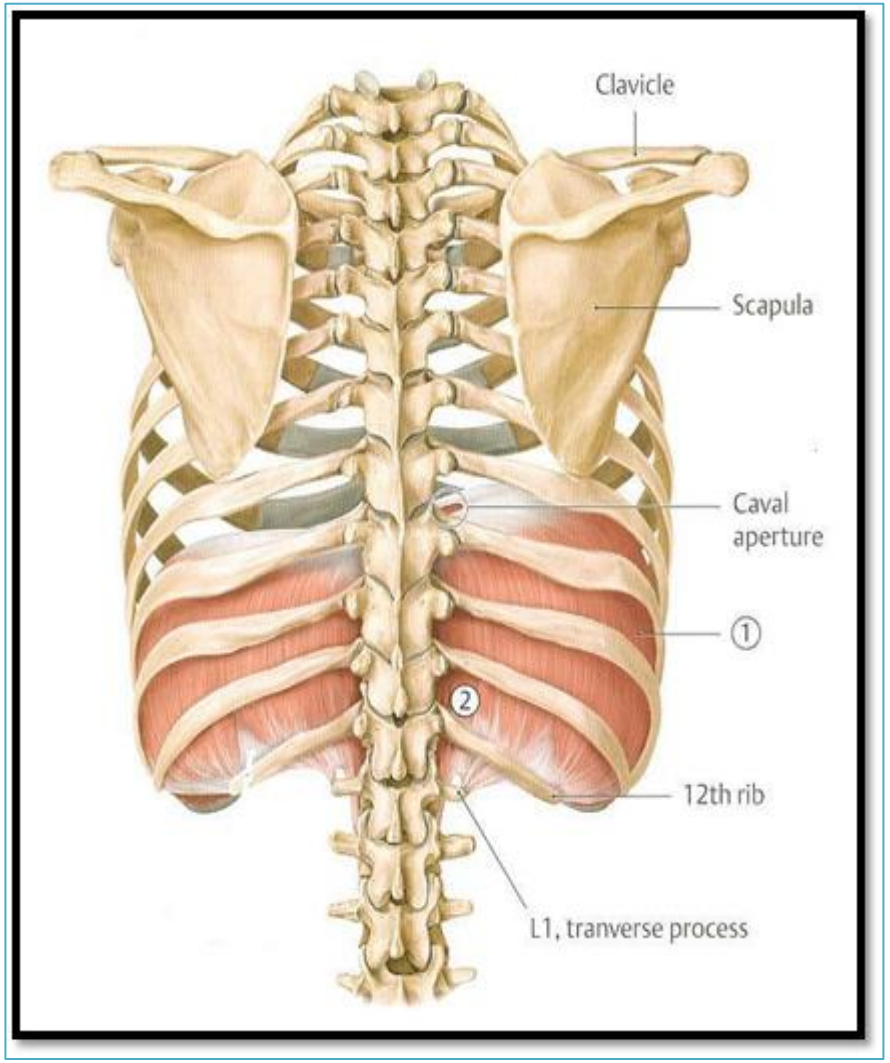
Articulations





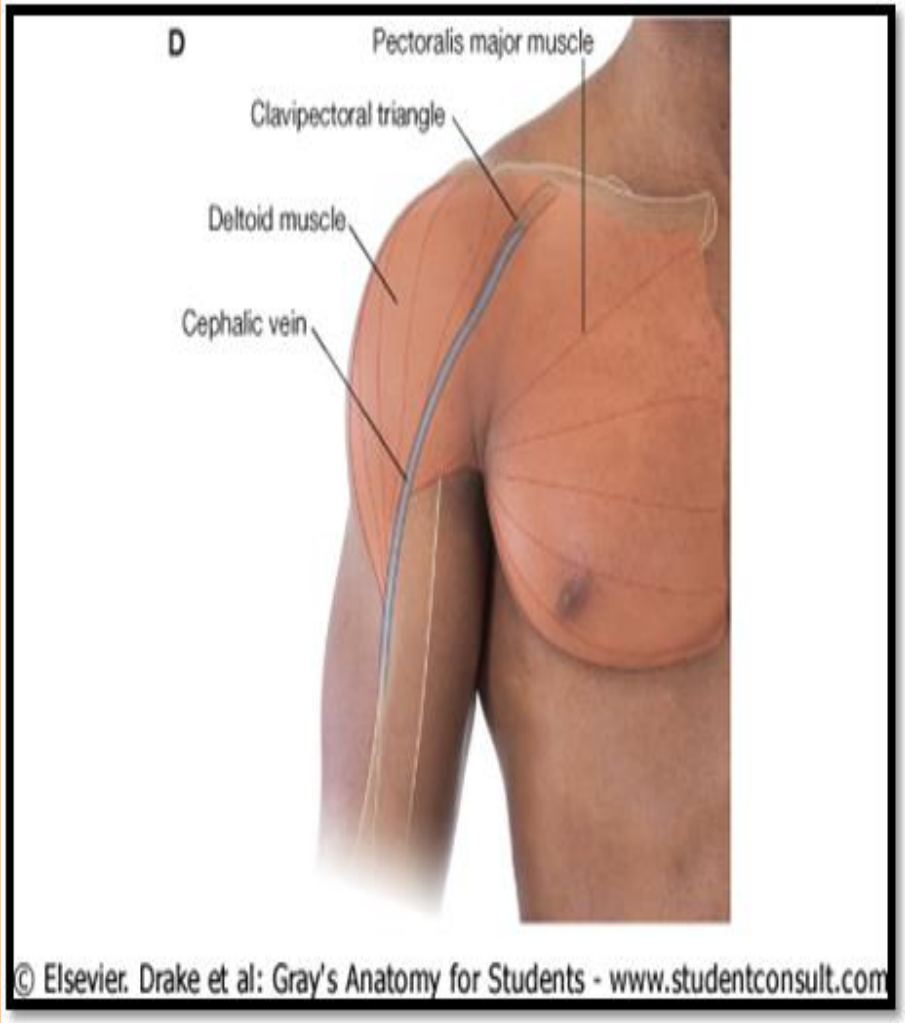
origin of diaphragm

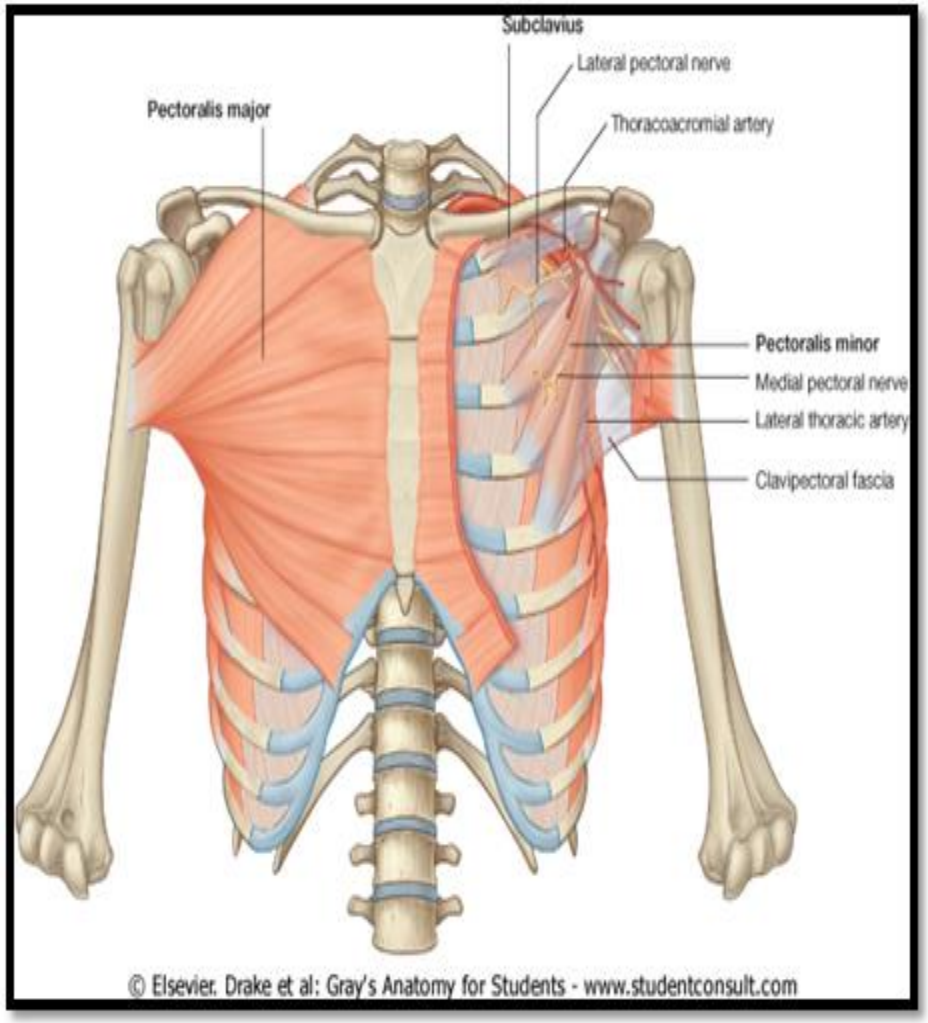




Note : caval aperture of diaphragm muscle is associated with inferior vena cava while aortic aperture is associated with abdominal aorta. This muscle is supplied by phrenic nerve and its root c3,4,5.

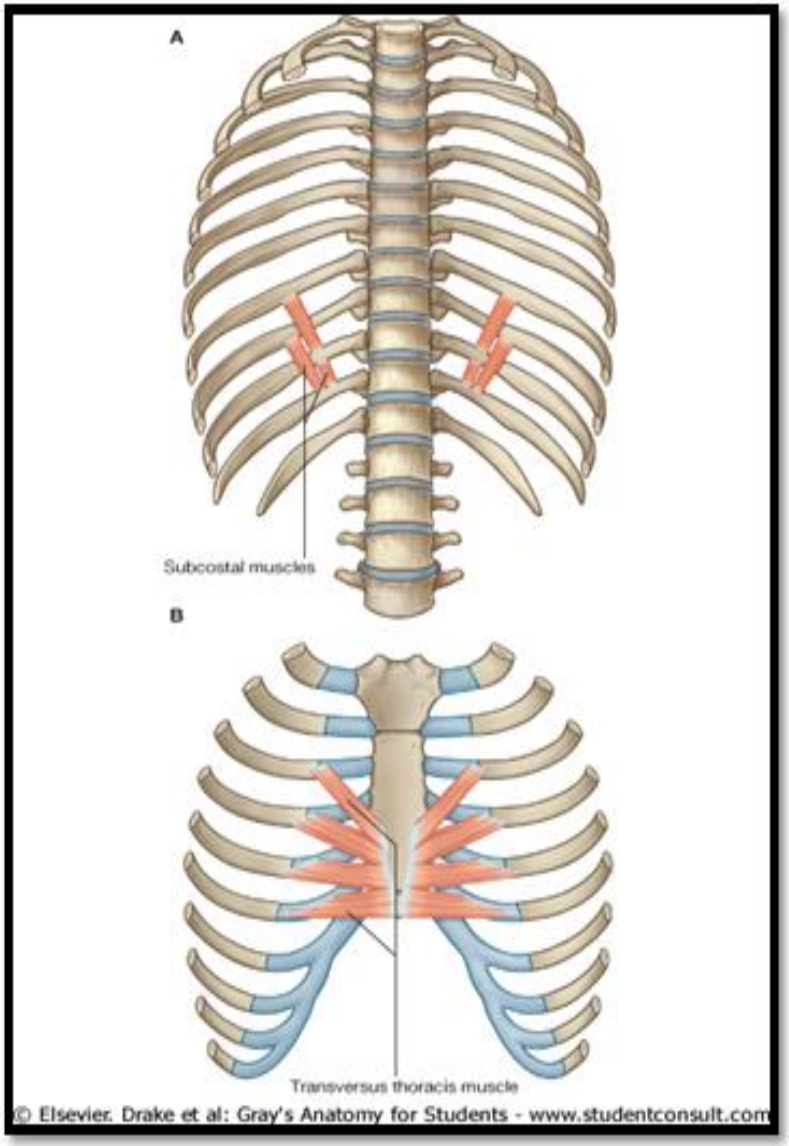
pectoralis major





Note : pectoralis major connects thoracic cage with humerus,so it plays role in deep inspiration

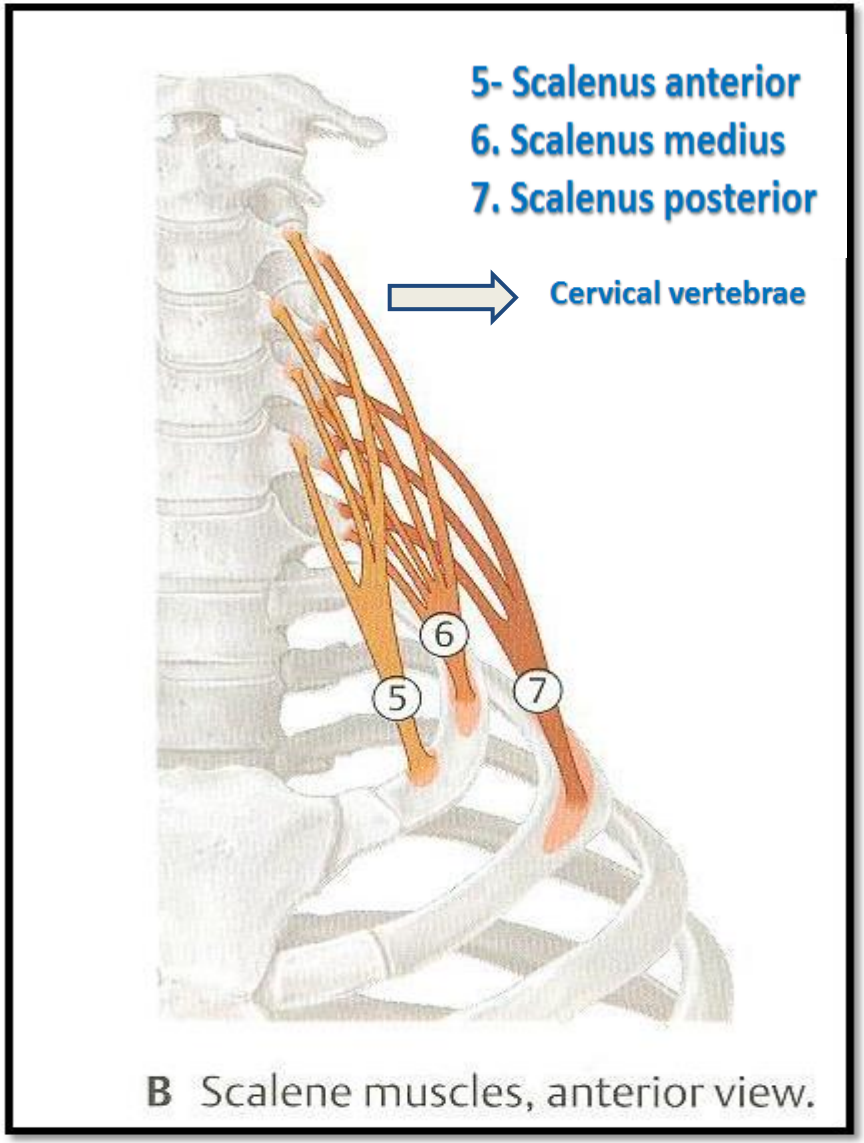
Rin depressor muscles



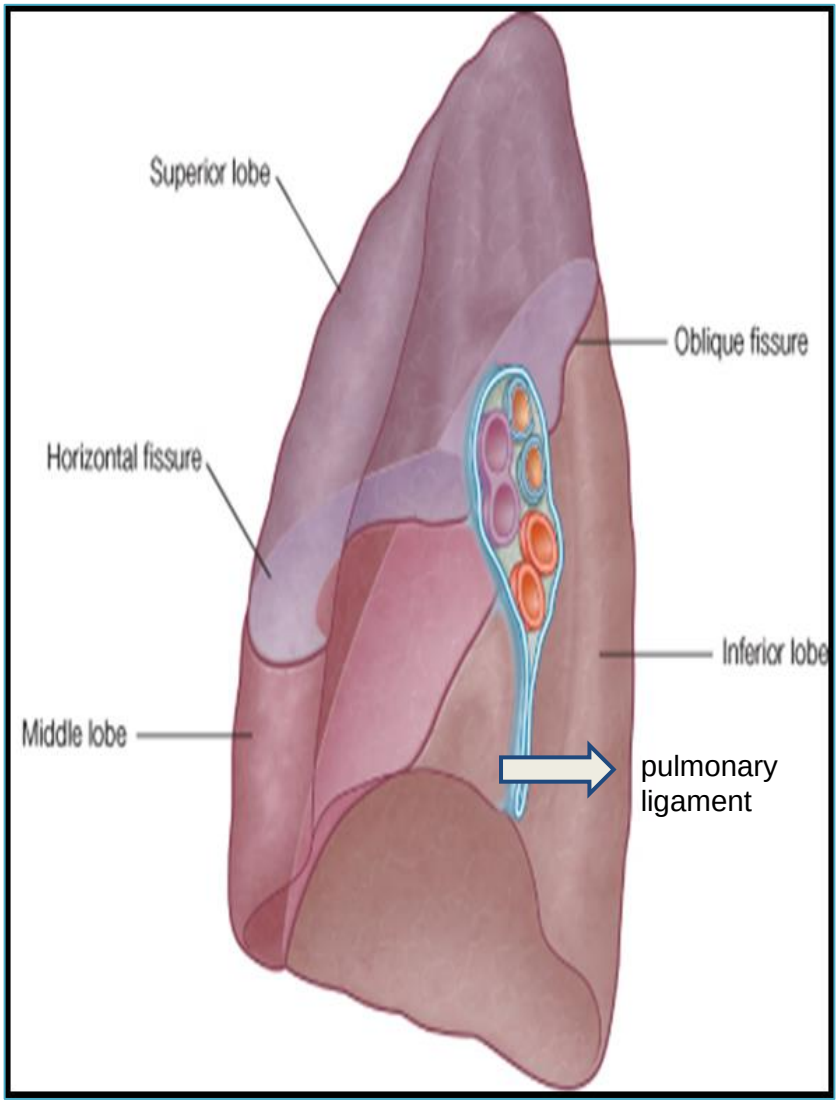
nerve : ventral rami of intercostal nerve (T1-T11)

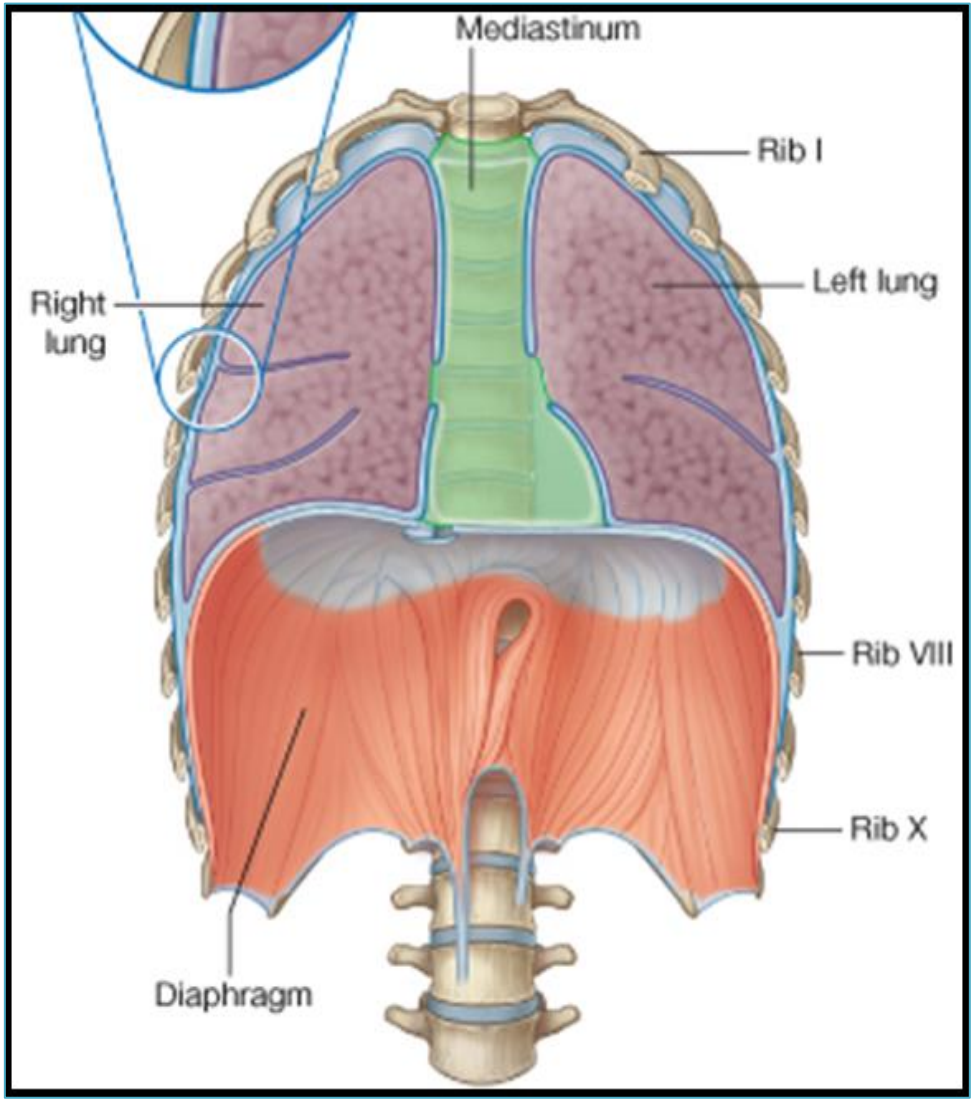
Scalene muscles

Action : elevate first and second ribs during deep inspiration



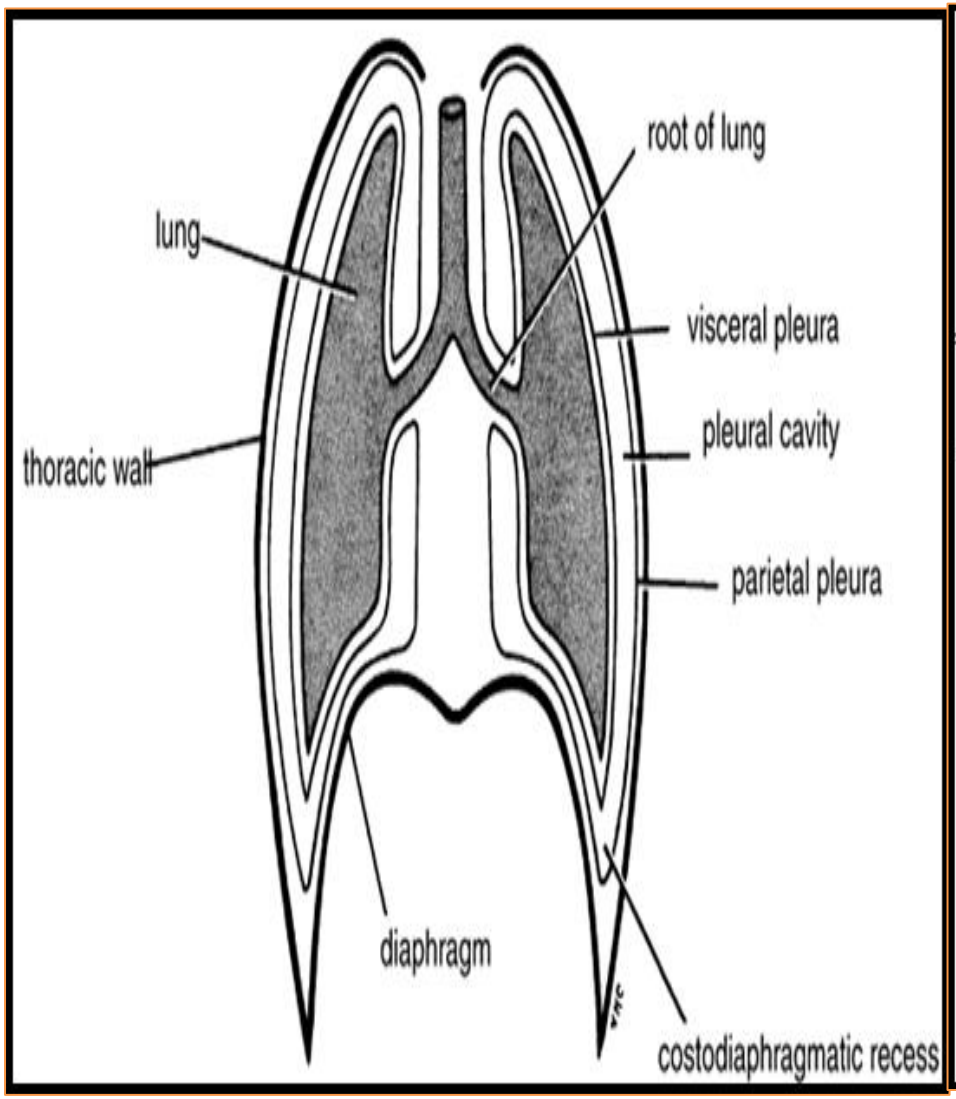
lung

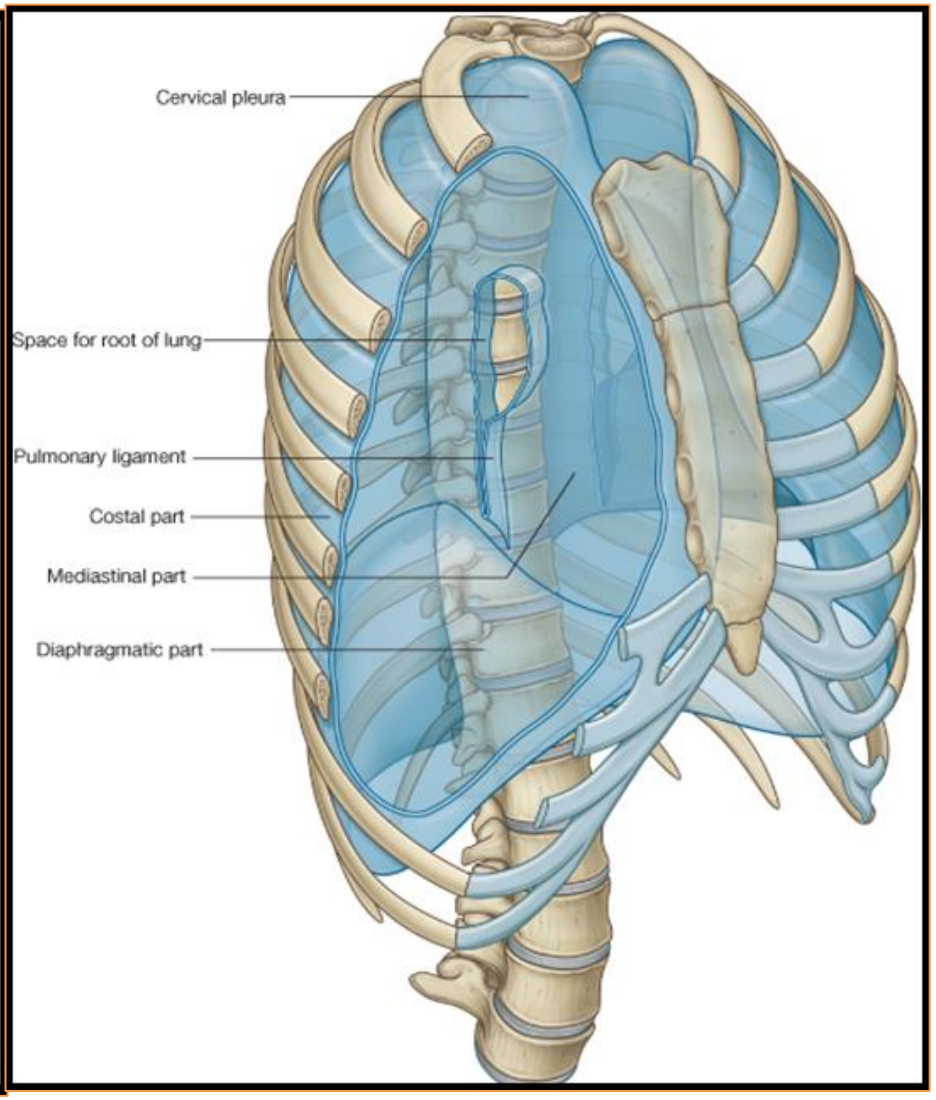




Note : the right lung is shorter than left lung due present the liver in right side but it is larger

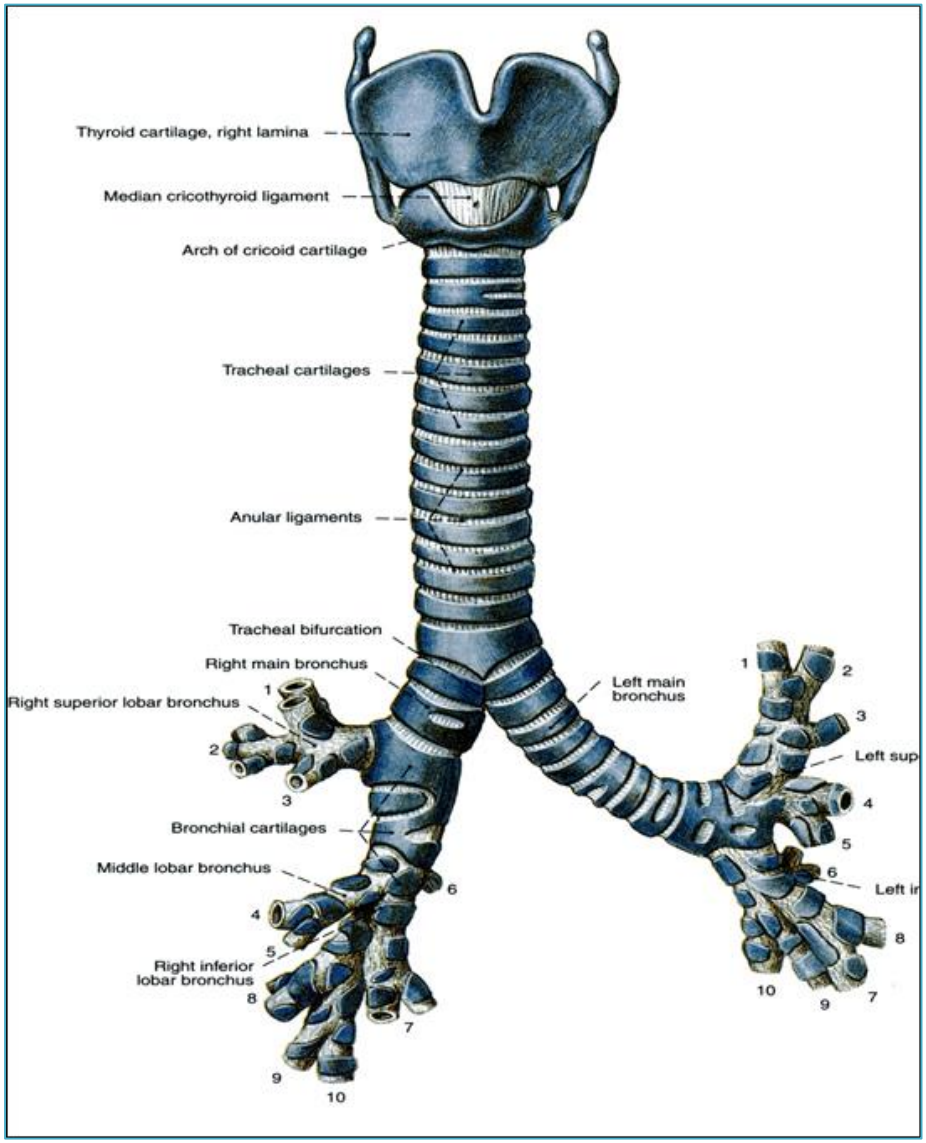
Pleura

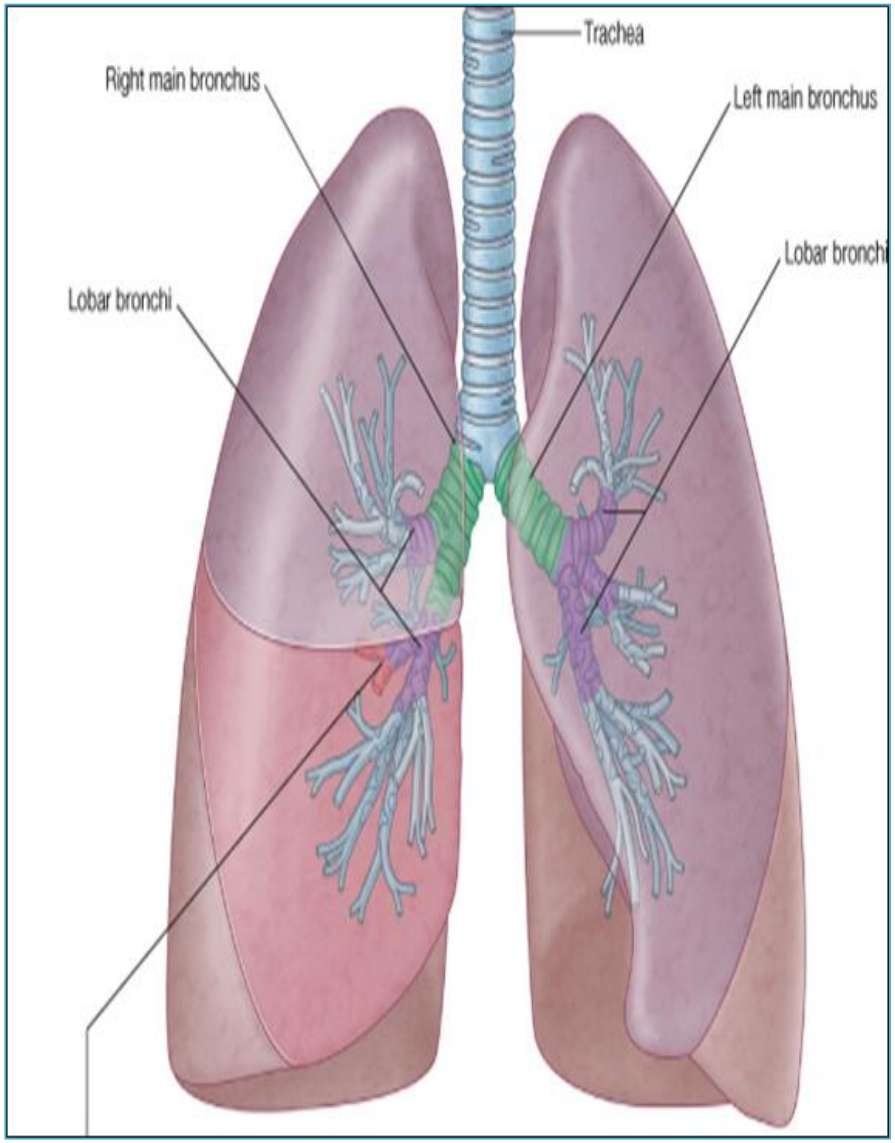




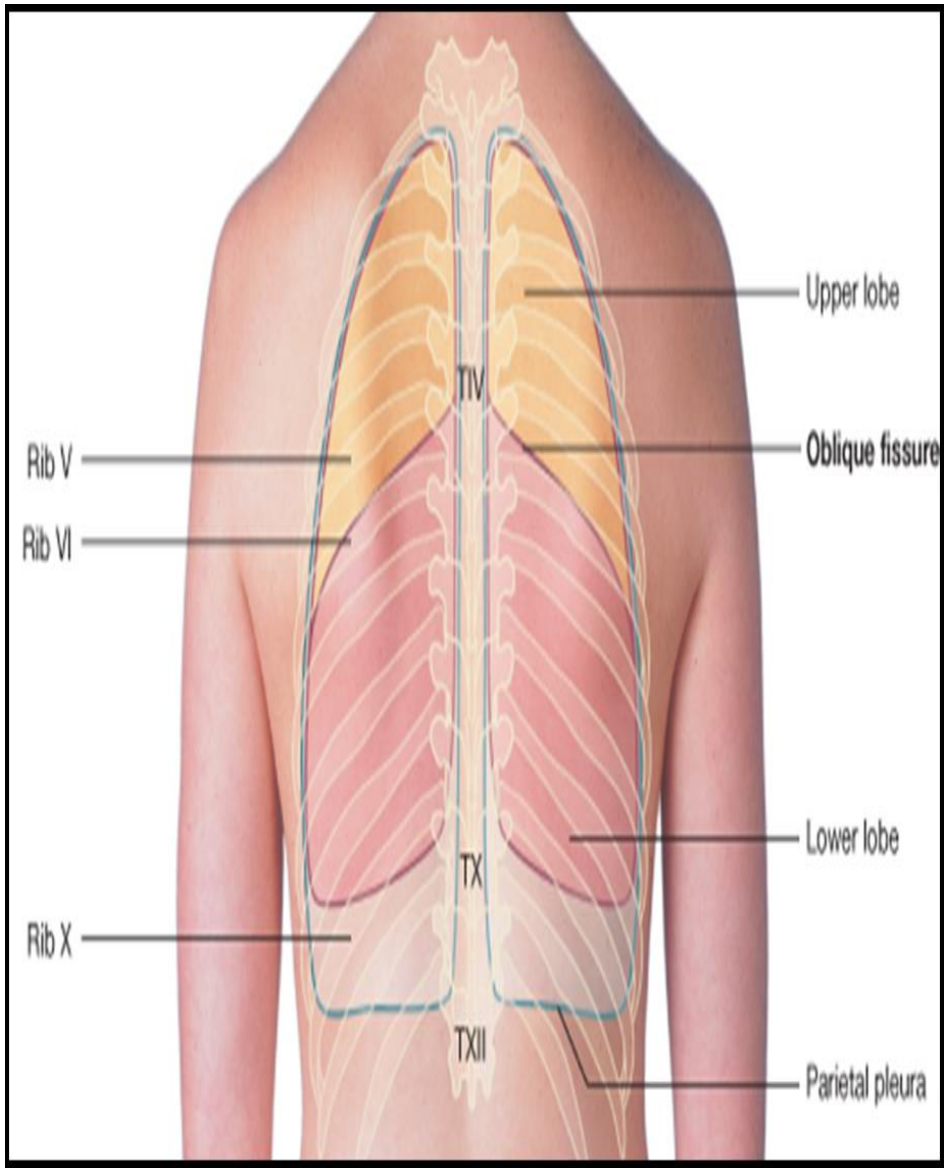
Note : it contains two layers. The layer that cover lung surface are called visceral layer

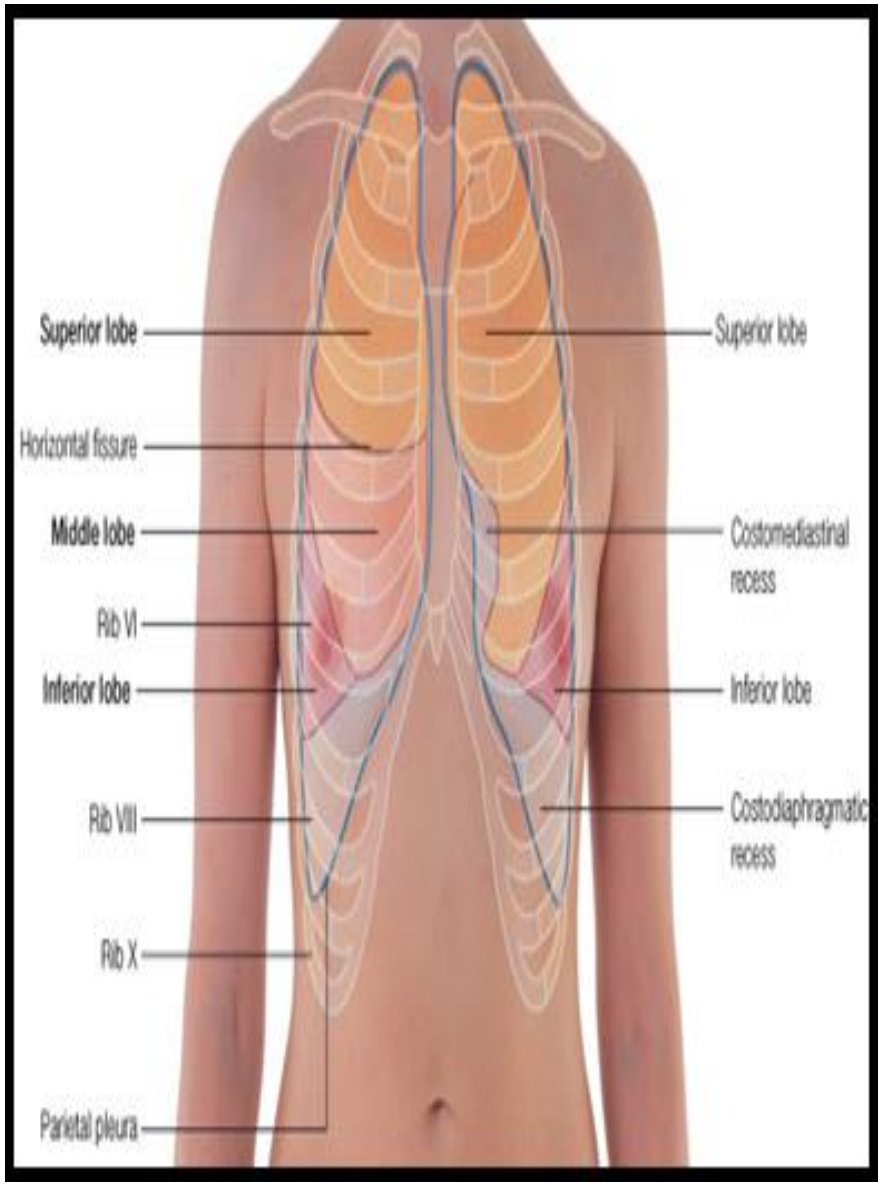
lung and bronchi

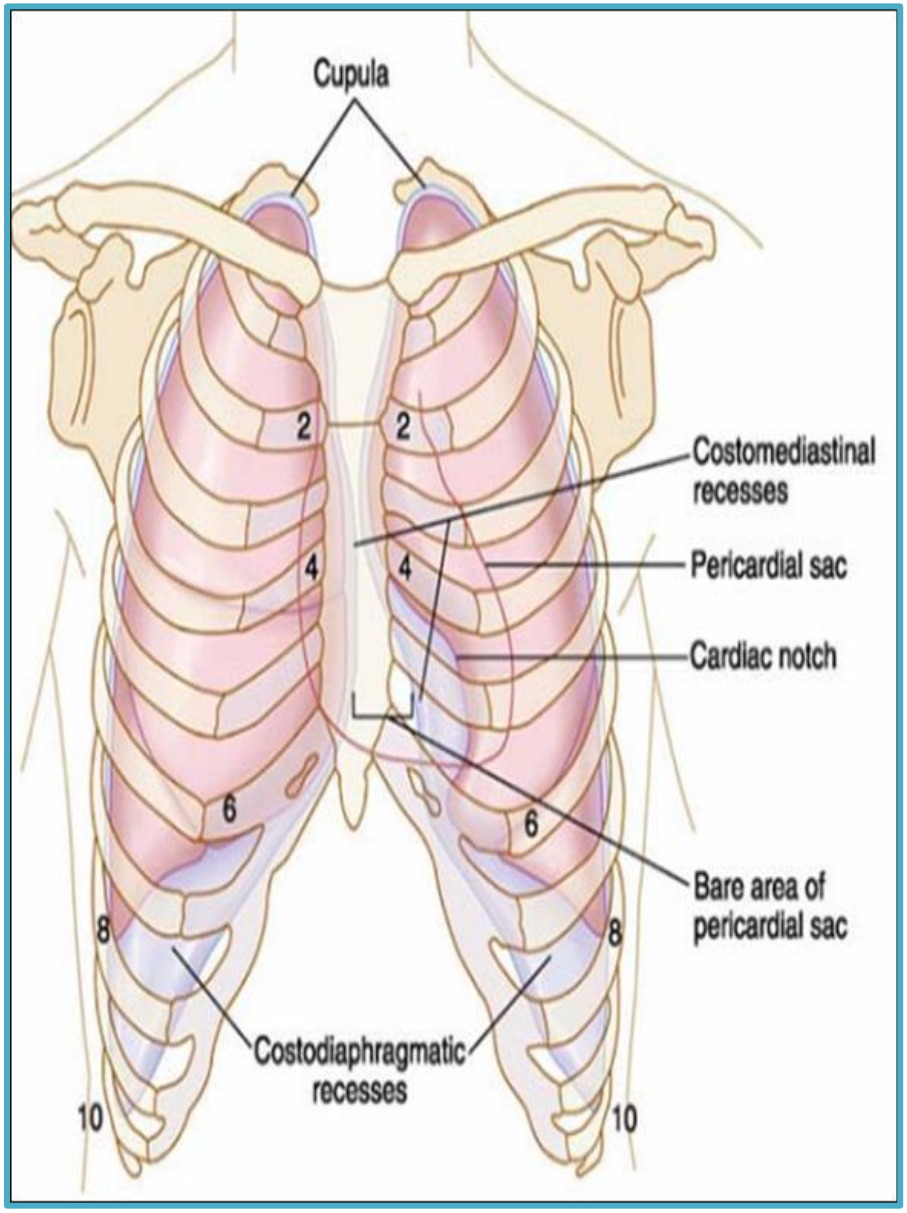


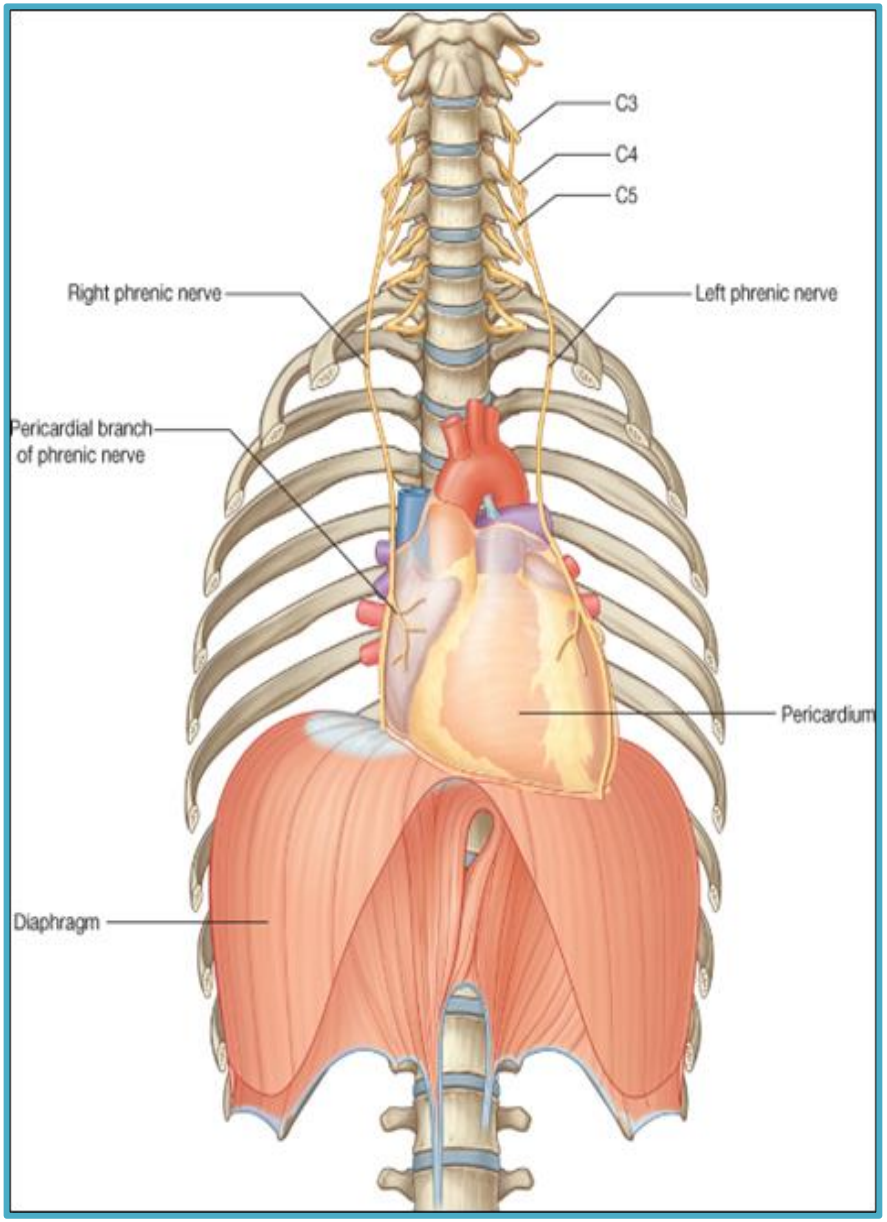


Surface anatomy



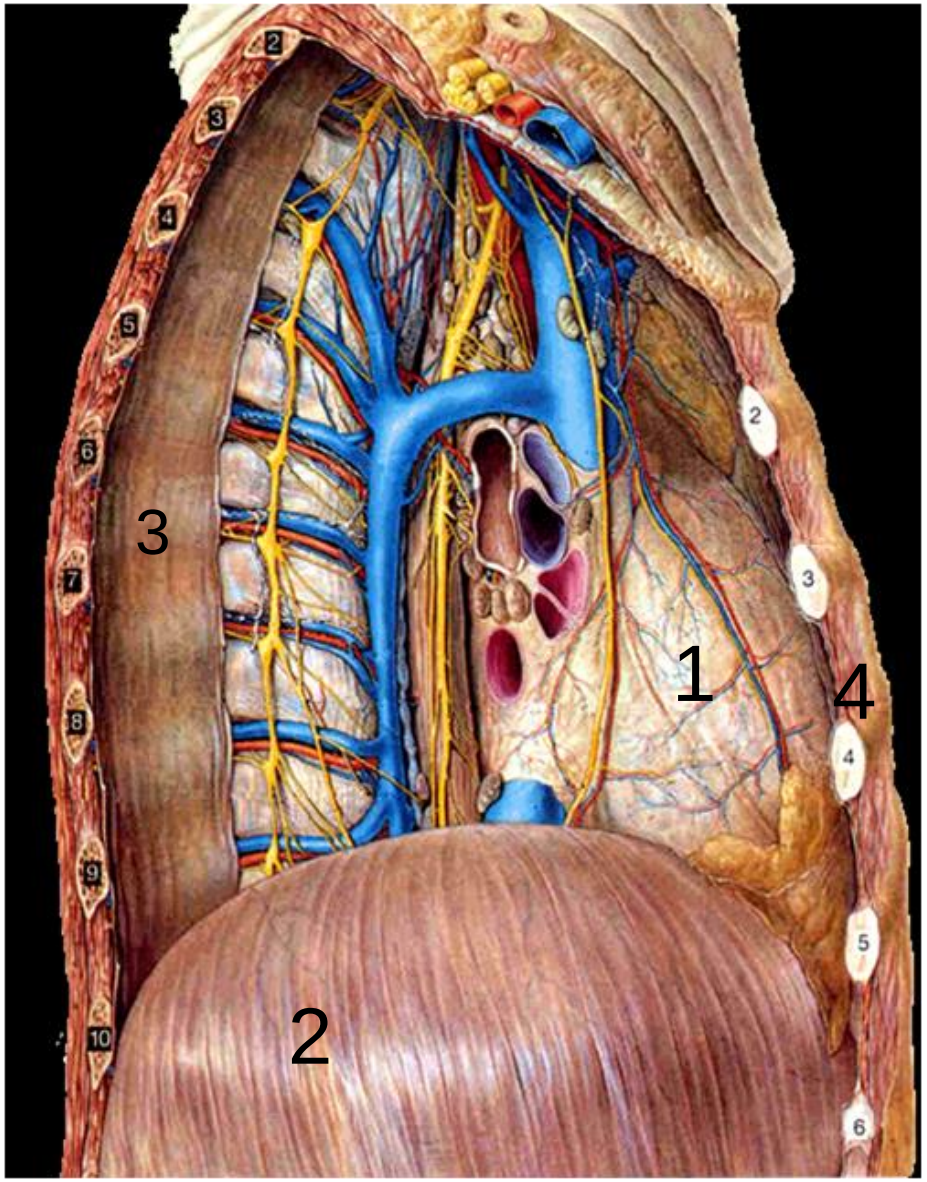



Cupula
2
2
Costomediastinal recesses
4
4
Pericardial sac
Cardiac notch
6
6
Bare area of pericardial sac
8
8
Costodiaphragmatic recesses
10
10


C3
C4
C5
Right phrenic nerve
Left phrenic nerve
Pericardial branch of phrenic nerve
Pericardium
Diaphragm

Mediastinum

1- Heart
2- Diaphragm
3-thoracic vertebra
4- sternum



Advices

1- Try to remember information from slides possible as you can.
2- very important to know the differences between right and left lungs in picture.

THANK YOU

Done By Radiology Team 434 ..

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