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~~Date~~
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Subject :: Anatomy I

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QUESTION NO. 01:-

Write a detail
note on Diaphragm?

ANSWER:-

DIAPHRAM:-

The diaphragm is a thin muscular and tendinous septum that separates the chest cavity above from the abdominal cavity below. It is the most important muscle of respiration.

→ It is dome shaped and consists of a peripheral muscular part which arises from the margins of the thoracic opening and a centrally placed tendon.

→ ORIGIN OF DIAPHRAM:-

The origin of the diaphragm can be divided into three parts;

i) STERNAL PART:-

A sternal part arising from the posterior surface of the xiphoid process.

ii) COSTAL PART:-

A costal part arising from the deep surfaces of the lower six ribs and their costal cartilages.

iii) VERTEBRAL PART:-

A vertebral part arising by vertical columns or crura and from the arcuate ligaments.

→ INSERTION OF DIAPHRAM:-

The diaphragm is inserted into a "Central tendon" which is shaped like three leaves.

→ NERVE SUPPLY OF DIAPHRAM:-

→ MOTOR NERVE SUPPLY:-

The right and left phrenic nerves (C3, C4, C5)

→ SENSORY NERVE SUPPLY:-

The parietal pleura and peritoneum covering the central surfaces of the diaphragm are from the phrenic nerve and the periphery of the diaphragm is from the lower six intercostal nerves.

→ SHAPE OF DIAPHRAM:-

→ When seen from in front, the diaphragm curves up into right and left domes. The right dome reaches as high as the upper border of the 5th rib and the left dome may reach the lower border of the 5th rib.

→ When seen from the side, the diaphragm has the appearance of an inverted "J", the long limb extending up from the vertebral column and the short limb extending forward to the xiphoid process.

→ ACTION OF DIAPHRAM:

On contraction, the diaphragm pulls down its central tendon and increases the vertical diameter of the thorax.

→ FUNCTIONS OF DIAPHRAM:

Some of the major functions of diaphragm are;

i) Muscle Of Inspiration:-

On contraction, the diaphragm pulls its central tendon down and increases the vertical diameter of the thorax.

ii) Muscle Of abdominal straining:-

The contraction of the diaphragm assists the contraction of the muscles of the anterior abdominal wall in raising the intra-abdominal pressure for micturition, defecation and parturition.

iii) Weight lifting muscle:-

In a person taking a deep breath and holding it (fixing diaphragm), the diaphragm assists the muscles of anterior abdominal wall in raising the intra-abdominal pressure to such extent that it help support the vertebral column and prevent flexion.

iv) Thoracoabdominal pump:-

The descent of the diaphragm decreases the intrathoracic pressure and at the same time increases the intra-abdominal pressure.

→ OPENINGS IN THE DIAPHRAM:-

The diaphragm has three main openings;

i) AORTIC OPENING:-

It lies anterior to the body of the 12th thoracic vertebra.

→ It transmits the aorta, thoracic duct and azygos vein.

ii) ESOPHAGEAL OPENING:-

It lies at the level of 10th thoracic vertebra.

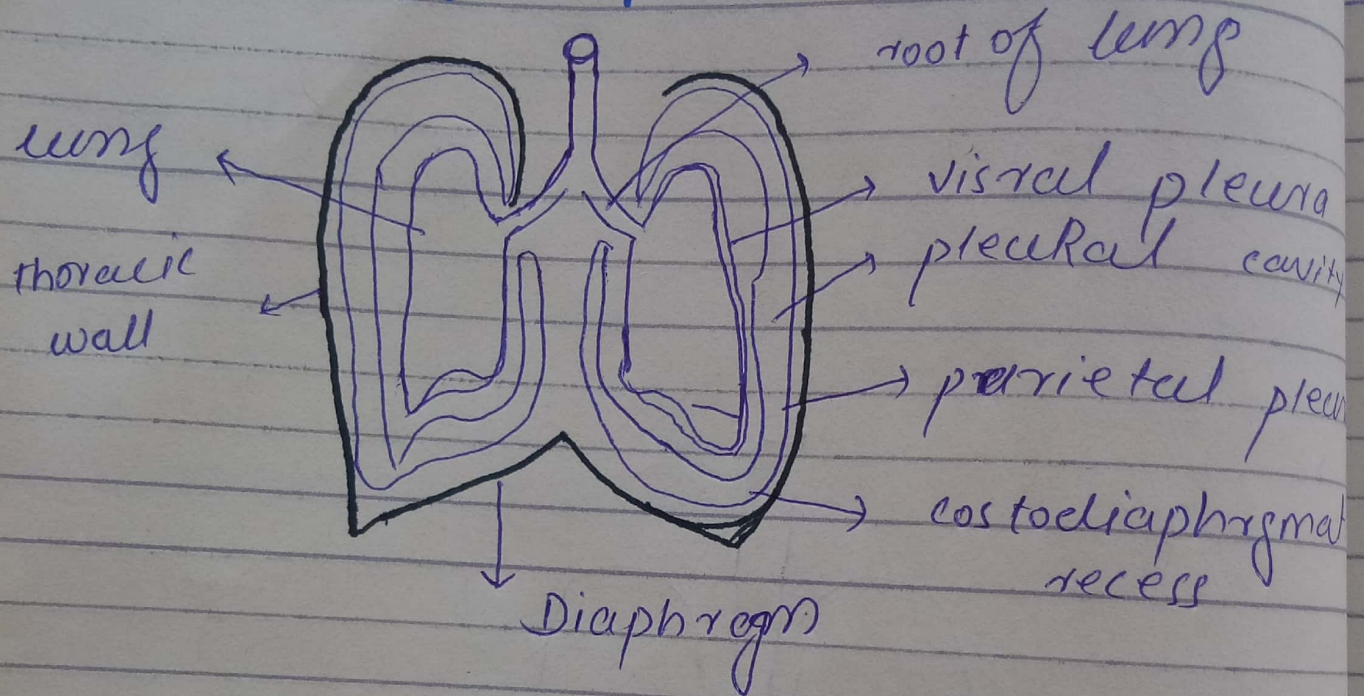
→ It transmits esophagus, right and left vagus nerve, esophageal branches of the left gastric vessels and the lymphatic from the lower third of esophagus.

iii) CAVAL OPENING:-

It lies at the level of 8th thoracic vertebra in the central tendon.

→ It transmits the inferior vena cava and terminal branches of the right phrenic nerve.

DIAGRAM: i



Structure of Diaphragm.

QUESTION NO. 02:-

note Write ^{write} ^{• detail} about pericardium
and its types = ?

ANSWER:-

PERICARDIUM:-

- MEANING:- "Pervi" means "Around"
"Cardium" means "Heart".
- DEFINITION:- "The doubled-walled sac containing the heart and the roots of the great vessels, is known as pericardium".
- LOCATION:-
The pericardium lies within the middle mediastinum, posterior to the body of the sternum and the 2nd to the 6th costal cartilages and anterior to the 5th to the 8th thoracic vertebrae.
- FUNCTION:-
Its function is to restrict excessive movements of the heart as a whole and to serve as lubricated container in which the different parts of the heart can contract.

→ TYPES OF PERICARDIUM:-

- There are two types of pericardium;
- i) Fibrous pericardium
 - ii) Serous pericardium

i) FIBROUS PERICARDIUM:-

The fibrous pericardium is the strong fibrous part of the sac. It is firmly attached below to the central tendon of the diaphragm.

→ It is attached in front to the sternum by the sternopericardial ligaments.

It fuses with the outer coats of the great blood vessels passing through it - namely the aorta, the pulmonary trunk, the superior and inferior venae cavae and pulmonary veins.

ii) SEROUS PERICARDIUM:-

The serous pericardium lines the fibrous pericardium and coats the heart.

→ LAYERS OF SEROUS PERICARDIUM:-

It is divided into parietal and visceral layers.

a) PARIETAL LAYER:-

The parietal layer lines the fibrous pericardium and is reflected around the roots of the great vessels to become continuous with the visceral layer of serous pericardium that closely covers the heart.

b) VISCERAL LAYER:-

The visceral layer is closely applied to the heart and is often called the "Epicardium".

→ PERICARDIAL CAVITY:-

The slitlike space between the parietal and visceral layers is called the pericardial cavity.

→ PERICARDIAL FLUID:-

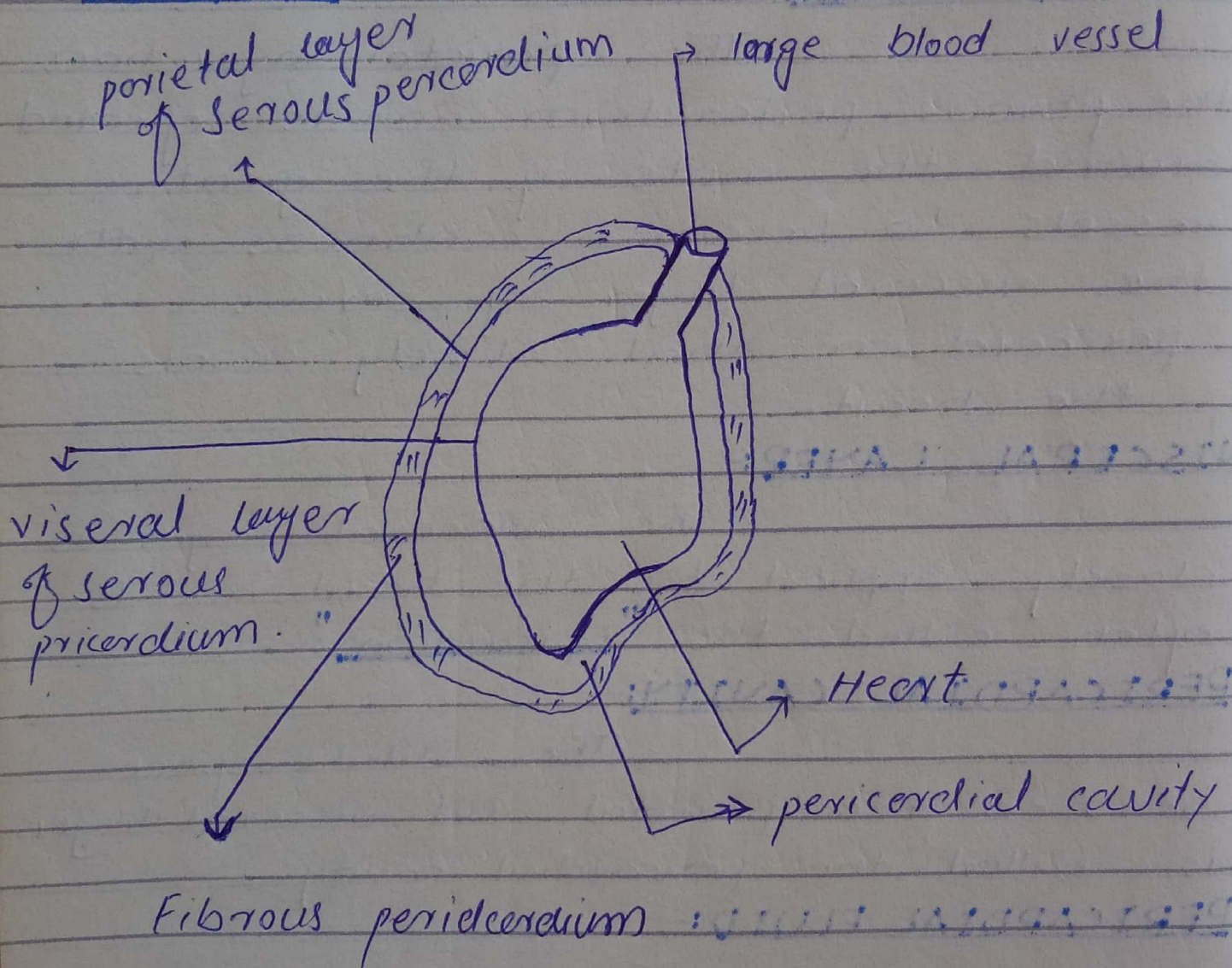
The pericardial cavity contains a small amount of tissue fluid (about 50ml), which acts as a lubricant to facilitate movements of the heart, known as pericardial fluid.

→ NERVE SUPPLY OF THE PERICARDIUM:-

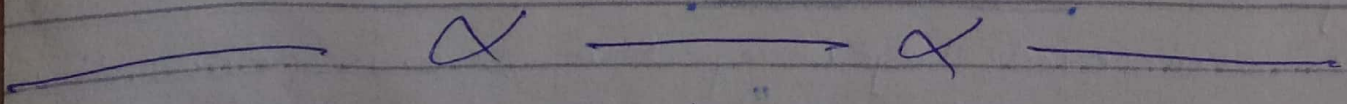
The fibrous pericardium and the parietal layer of the serous pericardium are supplied by the "Phrenic nerves".

→ The visceral layer of the serous pericardium is innervated by "branches of the sympathetic trunks and the vagus nerve".

→ DIAGRAM:- ii



Different layers of the pericardium :-



QUESTION NO. 03:-

Write a detail
note on pleura?

ANSWER:-

PLEURAE:-

"Pleurae is a serous membrane which folds back onto itself to form a two layered membranous pleural sac".

→ LOCATION:-

The pleurae and lungs lie on either side of the mediastinum within the chest cavity.

→ LAYERS OF PLEURAE:-

There are two layers of pleurae - namely, parietal layer and visceral layer.

→ PARIETAL LAYER:-

It lines the thoracic wall, covers the thoracic surface of the diaphragm and the lateral aspect of the mediastinum and extends into the root of the neck to line the undersurface of the suprapleural membrane at the thoracic outlet.

→ VISCERAL LAYER:-

It completely covers the outer surfaces of the lungs and extends into the depth of the interlobar fissures.

→ PLEURAL CAVITY:-

The parietal and visceral layers of pleura are separated from one another by a slitlike space, the pleural cavity.

→ The pleural cavity normally contains a small amount of tissue fluid, the "pleural fluid", which covers the surface of the pleura as a thin film and permits the two layers to move on each other with the minimum of friction.

→ DIVISION OF PARIETAL PLEURAE:-

For purposes of division, the parietal pleura is divided according to the region in which it lies or the surface that it covers.

i) CERVICAL PLEURA:-

The cervical pleura extends up into the neck, lining the undersurface of the suprapleural membrane.

ii) COSTAL PLEURA:-

The costal pleura lines the inner surface of the ribs, the costal cartilage, the intercostal space, the sides of the vertebral bodies, and the back of the sternum.

iii) DIAPHRAGMATIC PLEURA:-

The diaphragmatic pleura covers the thoracic surface of the diaphragm.

iv) MEDIASTINAL PLEURA:-

The mediastinal pleura covers and forms the lateral boundary of the mediastinum.

→ NERVE SUPPLY OF THE PLEURAE:-

→ PARIETAL PLEURA:-

The parietal pleura is sensitive to pain, temperature, touch and pressure and is supplied as follows;

- The costal pleura is segmentally supplied by the intercostal nerves.
- The mediastinal pleura is supplied by the phrenic nerve.
- The diaphragmatic pleura is supplied over the domes by the phrenic nerve and around the periphery by the lower six intercostal nerves.

→ VISCERAL PLEURA:-

The visceral pleura covering the lungs is sensitive to stretch but is insensitive to common sensations i.e. pain and touch.

- It receives an autonomic nerve supply from the pulmonary plexus.

~~DIAGRAM~~

DIAGRAM :- iii

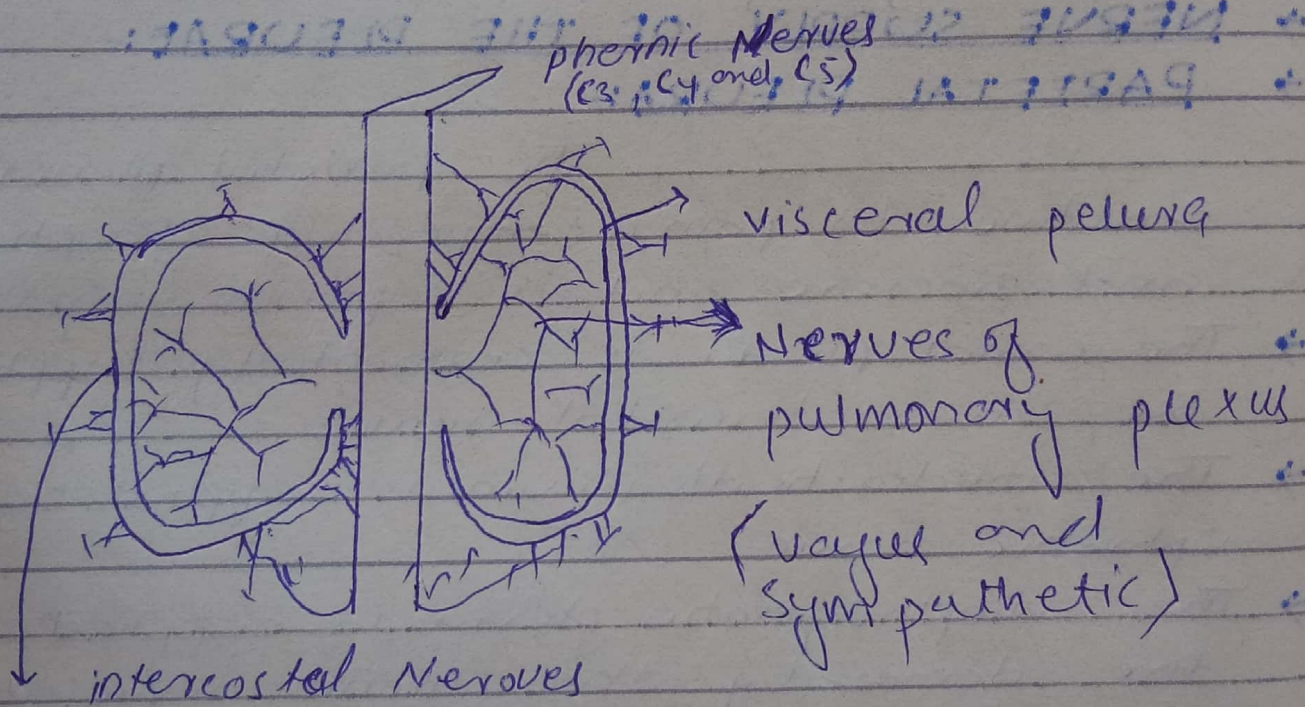


Diagram showing the innervation of the parietal and visceral layers of pleura.