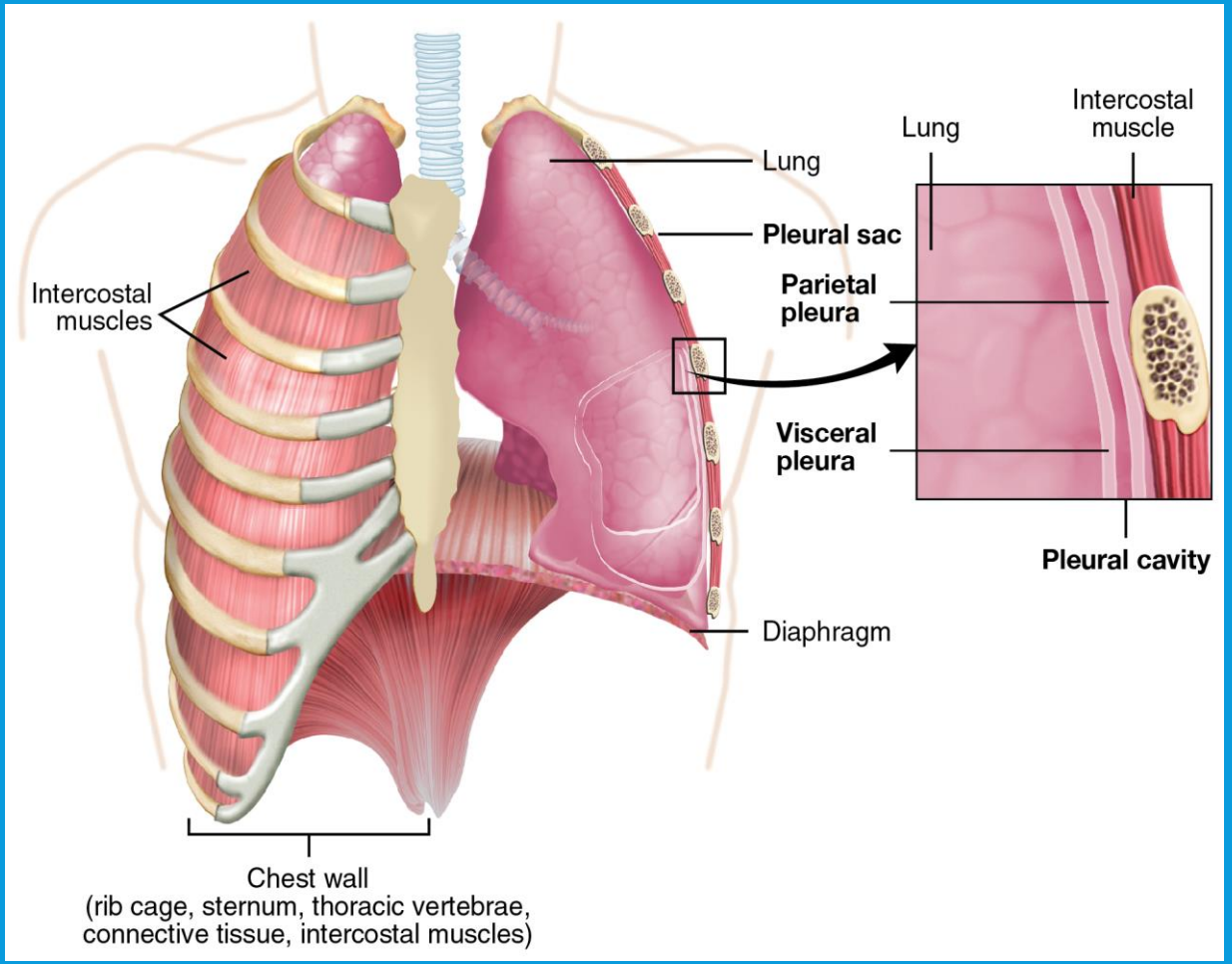
PLEURAE

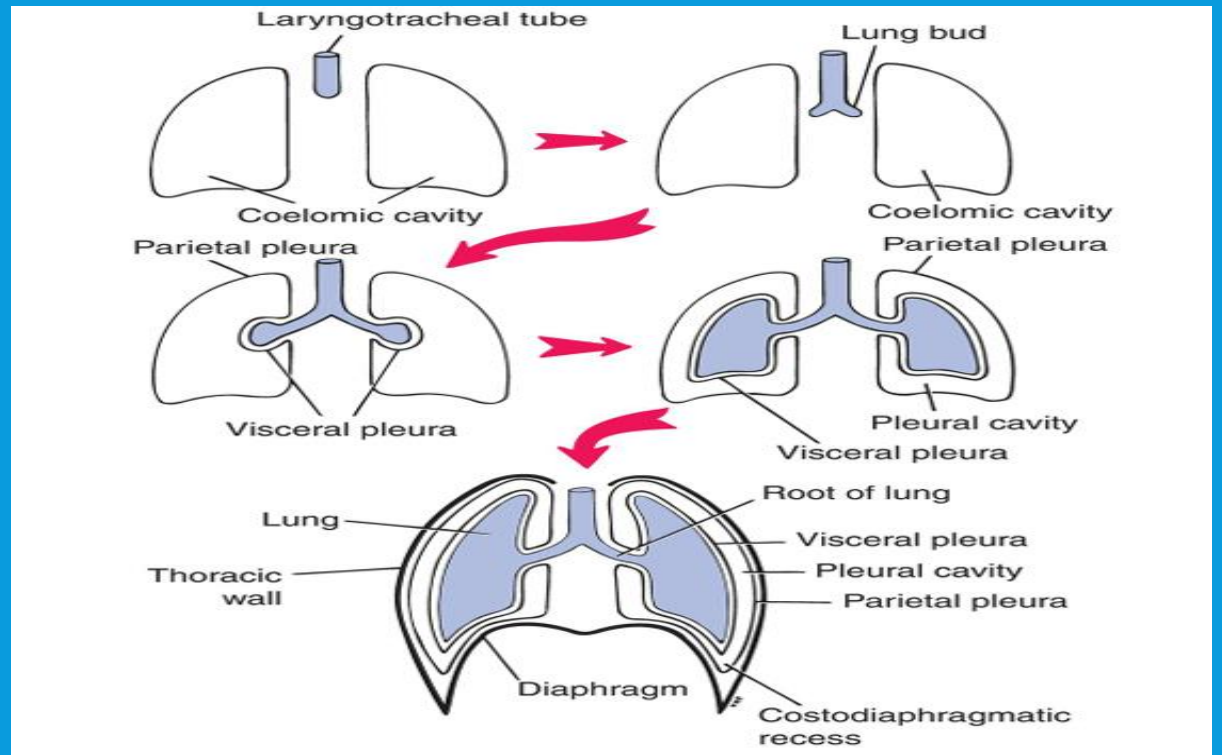
By Dr Iaith sabeeh omran

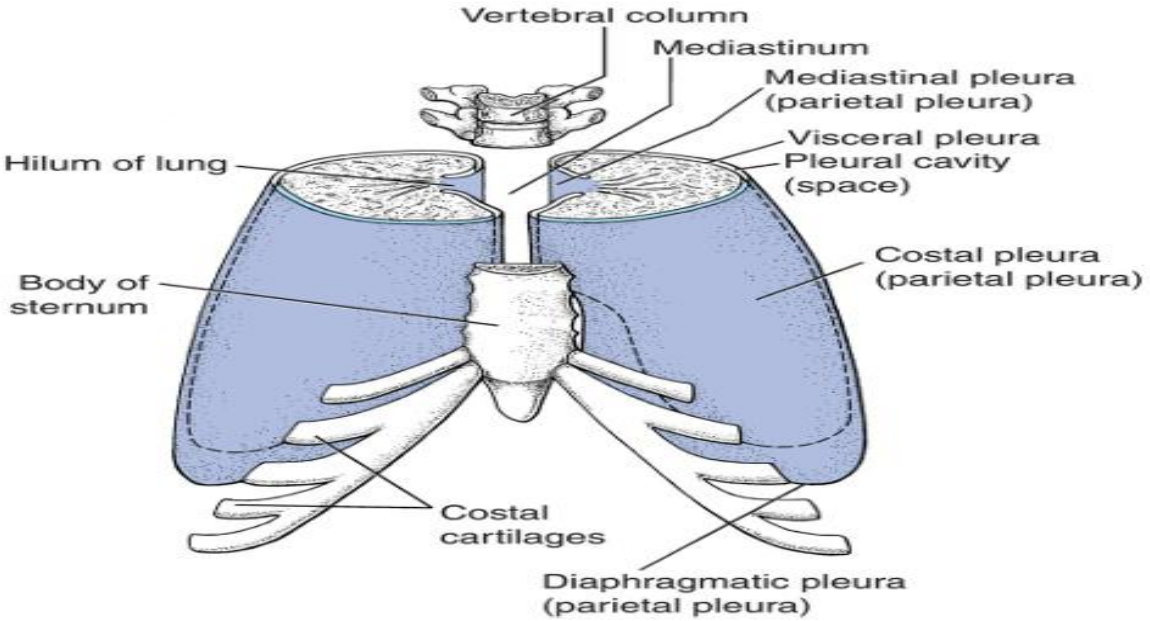
INTRODUCTION

- The paired pleurae and lungs lie on either side of the mediastinum within the thoracic cavity . Each pleural membrane has two parts:
- a parietal layer
- a visceral layer.



- The parietal layer 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
- The visceral layer completely covers the outer surface of the lung and extends into the depths of the interlobar fissures . It is thinner than the parietal layer.





LAYERS AND CAVITY

- The two layers are continuous with one another via a cuff of pleura that surrounds the structures entering and leaving the lung at the hilum of each lung . This cuff hangs down as a loose fold called the pulmonary ligament and allows for movement of the pulmonary vessels and large bronchi during respiration .

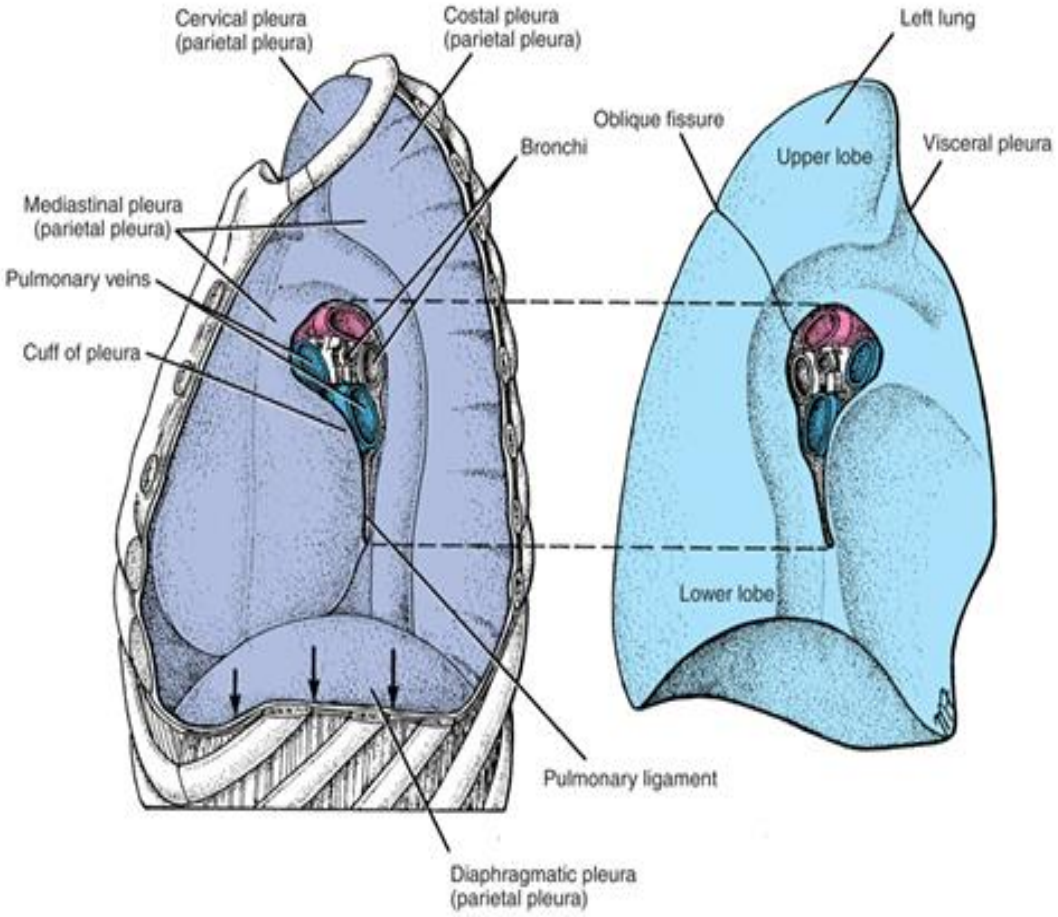
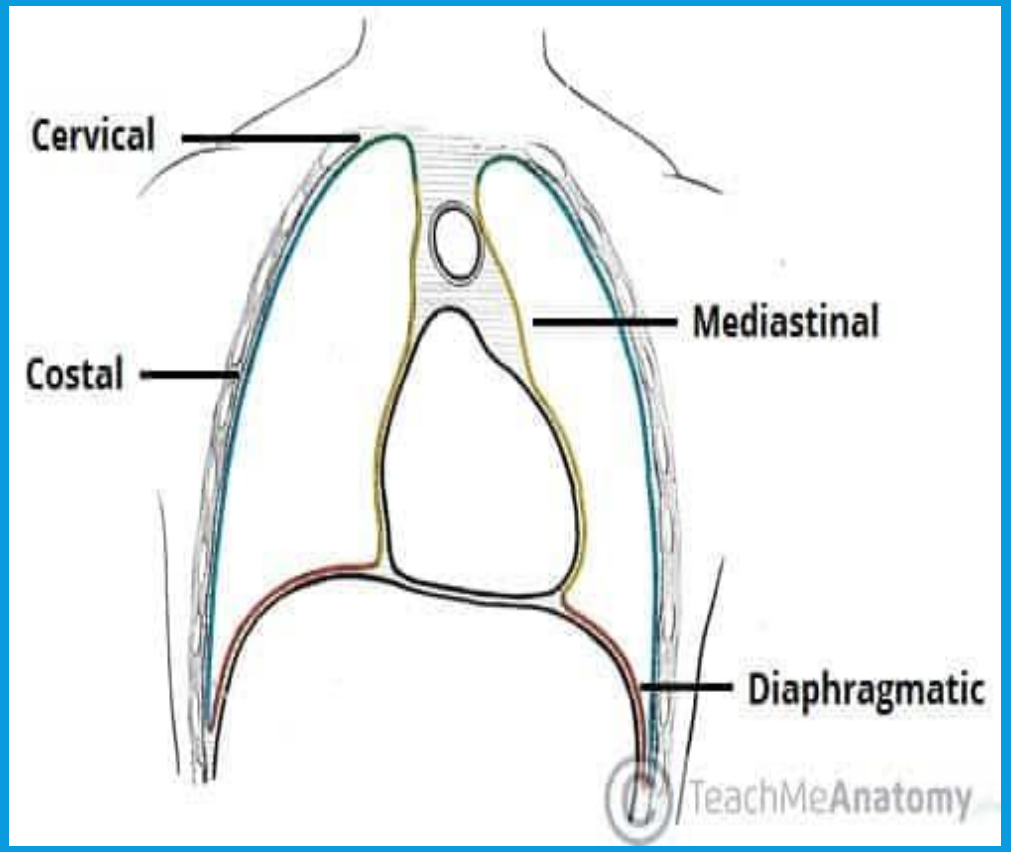
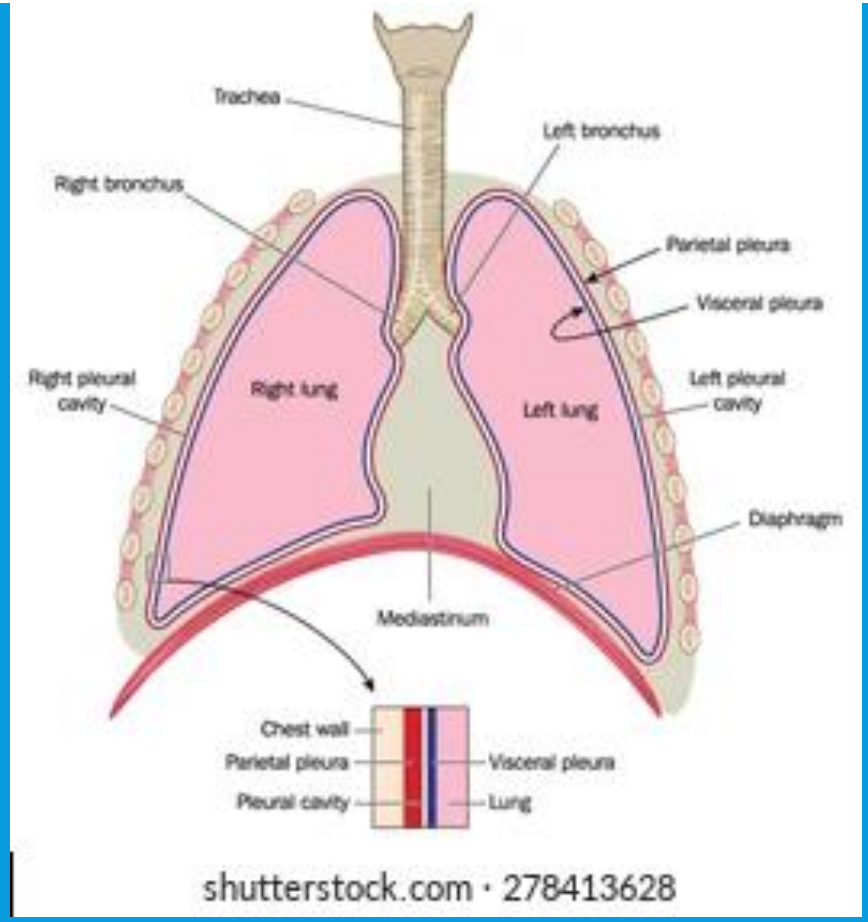


Figure 5.5 Different areas of the parietal pleura. Note the cuff of pleura (*dotted lines*) that surrounds the structures forming the root of the left lung at the hilum. The parietal and visceral layers of pleura become continuous here. *Arrows* indicate the position of the costodiaphragmatic recess.

- The parietal and visceral layers of pleura are separated from one another by a slitlike space, the pleural cavity . (Clinicians are increasingly using the term pleural space instead of the anatomic term pleural cavity). (This is probably to avoid the confusion between the pleural cavity [slitlike] space and the larger thoracic cavity.) The pleural cavity normally contains only a small amount of tissue fluid, the



- the pleural fluid. Pleural fluid covers the surfaces of the pleura as a thin film, which causes surface tension adhesion of the pleural layers and permits them to move on each other with minimal friction. Thus, the pleural cavity is a potential space under normal conditions and is discernible only under abnormal conditions (e.g., when the lung is displaced by air or excess fluid)

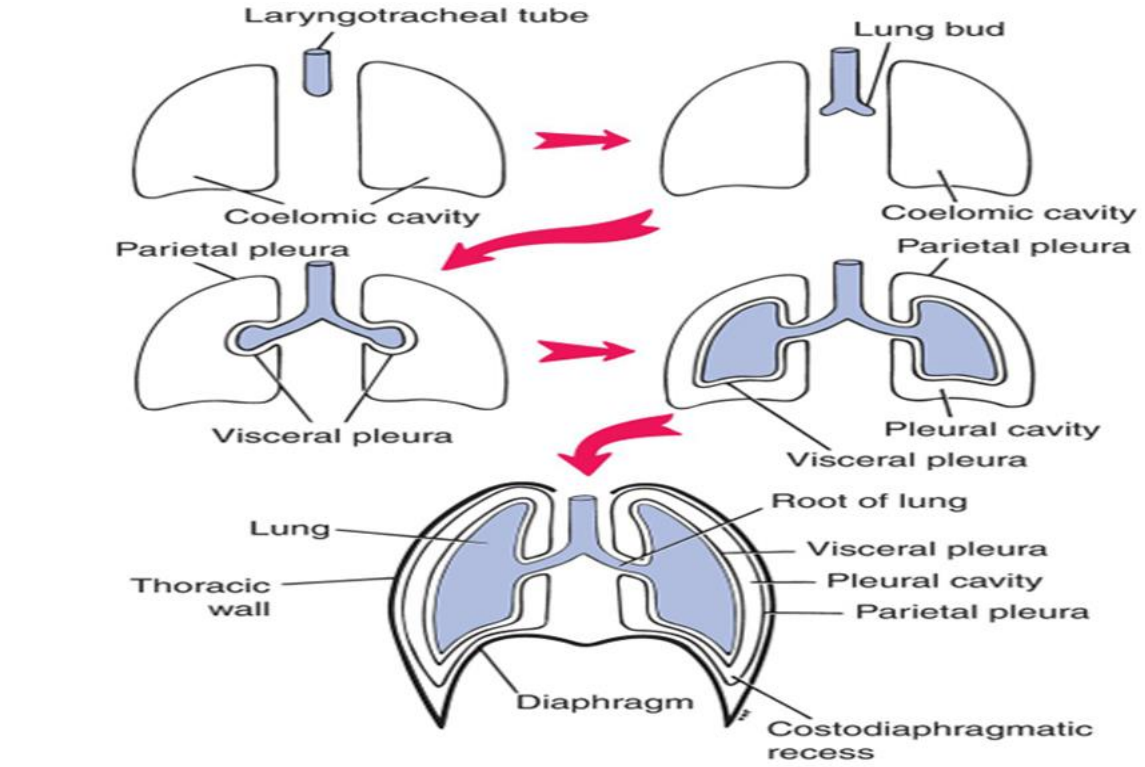


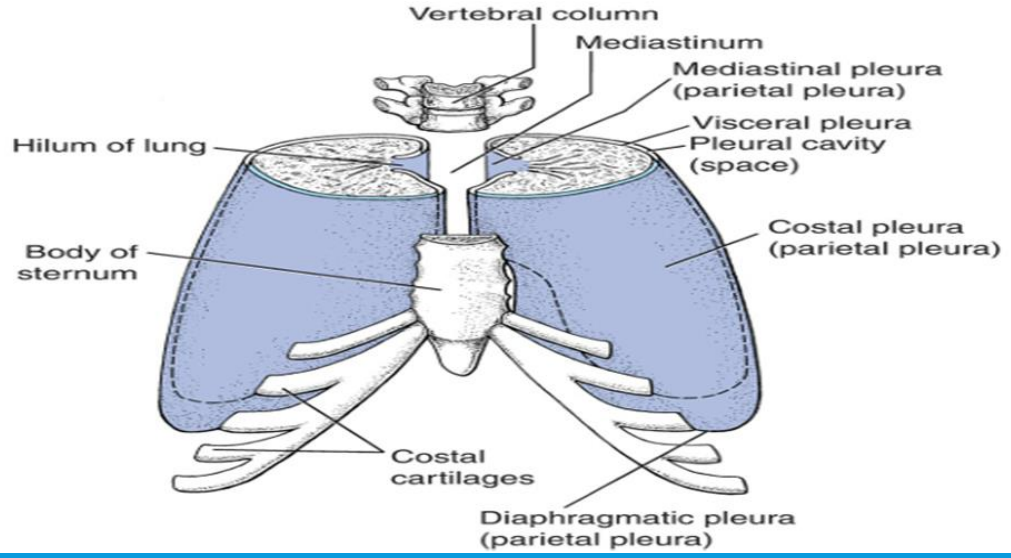
TYPE OF PLURA

- cervical pleura (cupula)

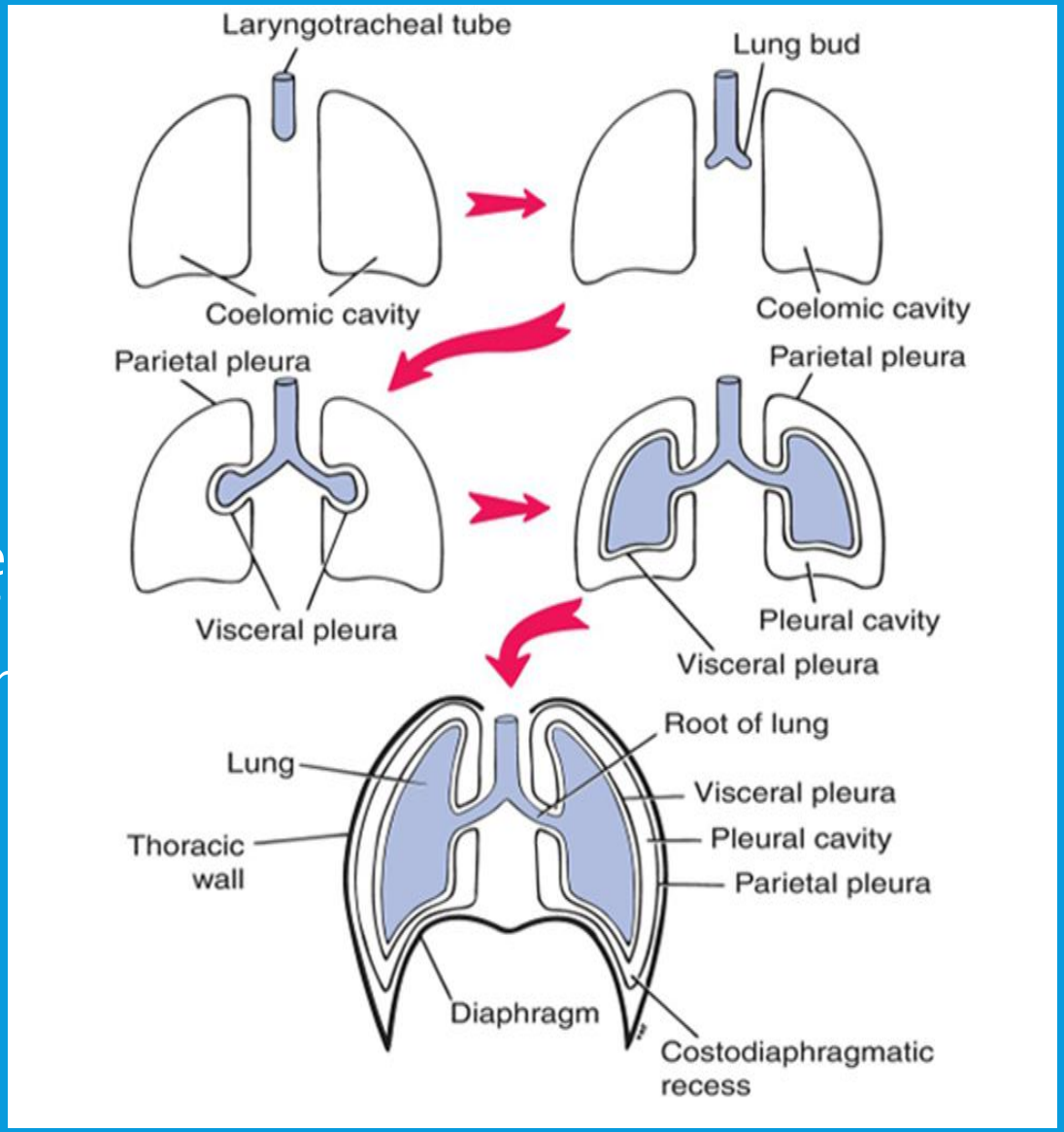
extends up into the neck, lining the undersurface of the suprapleural membrane It reaches a level of 1 to 1.5 in. (2.5 to 4 cm) above the medial third of the clavicle

The costal pleura lines the inner surfaces of the ribs, the costal cartilages, the intercostal spaces, the sides of the vertebral bodies, and the back of the sternum.

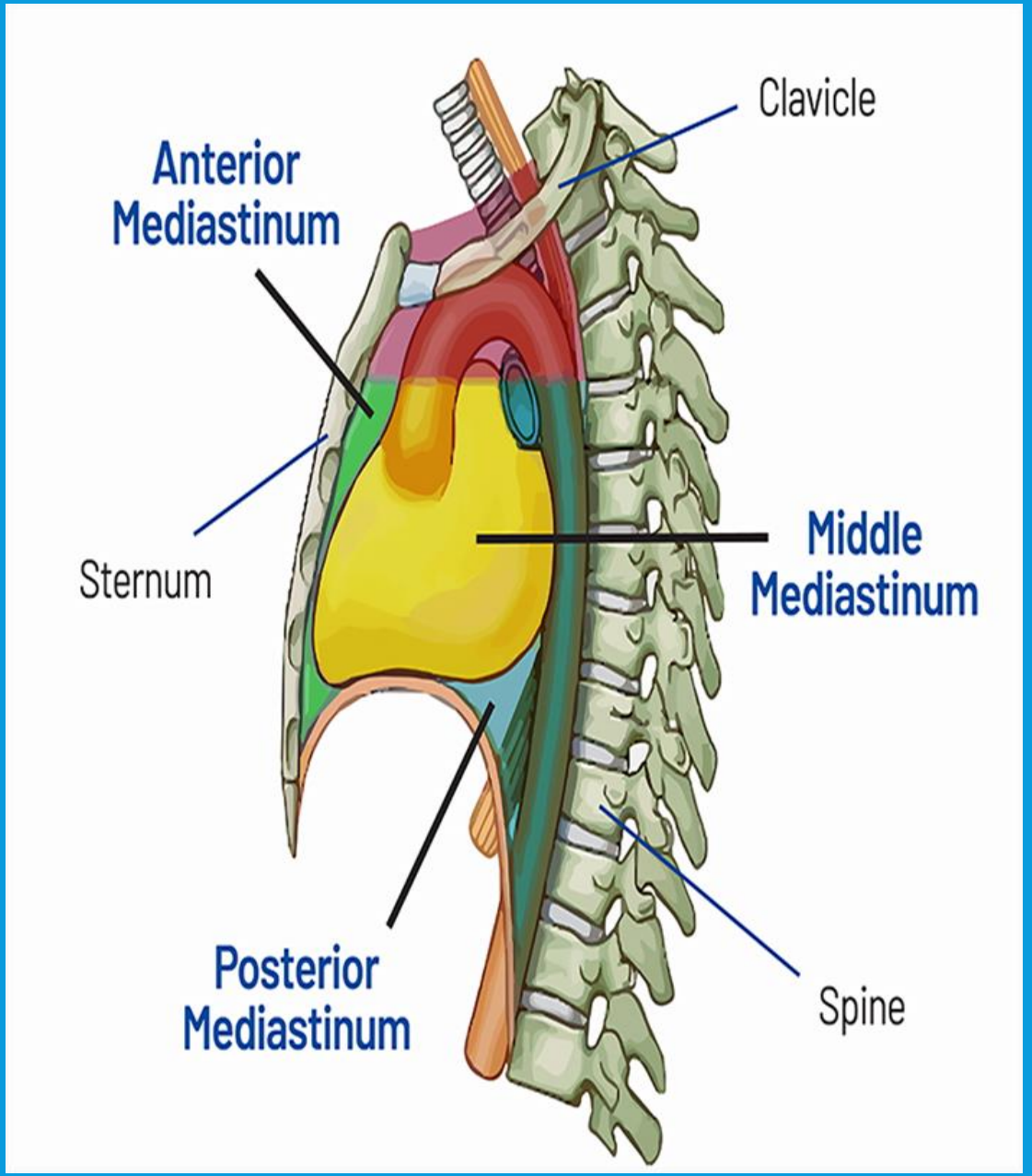




- **The costal pleura**
- lines the inner surfaces of the ribs, the costal cartilages, the intercostal spaces, the
- diaphragmatic pleura covers the thoracic surface of the diaphragm.
- **Costo diaphragmatic recess**
- In quiet respiration, the costal and diaphragmatic pleurae are in apposition to each other below the lower border of the lung. In deep inspiration, the margins of the base of th lung descend, and the costal and diaphragmatic pleurae separate. This lower area of the pleural cavity into which the lung expands on inspiration is referred to as the



- The mediastinal pleura covers and forms the lateral boundary of the mediastinum. It reflects as a cuff around the vessels and bronchi at the hilum of the lung and here becomes continuous with the visceral pleura. Thus, each lung lies free except at its hilum, where it is attached to the blood vessels and bronchi that constitute the lung root. During full inspiration, the lungs



NERVE SUPPLY

- The pleural layers are innervated differently despite being a continuous membrane. Somatic afferent nerves supply the parietal pleura , which is sensitive to pain, temperature, touch, and pressure:

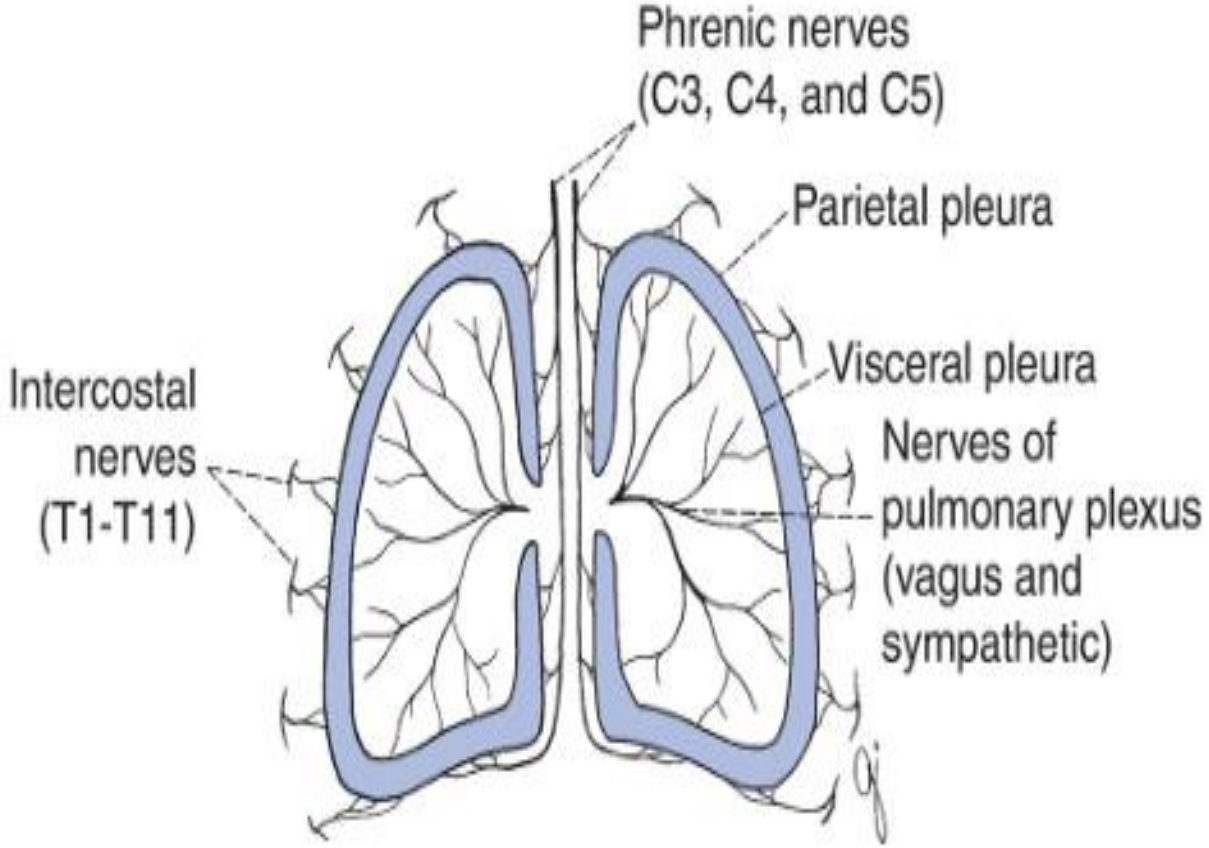


Figure 5.7 Diagram showing the innervation of the parietal and visceral layers of pleura.

- The intercostal nerves segmentally supply the costal pleura.
- The phrenic nerve supplies the mediastinal pleura. The phrenic nerve supplies the diaphragmatic pleura over the dome, and the lower
- intercostal nerves supply the periphery of the diaphragmatic pleura. Visceral afferent nerves supply the visceral pleura, which is sensitive to stretch but is insensitive to common sensations such as pain and touch.
- These nerves run in company with autonomic nerves from the pulmonary plexus (see Fig. 5.7).