ANATOMY OF THE PLEURA

Dr Oluwadiya KS
www.oluwadiya.sitesled.com
Introduction

• The thoracic cavity is divided mainly into:
  • Right pleural cavity
  • Mediastinum
  • Left Pleural cavity
Pleural cavity

• The pleural cavity is the space lined by a serous membrane called the pleural membrane.
• The membrane covers both the lungs and the thoracic wall. *The potential space between the two membranes is the pleural cavity.*
• It contains a thin layer of fluid which helps in lubricating the apposing surfaces of the parietal and viscera layers.
Visceral pleura

- Adheres to and covers the lobes and root of the lung
- It lines the major and minor fissure
- The pulmonary ligament extends from hilum to the diaphragm and it consists of two apposed layers of visceral pleura which is continuous with the parietal pleura.
Parietal pleura

- Lines the outer wall of the pleural cavity
- Named according to the parts of the wall with which the parietal pleura is associated
- Consequently has four parts:
  i. Diaphragmatic pleura
  ii. Coastal
  iii. Mediastinal and
  iv. Cervical
Parietal pleura

i. Diaphragmatic pleura

ii. Coastal

iii. Mediastinal and

iv. Cervical
1. Diaphragmatic pleura
   - This covers the superior surface of the diaphragm
   - It is closely adherent to the diaphragm
Parietal pleura

2. Mediastinal pleura
   o This covers the structures within the mediastinum
   o It is continuous with the visceral pleura that covers the root of the lung
   o The part that covers the pericardium also closely adherent to the pericardium
Parietal pleura

3. Costal pleura
   - This covers the inner surface of the thoracic wall
   - It is loosely attached to the thoracic wall by endothoracic fascia
   - The endothoracic fascia is the deep fascia covering the inner surfaces of the deepest muscle layer of the thoracic wall
Parietal pleura

4. Cervical pleura
   o Also called the cupola
   o It loosely covers the apex of the lung that projects into the neck, superior to the 1\textsuperscript{st} rib
   o The endothoracic fascia associated with the cervical pleura is called the suprapleural membrane (Sibson's fascia)
   o Suprapleural membrane is a thickened, tent-like structure which extends from the transverse process of the 7\textsuperscript{th} cervical vertebra to the inner border of the 1\textsuperscript{st} rib
Pleural recesses

• Usually, the lung does not completely fill the pleural cavity inferiorly.
• Therefore there are places where parietal plural can appose each other
• These are the pleural recesses
• They are occupied by the lungs only on (forced) deep inspirations
Pleural recesses
Pleural recesses

- Clinically, the recesses are important because
- They provide spaces in which fluid can collect in certain diseases
- They are avenues of aspiration and drainage of such drainages
- They are 2 in number:
  i. Costodiaphragmatic recess
  ii. Costomediastinal recess
Pleural recesses

• Costodiaphragmatic recess
• This is where the costal pleura reflects onto the superior surface of the diaphragm to become diaphragmatic pleura
• It is the larger and by far, more clinically important of the two recesses
• They are shallow in inspiration and becomes deeper in expiration
Pleural recesses

• Costomediastinal recess
  o They are located behind the sternum where costal pleura doubles back to become mediastinal pleura
  o They are more conspicuous on the left in the region around the left heart chamber
Pleura reflections

- This are areas in the parietal pleura where it changes direction as it passes (reflects) from one wall of the pleural cavity to another.
- There are three such reflections in either pleural cavities.
Pleura reflections

• Sternal line of pleural reflection
  o It is anterior
  o Occurs where the costal pleura becomes continuous with the mediastinal pleura
  o It is sharp and abrupt
Pleura reflections

• Vertebral line of pleural reflection
  o This is the posterior counterpart of the sternal line
  o Occurs where the costal pleura becomes continuous with the mediastinal pleura posteriorly
  o It is a rounder, gradual reflection than the (sharp) anterior reflection
Pleura reflections

• Costal line of pleural reflection
• This is also sharp
• It occurs where the costal pleura becomes continuous with diaphragmatic pleura inferiorly
Blood supply of the pleura

• Visceral pleura
  o Arterial supplied is from the branches of the bronchial and pulmonary arterial systems.
  o The veins drain to the pulmonary vein.
Blood supply of the pleura

• The parietal pleura
  o They are supplied by arteries of the structures they cover:
    - Cervical pleura: intercostal vessels
    - Costal pleura: intercostal vessels
    - Diaphragmatic pleura
      i. Outer portion: intercostal vessels
      ii. Inner part: pericardiacophrenic vessels
    - Mediastinal pleura: pericardiacophrenic vessels
Nerve supply of the pleura

• Viscera pleura: No nerve supply
• The parietal pleura
  o Identical to the vascular supply
  o They are also supplied by nerves which supply the structures they cover:
    - Cervical pleura: intercostal vessel nerves
    - Costal pleura: intercostal nerves
    - Diaphragmatic pleura
      i. Outer portion: intercostal nerves
      ii. Inner part: pericardiacophrenic nerves
    - Mediastinal pleura: pericardiacophrenic nerves
Lymphatic drainage

• Viscera
  o Drains to the pulmonary plexus located in interlobar and peribronchial spaces.

• Parietal
  o Coastal, Mediastinal and Cervical pleura: These drain into the internal thoracic chain anteriorly and intercostal chain posteriorly.
  o Diaphragmatic pleura: drains to the retrosternal and mediastinal and (sometimes) the celiac lymph node.