

Tension Pneumothorax

Tension pneumothorax is characterized by intrapleural pressure that is greater than the atmospheric pressure. It presents with sudden deterioration, hypotension, jugular venous distention and no breath sounds. It is most commonly due to positive pressure mechanical ventilation.



PLAY PICMONIC

Mechanism

Air Enters Pleural Space, but Can't Exit

Air Enters Space between Lungs and Chest-wall, but can't escape Black-hole

There must be a one-way valve mechanism causing more air to enter the pleural space on inspiration than exits on expiration. This collapses the ipsilateral lung and shifts the mediastinum away from the side of the pneumothorax.

Trauma or Infection

Trauma-spike and Bacteria-guy

Tension pneumothorax can be caused by trauma or infection, which perforates the lung, leading to a one-way flap.

Signs and Symptoms

Decreased Breath Sounds

Down-arrow Muffled Lungs

Decreased breath sounds are heard due to presence of air in the pleural space.

Trachea Deviates Away from Affected Side

Trachea Deviating Away

Due to buildup of pressure on the ipsilateral side of the tension pneumothorax, it may cause the mediastinum and trachea to deviate away from the affected side.

Chest Pain

Chest Pain-bolt

Chest pain is present in tension pneumothorax.

Tachycardia

Tac-heart-card

Marked tachycardia is present in tension pneumothorax.

Tachypnea

Tac-P-lungs

Rapid labored respirations are present in tension pneumothorax.

Hypotension

Hippo-BP

Tension pneumothorax can cause increased pressure within the chest vacuity and thus reduce systemic venous return to the heart leading to reduced cardiac output and hypotension.



Hypoxemia

Hippo-blood-O2

Ventilation-perfusion mismatch can lead to decreased PaO2.

Hyperresonance

Hiker-resonating

Increased intrapleural pressure can lead to hyperresonance on percussion.

Emergency

Emergency-light

Tension pneumothorax presents with a sudden deterioration of the patient and is a medical emergency.