

## 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.



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### 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 cavity 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 PaO<sub>2</sub>.

## **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.