Pneumothorax

Presence of air in the pleural space.

Two classification

By Etiology:

1) Spontaneous. — Primary / Secondary

2) Traumatic.

By Pathology:

1) Open 2) Closed 3) Tension (valvular).

1) Spontaneous

i) Primary :- No underlying lung disease,
Risk Factor → Smoking. Marfan's Syndrome.

ii) Secondary. Pre-existing lung disease.
→ COPD. lung Cancer, Cystic Fibrosis.
↳ Empyema → Bullae → leak of Air.

2) Traumatic

- Iatrogenic → lung Biopsy, Ventilation, Surgery.
→ Non-Iatrogenic → Blunt injury, Gunshot injuries

By Etiology

1) open → Communication between the bronchial tree and pleura. so air comes and goes during inspiration & expiration

2) closed → There is no communication between them.

3) Tension Pneumothorax

- Injured Pleura forms one way valve, so air only gets, not out

↓

Compresses the right atrium & the Vena Cavae

↓

↓ Venous return

↓ Cardiac output — Hypotension, ↑JVP, Altered mental state
↓
Obstructive shock. (↳ Kussmaul sign)

→ Right Ventricle can't move in pericardial space
↓
So there is Extra volume in RV which pushes thera interventricular septum.
↓
↓ Left Ventricular Diastolic volume
↓
↓ Stroke Volume
↓
↓ Systolic Blood Pressure during inspiration → ↓10 mm Hg (Pulsus Paradoxus).

→ Trachea and mediastinum is shifted into the contralateral side.

C/F
Symptoms
Sign - Some times Asymptomatic.
- Sudden onset of shortness of Breath & pleuritic chest pain ∠ inspiration.
Tachycardia, Tachypnea, Hypoxemia.
Signs → Absence of Breath sound on auscultation
Hyperresonance on percussion ↓ Diagnosis.

Lab Investigation:
Chest Xray
→ Hypertranslucency.
→ Flattening of Hemidiaphragm, Deepening of Costrophrenic angle.
→ Mediastinum displacement.
→ Pulmonary Vessel wall marking disappear.
→ Findings of underlying lung Disease

Treatment → Supply oxygen, Decompression of air from pleura.