PNEUMOTHORAX

A pneumothorax is an accumulation of air within the pleural space, the space between the chest wall and lung tissue. There are two main categories of pneumothorax, **traumatic** and **spontaneous**. Traumatic pneumothorax can be broken into **accidental** and **iatrogenic**, and spontaneous pneumothorax can be broken down into **primary** (otherwise healthy lung) or **secondary** (underlying lung conditions). Spontaneous pneumothoraxes are rare, occurring in 2.6/100,000 children.

DIFFERENTIAL DIAGNOSES

These conditions can partially mimic or mask a pneumothorax.

Pulmonary embolism
- ❑ History of DVT
- ❑ Swollen/tender leg
- ❑ Long periods of immobility

Myocardial infarction
- ❑ Rare in pediatrics
- ❑ Radiation of chest pain
- ❑ Pain on exertion
- ❑ Past history of cardiac conditions
- ❑ Congenital/acquired heart conditions

Esophageal rupture
- ❑ Extreme retrosternal chest pain
- ❑ Severe vomiting/retching

MSK-type pain
- ❑ Pain on palpation

CLINICAL PRESENTATION

- Sudden, sharp pain on the lateral side of the body, localizing to one side
- May complain of cough or palpitations
- Lightheadedness (from hypotension, if present)
- Primary spontaneous pneumothorax: intense pain at onset, then dissipate within 24h
- Secondary/traumatic pneumothorax: more severe pain that does not go away

PNEUMOTHORAX IN INFANTS

In infants, the signs are slightly different. Look for:
- Cyanosis
- Nasal Flaring
- Tachypnea
- Decreased breath sounds
- Chest transillumination

INVESTIGATIONS

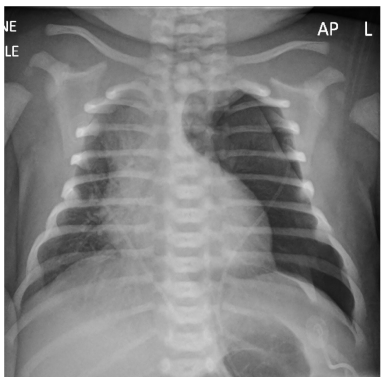
- CXR to confirm clinical suspicion: standing PA with inspiration/expiration views
- ABG (may be normal in acute setting)
- ECG to rule out cardiac cause

PHYSICAL EXAM

Vital Signs
- Tachypnea
- Tachycardia

Respiratory Exam
- ↓/absent breath sounds on the side of the affected lung
- Transmitted breath sounds
- ↓ chest movement with breathing
- ↓ tactile fremitus
- Enlarged hemithorax (asymmetry of the chest wall)
- Labored breathing
- Hyperresonance to percussion on affected side
- May have associated subcutaneous emphysema

Watch for signs of **tension pneumothorax**, including tracheal deviation, sudden difficulty ventilating, hypotension, distended neck veins, or an elevated JVP.



MANAGEMENT

All patients, regardless of treatment, should have a follow-up CXR (timing of which depends on clinical status).

For an asymptomatic patient with a:
1. Spontaneous pneumothorax <3cm between apex of lung and dome of thoracic cavity OR
2. Pneumothorax involving <20% of the hemithorax

Observation alone is a satisfactory treatment.

For other conditions including:
1. A large primary spontaneous pneumothorax OR
2. A tension pneumothorax

Patients are treated with a **tube thoracostomy.**

If recurrent, bilateral, or persistent air leak, a thoracotomy, or video-assisted thoracoscopic surgery, may be necessary.

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