DISEASES OF RESPIRETORY SYSTEM

Obstructive pulmonary diseases:

1- Asthma:

Asthma is characterized by chronic airway inflammation and increased airway hyper-responsiveness leading to wheeze, cough, chest tightness and dyspnea.

Asthma characteristically displays a diurnal pattern, with symptoms and lung function being worse at the night and in the early morning.

Clinical features:

Typical symptoms include recurrent episodes of:

1- Wheezing.

2- Chest tightness.

3- Breathlessness.

4- Cough.

Classical precipitants include:

1- Exercise.

2- Exposure to air pollution.

3- Viral upper respiratory tract infections.

4- Cold weather.

5- Drugs (β-blockers, aspirin and NSAIDs).

6- Dust exposure.

Asthma associated with:

1- nasal polyps

2- Eczema.

Diagnosis:

Compatible clinical history plus either/or :

1- FEV1 ≥ 15%* (and 200 mL) increase following administration of a bronchodilator/trial of corticosteroids.

2- FEV1 ≥ 15% decrease after 6 mins of exercise.

Note:

The CXR is usually normal.

Treatment:

1-Avoidance of aggravating factors:

a- This is particularly important in the management of occupational asthma.

b- Medications known to precipitate or aggravate asthma should be avoided, like NSAID.

c- Smoking also induces a relative corticosteroid resistance in the airway.

2-Drugs:

a- β2-adrenoreceptor agonist bronchodilators like salbutamol

b- Inhaled steroid like beclometasone .

Treatment of acute severe asthma include:

1- Nebuliser (salbutamol 5 mg.

2- Oxygen (high-flow).

3- Steroid (Prednisolone 40 mg orally or hydrocortisone 200 mg IV)

2-Chronic obstructive pulmonary disease (COPD):

The spectrum of COPD includes: chronic bronchitis and emphysema.

A- Chronic bronchitis: cough and sputum on most days for at least 3 months, in each of 2 consecutive years.

B- Emphysema: abnormal permanent enlargement of the airspaces distal to the terminal bronchioles, accompanied by destruction of their walls.

Aetiology:

1- Tobacco smoke: accounts for 95% of cases.

2- Indoor air pollution.

3- Occupational exposures: such as coal dust.

Clinical features:

COPD should be suspected in any patient over the age of 40 years who presents with symptoms of chronic bronchitis and/or breathlessness.

Important differential diagnoses include:

1- chronic asthma

2- tuberculosis

3- Heart failure.

Cough and associated sputum production are usually the first symptoms, often referred to as a 'smoker's cough'. SOB usually precipitates the presentation to health care.

Investiagation:

- **CXR** may reveal hyperinflation, bullae or other complications of smoking (lung cancer).
- **Spirometry**: The diagnosis requires objective demonstration of airflow obstruction and is established FEV1/FVC is less than70% .
- **Pulse oximetry** may reveal hypoxia.
- **CT scanning** is increasingly used for the detection of emphysema.

Treatment:

- Smoking cessation.
- Reducing exposure to noxious particles and gases.
- Drugs β2-adrenoreceptor agonist bronchodilators like salbutamol inhaled steroid like beclometasone oral bronchodilators like theophylline.
- Oxygen therapy.
- Other measures Long-term home oxygen therapy improves survival in selected patients with COPD complicated by severe hypoxaemia.
- Other measures:

  - annual influenza vaccination and, pneumococcal vaccination.

  -Mucolytic therapy are occasionally used.

INFECTIONS OF THE RESPIRATORY SYSTEM:

1-Pneumonia:

Pneumonia is as an acute respiratory illness associated with recently developed radiological pulmonary shadowing.

Community-acquired pneumonia:

The incidence is higher in the very young and the elderly.

Most cases are spread by droplet infection.

The predisposing factors for CAP include:

1- Cigarette smoking- Indoor air pollution-Alcohol.

2- Corticosteroid therapy-Old age.

3- Recent influenza infection.

4-Pre-existing lung disease.

5- HIV.

Causes:

- Streptococcus pneumoniae remains the most common infecting agent.
- Viral infections are important causes of CAP in children.
- Staphylococcus aureus is more common following an episode of influenza.

Clinical features:

A- Systemic features such as fever, rigors, shivering and malaise. The appetite is invariably lost.

B- Pulmonary symptoms include cough, which at first is characteristically short, painful and dry, but later accompanied by the expectoration of mucopurulent sputum. Rust-coloured sputum may be seen in patients with Strep. pneumoniae, and the occasional individual may report haemoptysis.

C- Pleuritic chest pain.

D- Upper abdominal tenderness is sometimes apparent in patients with lower lobe pneumonia .

Investigations in CAP:

1- Complete blood count:

- Very high (> 20 000/L) or low (< 4 000/L) white cell count: marker of severity.
- Neutrophil leucocytosis > 15 000/L: suggests bacterial aetiology.

2- Arterial blood gases • Measure when SaO2 < 93% or when severe clinical features.

3- Sputum samples:

- Gram stain and culture.

4- Chest X-ray:

- Show consolidation of pneumonia.

Treatment:

- Oxygen should be administered to all patients with:

  1- Tachypnoea

  2- Hypoxaemia

  3- hypotension or acidosis.

- Intravenous fluids:

  These should be considered in patients with:

  1- Severe illness

  2- Older patients

  3- Patient with vomiting.

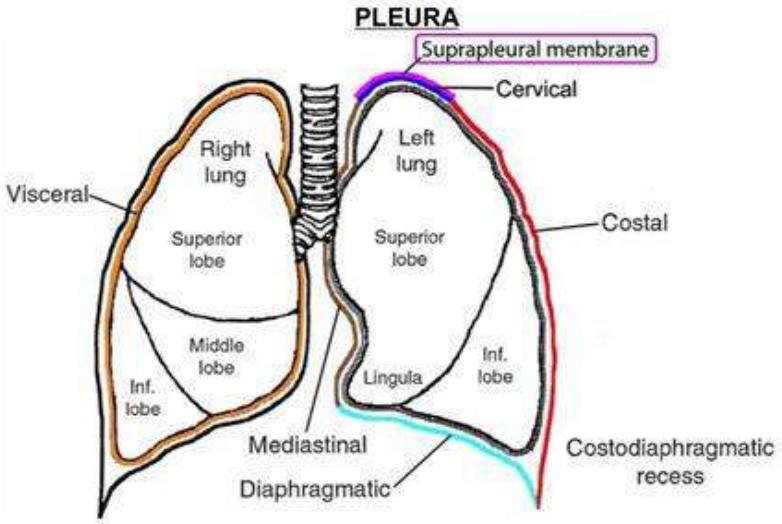
- Antibiotics:

1. Uncomplicated CAP:
   - Amoxicillin orally, If patient is allergic to penicillin:
   - Clarithromycin
2. Severe CAP:
   - Clarithromycin IV plus,
   - Co-amoxiclav IV or Ceftriaxone.

Complications:

- Parapneumonic effusion.
- Empyema.
- Lobar collapse.
- Thromboembolic disease.
- Pneumothorax.
- Lung abscess.

PRACTICAL PART:



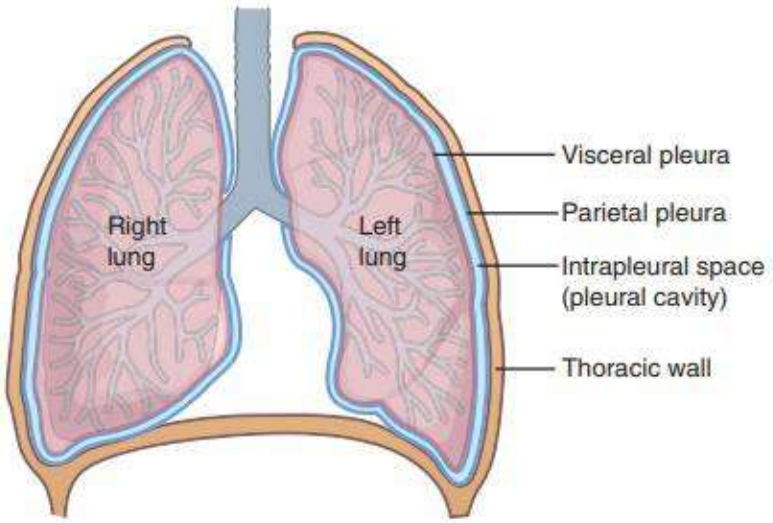
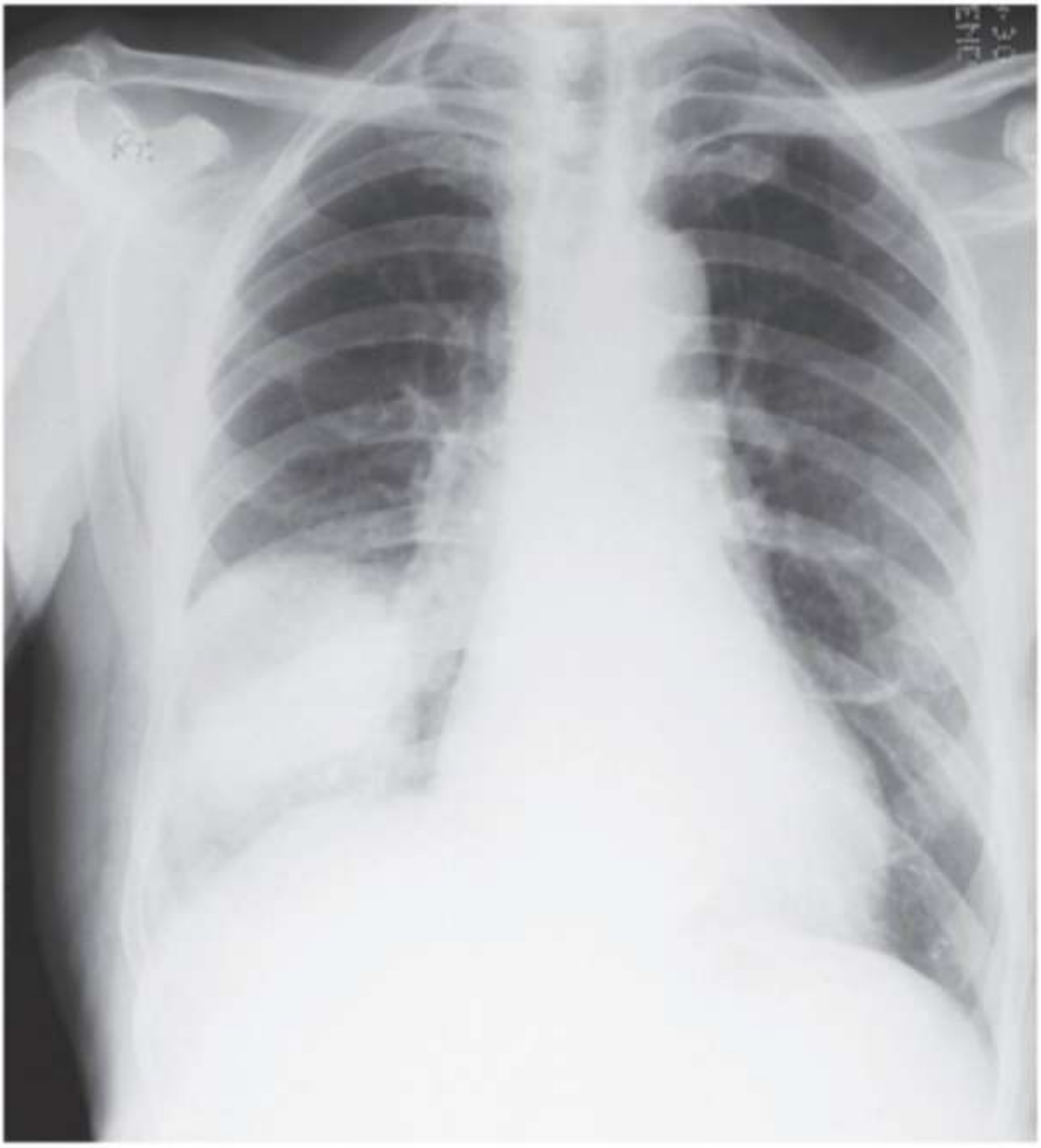


FIGURE 21-7 The lungs reside in the pleural cavities, subdivisions of the thoracic cavity. They are lined with a serous membrane called the pleura. The intrapleural space is located between the visceral and parietal pleura.

- Remove the cap and shake the inhaler
- Breathe out gently and place the mouthpiece into the mouth
- Incline the head backwards to minimise oropharyngeal deposition
- Simultaneously, begin a slow deep inspiration, depress the canister and continue to inhale
- Hold the breath for 10 seconds

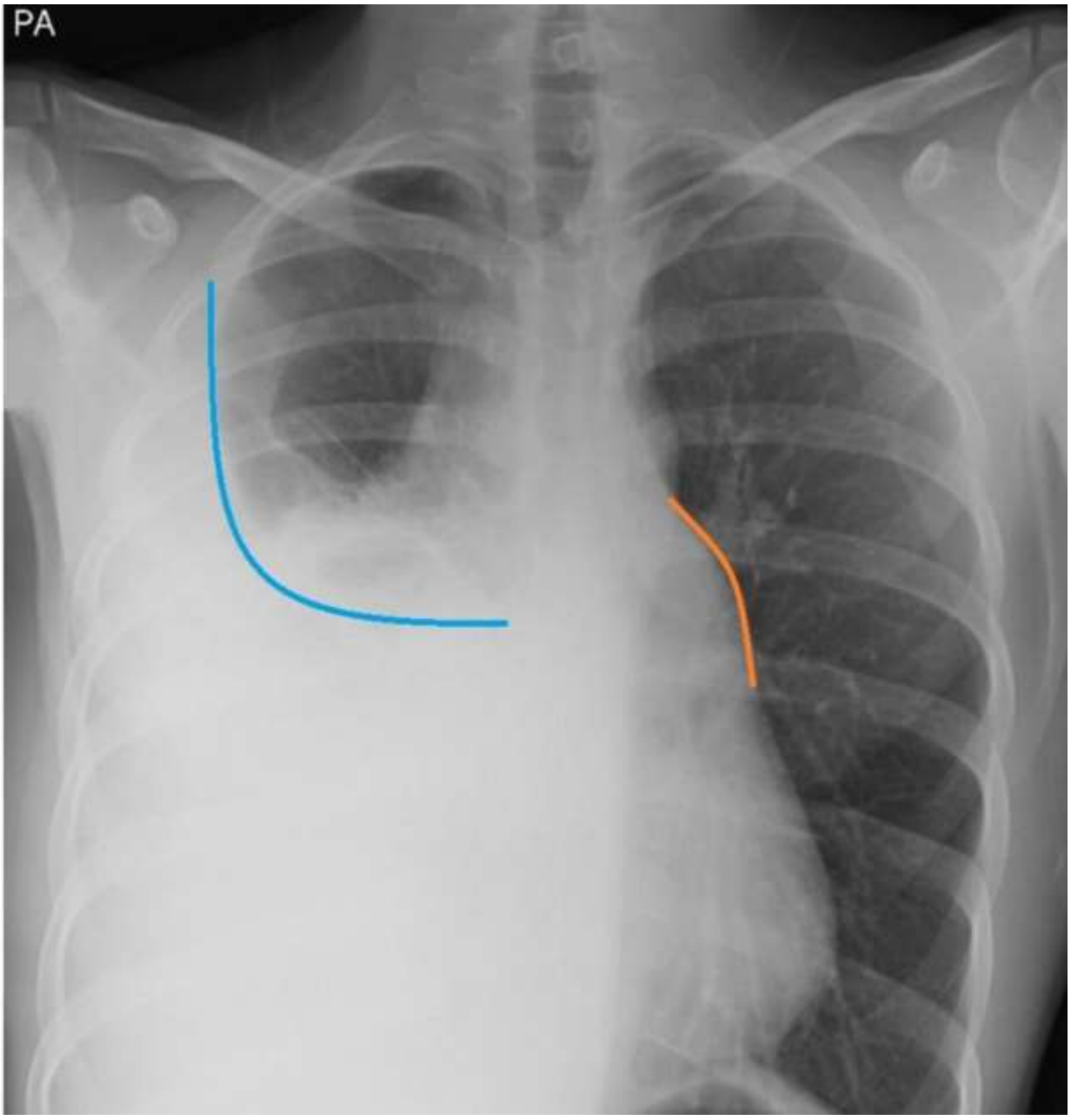
How to use a metered-dose inhaler.

PNEUMONIA

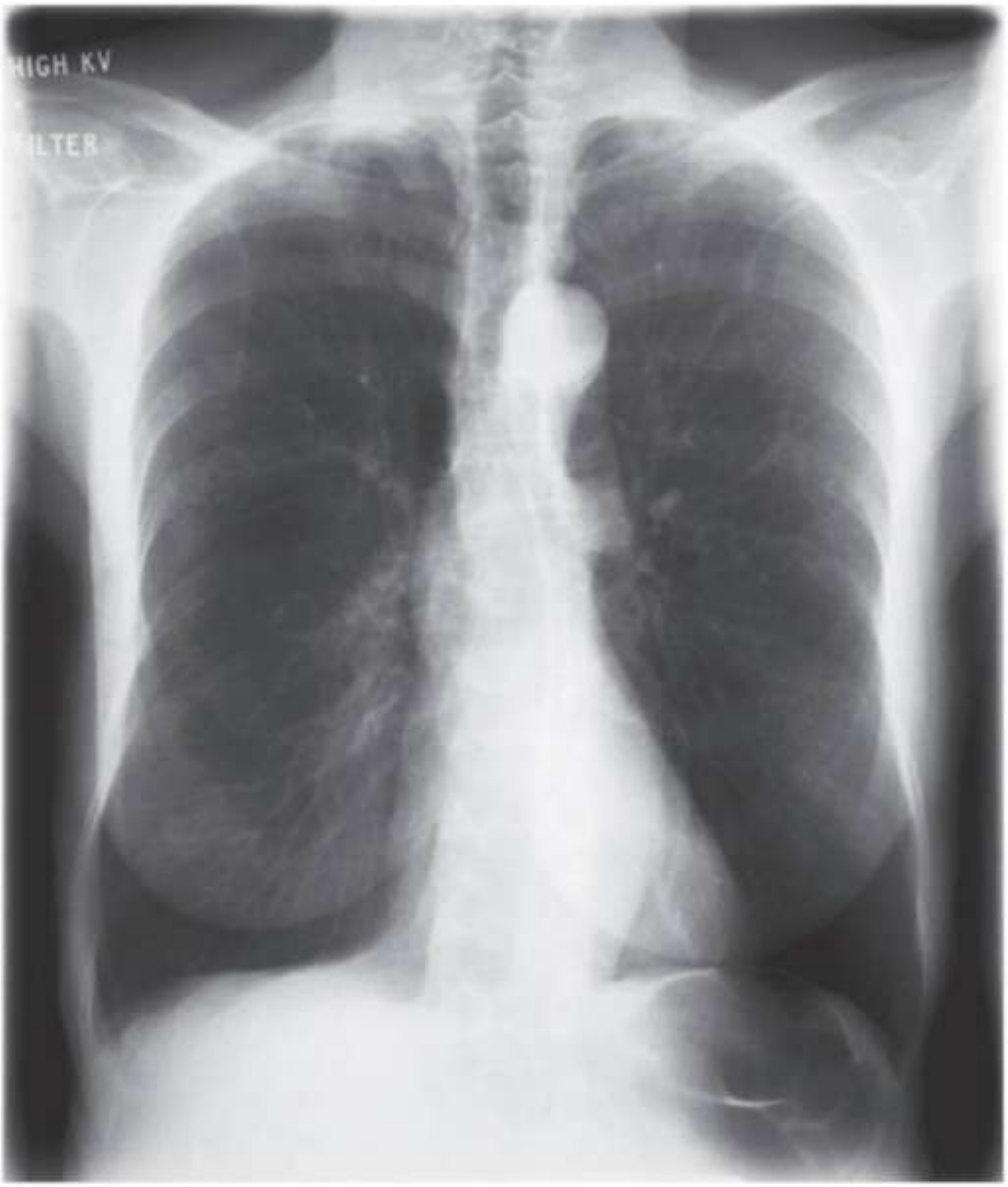


Chest X-ray showing a right basal pneumonia i

PLEURAL EFFUSION



COPD



Chest X-ray in severe chronic obstructive pulmonary disease.