

الحمد لله
الرحمن الرحيم

Viral Pneumonia

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Definition

- Viral pneumonia is an infection of the lung parenchyma caused by respiratory viruses.
- It ranges from a mild self-limited illness to severe pneumonia with **hypoxemic respiratory failure and ARDS**.

Virus	Important features
Influenza A/B	Sudden fever, myalgia, cough; may cause severe pneumonia
SARS-CoV-2	COVID-19; pneumonia and ARDS in severe cases
RSV	Especially infants, older adults, and immunocompromised patients
Human metapneumovirus	Children, elderly, immunocompromised
Parainfluenza virus	Children; croup and lower respiratory infection
Adenovirus	Can cause severe pneumonia, especially in outbreaks
Rhinovirus/enterovirus	Usually upper respiratory disease but can cause pneumonia
Varicella-zoster virus	Varicella pneumonia, particularly in adults
Measles virus	Pneumonia can complicate measles
CMV	Important in transplant recipients and other severely immunocompromised patients

Clinical features

Typical symptoms include

- . Fever
- . Dry or productive cough
- . Dyspnea
- . Tachypnea
- . Hypoxemia
- . Chest discomfort
- . Fatigue and myalgia
- . Headache

Clinical features

Severe disease may present with

- SpO₂ reduction
- Respiratory distress
- Cyanosis
- Confusion
- Hypotension/sepsis
- **Acute respiratory distress syndrome (ARDS)**

Clinical features

- Viral pneumonia can be difficult to distinguish clinically from bacterial pneumonia.

Diagnosis

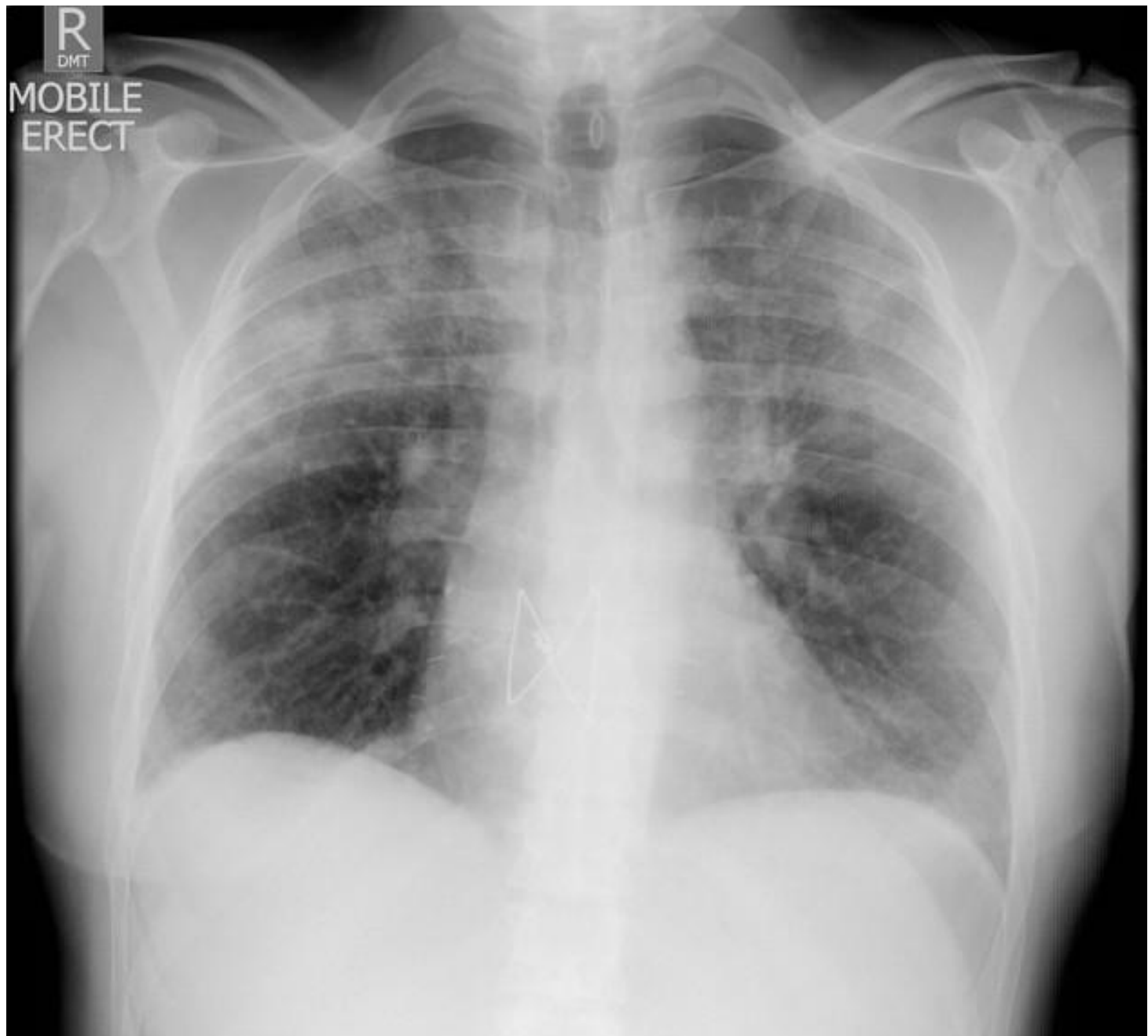
1 . Clinical assessment

- . Respiratory rate
- . Oxygen saturation
- . Work of breathing
- . Mental status
- . Hemodynamic stability
- . Comorbidities and immune status

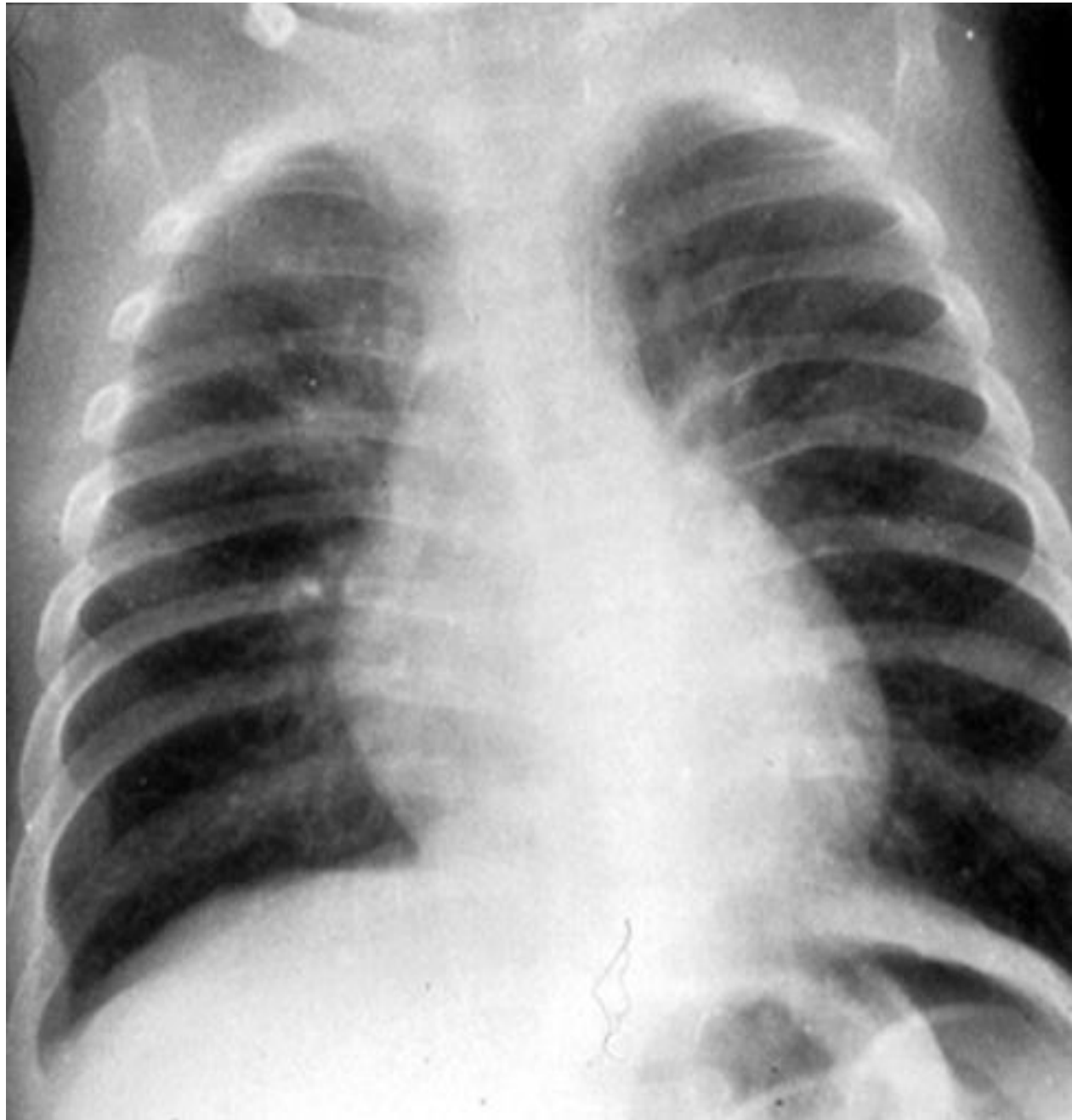
Diagnosis

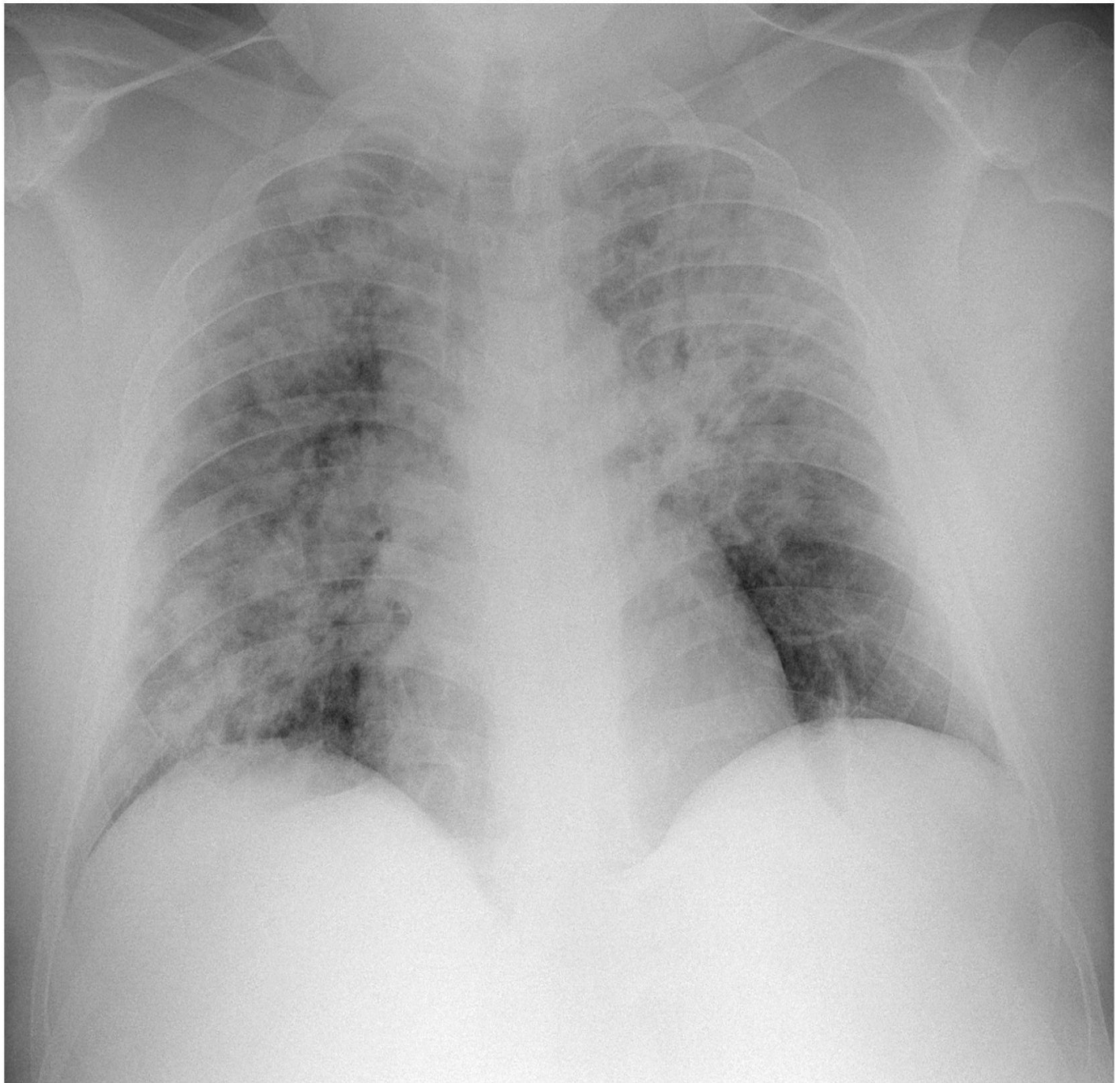
2 . Imaging

- **Chest X-ray**
 - . Bilateral or multifocal infiltrates
 - . Interstitial or patchy opacities
 - . Ground-glass or peribronchial changes
- **Chest CT**
 - . More sensitive than X-ray
 - . Ground-glass opacities
 - . Bilateral/multifocal involvement
 - . Consolidation may occur, particularly with severe disease or bacterial coinfection.





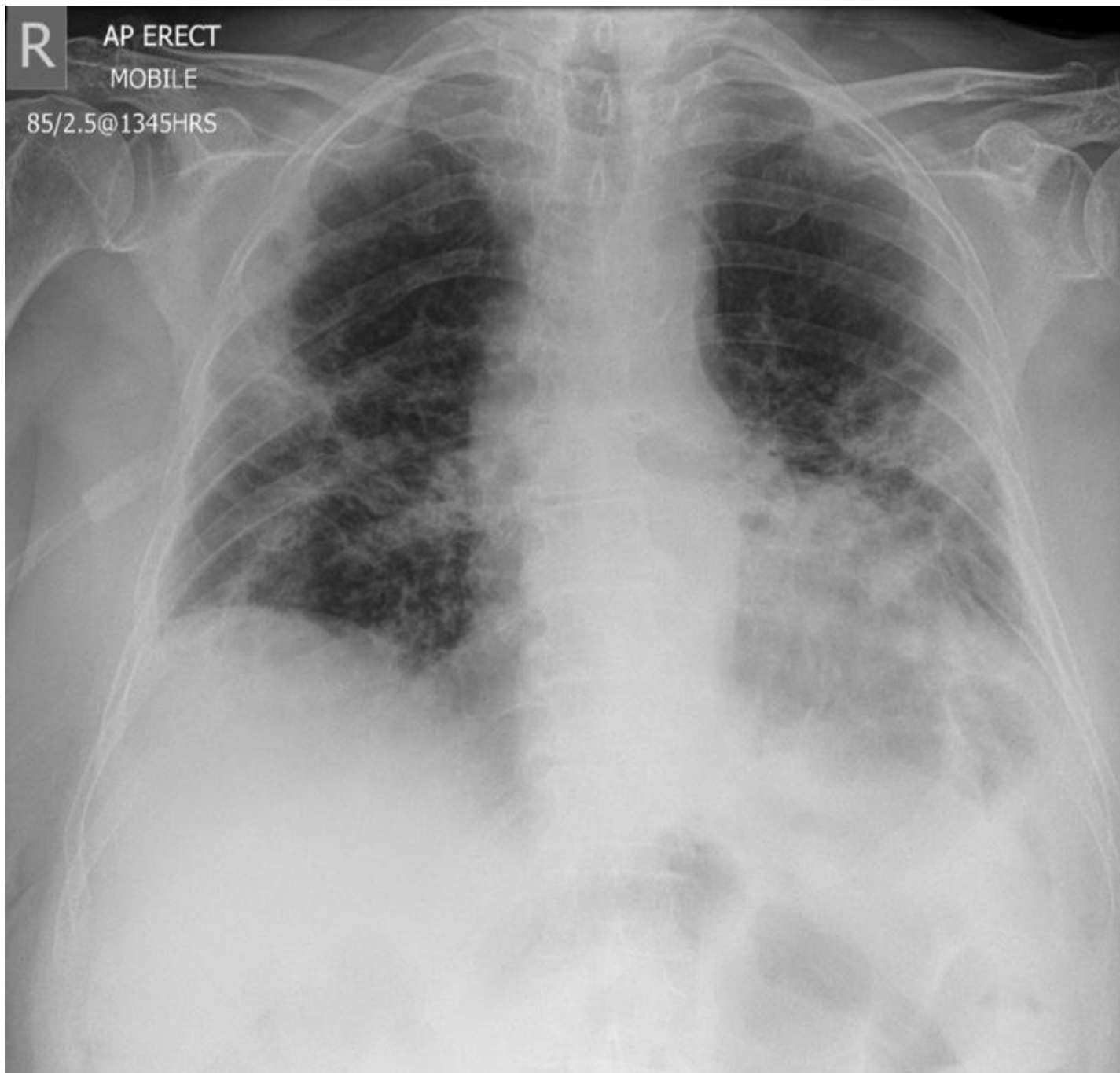


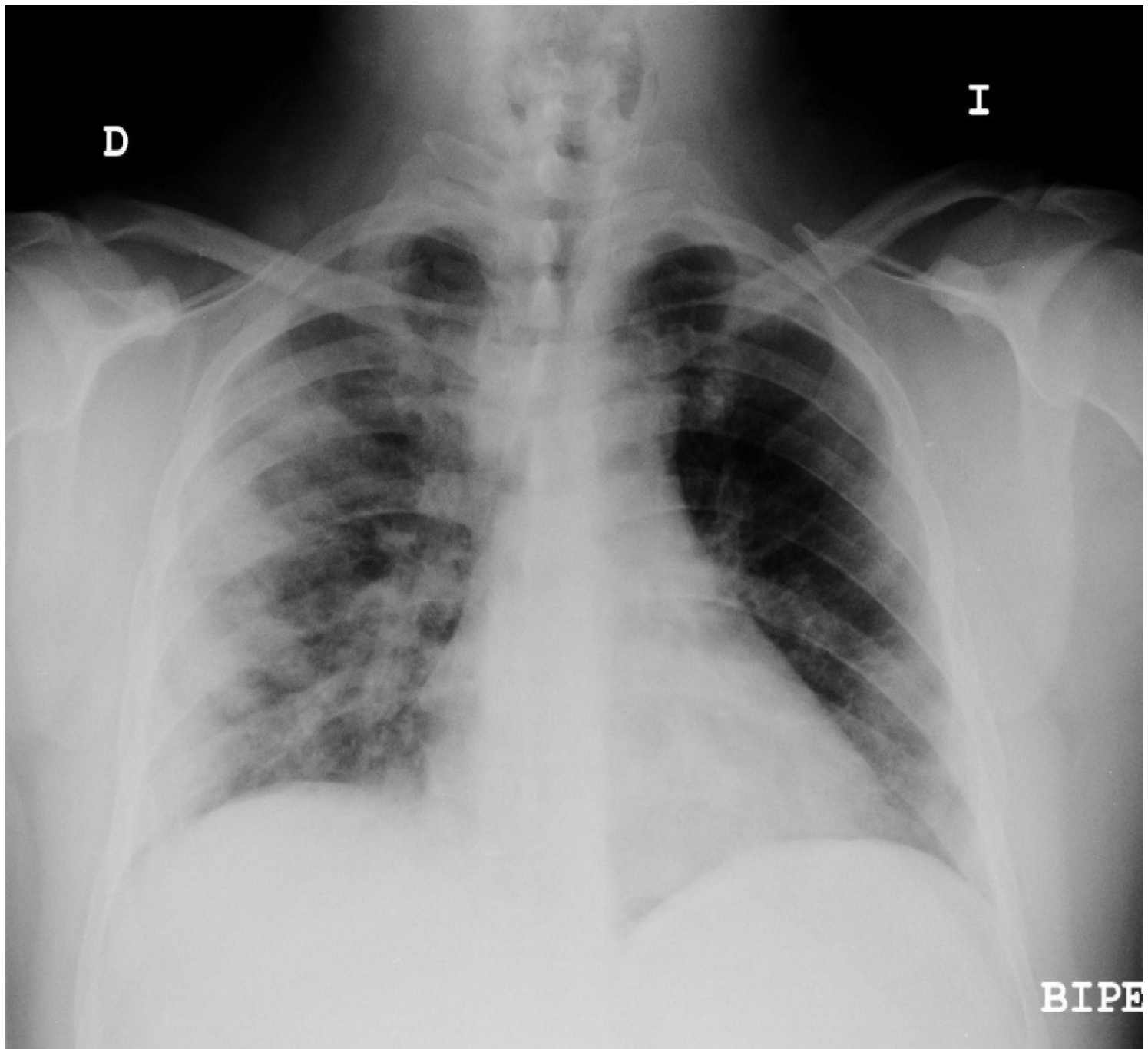


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Diagnosis

3. Laboratory/etiologic diagnosis

Depending on severity and epidemiology:

- **Respiratory PCR/NAAT** — preferred method for identifying many respiratory viruses
- Nasopharyngeal/oropharyngeal swab
- Influenza molecular testing
- SARS-CoV-2 testing
- RSV testing

Diagnosis

3. Laboratory/etiologic diagnosis

- Multiplex respiratory viral panels in selected patients
- CBC
- CRP $\pm$ procalcitonin
- Renal/liver function
- Blood gas in moderate/severe disease
- Blood and sputum cultures when bacterial coinfection is suspected

Diagnosis

- A positive respiratory **viral PCR** does not completely exclude bacterial coinfection.

Treatment

1. General/supportive treatment

For most viral pneumonias

- Rest and adequate fluids
- Antipyretics such as acetaminophen/paracetamol
- Oxygen if hypoxemic
- Bronchodilator if significant bronchospasm
- Monitor respiratory status
- Treat complications

Treatment

For severe pneumonia:

- **Oxygen → high-flow nasal oxygen → non-invasive ventilation → invasive mechanical ventilation**, depending on clinical status.
- Patients with ARDS may require lung-protective mechanical ventilation.

Virus	Treatment
Influenza A/B	Oseltamivir is commonly preferred; start as early as possible in severe/hospitalized patients
SARS-CoV-2	Antiviral treatment depends on severity and risk factors; options include nirmatrelvir/ritonavir for selected high-risk outpatients and remdesivir in appropriate patients
RSV	Mainly supportive care; specific antivirals are not routinely used for uncomplicated RSV pneumonia
CMV	Ganciclovir/valganciclovir for clinically significant CMV disease in appropriate immunocompromised patients
VZV	Acyclovir, particularly for varicella pneumonia
Other respiratory viruses	Usually supportive treatment; specific therapy is generally unavailable

Treatment

- Treatment choice should account for age, **pregnancy**, renal/hepatic function, **immune status**, disease severity, **drug interactions**, and local guidelines.

Treatment

Are antibiotics indicated?

- **Not routinely.**
- Antibiotics do **not** treat viral pneumonia.
- Empiric antibiotics may be appropriate when **bacterial coinfection cannot initially be excluded**, particularly in severe/hospitalized patients.

Indications for hospitalization

- Significant hypoxemia
- Increasing respiratory distress
- Respiratory rate markedly elevated
- Hemodynamic instability
- Altered mental status
- Multilobar pneumonia
- Significant comorbid disease
- Immunocompromised state
- Inability to maintain hydration/oral intake
- Rapid clinical deterioration

با تشکر از توجه شما

