



Pneumonia

Infection of Lung Parenchyma



Pathophysiology

- **Source:** Aspiration, hematogenous spread, nosocomial, altered microbiota, immunocompromised
- Inflammation leads to capillary leak
- **V/Q mismatch**, hypoxemia

Pathology

- Intra-alveolar or interstitial edema
- **Red hepatization** (RBCs/neutrophils in alveoli)
- **Grey hepatization** (neutrophils/macrophages)
- Resolution (Masson bodies)

Community-Acquired

Clinical Presentation 🏠

- Fever, chills/rigors
- Tachycardia, tachypnea
- Purulent/mucoid/blood-tinged sputum
- **Elderly may present with delirium**

Typical Pattern

- *S. pneumoniae*
- *H. influenzae*
- *Klebsiella* spp.
- *P. aeruginosa*
- *S. aureus*

Atypical Pattern

- Influenza
- Respiratory virus (ie, RSV)
- *Mycoplasma* spp.
- *Legionella* spp.
- *C. pneumoniae*

🌿 Risk Factors and Pathogens 🌿

- Alcohol-use disorder—Oral anaerobes, *Klebsiella* spp.
- COPD/smoking—*Legionella* spp., *Moraxella* spp.
- Cystic fibrosis—*P. aeruginosa*, *Burkholderia* spp.
- Aspiration risks—Oral anaerobes, **Gram (-) rods**
- Ohio River Valley—*Histoplasma* spp.
- Southwest USA—*Coccidioides* spp.
- Exposure to birds—*C. psittaci*

Diagnosis 📄

- **CAP often diagnosed by clinical presentation**
- (+) sputum culture or PCR
- Urinary antigen test for *Legionella* spp. or *S. pneumoniae*

Management & Treatment 📄

- **CURB-65 scale** to choose whether to admit
- Uncomplicated CAP treat with **macrolide** or **doxycycline**
- Cover MRSA or *Pseudomonas* spp. if indicated

Prevention 🙅

- Pneumococcal polysaccharide vaccine
- *H. influenzae* type B conjugated vaccine
- Yearly influenza vaccination

Nosocomial or Ventilator-Associated

Etiology

- Normal defense barrier compromised
- Contaminated endotracheal tube (ETT)

Clinical Presentation 🏠

- Fever, tachycardia
- Increased ETT secretions
- **New infiltrate on repeat chest X-ray**

Suspected Pathogens 🌿

- *P. aeruginosa*, MRSA, etc.
- *Acinetobacter* spp.
- MDR **Enterobacteriaceae**
- Consult specific hospital's trends

Diagnosis 📄

- Clinical picture
- Culture of endotracheal aspirates

Treatment 📄

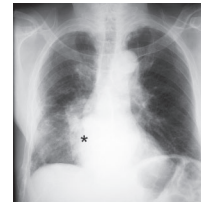
- **Consult local antibiogram**
- If uncomplicated, use antipseudomonal β-lactam
- If MDR suspected, add 2 antipseudomonal drugs and 1 for MRSA

Prevention 🙅

- Hand washing
- Avoid intubation if possible



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