

patterns on imaging

- consolidation(alveolar/lobar pneumonia)
- peribronchial nodules (bronchopneumonia)
- ground-glass opacity (GGO)
- uncommon pattern of CAP is random nodules, suggestive of hematogenous pulmonary infection or granulomatous infection

Pathogens & Specific imaging appearances

- ***Streptococcus pneumoniae*** → Alveolar/lobar pneumonia
- ***Mycoplasma pneumoniae*** → Bronchopneumonia with wall thickening of the central bronchi
- ***Chlamydophila pneumoniae*** → Infectious bronchiolitis with bronchial dilatation
- ***Legionella pneumophila*** → Sharply marginated peribronchial consolidations within ground-glass opacities
- ***varicella-zoster*** → Scattered nodules with a random distribution
- ***Tubercle bacillus*** → Tree-in-bud appearance with finer and denser branching opacities than those of bronchopneumonia caused by common bacteria (postprimary tuberculosis)
- ***Cryptococcus neoformans*** → Multiple nodules/masses with or without cavities in the same pulmonary lobe
- ***Pneumocystis jirovecii*** → Bilateral patchy ground-glass opacities with a geographic distribution

CXR

- suspected or documented hypoxemia or significant respiratory distress
- failed initial antibiotic therapy
- verify the presence or absence of complications of pneumonia: parapneumonic effusions, necrotizing pneumonia, and pneumothorax
- all patients hospitalized for management of CAP:
 - presence, size, and character of parenchymal infiltrates
 - complications of pneumonia that may lead to interventions

Repeated chest radiographs

- progressive symptoms or clinical deterioration within 48–72 hours after initiation of antibiotic therapy
- patients with complicated pneumonia with worsening respiratory distress / clinical instability / those with persistent fever that is not responding to therapy over 48-72 hours
- 4–6 weeks after the diagnosis of CAP in patients with recurrent pneumonia involving the same lobe / in patients with lobar collapse at initial chest radiography with suspicion of an anatomic anomaly, chest mass, or foreign body aspiration

CT-SCAN

- chest radiography (poster-anterior and lateral)usually enough to confirm the diagnosis of CAP
- computed tomography is required :
 - to suggest specific pathogens
 - to discriminate from noninfectious diseases
- patients with clinical suspicion of pneumonia but normal or questionable chest radiographic findings

Indication of lung CT-scan

- **General indication:**
 - severe or complex pneumonia
 - pneumonia in immune-compromised patients
 - pneumonia intractable to antibiotics
 - recurrent or non-resolving pneumonia
 - patients with clinical suspicion of pneumonia but normal or questionable chest radiographic findings
 - pneumonia with a suspicion of underlying diseases
- **clinical practice indications:**
 - depending on the severity of pneumonia, or the probability of tuberculosis or noninfectious diseases

Mycoplasma pneumonia

- **Chest radiograph :**

- peripronchial and perivascular interstitial infiltration/ reticular densities
most common ~49%
(can be patchy with a segmental or non-segmental distribution)
- alveolar consolidations ~38%
- reticulonodular opacification ~8%
- nodular or mass-like opacification ~5%
- bilateral lesions, pleural effusion (uncommon - in ~25% of cases)
- hilar lymphadenopathy

CT-SCAN

- GGO and air-space consolidation ~80% of cases
- lobular distribution in 60% of cases
- Intrapulmonary nodules ~90% of cases (predominantly centrilobular distribution)
- Other findings : thickening of the bronchovascular bundles
- The bronchial wall thickening is often in central bronchi

- Bronchopneumonia with central bronchial wall thickening in children and young adults are specific findings
- Lower lobes are most commonly involved
- central and middle lung zones have also been described
- Extensive GGO may represent permeability edema rather than cellular infiltrates with edema (Acute respiratory distress syndrome)