



Clinical-Medical Image

## Lung Pathologies in Images: Radiologic Signs and Clinical Clues

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### Opinion

The lungs, with their intricate architecture of airways and alveoli, are frequently affected by a wide range of diseases that can be accurately evaluated through radiologic imaging. Modern imaging techniques such as chest X-rays, Computed Tomography (CT) and magnetic resonance imaging (MRI) have become essential tools in diagnosing lung pathologies, differentiating among overlapping conditions and guiding effective treatment plans. Radiologic signs provide crucial visual evidence that, when correlated with clinical findings, help clinicians reach precise and timely diagnoses.

Chest X-rays remain the most common initial imaging method for evaluating pulmonary conditions due to their accessibility and efficiency. Classic signs such as consolidation, pleural effusion, or pneumothorax often guide clinicians toward specific pathologies. For instance, lobar consolidation with air bronchograms suggests bacterial pneumonia, while diffuse reticular opacities may indicate interstitial lung disease. However, since many lung disorders share overlapping radiographic patterns, CT imaging offers a more detailed and reliable approach. High-resolution CT (HRCT) can visualize fine lung structures, detect early interstitial changes and identify subtle nodules or ground-glass opacities that are often missed on plain radiographs [1].

CT imaging plays a pivotal role in differentiating between infectious, inflammatory and neoplastic conditions. In tuberculosis, for example, CT scans may reveal cavitory lesions in the upper lobes, while in pulmonary embolism; a contrast-enhanced CT can directly visualize filling defects within the pulmonary arteries. In oncologic imaging, CT and PET-CT assist in detecting lung nodules, staging malignancies and monitoring treatment responses. MRI, though less commonly used for pulmonary imaging, provides valuable information about soft tissue involvement and vascular abnormalities, particularly in complex or pediatric cases.

Correlating radiologic signs with clinical clues remains essential in achieving accurate interpretation. Symptoms such as cough, hemoptysis, fever, or dyspnea, combined with laboratory findings and patient history, guide radiologists in narrowing differential diagnoses. For instance, the presence of fever and focal infiltrates suggests infection, while chronic cough and diffuse fibrosis indicate interstitial lung disease. In summary, radiologic imaging is indispensable in the evaluation of lung pathologies, offering detailed visualization of structural and functional abnormalities. When interpreted alongside clinical data, these imaging findings serve as vital clues for early detection, accurate diagnosis and effective management of pulmonary diseases [2].

**Keywords:** Lung imaging; Radiologic diagnosis; Pulmonary pathology

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### Conflict of Interest

None.

### References

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