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HIGH-RESOLUTION COMPUTED TOMOGRAPHY FINDINGS IN PATIENTS WITH INTERSTITIAL LUNG DISEASE: A RETROSPECTIVE STUDY

Radio-Diagnosis

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ABSTRACT

Background: Interstitial lung disease (ILD) comprises a heterogeneous group of diffuse parenchymal lung disorders characterised by inflammation and fibrosis. High-resolution computed tomography (HRCT) plays a pivotal role in detection and classification. **Aim:** To evaluate the HRCT spectrum in clinically suspected ILD and categorises cases into specific radiological patterns. **Materials and Methods:** This retrospective observational study included 50 patients over 18 months. HRCT was performed using 1–1.5 mm thin sections at full inspiration. Imaging patterns were categorised according to ATS/ERS criteria. **Results:** Reticular opacities (82%) were most common, followed by ground-glass opacities (68%), traction bronchiectasis (58%), septal thickening (54%), and honeycombing (46%). UIP was the predominant pattern (38%). **Conclusion:** HRCT is indispensable in ILD evaluation. Pattern-based interpretation improves diagnostic accuracy and may reduce the need for biopsy.

KEYWORDS

Interstitial lung disease, HRCT, UIP, NSIP, Honeycombing

INTRODUCTION

Interstitial lung disease represents a diverse group of diffuse parenchymal disorders affecting the interstitium and alveolar spaces. Patients commonly present with progressive dyspnea and dry cough. Conventional radiography has limited sensitivity in early disease. HRCT provides high spatial resolution imaging, enabling recognition of characteristic patterns that correlate closely with histopathology. Accurate HRCT interpretation is essential for diagnosis, prognostication, and management planning.

Materials and Methods

This retrospective observational study was conducted over 18 months in a tertiary care hospital after institutional ethical approval. Fifty adult patients with clinical suspicion of ILD who had undergone HRCT of the chest during the study period were included.

Inclusion criteria: Patients with clinical and radiographic suspicion of diffuse parenchymal lung disease who underwent HRCT examination.

Exclusion criteria: Patients with active infection, malignancy, or unstable condition were excluded from the study.

HRCT had been performed using a 128-slice MDCT scanner with 1–1.5 mm collimation and a high spatial frequency reconstruction algorithm. Images were acquired in the supine position at full inspiration. Expiratory and prone scans had been obtained where necessary.

Images were evaluated for reticulation, ground-glass opacities, honeycombing, traction bronchiectasis, nodules, and mosaic attenuation. Distribution (upper vs lower lobe, central vs peripheral) was documented. Patterns were categorised per ATS/ERS classification.

Statistical analysis was performed using descriptive statistics. Frequencies and percentages were calculated.

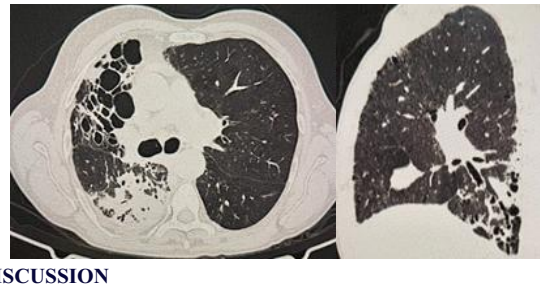
RESULTS

Among 50 patients, the majority were in the 5th and 6th decades with a slight male predominance. Reticular opacities were seen in 82% of cases. Ground-glass opacities were present in 68%, traction bronchiectasis in 58%, interlobular septal thickening in 54%, and honeycombing in 46%.

Lower lobe and subpleural predominance were characteristic of the UIP pattern, which accounted for 38% of cases. NSIP (26%) demonstrated predominant ground-glass opacities with relative subpleural sparing. Hypersensitivity pneumonitis (18%) showed centrilobular nodules and mosaic attenuation. Organizing pneumonia accounted for 10% of cases.

Figure Legends

Figure 1: HRCT image demonstrating honeycombing consistent with fibrotic interstitial lung disease.



DISCUSSION

HRCT plays a central role in ILD evaluation. UIP was the most common pattern in this study, consistent with existing literature. Honeycombing and traction bronchiectasis are markers of established fibrosis and poorer prognosis. NSIP typically shows symmetric ground-glass opacities and carries a relatively better prognosis compared to UIP.

Pattern recognition significantly reduces the need for invasive biopsy in classic cases. Multidisciplinary discussion integrating clinical, radiological, and pathological findings remains the gold standard.

CONCLUSION

HRCT is the imaging modality of choice for ILD. A systematic and structured approach enhances diagnostic confidence and guides clinical management.

Declarations

Ethical approval: Approved by Institutional Ethics Committee.
Informed consent: waived due to retrospective study design.

Financial support and sponsorship: Nil.
Conflicts of interest: None.

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