# HRCT in smoking-related interstitial lung diseases: a kaleidoscopic overlap of patterns

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A 39-year-old male patient, a leather trader by profession, presented with a 6-month history of dyspnea, hypoxemia, and digital clubbing. He had a 30-pack-year smoking history. Laboratory test results were unremarkable. Pulmonary function tests showed a severe decrease in DLCO (49% of predicted) and FVC (64% of predicted), suggestive of restriction. An HRCT scan (Figure 1) showed poorly defined micronodules with subtle pseudocystic airway changes, and mild patchy septal thickening in the upper lobes. Other findings were centrilobular and paraseptal emphysema and bronchial wall thickening. Patchy ground-glass opacities (GGOs), with fine reticular elements and containing small areas of bronchiectasis, were observed in the lower lobes. A coronal reconstruction clearly showed the coexistence of smoking-related findings: centrilobular nodules in the upper lobes, typical of respiratory bronchiolitis (RB); interlobular septal thickening, characteristic of RB-associated interstitial lung disease (RB-ILD); centrilobular and paraseptal areas of attenuation, as seen in emphysema; and patchy GGOs and cysts in the lower lobes, suggestive of desquamative interstitial pneumonia (DIP)-like elements. Bronchoalveolar lavage, performed in the right upper lobe, revealed 82% pigment-laden macrophages (although RB-ILD overlaps with DIP, they differ in their extent/distribution). As reported in the most recent American Thoracic Society/European Respiratory Society statements,[1,2] multiple patterns on HRCT can be observed in the same smoking patient. Therefore, the radiologist can truly make a difference in the final diagnosis.

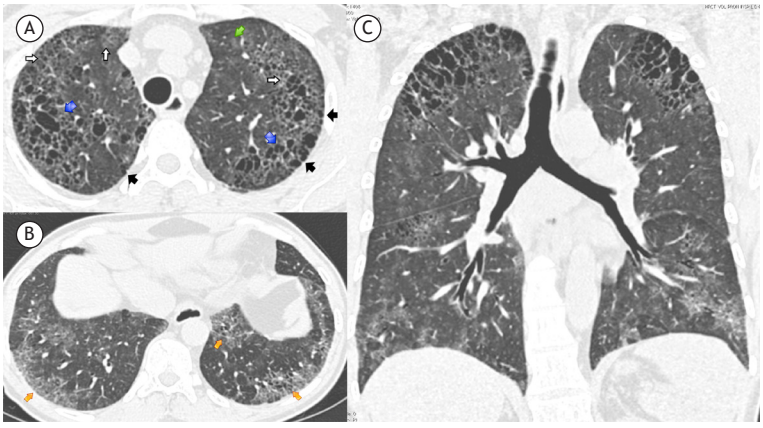


**Figure 1.** HRCT scan of the upper lobes (A), showing poorly defined micronodules (green arrow), with subtle pseudocystic airway changes (blue arrows) and mild patchy septal thickening in the upper lobes (white arrows). Ancillary findings were rare centrilobular and paraseptal emphysema (black arrows) and bronchial wall thickening. HRCT scan of the lower lobes (B), showing patchy ground-glass opacities with fine reticular elements and containing very small areas of bronchiolectasis (orange arrows). Coronal reconstruction (C) better demonstrates the coexisting patterns described in the HRCT axial scans.

## RECOMMENDED READING

1. Travis WD, Costabel U, Hansell DM, King TE Jr, Lynch DA, Nicholson AG, et al. An official American Thoracic Society/European Respiratory Society statement: Update of the international multidisciplinary classification of the idiopathic interstitial pneumonias. Am J Respir Crit Care Med. 2013;188(6):733-48. http://dx.doi.org/10.1164/rccm.201308-1483ST

2. Sverzellati N, Lynch DA, Hansell DM, Johkoh T, King TE Jr, Travis WD. American Thoracic Society-European Respiratory Society Classification of the Idiopathic Interstitial Pneumonias: Advances in Knowledge since 2002. Radiographics. 2015;35(7):1849-71. http://dx.doi.org/10.1148/rg.2015140334

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