



## The Spectrum of Diffuse Smoking Related Lung Changes in a Single Patient

Smoking affects the lungs in different ways. It causes bronchial inflammation, alveolar inflammation, then alveolar destruction and is associated with interstitial fibrosis. Smoking also is the leading cause of lung cancer.

Very often, heavy smokers will show multiple manifestations of smoking related diffuse lung changes, as in this 74-years old man with a 70-pack years history of smoking.

This is what he had.

1. Centrilobular and paraseptal emphysema (Fig. 1)
2. Respiratory bronchiolitis (RB) (Fig. 2)
3. Respiratory bronchiolitis fibrosis (RB-fibrosis) (Fig. 3)
4. Smoking related interstitial fibrosis including (SRIF) (Fig. 4)
5. Airway expansion with fibrosis (AEF) (Fig. 5)
6. Combined pulmonary fibrosis with emphysema (CPFE) (Fig. 6)

The diffuse changes that smoking causes create problems not just for the patient, but for the family members, caregivers and society at large.

If you would like to see the case in detail, or see a detailed discussion, please see the case and video at <https://www.ctchestreview.com/smoking02/>

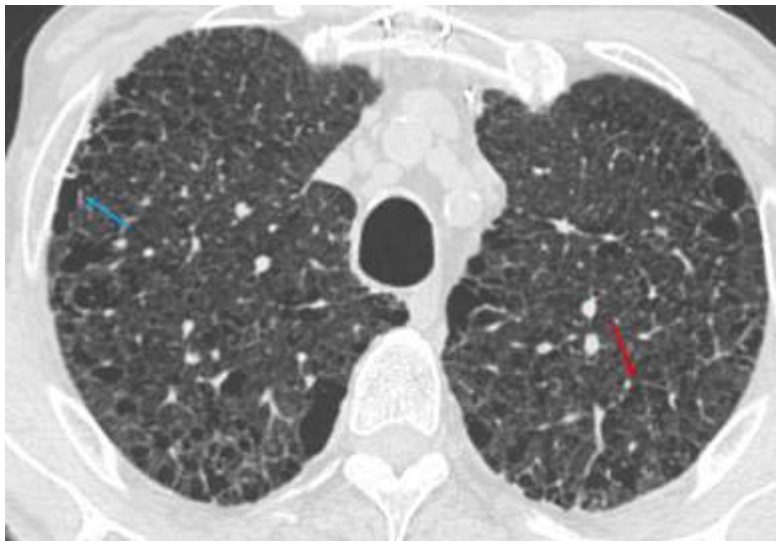


Fig. 1: Centrilobular and paraseptal emphysema. Axial CT through the upper lobes shows confluent centrilobular emphysema (blue arrow) and mild paraseptal emphysema (red arrow).

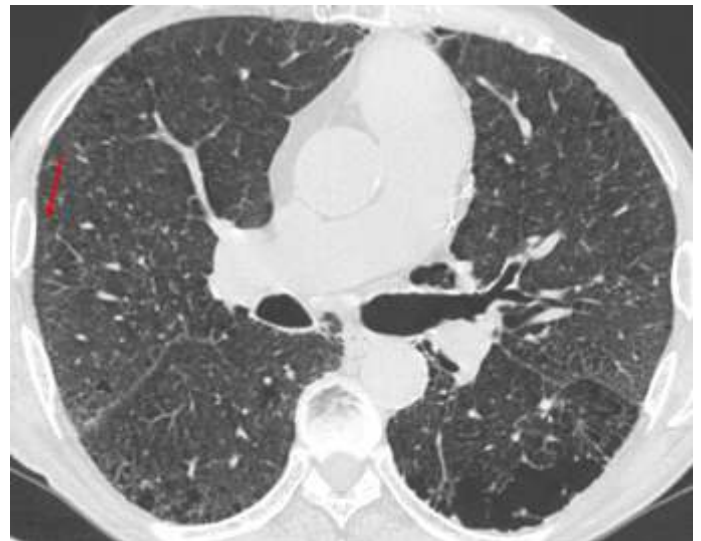


Fig. 2: Respiratory bronchiolitis (RB). Axial CT at the level of the carina shows ill-defined distal bronchocentric opacities, characteristic of respiratory bronchiolitis (RB).

*At a glance:*

- ◆ Smoking can lead to airway, bronchial and interstitial abnormalities
- ◆ A single patient may manifest multiple findings ranging from emphysema to respiratory bronchiolitis to interstitial lung disease to CPFE.

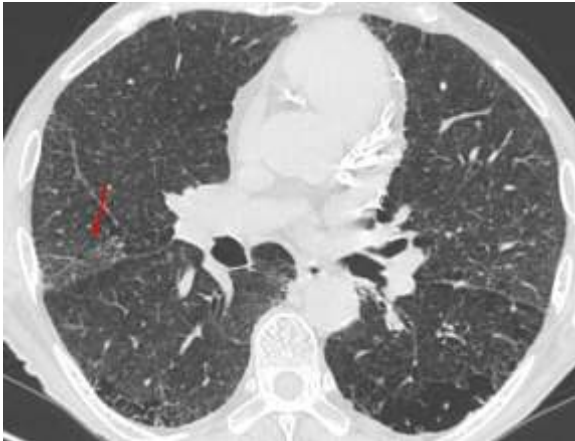


Fig. 3: RB-fibrosis. Axial CT one cm inferior to Fig. 2 shows reticular opacities along with the RB findings, suggesting RB with fibrosis or RB-fibrosis, a type of SRIF (see below).

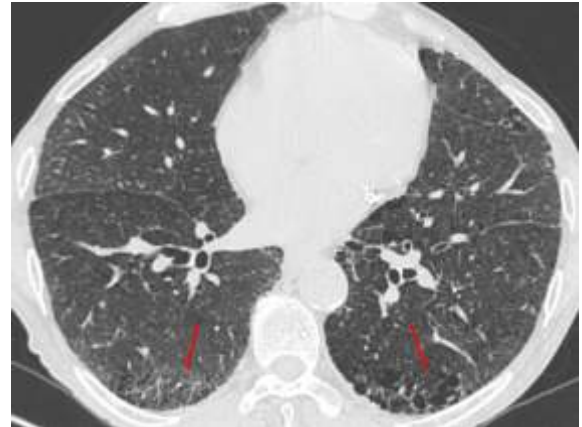


Fig. 4: Smoking related interstitial fibrosis (SRIF). Axial CT through the superior segments of the lower lobes shows reticular opacities with traction bronchiectasis, suggesting SRIF.

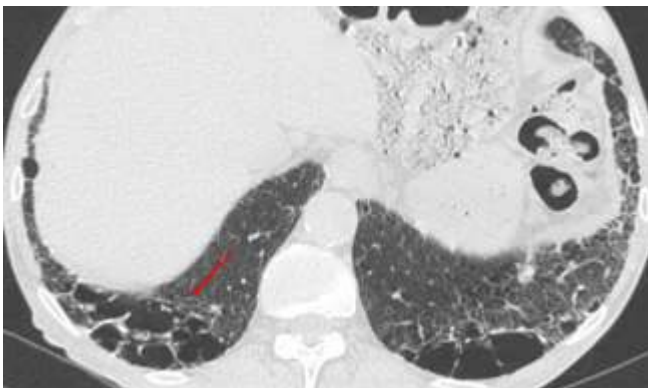


Fig. 5: Airway expansion with fibrosis (AEF). Axial CT through the lung bases shows large cystic areas with reticular opacities, a pattern typically seen with AEF, which is a type of SRIF.

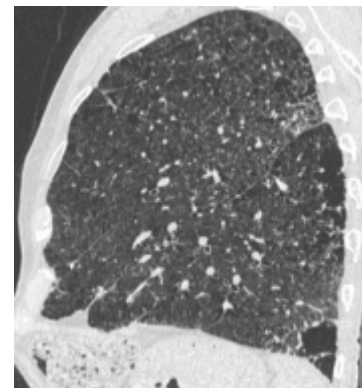


Fig. 6: Combined pulmonary fibrosis and emphysema (CPFE). Sagittal CT scan shows emphysema in the upper lobes and fibrosis in the lower lobes, a combination called CPFE, a distinct clinico-radiologic entity.

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Bhaveshwar Vihar, 383, S.V.P. Road, Prarthana Samaj, Charni Road, Mumbai 400 004.