Inner Spaces
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Points

- ILDs are not uncommon in clinical practice and include multiple conditions of differing etiopathology that involve the interstitium and often the alveolar spaces as well
- HRCT allows very fine high spatial resolution imaging of the lung
- HRCT of the lungs is an integral modality in ILDs, helping right from the initial diagnosis to characterization and monitoring of treatment.

Interstitial Lung Diseases and HRCT Lung

Just as in last month's issue on CT angiography in pulmonary thrombo-embolism, the use of HRCT in the diagnosis and management of interstitial lung diseases (ILDs) has also led to a significant paradigm shift.

HRCT of the lung allows us extremely high-resolution images of the lung parenchyma. We are able to pick up pathology in small structures such as the interlobular septae and secondary pulmonary lobules.

Interstitial lung diseases (ILDs) form a heterogeneous group of disorders, characterized by predominant involvement of the interstitium. The alveolar spaces may also be concurrently involved. The common ILDs include

1. Hypersensitivity pneumonitis (Fig. 1)
2. Sarcoidosis (Fig. 2)
3. Cystic lung disease, such as lymphangiomyomatosis and histiocytosis X (Fig. 3)
4. Associated with collagen vascular and connective tissue disorders (Fig. 4), etc
5. Idiopathic pulmonary fibrosis (Fig. 5), which has subtypes, including BOOP (cryptogenic organizing pneumonia) (Fig. 6)
6. Drug-induced
7. Occupational, as in silicosis, etc

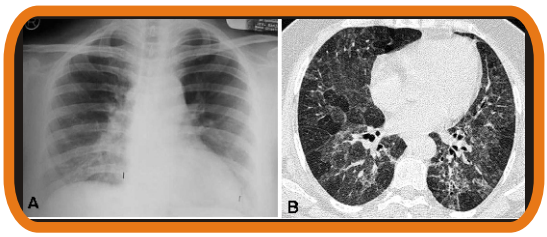

Fig. 1(A,B)

Fig. 1 (A, B). The chest radiograph (A) in this man with gradually progressive breathlessness and exposure to pigeons, is normal. The HRCT shows a classic mosaic pattern, due to ground-glass attenuation (B), which is characteristic of hypersensitivity pneumonitis

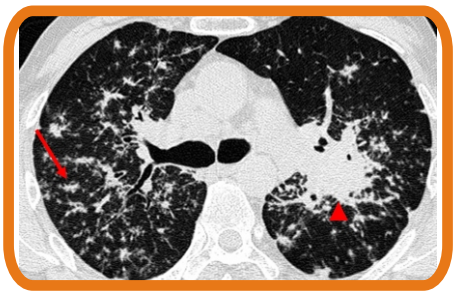

Fig. 2

Fig. 2: Sarcoidosis. HRCT of the lungs shows characteristic peribronchovascular nodules causing a "beading" appearance (arrow) with hilar adenopathy (arrowhead).

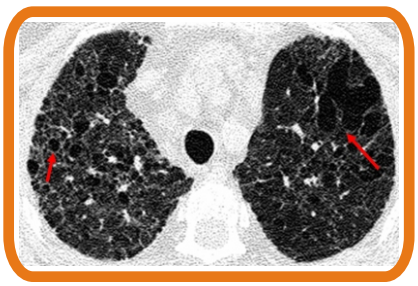

Fig. 3

Fig. 3: Histiocytosis X. HRCT of the lungs shows cystic lung disease with well-defined cysts with walls (arrows) in this smoker.

The online version is up at ***http://www.jankharia.com/innerspaces/current.htm***

HRCT of the lung plays an integral role right from initial diagnosis, through characterization and finally monitoring of the treatment, in ILDs.

Essentially it answers the following questions.

1. Is there ILD? (Fig. 1)
2. If so, using the various patterns of involvement and distribution of disease, is it possible to comment on the possible diagnosis? (Figs. 2-6). In experience hands, it should be possible to make a definitive diagnosis in at least 70% of ILDs.
3. Is the disease active? Is there alveolitis? What is the prognosis? (Fig. 7)
4. Will a biopsy help. Which is the best site for a biopsy? (Fig. 7)
5. Has the condition improved or worsened? (Figs. 8, 9)

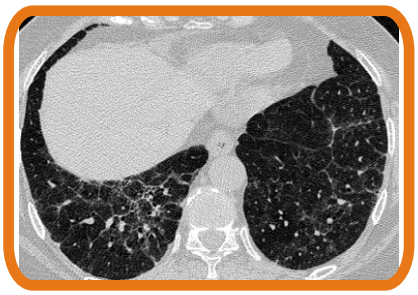

Fig. 4

Fig. 4: Non-specific interstitial pneumonia with fibrosis (NSIP). HRCT of the lungs shows a characteristic pattern of ILD, suggestive of NSIP. The NSIP-pattern is the most common presentation of rheumatoid arthritis, progressive systemic sclerosis and other connective tissue and collagen vascular diseases.

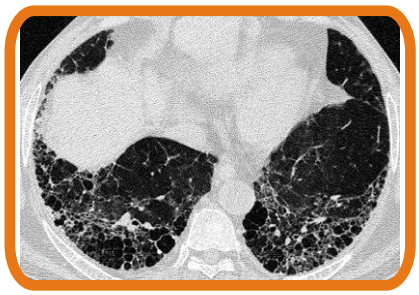

Fig. 5

Fig. 5: Usual interstitial pneumonia (UIP). Along with NSIP, this is the commonest type of ILD seen in practice, presenting with honeycombing and a bilateral lower zone presentation.

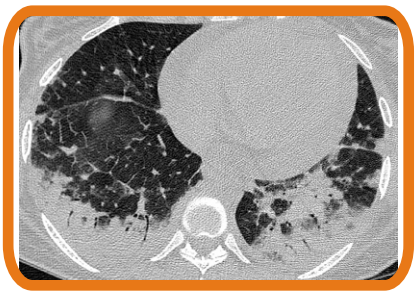

Fig. 6

Fig. 6: Cryptogenic organizing pneumonia (BOOP). The bilateral basal consolidation seen here, is one of the patterns seen with COP/BOOP.

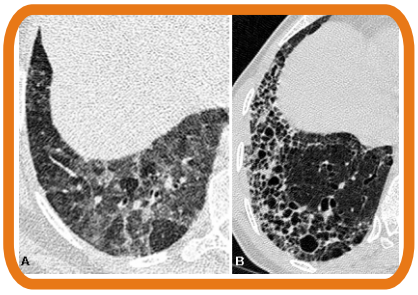

Fig. 7

Fig. 7 (A, B): This patient with NSIP (A) shows ground-glass attenuation, suggestive of alveolitis, which usually responds to treatment. The patient will probably show good improvement. This area of ground-glass is also a good site for a biopsy. On the other end, this patient with end-stage UIP (B) shows honey-combing only and low volume lungs. This patient is unlikely to respond to treatment. There is point performing a biopsy on this patient.

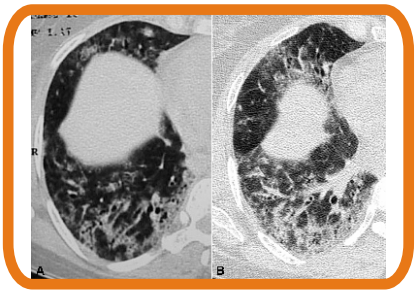

Fig. 8

Fig. 8: This patient with NSIP (A) shows significant worsening after one year (B).

Designed by

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