KUWAIT ANNUAL RADIOLOGY CONFERENCE 2026 FROM VISION TO PRECISION

Interstitial lung disease: common patterns in imaging

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Learning Objectives

- Define Interstitial Lung Disease
- Identify the common patterns of ILD
- How patterns appear on imaging

Interstitial lung diseases

Definition:
ILD is an umbrella term used to describe a wide array of heterogenous diseases that cause fibrosis and inflammation of the lung tissue.
Contrary to the term, it is not limited to the interstitial bed but can also extend to the parenchyma and involve the alveoli, alveolar ducts and bronchioles[1,2].

Common patterns of ILD

There are many patterns that can be seen in imaging that are attributed to ILD. However, many guidelines classify them into the four dominant patterns[3,4].

Reticular pattern (Honeycombing)	Network of linear opacities
Nodular pattern	Presence of numerous small nodules
High attenuation (Ground glass)	Increase in lung density
Low attenuation (cystic/emphysema)	Decrease in lung density

Emphysema

Appears as focal, regional or diffuse areas of low attenuation

Divided into Centrilobular and Paraseptal

Centrilobular is commonly found in the upper lobes whereas paraseptal is commonly found in the subpleura or along the interlobular septa[3,5]

Nodular pattern

Classified as small nodule (<1cm) or micronodule (<3mm)[5]

Divided into centrilobular, peri-lymphatic or random

Depending on the pattern and definition of the nodule, it can be attributed to many causes

(sarcoidosis, amyloidosis, miliary infection)[5]

NODULAR PATTERN

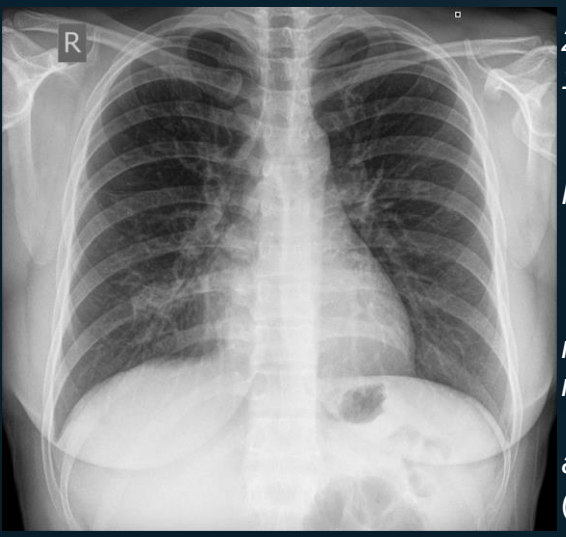


Figure 1

28 year old F medically free presenting with 1-month cough associated with fever and sweating

Findings: Multiple consolidative patchy irregular margined areas forming a cavity with adjacent ground glass opacities, tree-in-bud opacities and centrilobular nodules involving bilateral upper, and right middle lobes with lymphadenopathy as described; features are suggesting of active chest infection with possibility of TB. (red arrows in Figure 2)

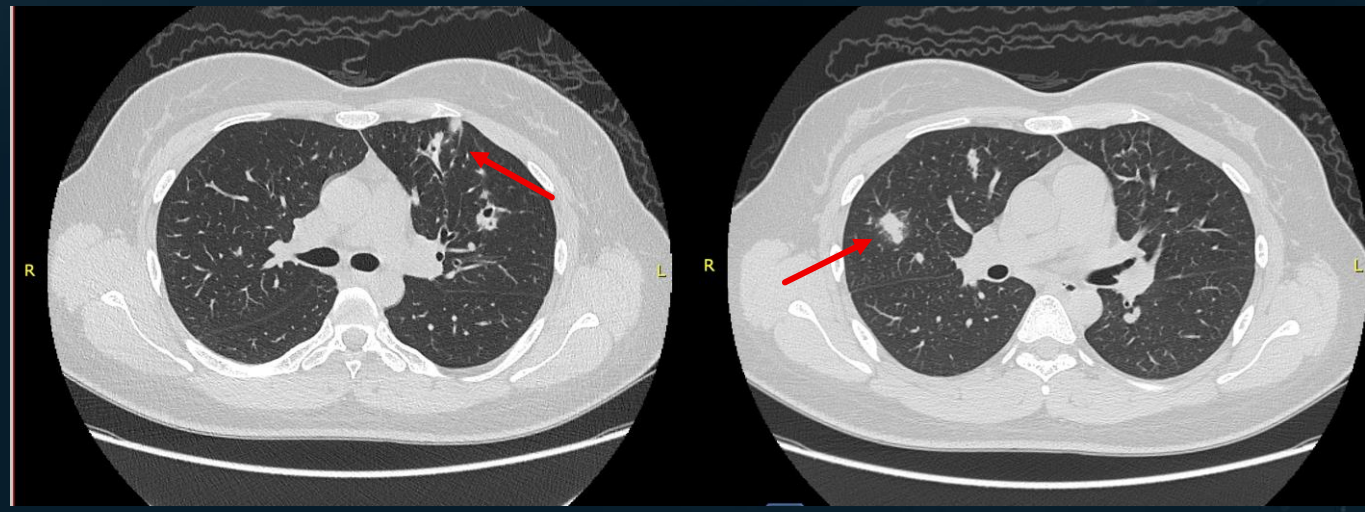


Figure 2

EMPHYSEMA

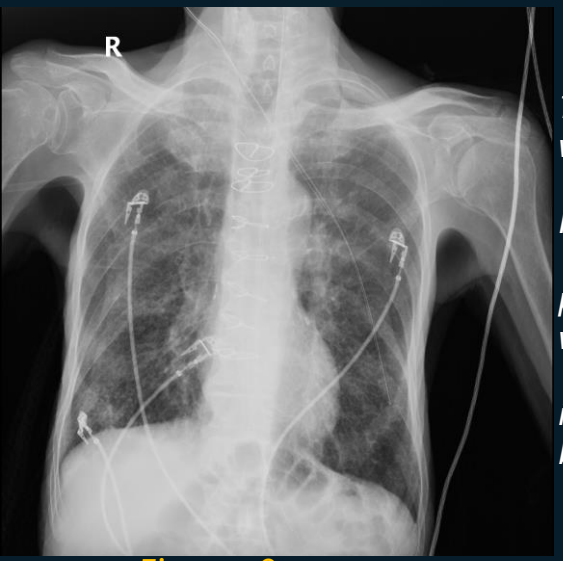
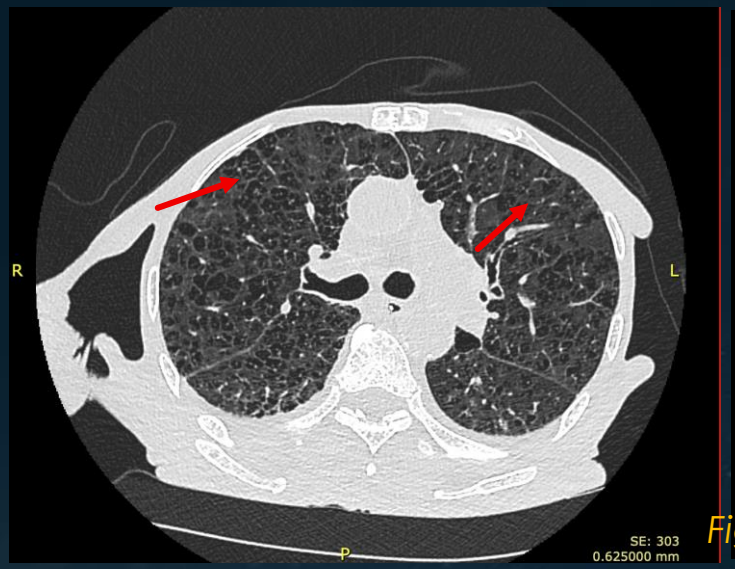


Figure 3

78 year old M multiple chest infections with decreased GCS

Findings: Bilateral rather diffuse centri-lobular & par-septal emphysema with upper lobe predominance (blue arrows). Associated with bilateral asymmetrical (right >left) lower lobe posterior honeycombing, reticular interstitial thickening and subtle bronchiectacic changes (red arrows in Figure 4)



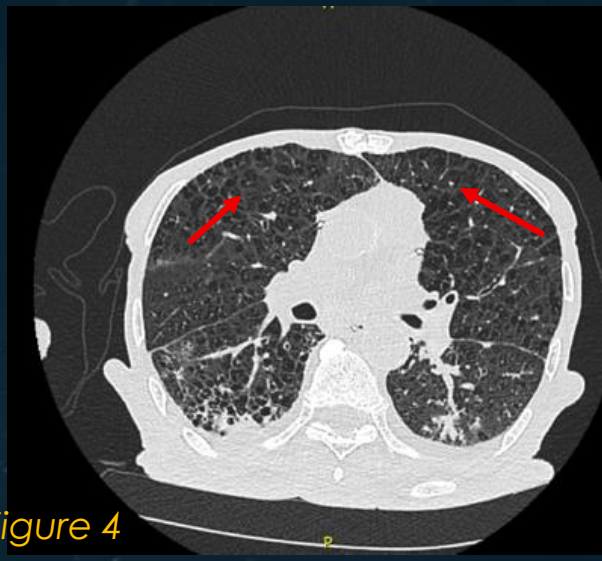


Figure 4

HONEY COMBING PATTERN

- Honeycombing refers to well-defined and rounded clustered cystic structures typically located in the subpleural region secondary to architectural destruction[6].
- The diameter of the cysts can range between 3-10 mm and can reach up to 2.5cm on HRCT[5].
- Rapid identification of this pattern is important as it indicates end-stage disease and associated with poor prognosis.

Honeycombing

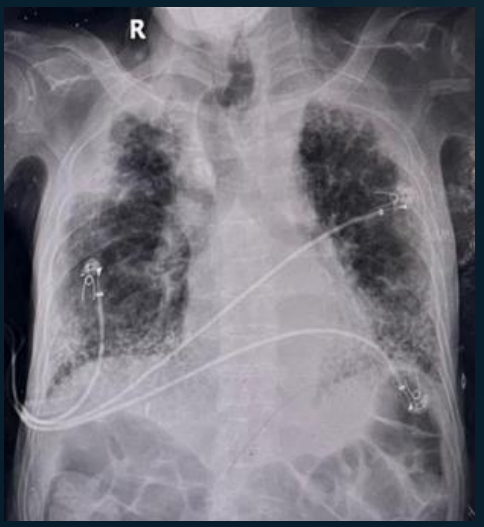


Figure 5

80 year old male known case of ILD on Ninetanimib complaining of dyspnoea, cough and fever

Findings: Bilateral upper lobe apical and peripheral subpleural areas of reticulonodular infiltrations as well as bilateral lower lung lobes peripheral mainly basal small air-filled cystic areas give appearance of honey combing (red arrows in figure 6)

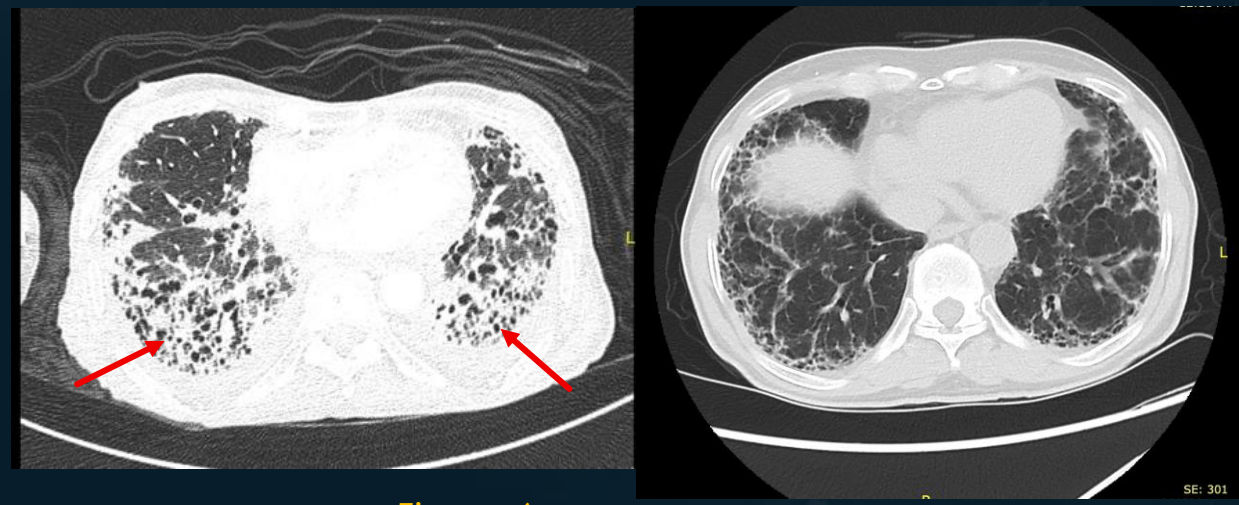


Figure 6

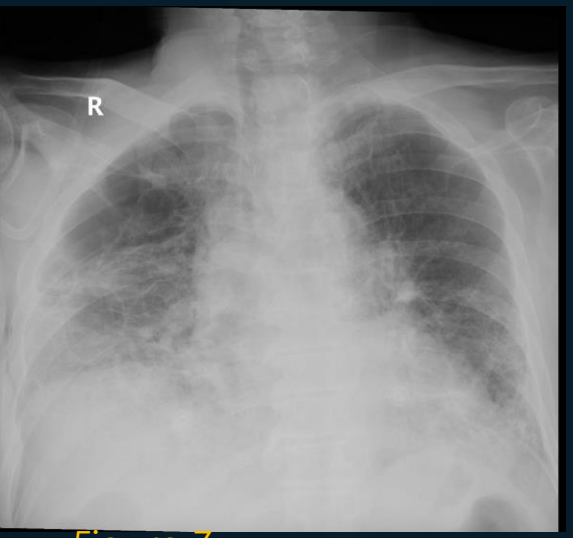


Figure 7

67-year-old male known case of Rheumatoid Arthritis with
ILD
Findings: Bilateral mainly basal honeycombing diffuse interlobular septal thickening with minimal traction bronchiectasis (red arrows in Figure 8)

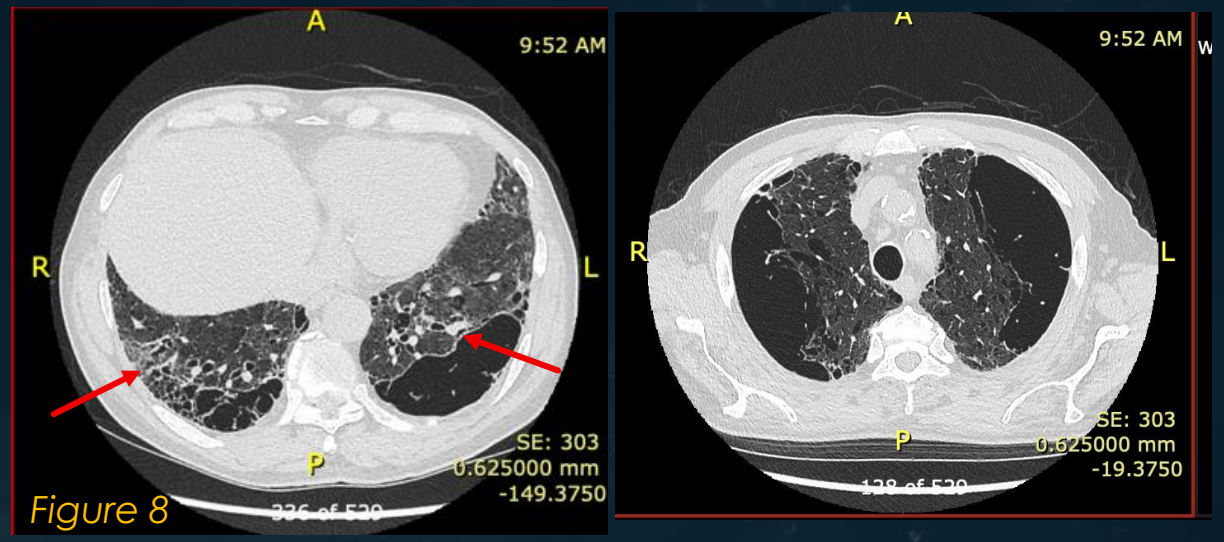


Figure 8

GROUND GLASS OPACIFICATION

- NON-SPECIFIC FINDING CHARACTERIZED BY INCREASED ATTENUATION WITH PRESERVATION OF BRONCHIAL AND VASCULAR MARKINGS.
- INDICATE A VARIETY OF CONDITIONS, INCLUDING INFECTION AND PULMONARY OEDEMA.
- DEPENDING ON THE UNDERLYING CAUSE, IT MAY INVOLVE THE UPPER, MIDDLE, OR LOWER LUNG ZONES[4,8].

Ground Glass opacities

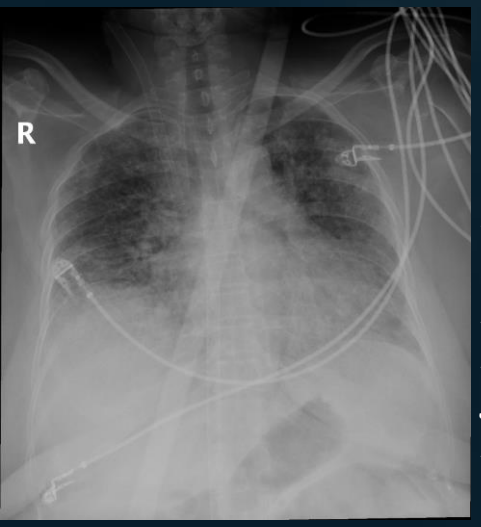


Figure 9

47 y/o F medically free complaining of cough and fever
Findings: Multiple bilateral patchy area of consolidations is seen involving the whole of the lung lobes with air bronchogram and atelectatic bands, mixed with ground glass opacities, more evident in the right lower lung lobe (red arrows in Figure 10)

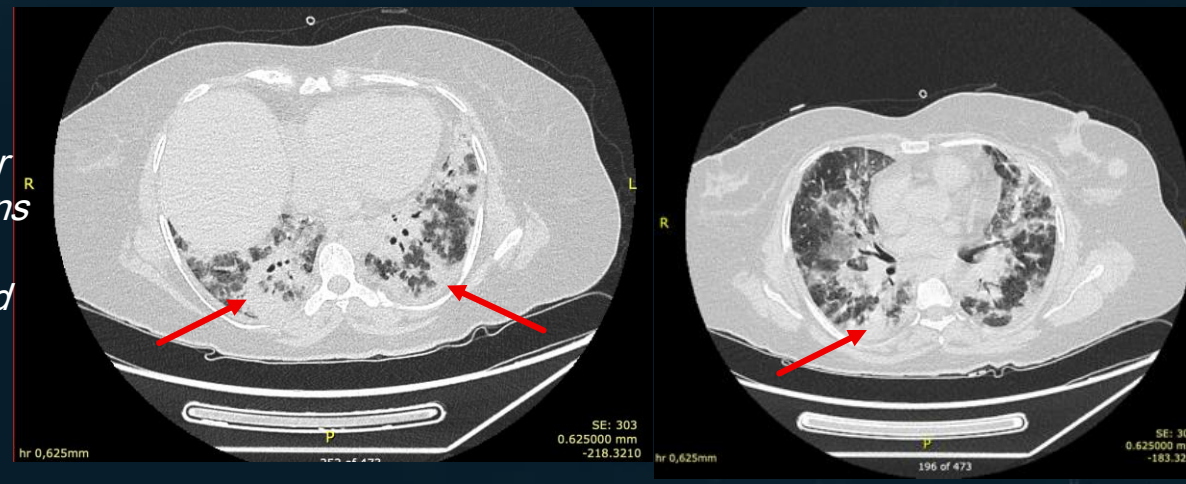


Figure 10

Figure 11

72 year old male bloody sputum- reactivation TB
Focal subpleural reticulations & GGO's intermingled with traction bronchiolectatic changes are seen in the right upper/middle lobes & left lower lobe anterior & posterior basal segments and left inferior lingular segment; likely representing post-infectious fibrotic changes (red arrows in Figure 12)

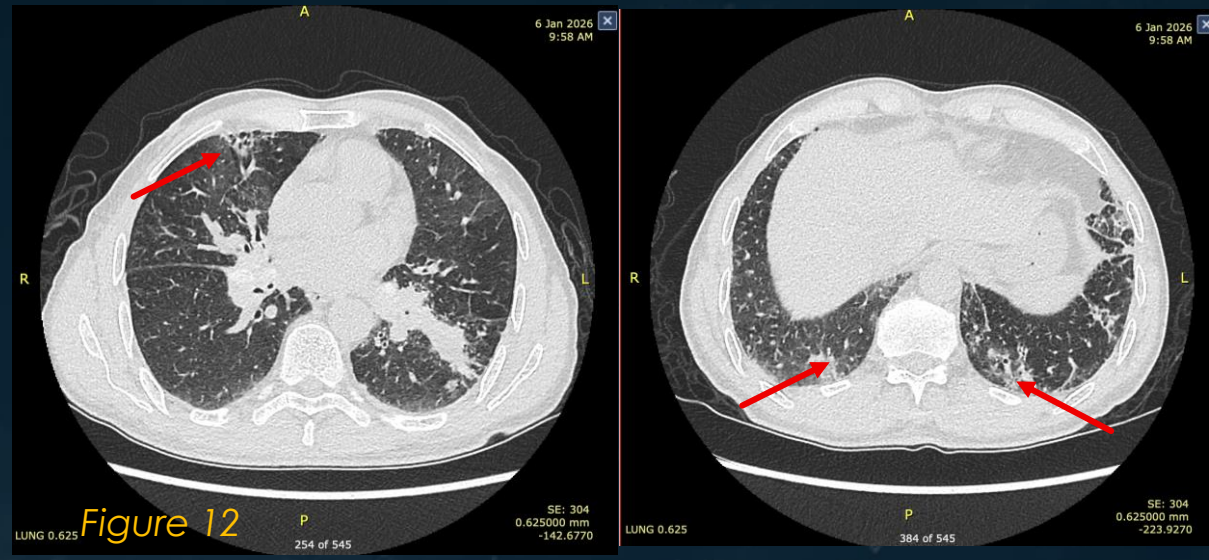


Figure 12

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