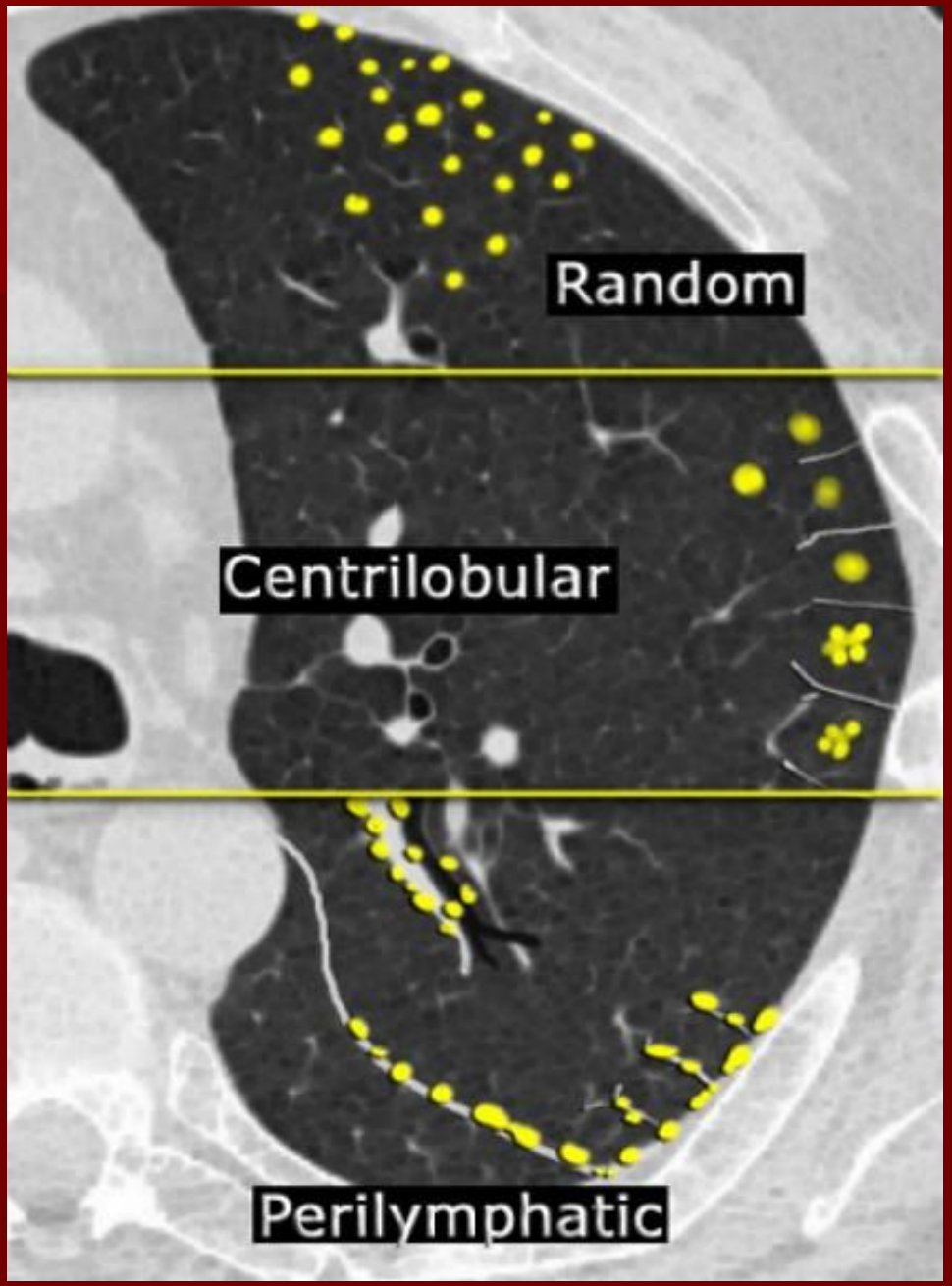
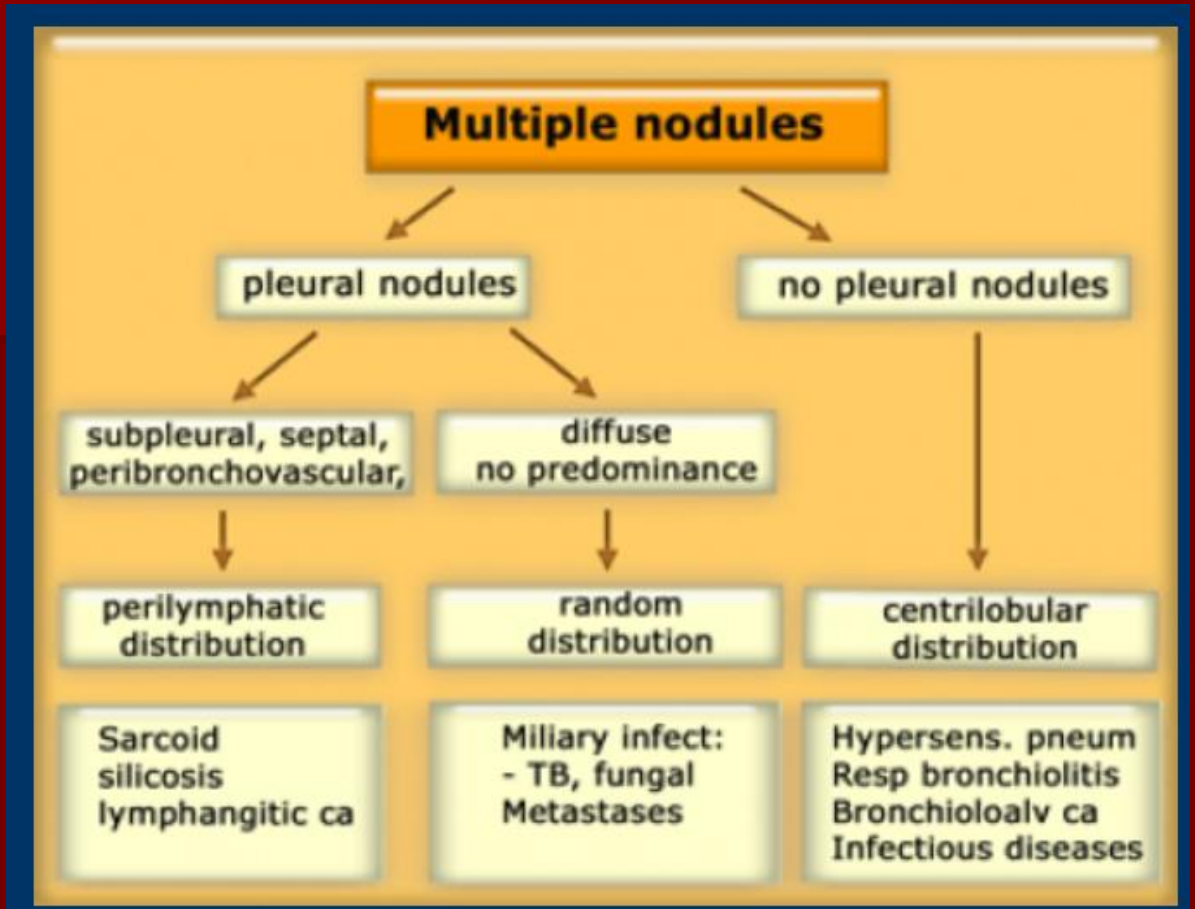

Random
Centrilobular
Perilymphatic

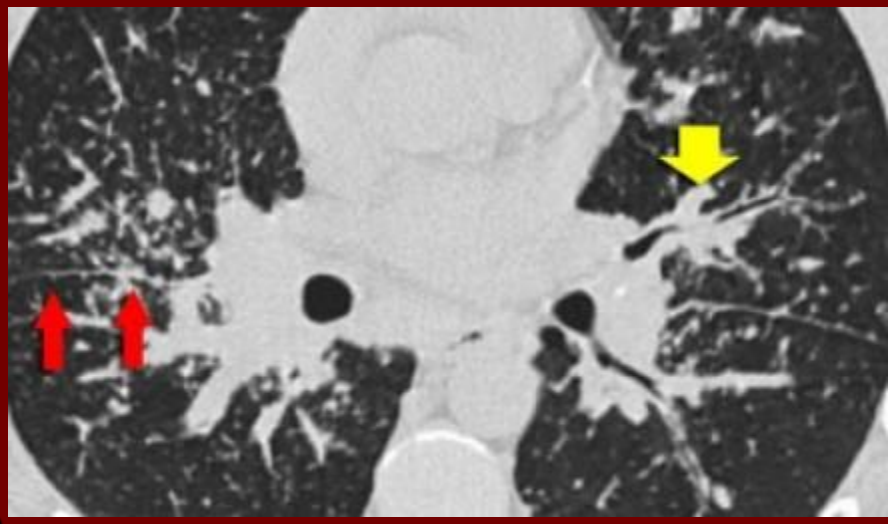


Perilymphatic nodules

Sarcoidosis
Lymphangitic spread of carcinoma
Silicosis & coal workers' pneumoconiosis
Lymphoid interstitial pneumonitis (rare)
Amyloidosis (rare)

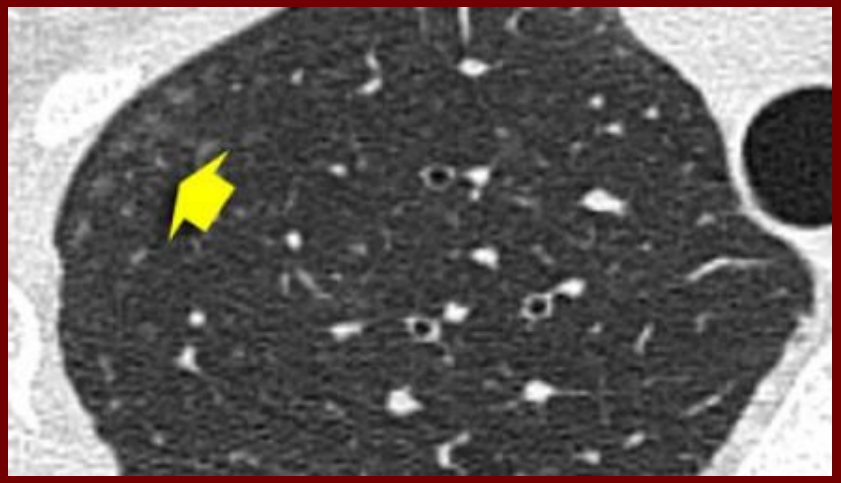
Sarcoidosis (perilymphatic distribution)

- Notice the nodules along the fissures indicating a perilymphatic distribution (red arrows).
- Always look carefully for these nodules in the subpleural region and along the fissures, because this finding is very specific for sarcoidosis.
- Typically in sarcoidosis is an upper lobe and perihilar predominance and in this case we see the majority of nodules located along the bronchovascular bundle (yellow arrow).

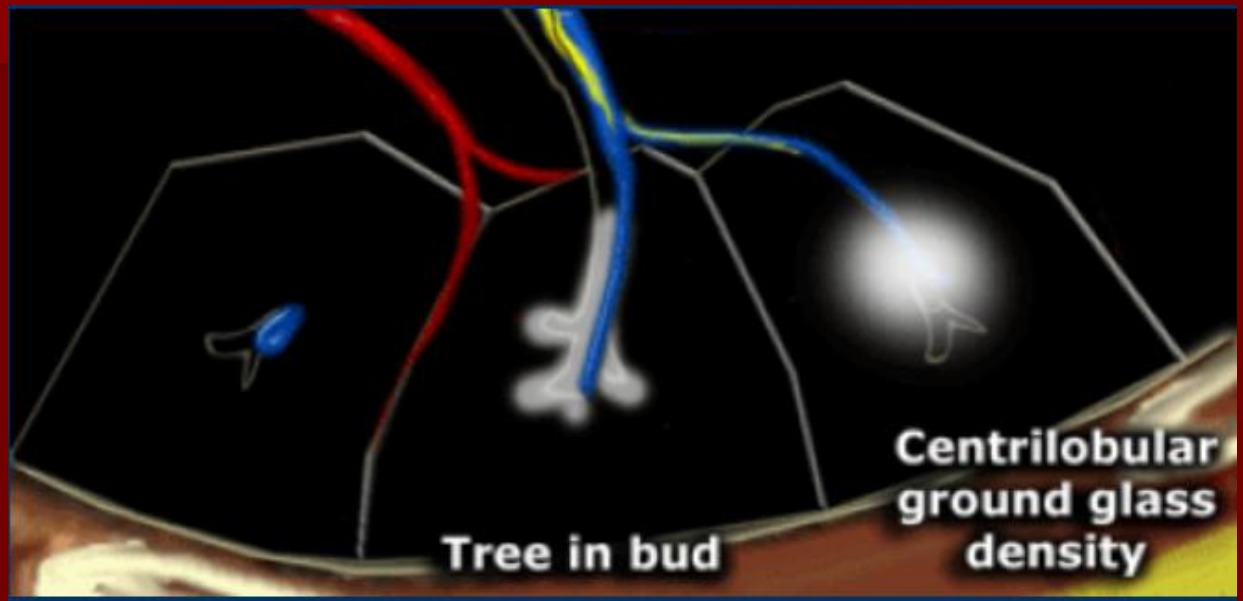


Centrilobular distribution

- Hypersensitivity pneumonitis
- Respiratory bronchiolitis in smokers
- infectious airways diseases (endobronchial spread of tuberculosis or nontuberculous mycobacteria, bronchopneumonia)
- Uncommon in bronchioloalveolar carcinoma, pulmonary edema, vasculitis



Tree in Bud



Tree in bud

Infection *Tuberculosis*
MAC (mycobacterium avium)
bacterial, fungal

Airway disease (i.e. cystic fibrosis or bronchiectasis)
ABPA (Allergic bronchopulmonary aspergilosis (rare)

Tree in bud (Active TB)

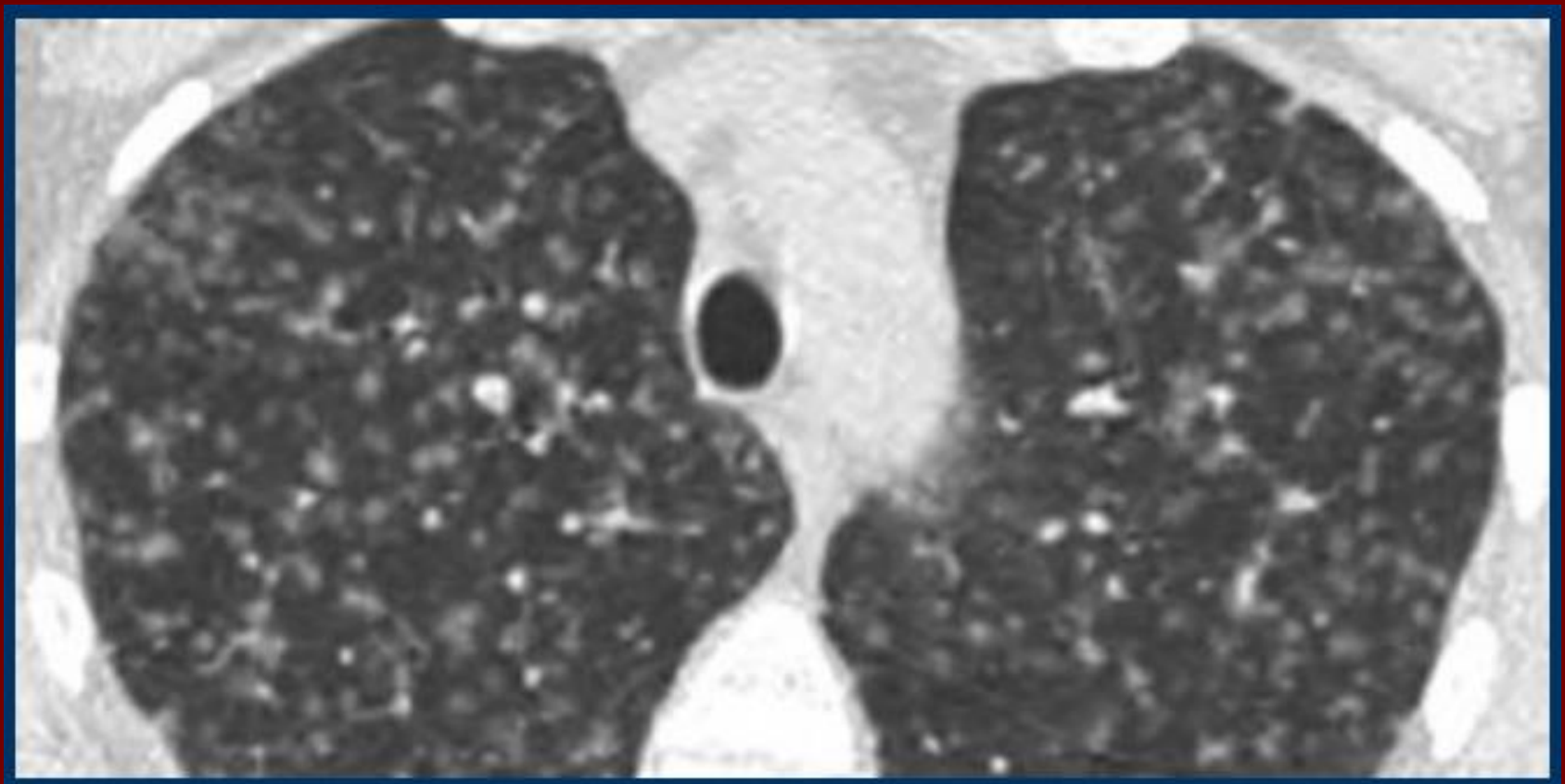
Random Nodules

- Hematogenous metastases
- Miliary tuberculosis
- Miliary fungal infections
- Sarcoidosis may mimick this pattern, when very extensive
- Langerhans cell histiocytosis (early nodular stage)

Random Nodules

Random distribution of nodules in miliary tuberculosis

Random



Langerhans cell histiocytosis: early nodular stage before the typical cysts appear.

Random nodules

TABLE 3-7. *Differential diagnosis of small nodules—random distribution*

Diagnosis	Comments
Miliary TB, Fungus	Common; nodules may sometimes appear related to vessels
Hematogenous metastases	Common; nodules may sometimes appear related to vessels
Silicosis/Coal worker's pneumoconiosis	When numerous, may appear diffuse and random; centrilobular and subpleural nodules usually predominate; posterior predominance common
Histiocytosis X	When numerous, may appear diffuse and random; otherwise centrilobular

Perilymphatic Nodules

TABLE 3-8. *Differential diagnosis of small nodules–"perilymphatic" distribution*

Diagnosis	Comments
Sarcoidosis	Common; peribronchovascular and subpleural nodules predominate; septal and centrilobular nodules less common; patchy; upper lobe predominance; rarely cavitate; may calcify
Silicosis/Coal worker's pneumoconiosis	Common; centrilobular and subpleural nodules predominate; peribronchovascular and septal less common; more symmetrical than sarcoid; upper lobe, posterior predominance; may calcify in silicosis
Lymphangitic carcinomatosis, Lymphoma	Nodules not common; peribronchovascular, septal, subpleural nodules predominate
Amyloidosis	Subpleural, septal, centrilobular; may calcify; rare
Lymphocytic interstitial pneumonia (LIP) in AIDS patients	Ill-defined centrilobular nodules; peribronchovascular; septal

Small Centilobular nodules

TABLE 3-9. *Differential diagnosis of small centrilobular nodules*

Diagnosis	Comments
Endobronchial spread of TB, Nontuberculous mycobacteria	Common; associated with bronchiolar abnormalities (''tree-in-bud'')
Bronchopneumonia	Common; findings similar to those of bronchogenic spread of TB
Asian panbronchiolitis	Common; associated with bronchiolar abnormalities; bronchiolar dilatation; findings of air trapping
Hypersensitivity pneumonitis	Common; nodules of ground-glass opacity; bronchiolar abnormalities lacking; larger areas of ground-glass opacity may be present
Bronchiolitis obliterans organizing pneumonia/ Cryptogenic organizing pneumonia (BOOP/COP)	Common; areas of ground-glass opacity or consolidation predominate; bronchiolar abnormalities lacking
Respiratory bronchiolitis	Common; nodules of ground-glass opacity; bronchiolar abnormalities lacking; larger areas of ground-glass opacity may be present
Asbestosis	Common in early stages; associated with findings of fibrosis; bronchiolar abnormalities lacking
Edema, Vasculitis, Talcosis	Common with air-space edema; septal thickening may be present; bronchiolar abnormalities lacking
Bronchioloalveolar carcinoma	Bronchiolar abnormalities lacking
Bronchiolitis obliterans	Uncommon; air trapping may predominate; bronchiolar abnormalities lacking