



Airway diseases

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Associate Professor of Radiology
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September 14, 2019 7:45-8:15 am



Disclosures

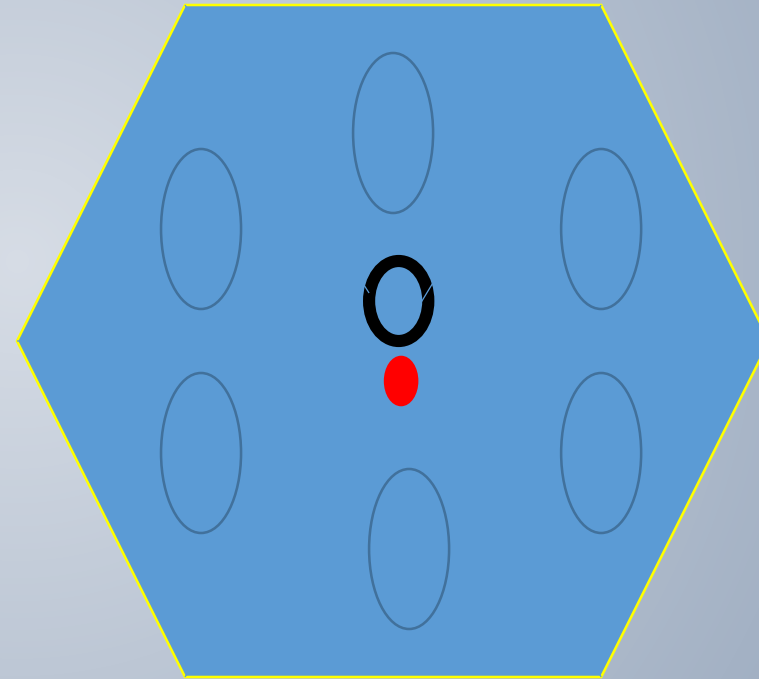
- › Speaker for Genentech and Boehringer Ingelheim
- › Consultant for Genentech and Boehringer Ingelheim



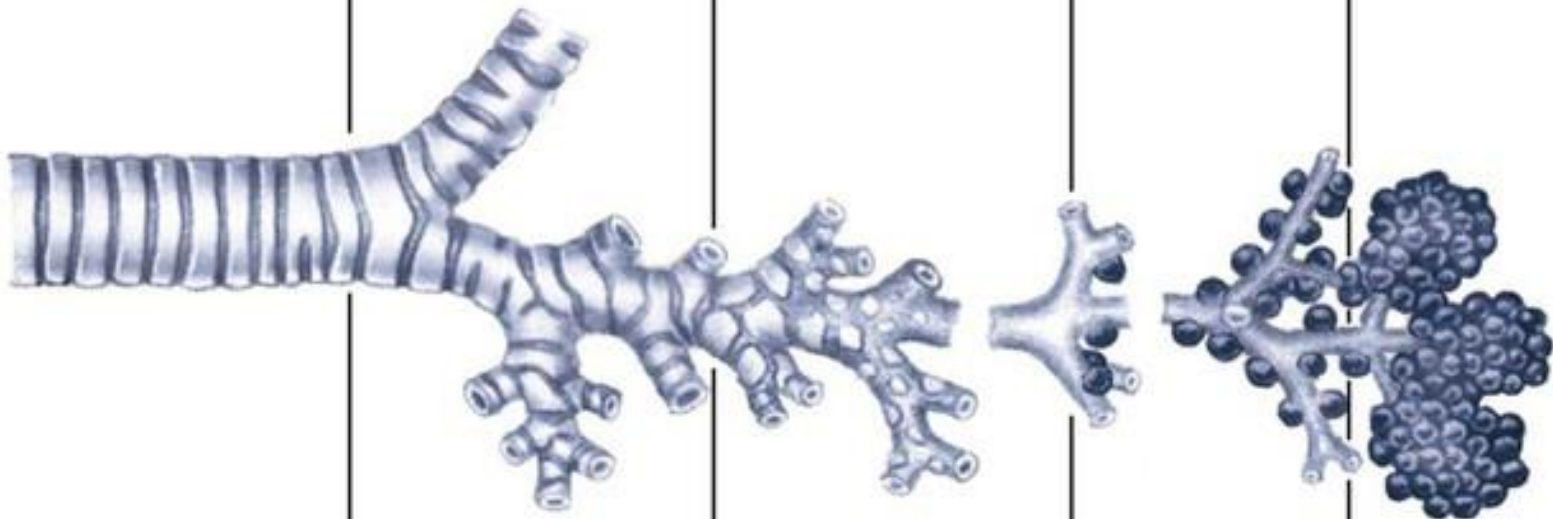
Objectives

- › Upon completion of this learning activity, participants should be able to differentiate disease of conducting airways and respiratory airways.
- › Upon completion of this learning activity, participants should be able to narrow differential diagnosis on chest CT for bronchiectasis
- › Upon completion of this learning activity, participants should be able to identify secondary findings of small airway disease.

Secondary Pulmonary Lobule





Conducting Airways			Respiratory Unit	
Trachea	Segmental bronchi	Subsegmental bronchi (bronchioles)		Alveolar ducts
		Nonrespiratory	Respiratory	
				
Generations	8	16	24	26

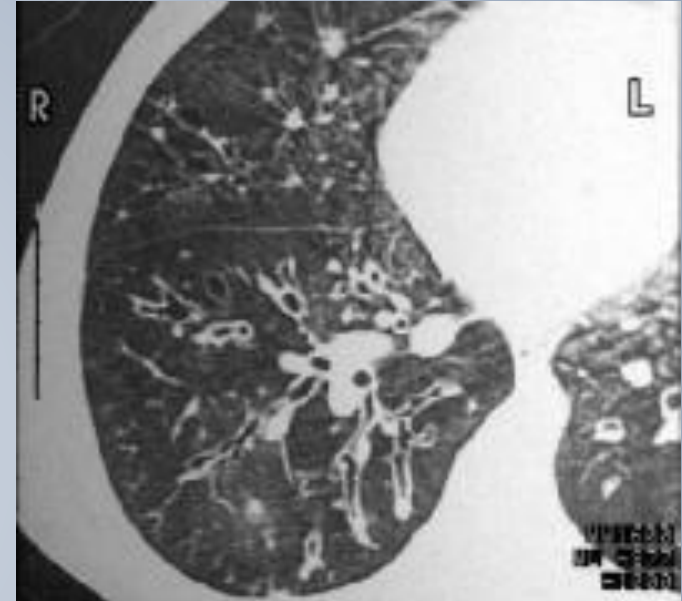
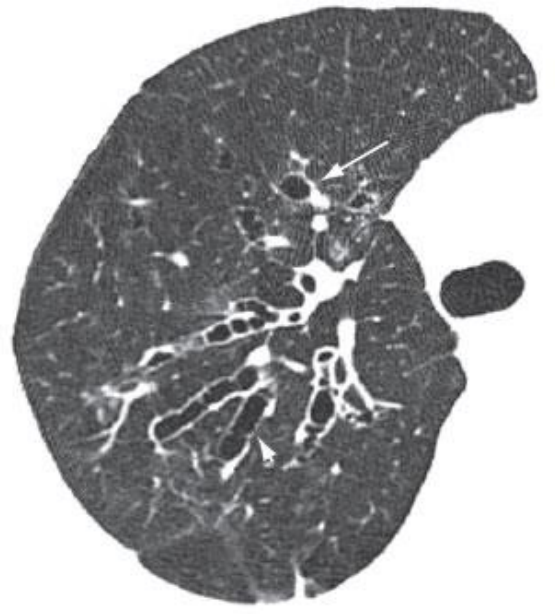
Transport gas

Gas exchange



Conducting airways

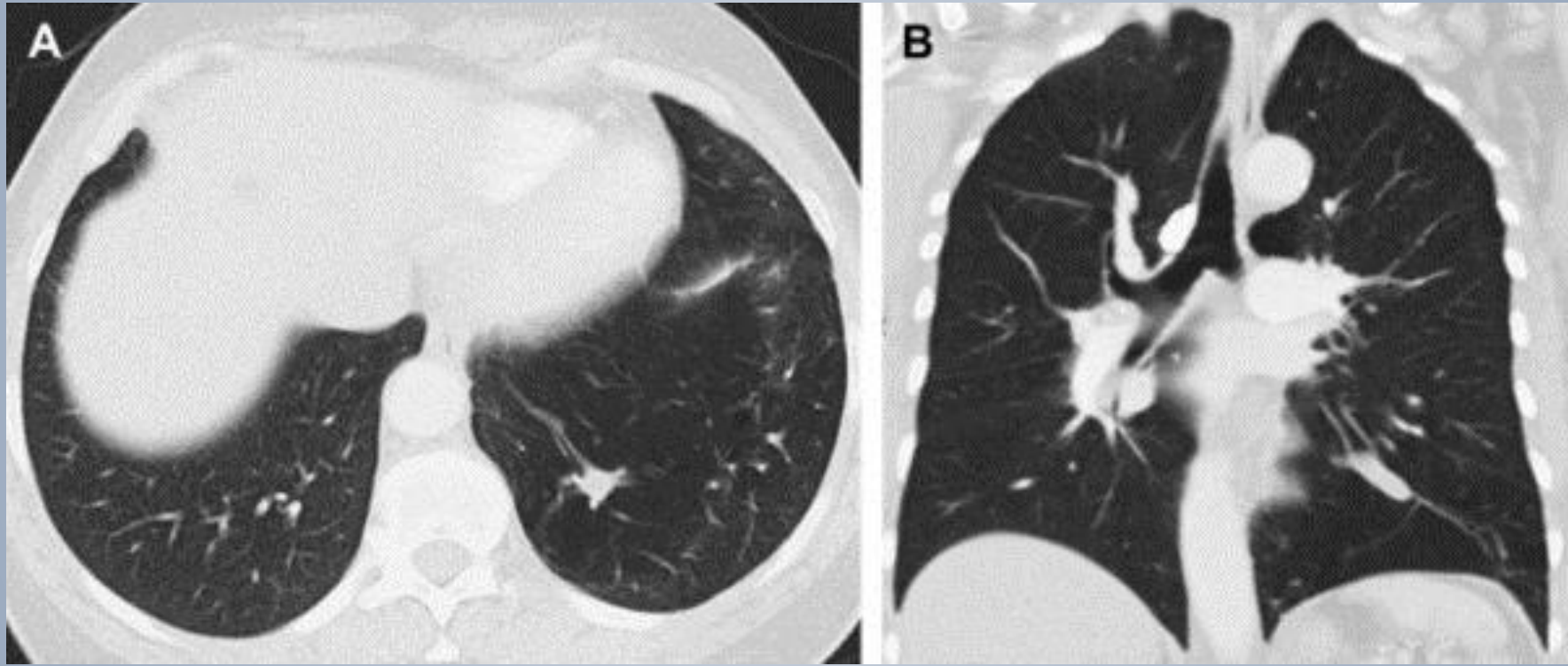
Classification of Bronchiectasis



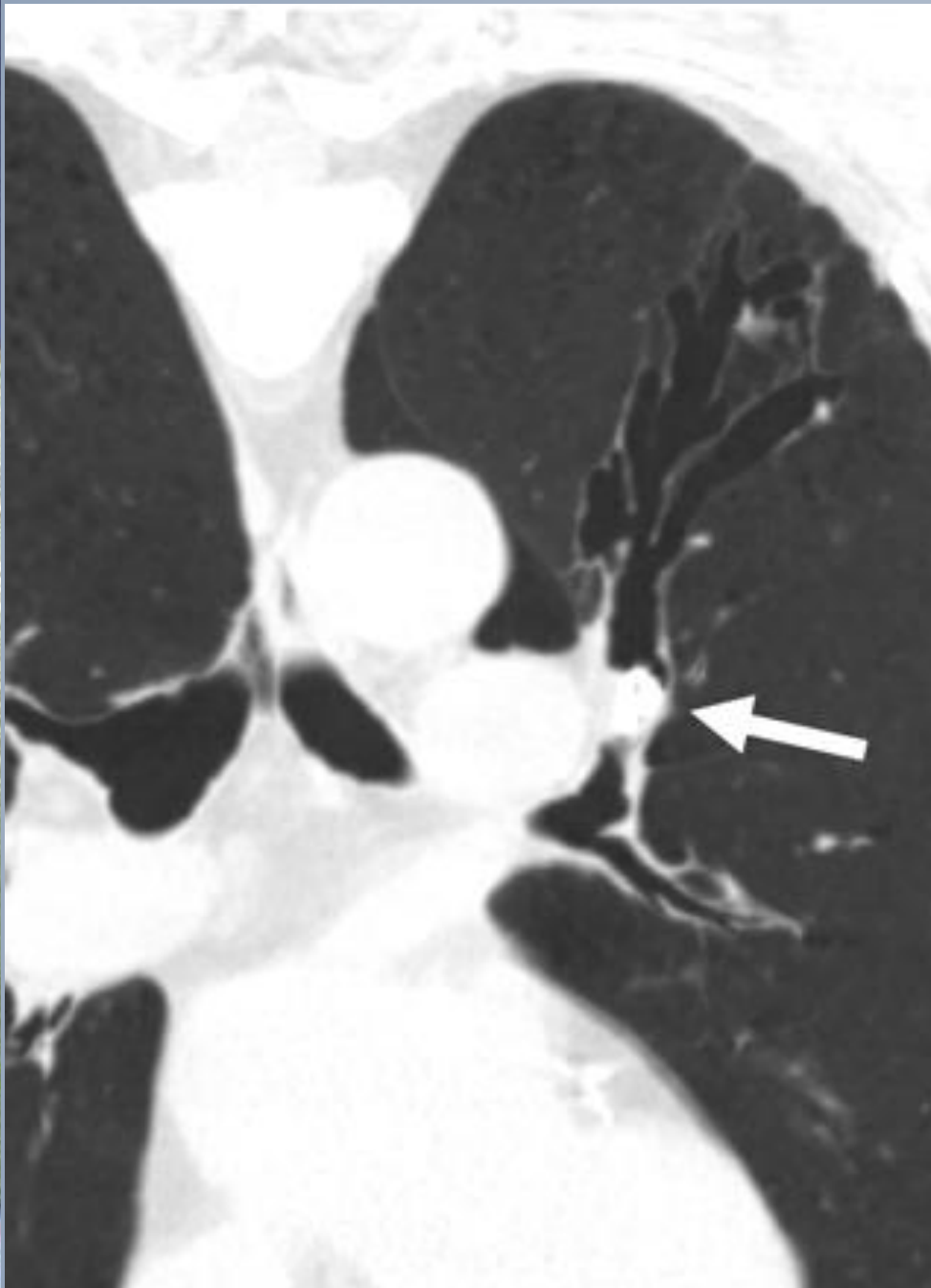
Bronchiectasis

Focal

Diffuse

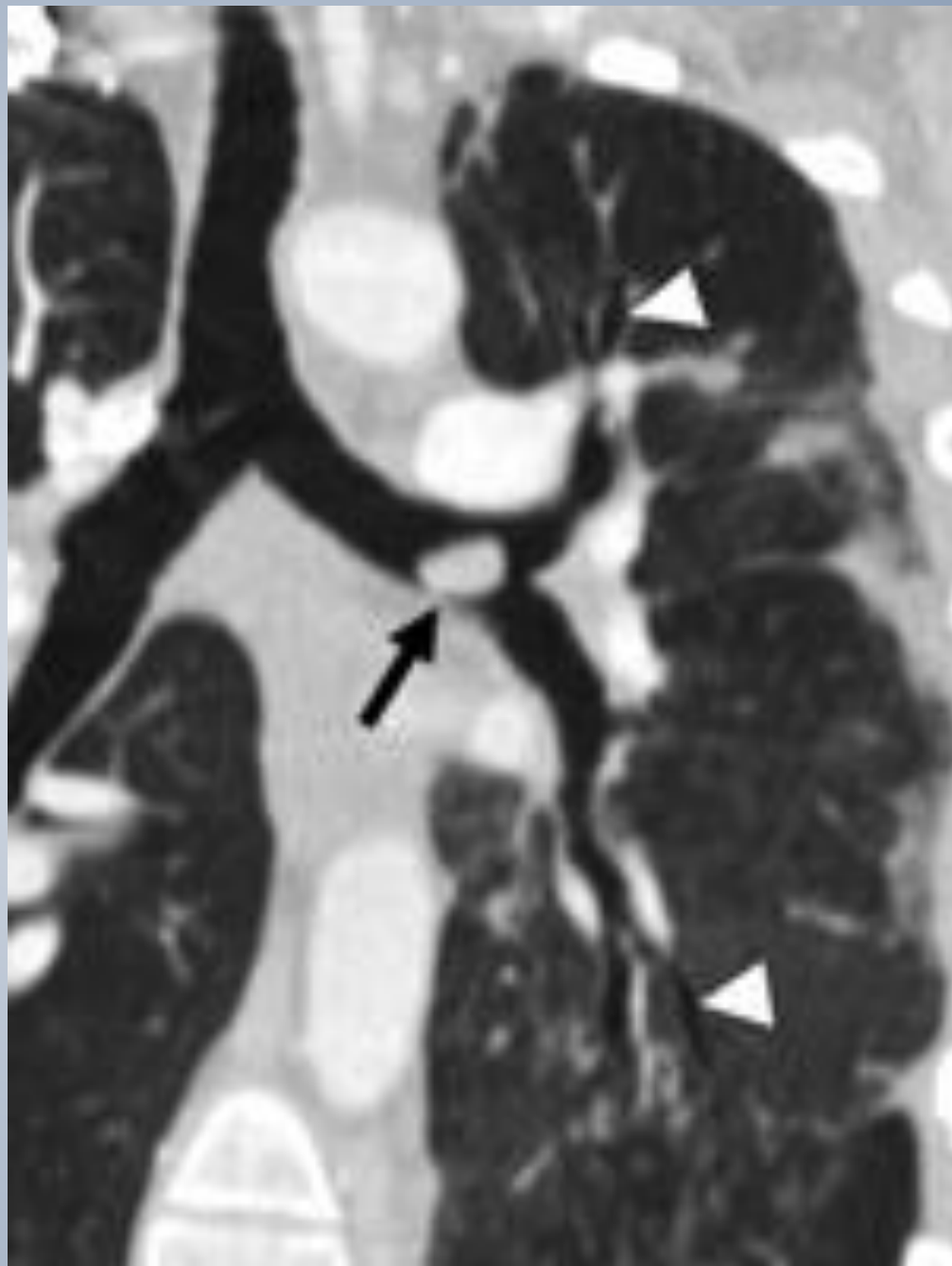


Congenital Bronchial Atresia



Broncholithiasis

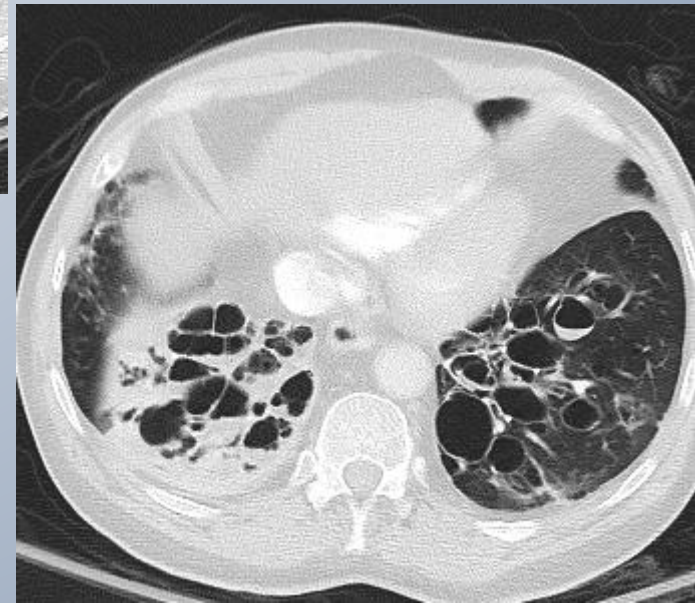
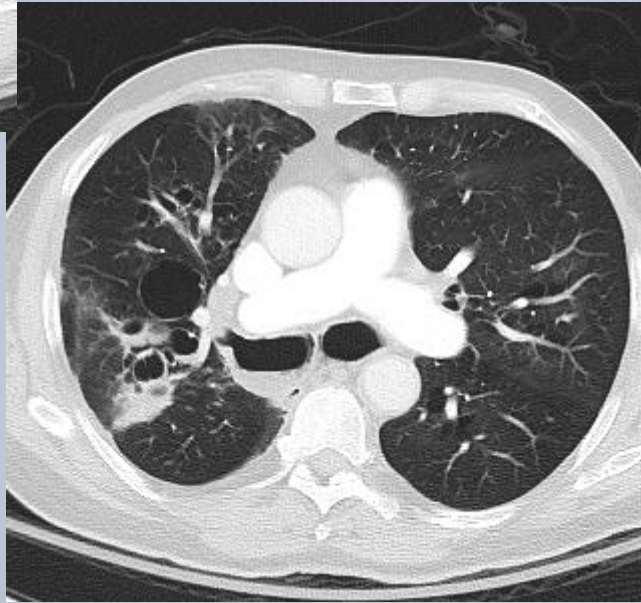
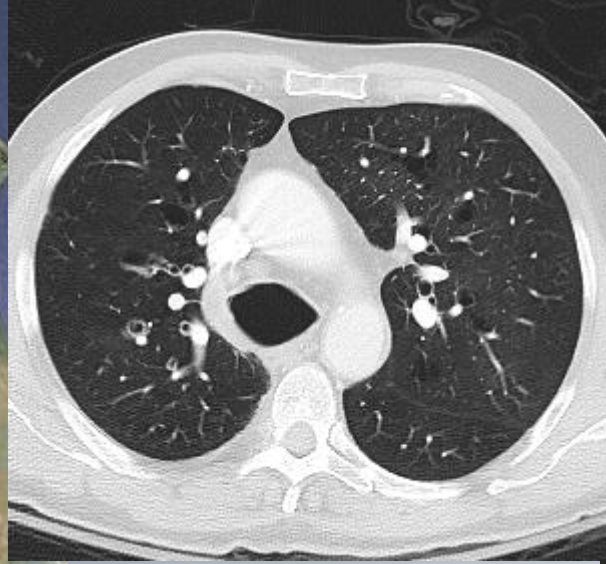
BRONCHIAL CARCINOID



Diffuse Bronchiectasis

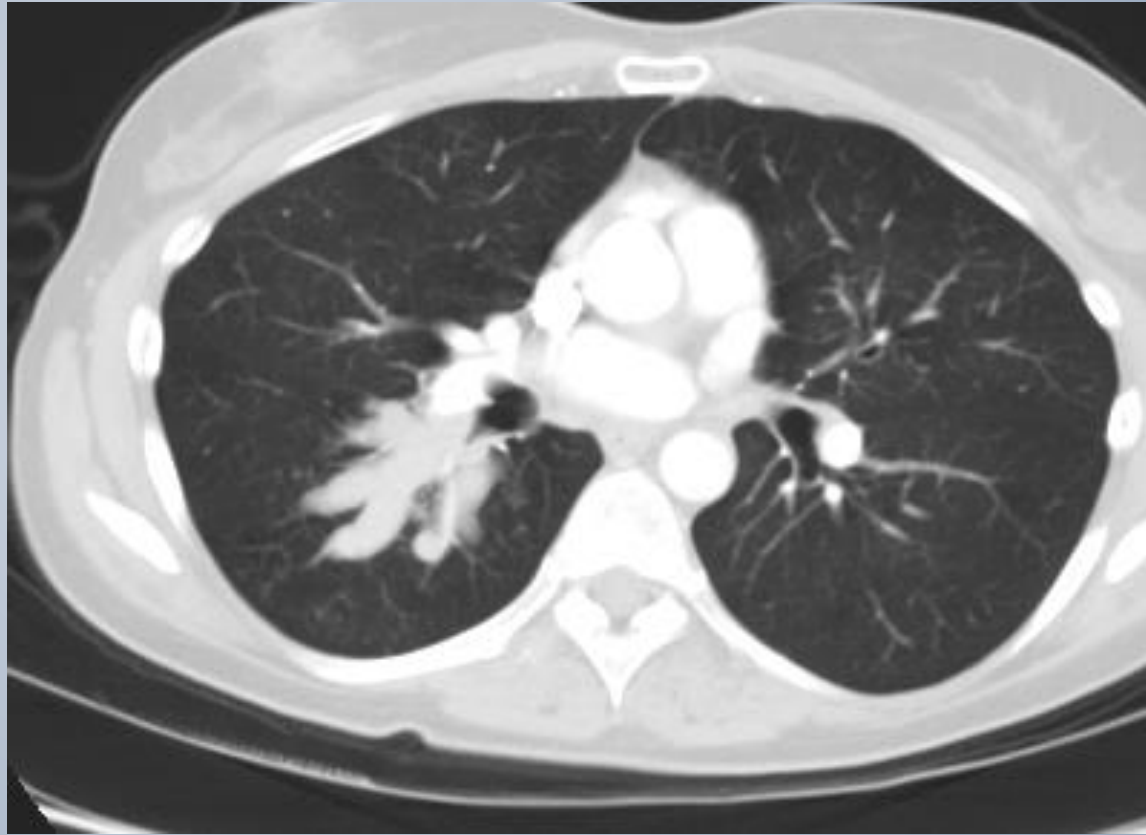
Central

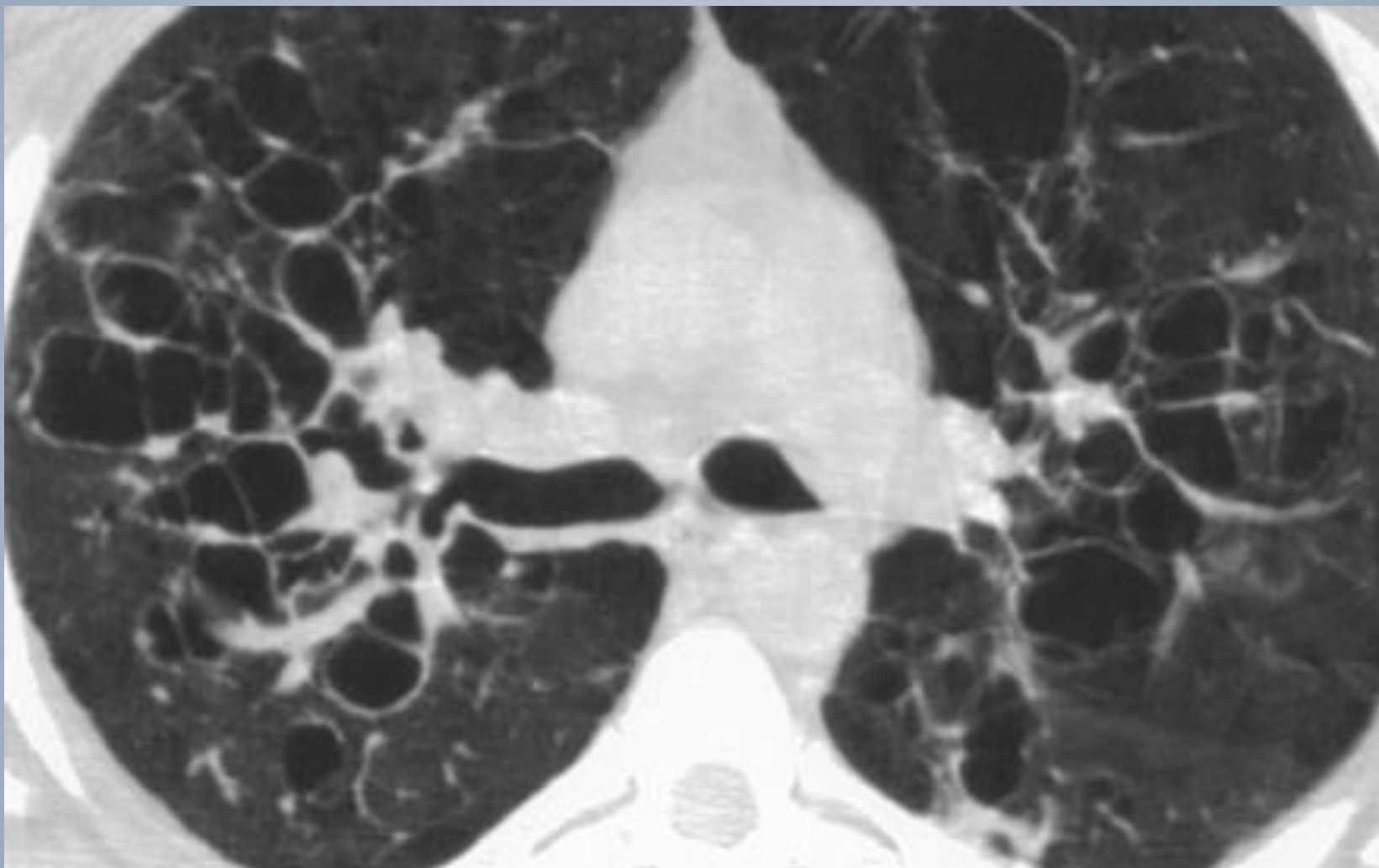
Not Central



Mounier Kuhn

ABPA





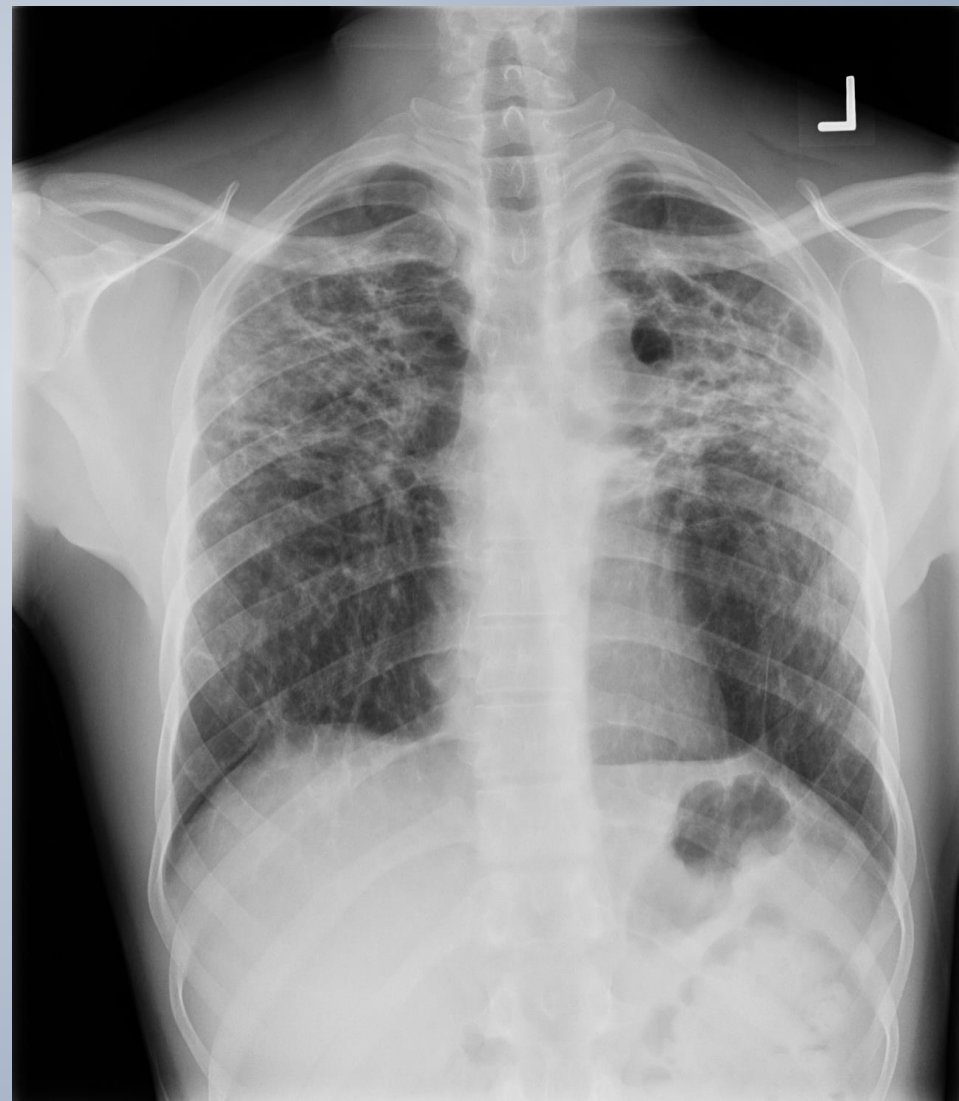
Williams Campbell

Not Central Bronchiectasis

Upper

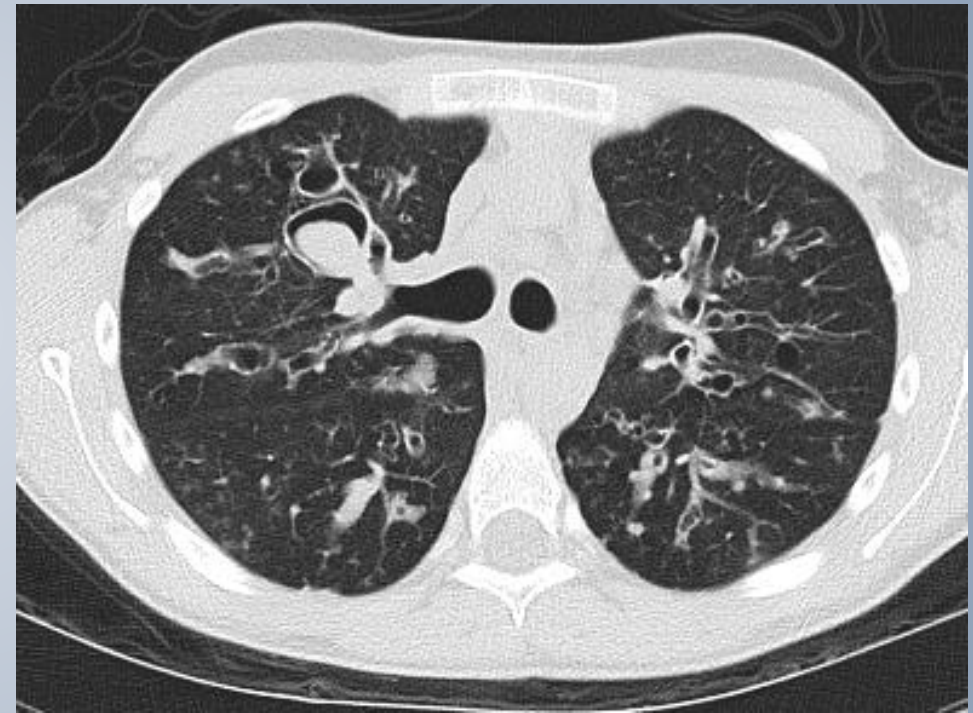
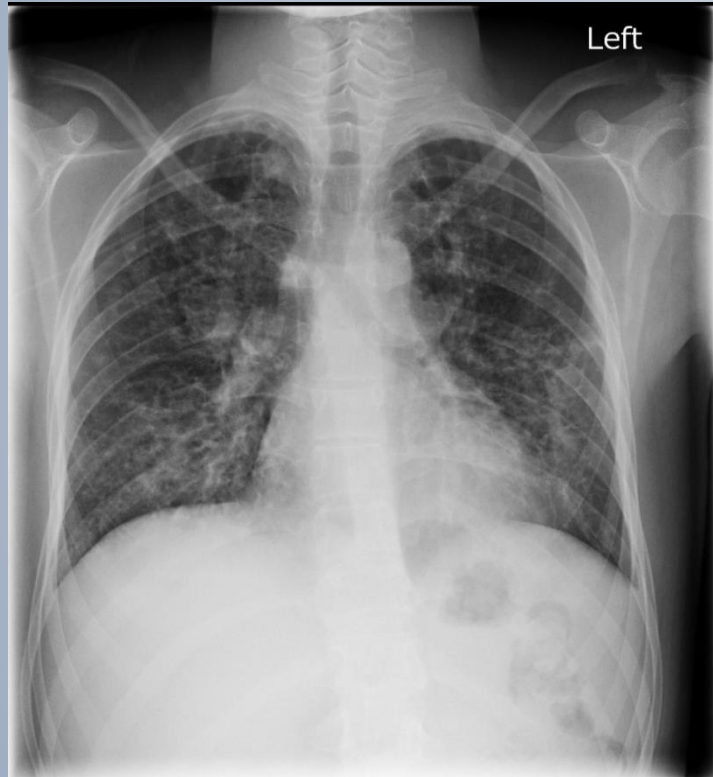
Middle/Lower

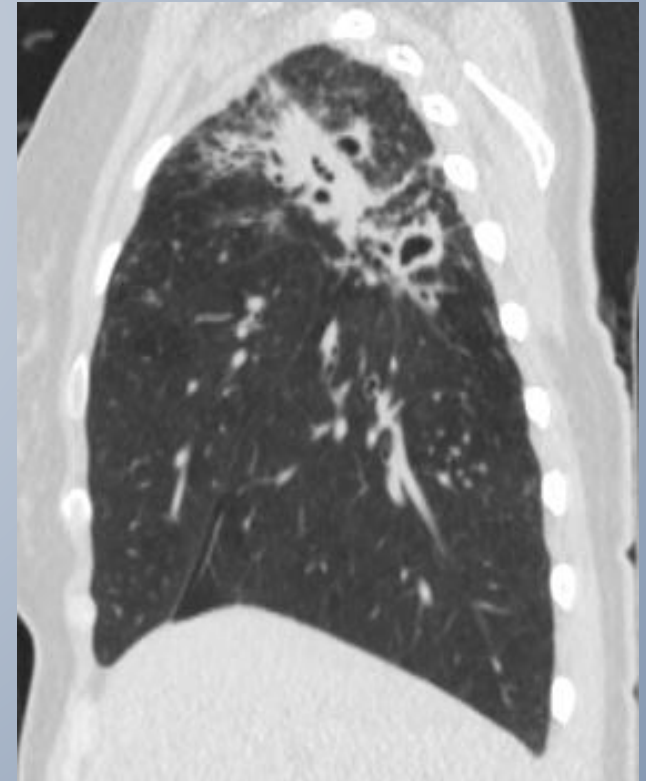
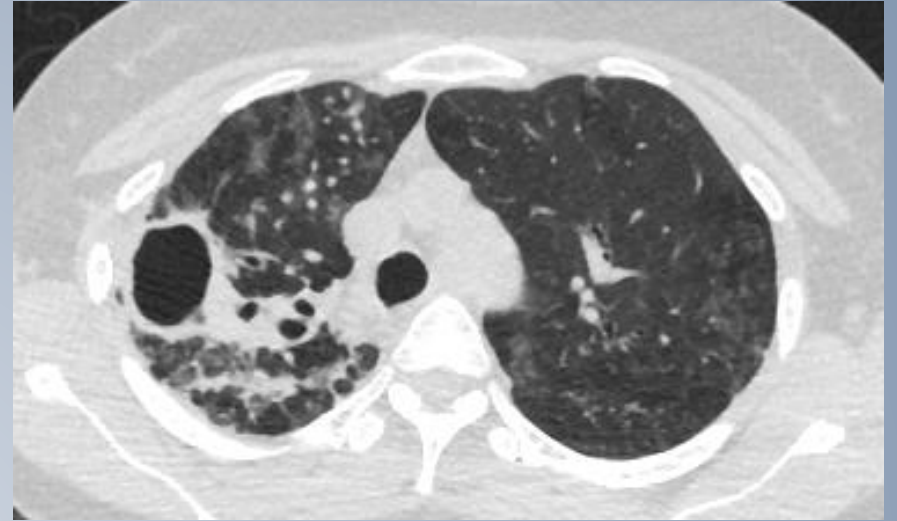
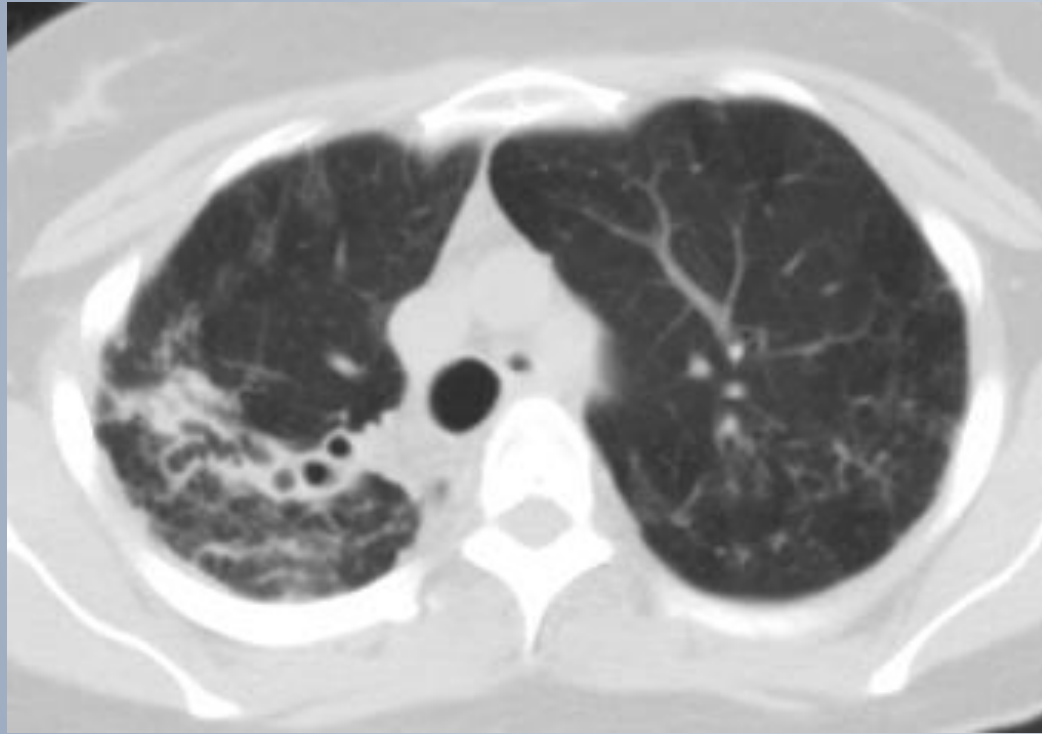
Stage 4 Sarcoidosis





Cystic Fibrosis





Middle and Lower Lobe

MAI

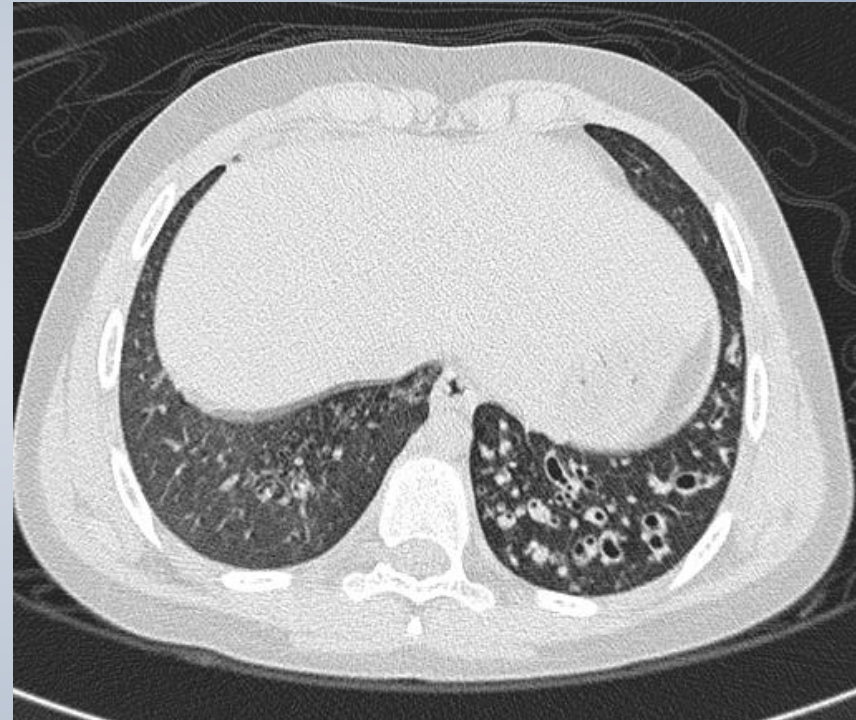
Dysmotile Cilia Syndrome

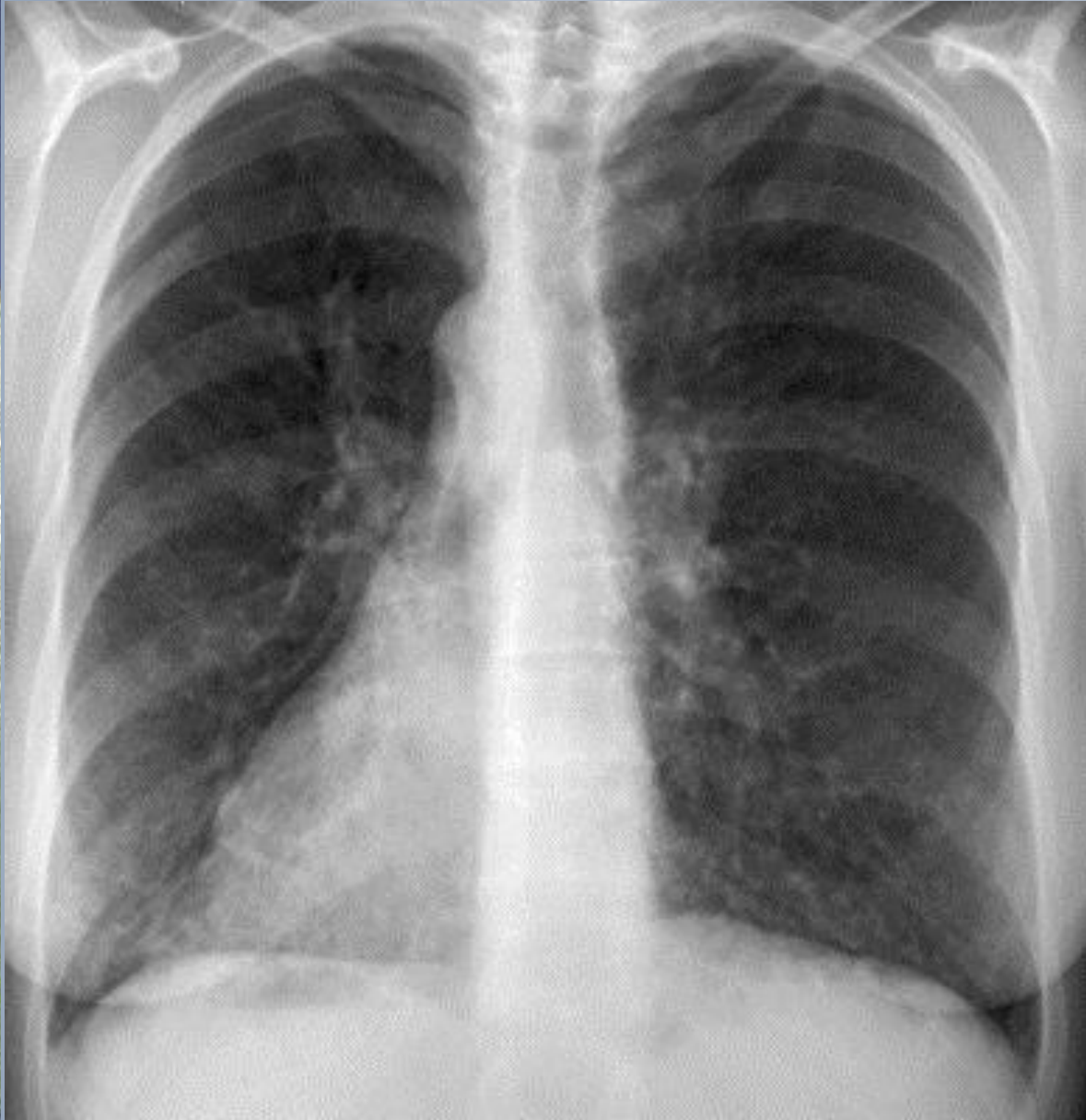
Infectious

MAI

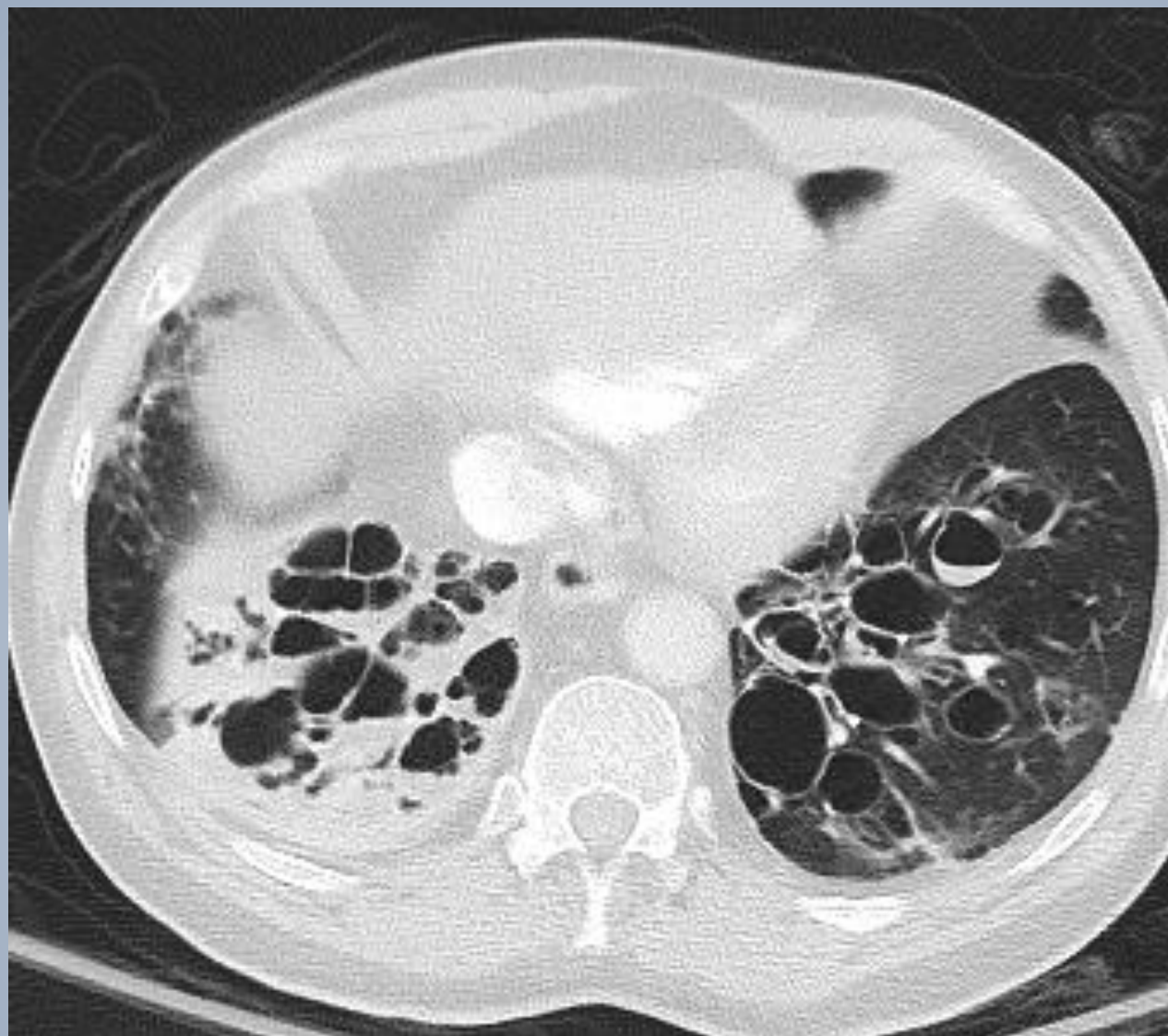


Ciliary dyskinesia





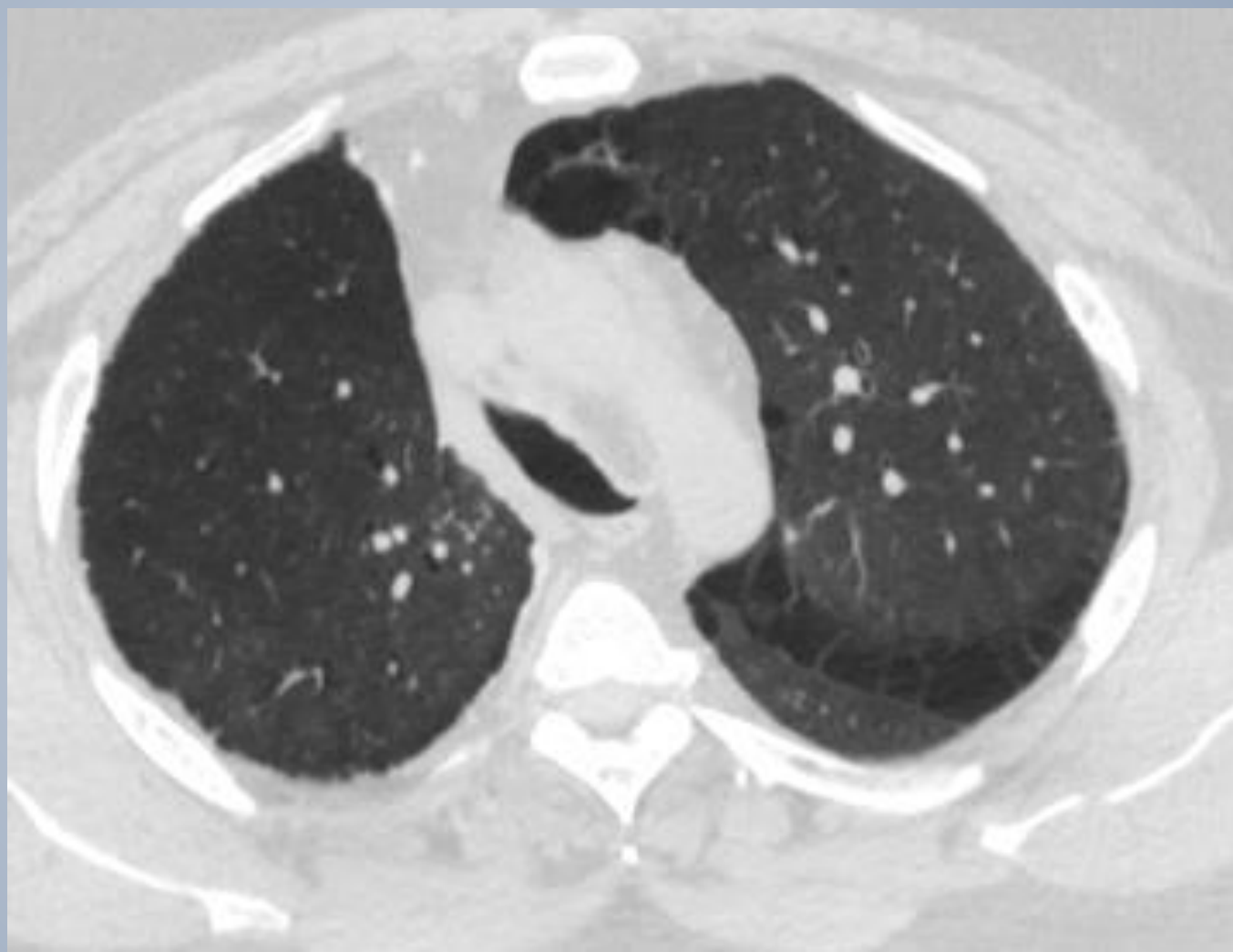
**Kartagner's
Syndrome**

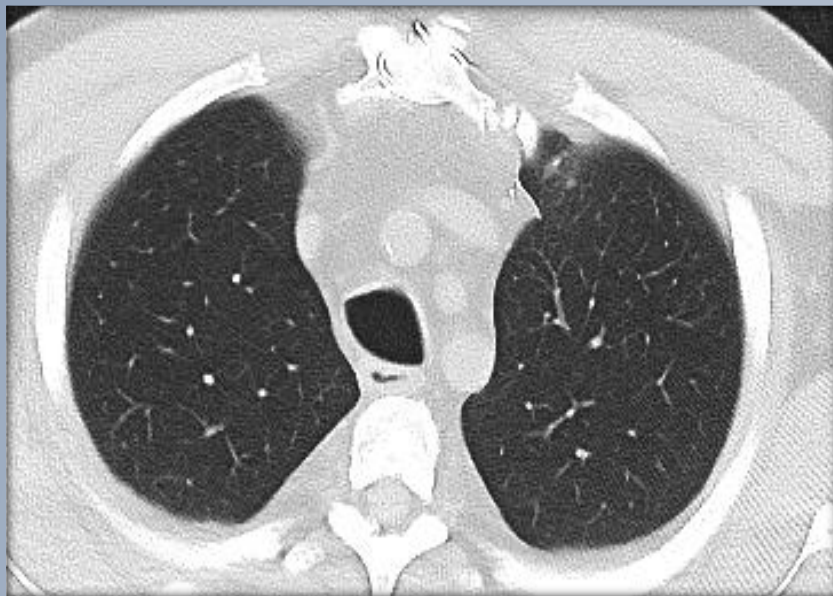


Recurrent Infection

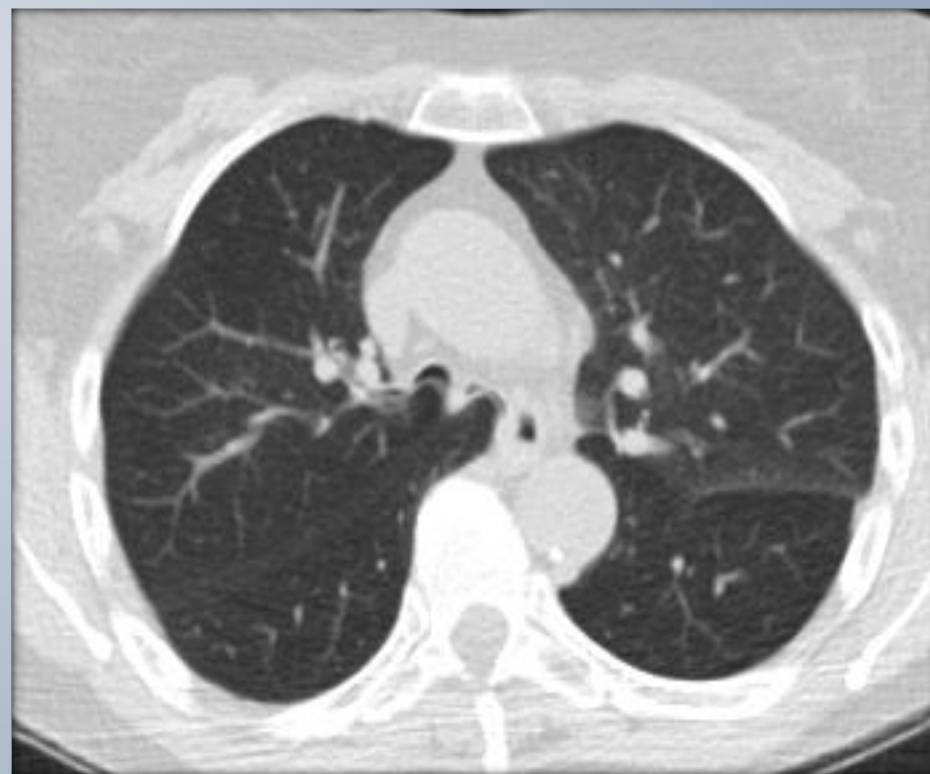


Tracheal Narrowing



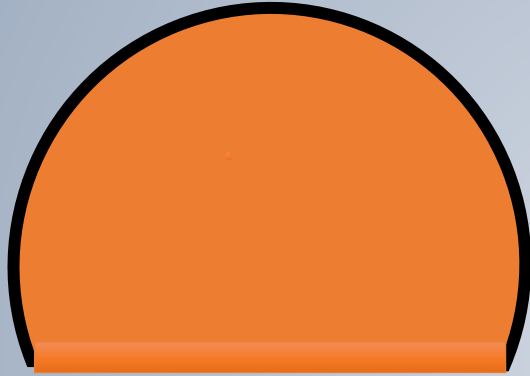


What is EDAC?

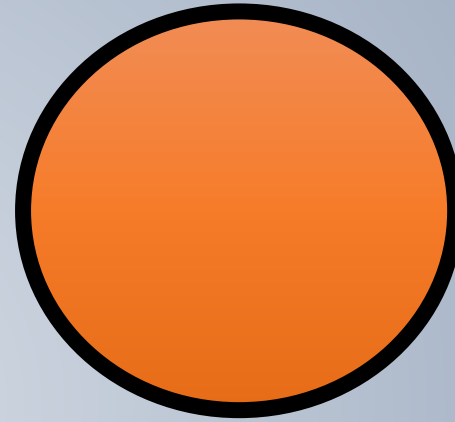




Tracheal Wall Thickening

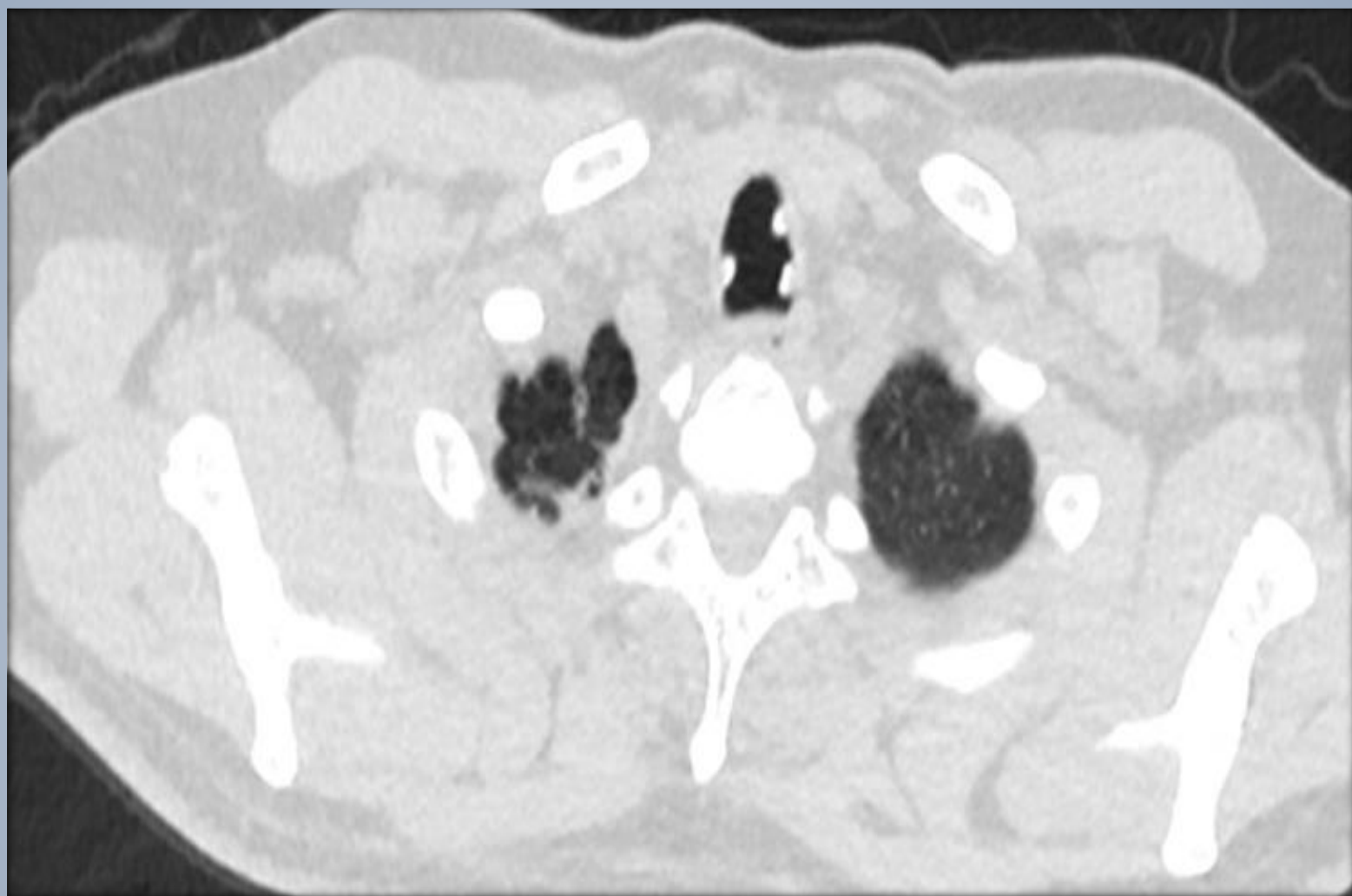


- › Relapsing Polychondritis
- › TBPOCP

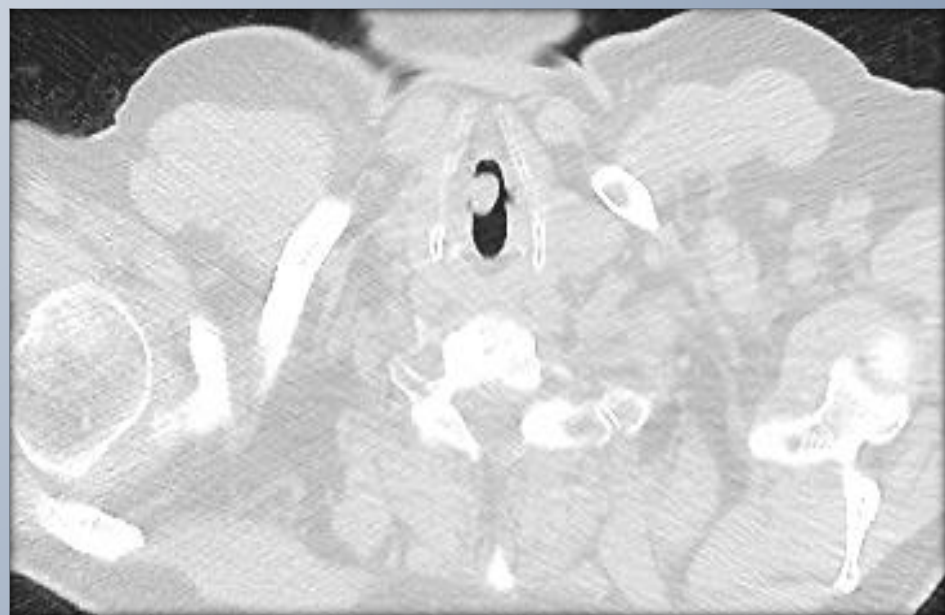
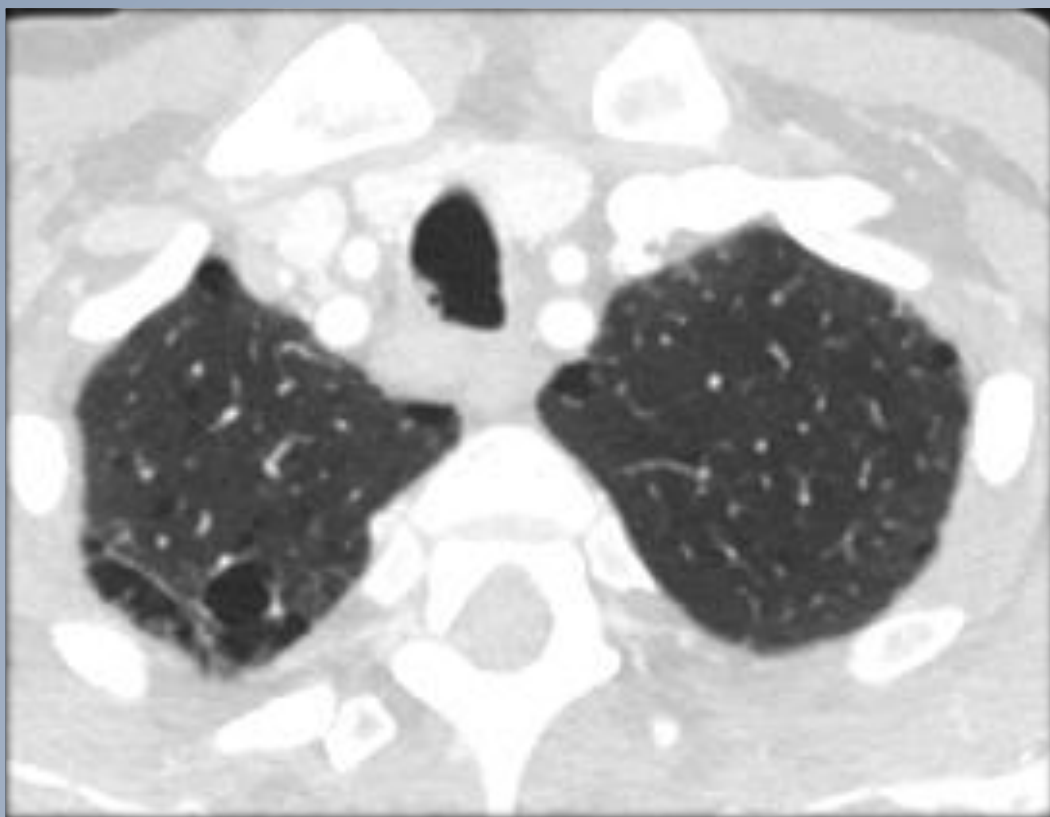


- › Wegners
- › Amyloid
- › Sarcoid
- › Crohn's disease









Bronchioles Dilating





Respiratory Airways

Small Airway Disease



Small Airways Disease

DIRECT SIGNS

- › Increased size of bronchus
- › Mucoid impaction
- › Tree in bud
- › Centrilobular nodules

INDIRECT SIGNS

- › Mosaic attenuation
- › Air trapping

Direct Signs

- › Increased size of bronchus
- › Muroid impaction
- › Tree in bud
- › Centrilobular nodules

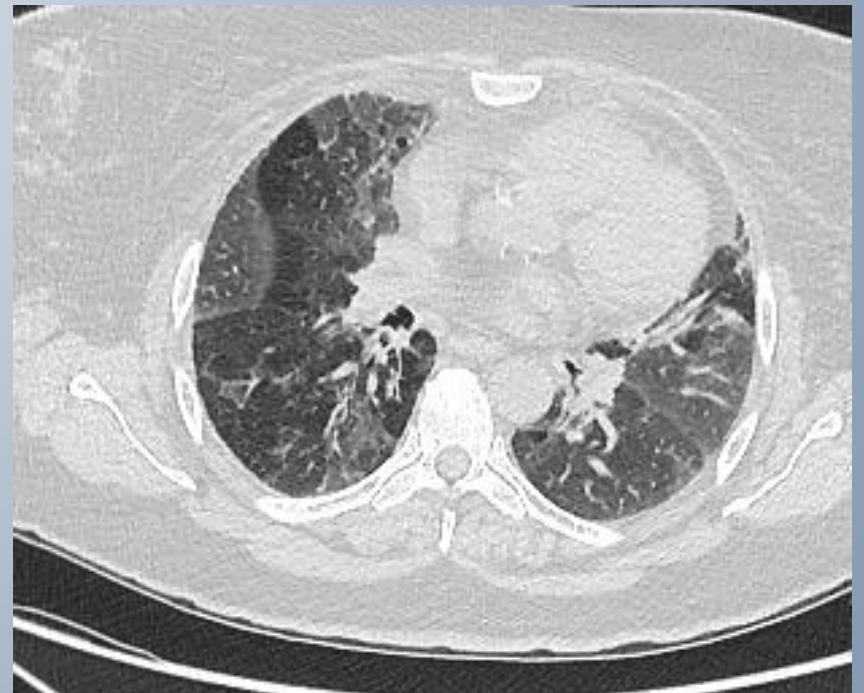


Indirect Signs

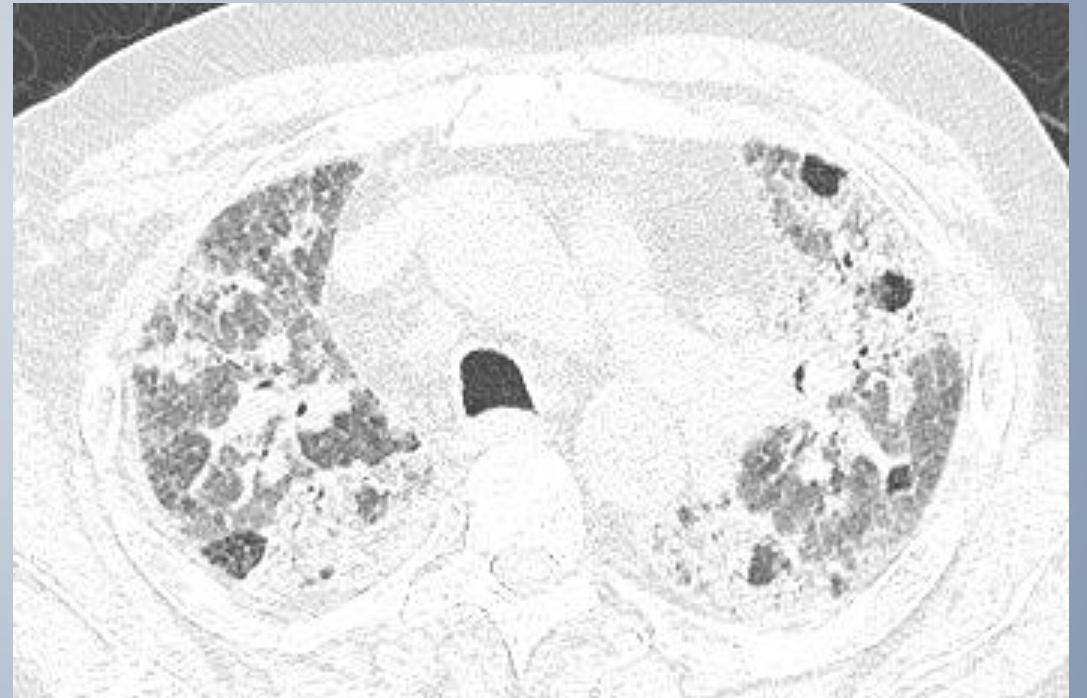
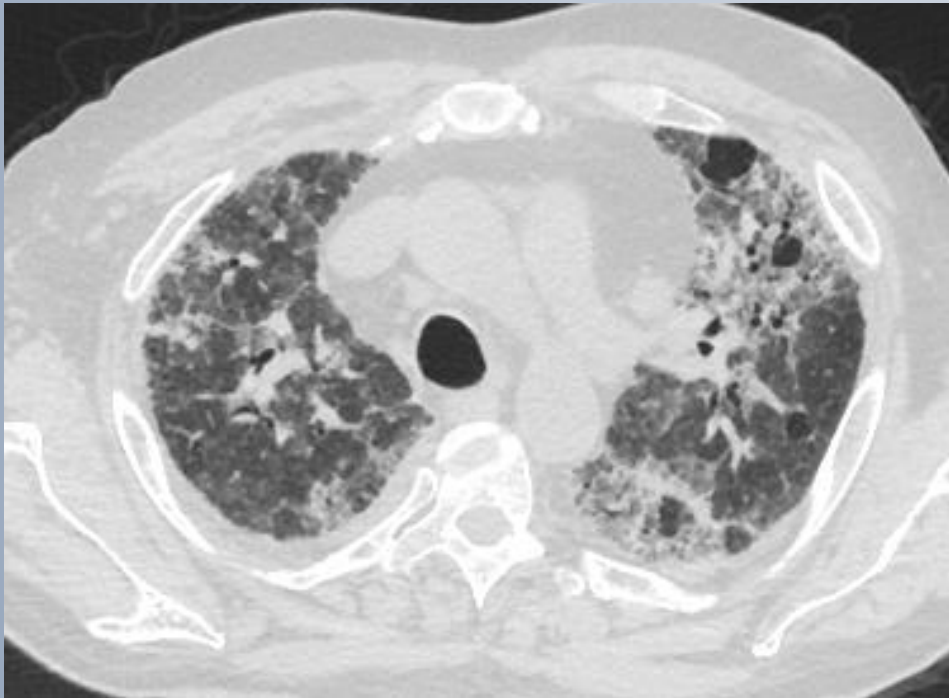
Inspiration



Expiration



Inspiration vs expiration





Types of Small Airways Disease

CONSTRUCTIVE BRONCHIOLITIS

- › Toxic inhalation (Gulf War)
- › Transplant rejection
- › Rheumatoid arthritis

Constrictive Bronchiolitis



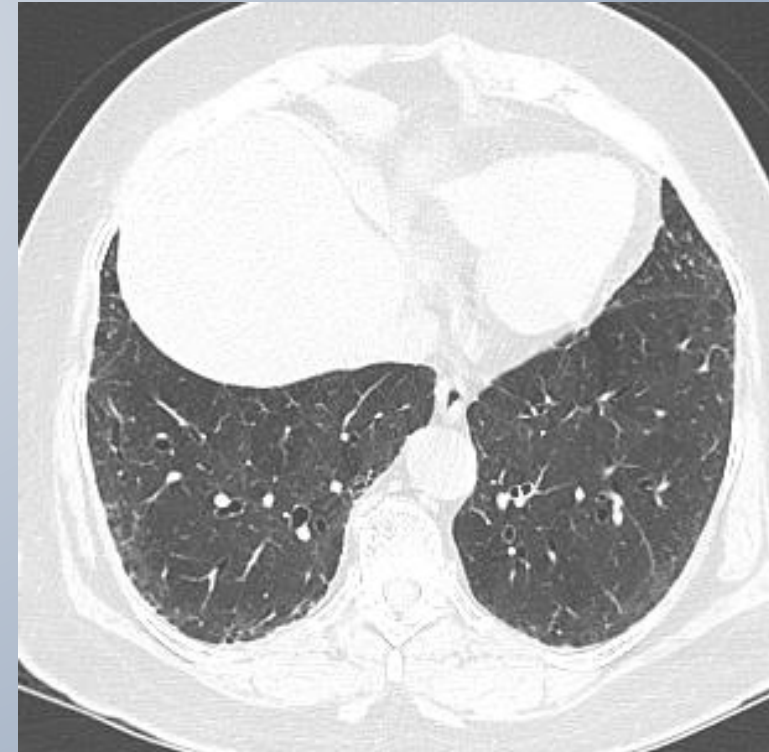
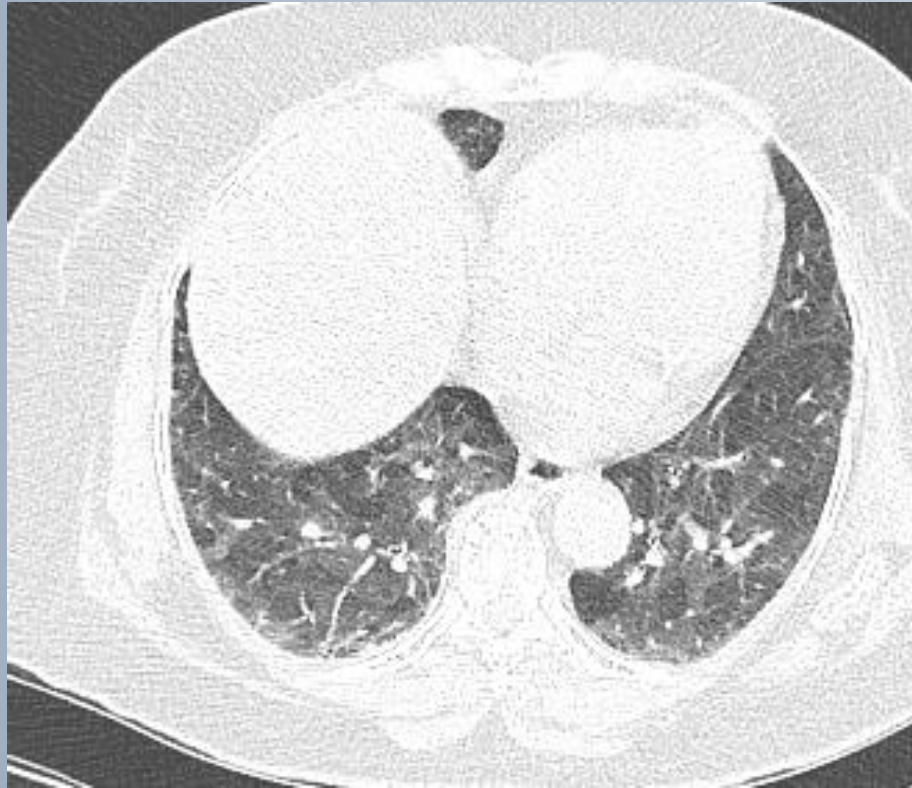
Stem Cell Transplant



Source: Michael A. Grupp, Jack A. Elias, Jay A. Fishman, Robert M. Kotloff, Alan I. Pack, Robert M. Senoj, Mark D. Siegel, *Fishman's Pulmonary Diseases and Disorders*, www.accessmedicine.com
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Rheumatoid arthritis



CHP





Types of Small Airways Disease

CELLULAR BRONCHIOLITIS

- › RB-ILD
- › CHP
- › MAI

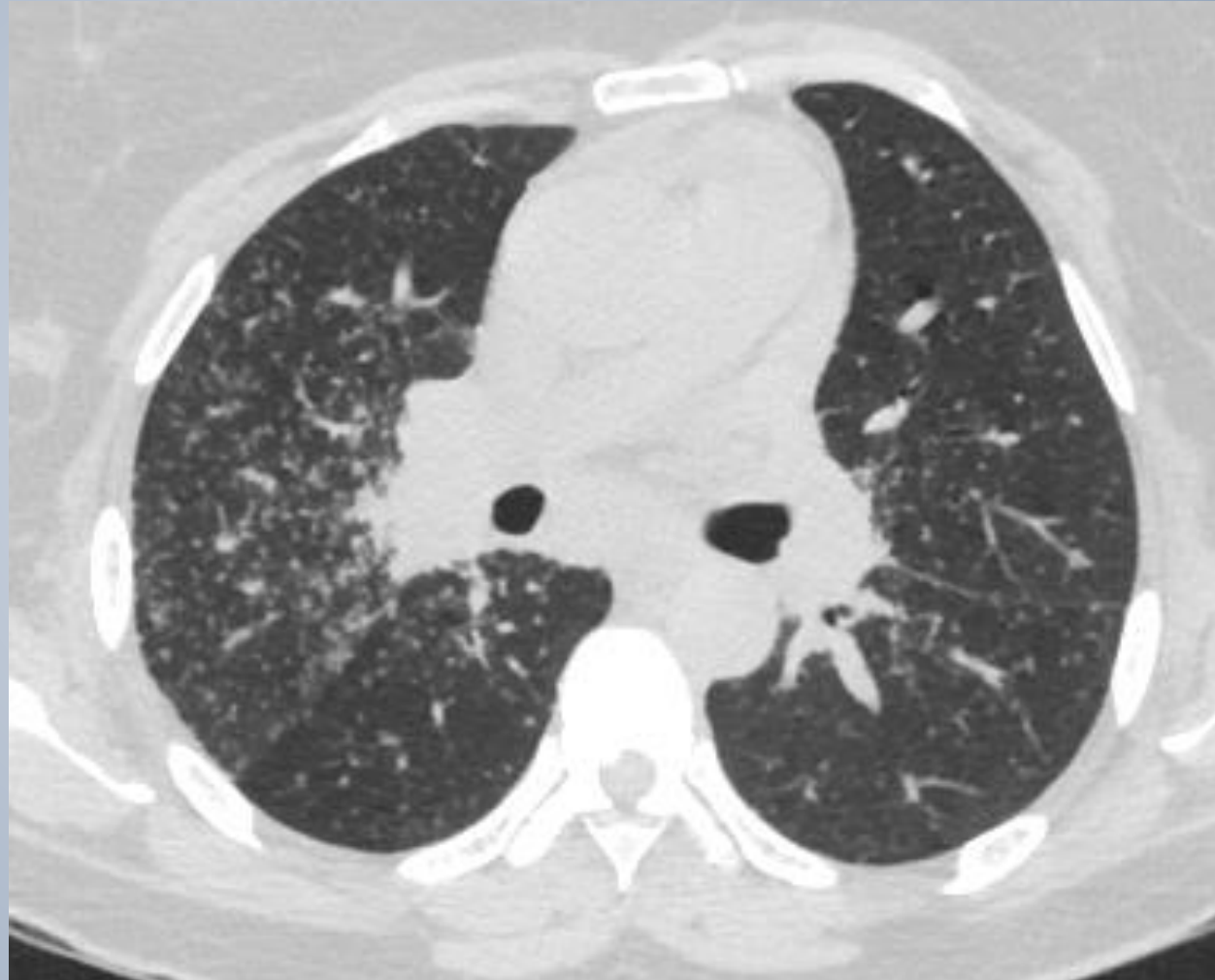
RB-ILD



Hypersensitivity Pneumonitis



Sarcoid



MAI



MINIPS

