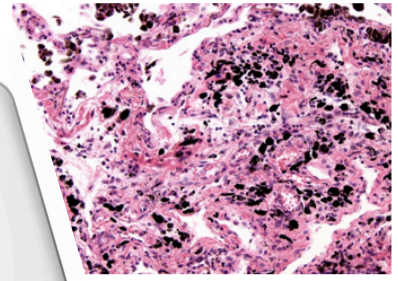
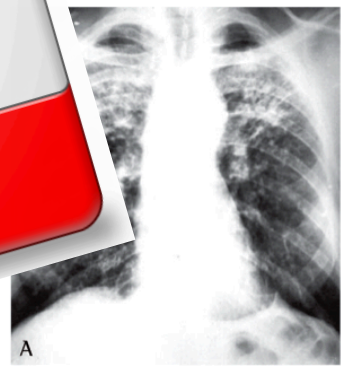
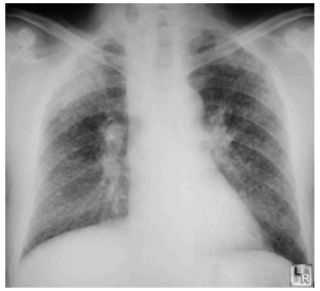
Pneumoconioses for the USMLE Step One Exam

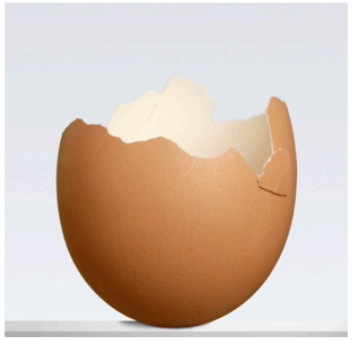
Coal



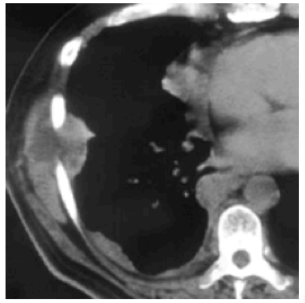


Silicosis





Asbestos



Howard J. Sachs, MD

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Tutorial Services

53 y.o. presents to office with dyspnea. CXR shows bilateral nodular densities. Noted with calcified hilar lymph nodes. He undergoes a lymph node biopsy demonstrating birefringent particles surrounded by dense collagen fibers. The patient most likely has history of exposure to:

1. Silica
2. Asbestos
3. Beryllium
4. Coal dust
5. Organic dust

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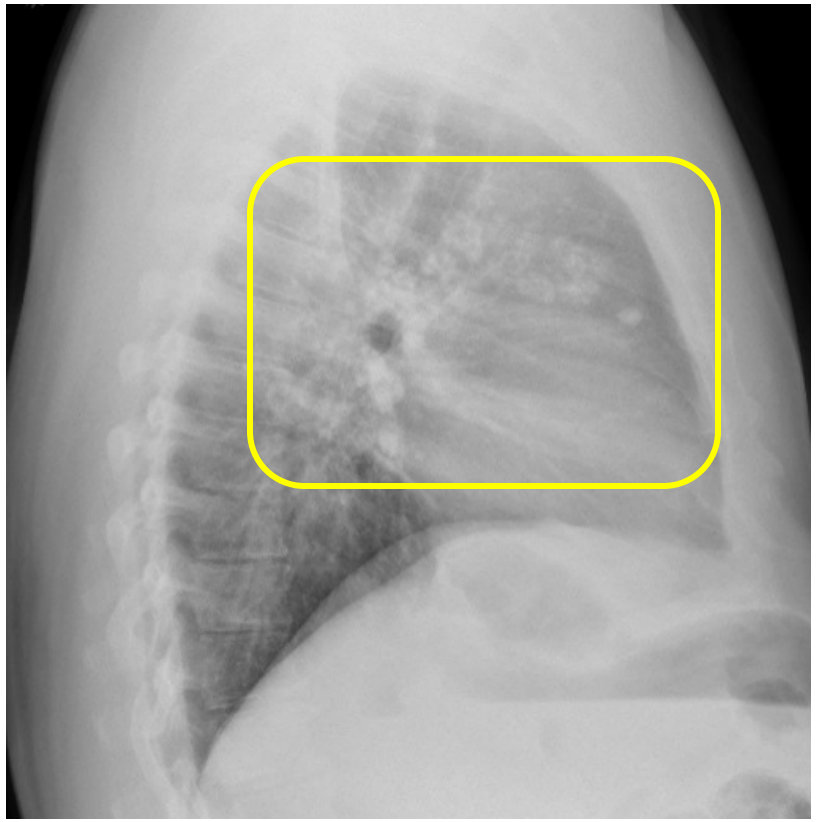

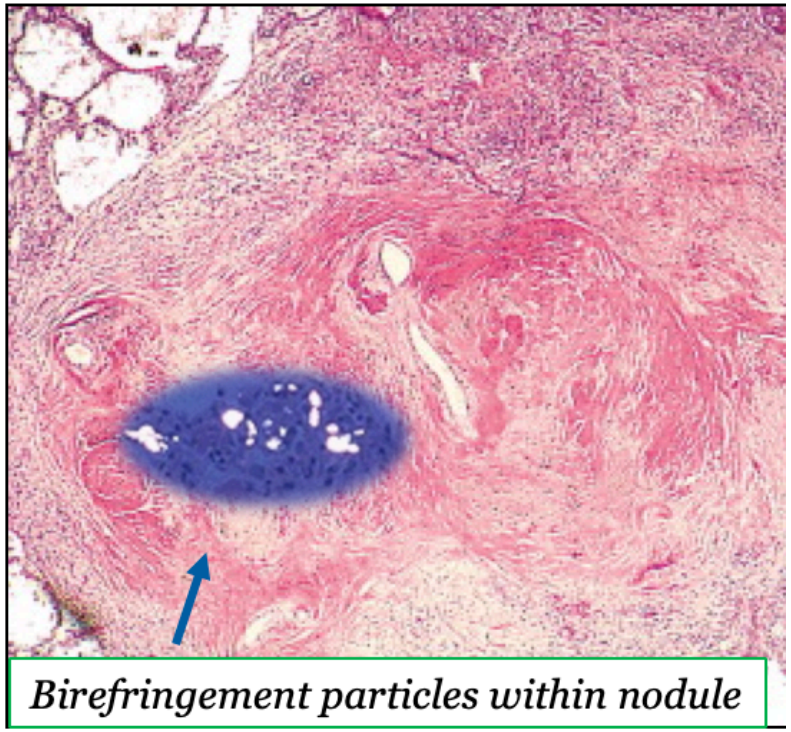

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1. **Silica**: classic description
2. Asbestos: no plaques, occupation
3. Beryllium: granulomatous (*resembles sarcoid*); nuclear/aerospace
4. Coal dust: no occupational exposure or calcification
5. *Organic dust: hypersensitivity pneumonitis*

65 y.o. shipyard worker presents with 4 week history of weight loss and mild dyspnea. He is accompanied by his daughter. The family has already written the old duffer off and specifically want to know which tumor he is most likely to have?

1. Adenocarcinoma
2. Mesothelioma
3. Large Cell Carcinoma
4. Carcinoid
5. Bronchioloalveolar

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2. **Mesothelioma**
3. *Large Cell Carcinoma*
4. Carcinoid
5. *Bronchioloalveolar*

- More common (but not classic asbestos neoplasm)
- No mention of tobacco

”Bronchogenic tumors’

54 yo with hemorrhagic effusion. Worked at the shipyard for 25 yrs and smoked for 30 yrs. CT shows nodular thickening of the pleura. Pleural biopsy shows columnar cells joined by desmosomes, with abundant tonofilaments and studded with long microvilli.
The patient most likely suffers from:

1. Bronchioloalveolar carcinoma
2. Adenocarcinoma
3. Small cell carcinoma
4. Mesothelioma
5. Squamous cell carcinoma

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Pathology is King of the Data

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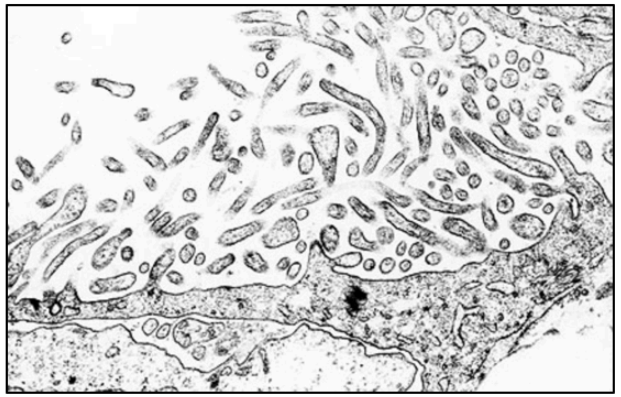
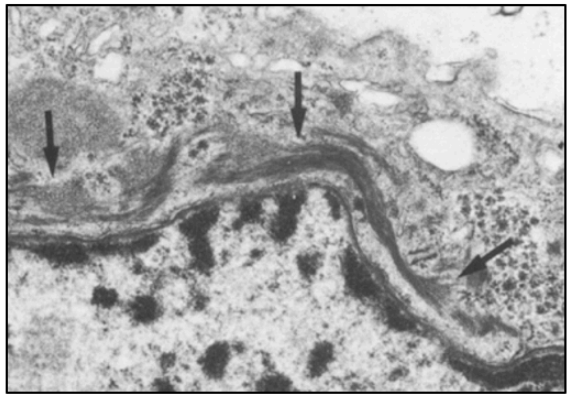


*Long, curved **microvilli***



*Intermediate filaments bundling together to form a **tonofilament***

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Data > Physical Exam > Verbiage demographics, Tomfoolery

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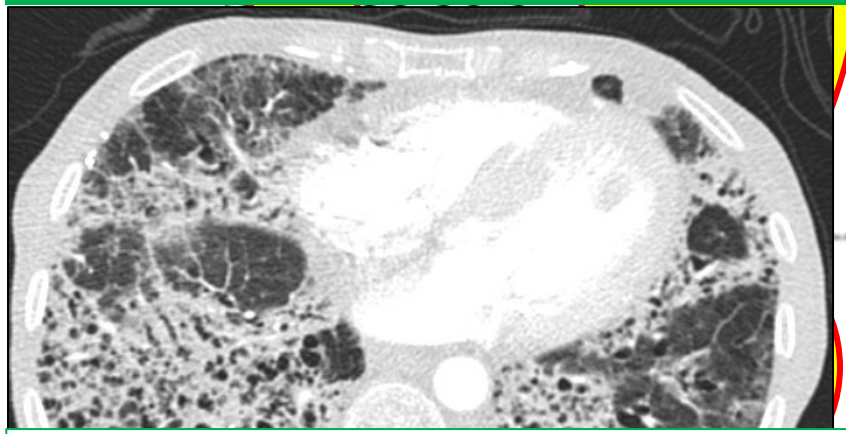
Restrictive Disease: Interstitial Lung Disorders

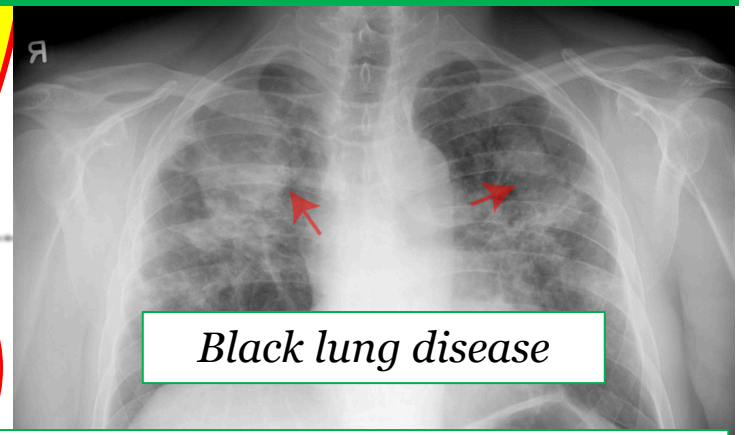
Features shared by all ***restrictive disorders*:**

↓ *Distensibility*

↓ FEV1
↓ FVC
FEV1:FVC
↓ RV
↓ TLC
↓ Compliance
↑ Elasticity

↑ Elastic Recoil





Black lung disease

Prototypic Restrictive Disorders: Sarcoid, IPF, **Pneumoconioses**

- Diffusing Capacity
- ↑ A-a Gradient/Diffusion defect

A 65 y.o. patient presents with SOB. He has worked in the mining industry. On lung exam, he has dry crackles in the upper lung fields. There is no JVD or edema. On cardiac exam you hear splitting of S2 with inspiration. O2 saturation on RA is 89%.

Which of the following most likely explains his hypoxemia?

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2. Alveolar hypoventilation
3. Diffusion defect
4. V·Q mismatch
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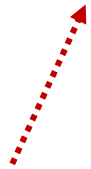

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'Velcro-like' = Fibrosis

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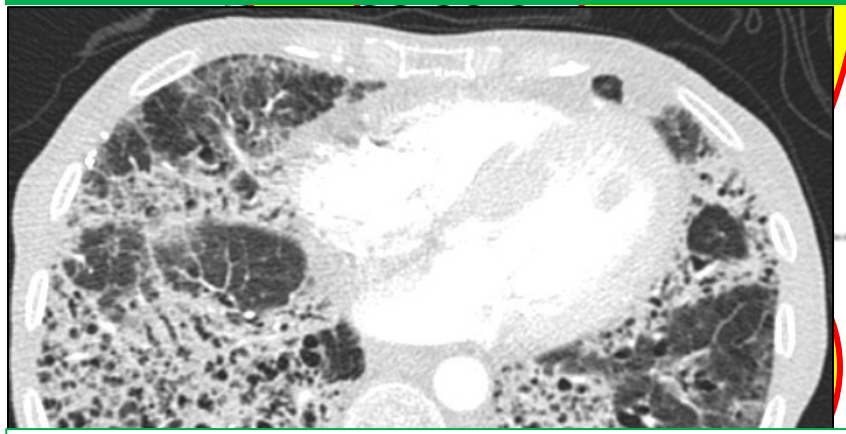

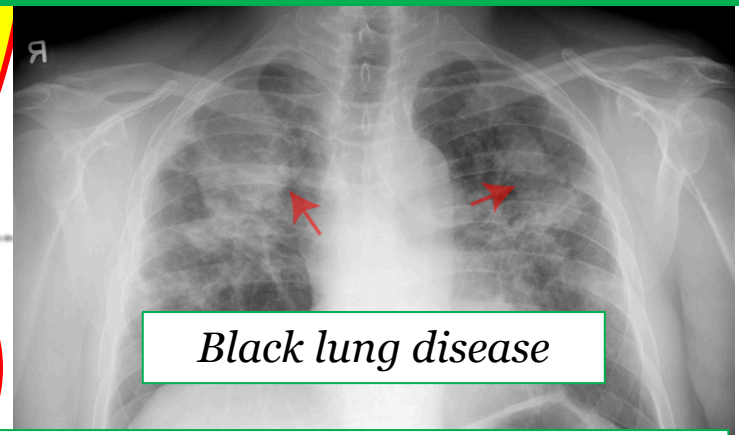

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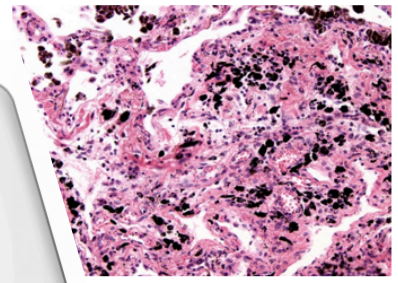

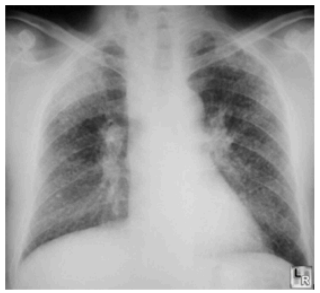

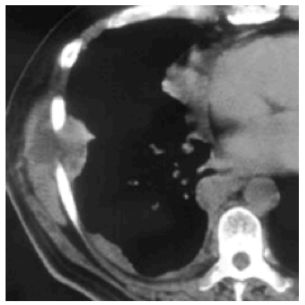

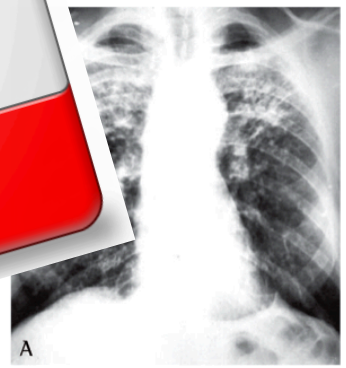

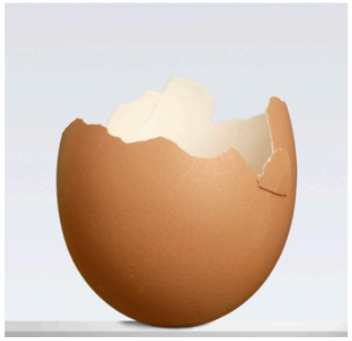

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