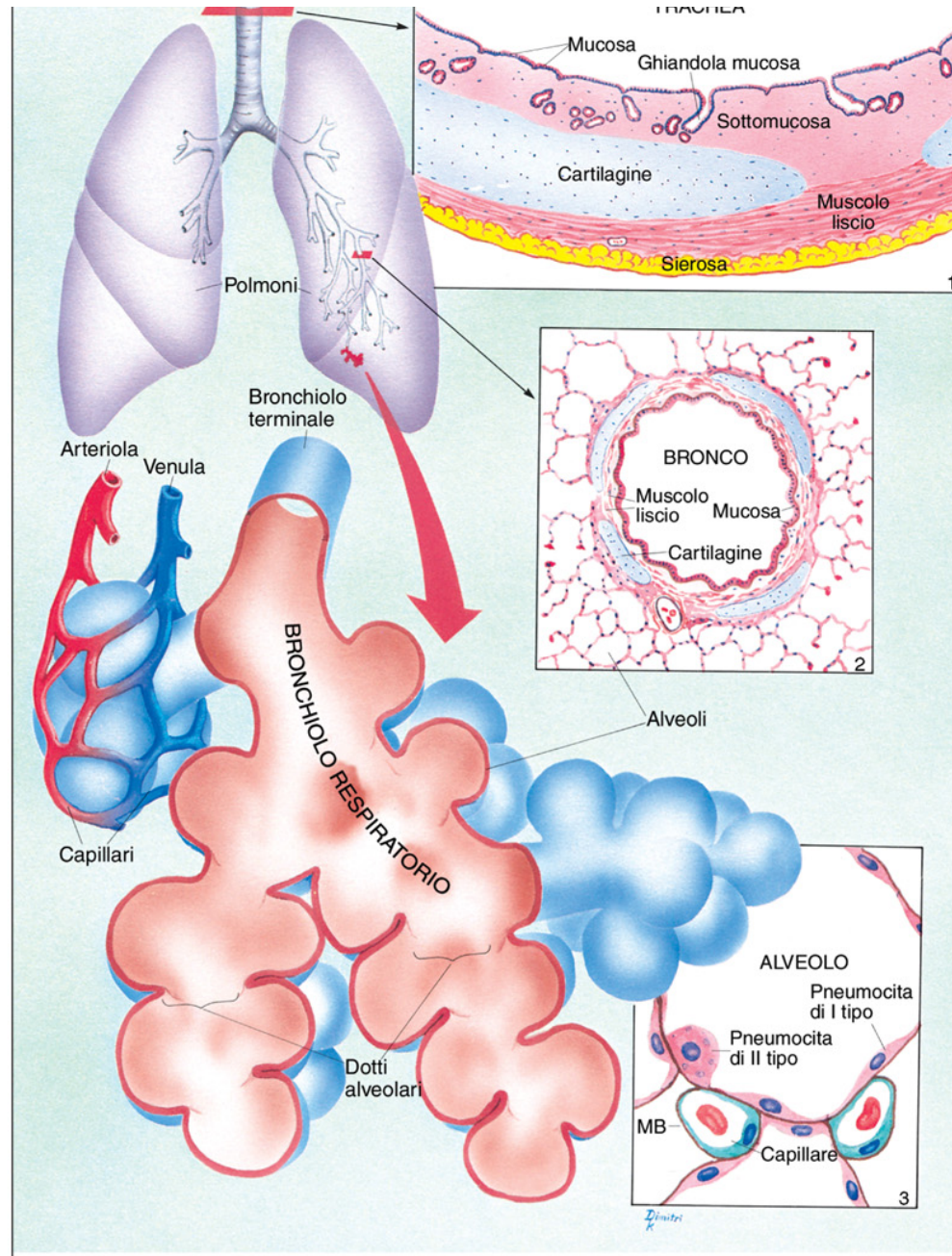


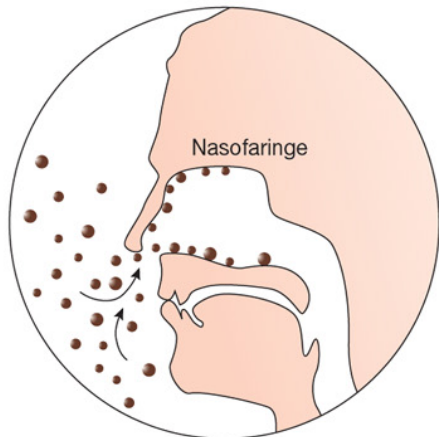
Lung

Pneumoconiosis

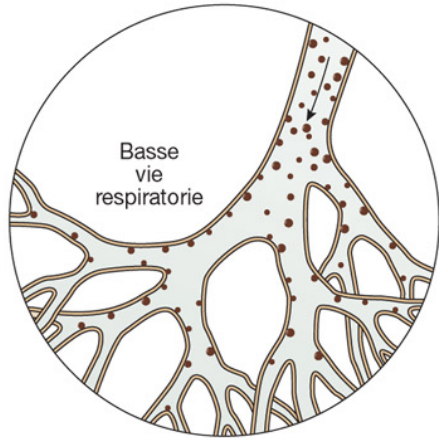
Disease caused by accumulation of dust

- Dust penetration ($< 2\mu\text{m}$)
 - Defensive mechanisms
 - Vibrissae
 - Mucociliar clearance
- Lifetime of exposition
- Dust concentration

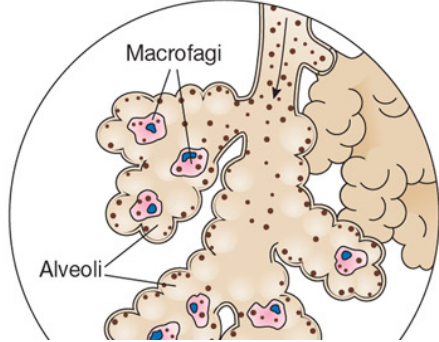




Particelle
> 5 μ



3-5 μ



< 2 μ

Lung

Pneumoconiosis

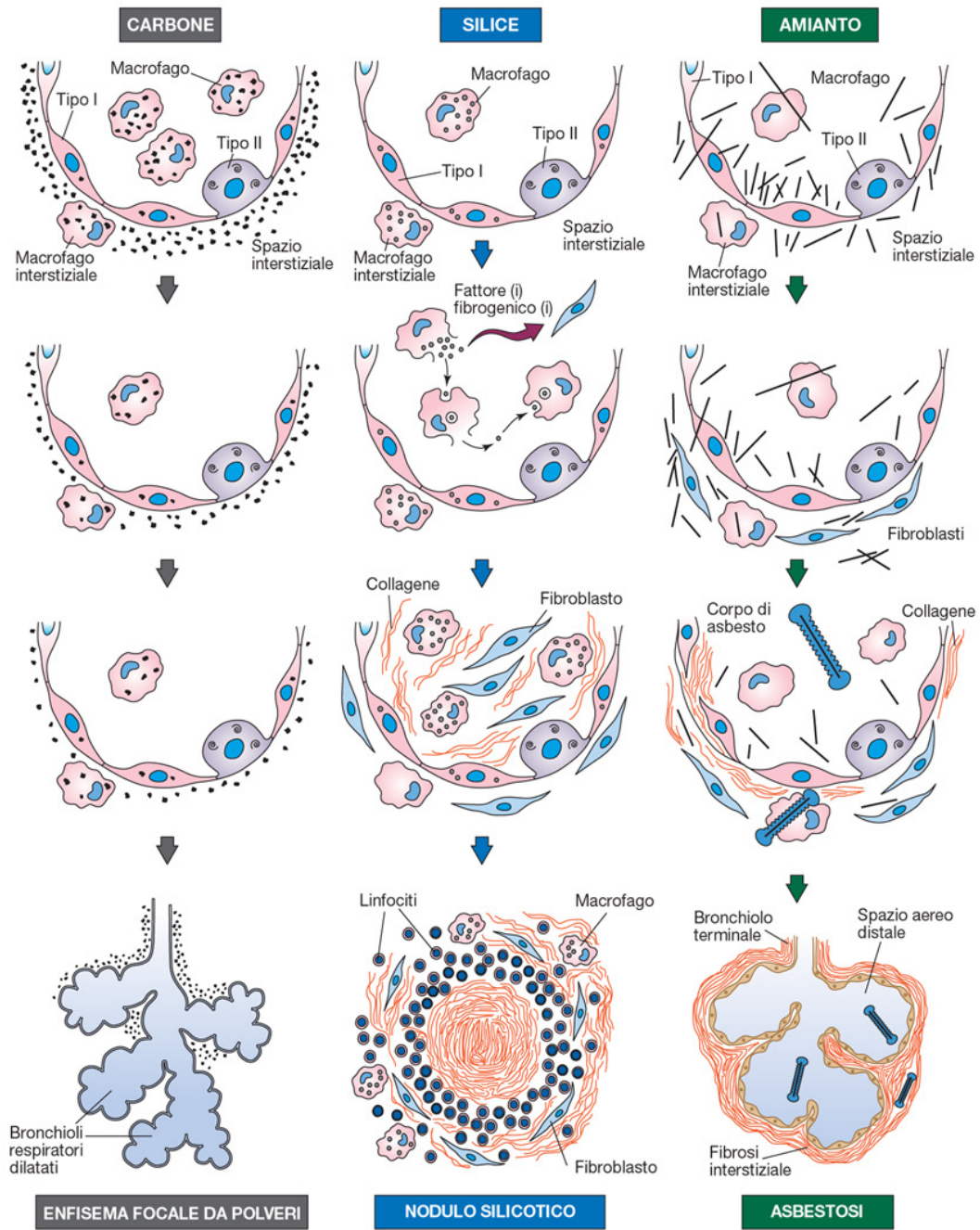
Dust accumulation & host reaction

■ Inert (or *nearly*)

- Coal = black lung disease
- Iron = siderosis

■ Fibrogenic

- Asbestos = asbestosis
- Silica = silicosis
- Beryllium = berylliosis



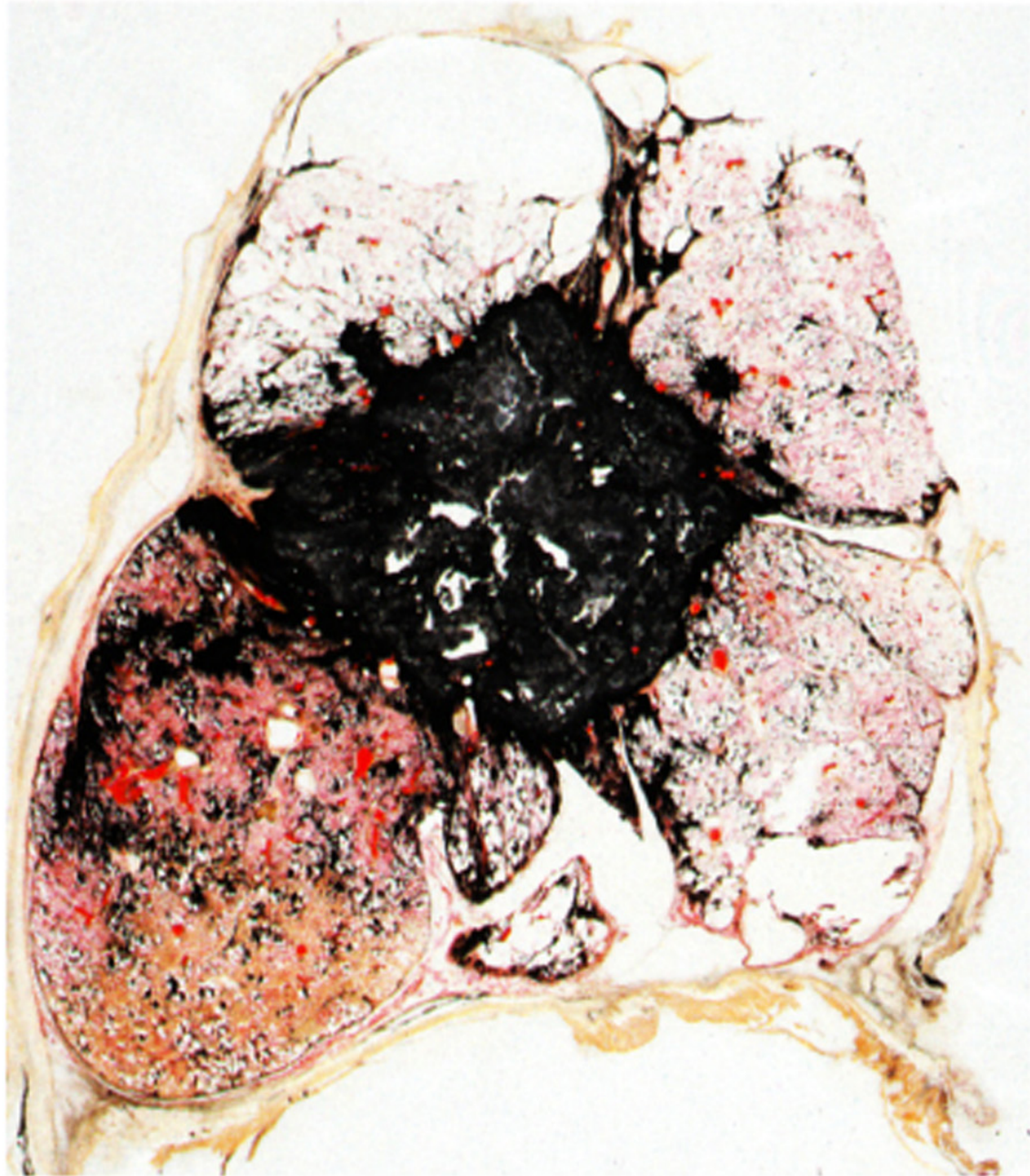
Rubin, Patologia

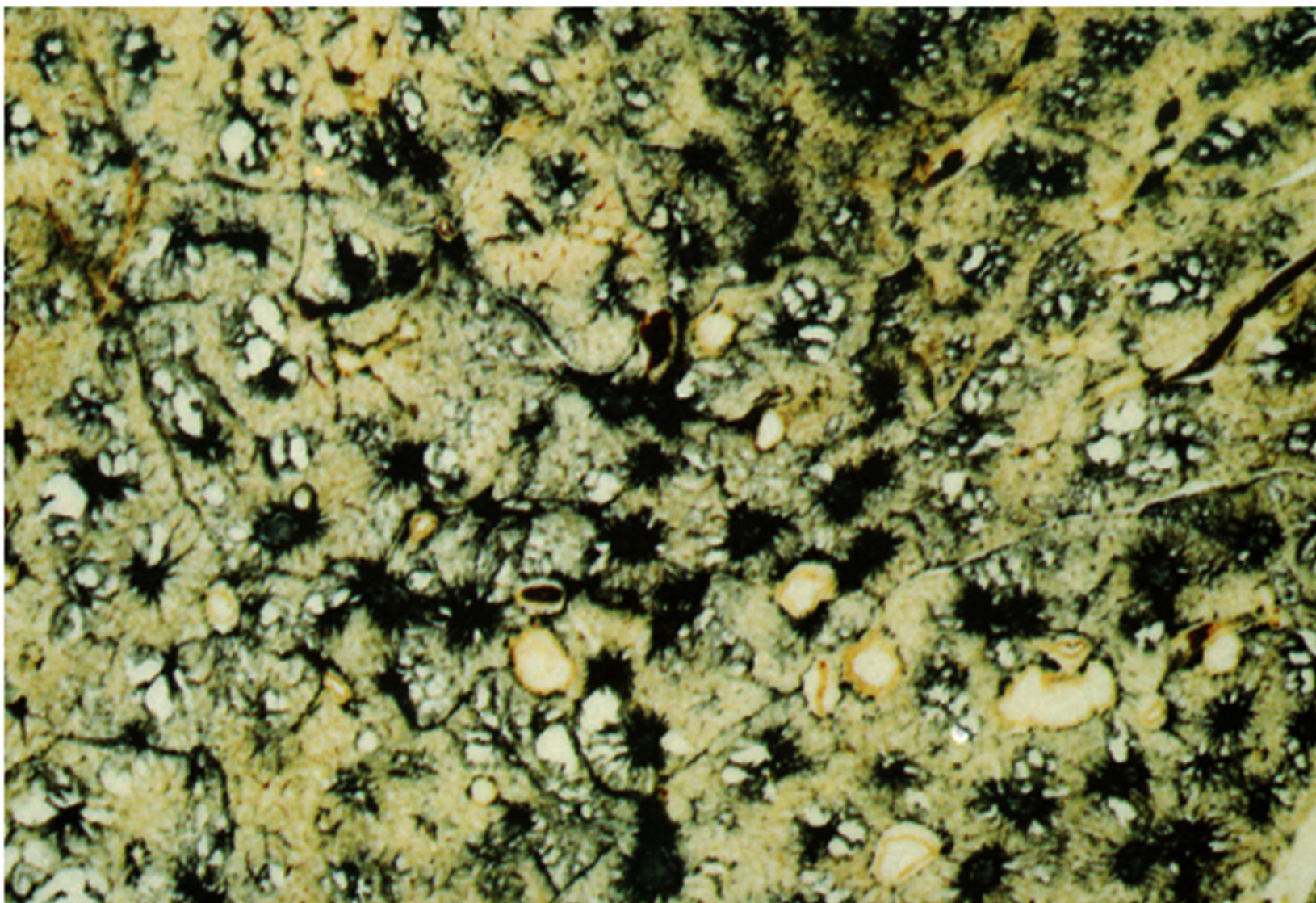
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Lung Anthracosis

Caused by accumulation of carbon dust

- Miners (often associated with silicosis)
- Smokers
- Chimney sweeps
 - Macrophagic phagocytosis
 - Lymphatic drainage
 - Interstitial accumulation (tattoo)
 - Scarce fibrosis e minimal emphysema





Lung Silicosis

Caused by accumulation of silica (quartz)

- Glass-makers
- Miners, body shop mechanics
- Handcraft stone artisans
 - Macrophagic Phagocytosis
 - Cellular damage
 - Fibrogenic factors release
 - Fibroblastic proliferation
 - Collagen deposition

Lung Silicosis

■ Acute Silicosis

- Sandblaster and boiler cleaners
- Linear and diffuse fibrosis without nodules
- Atelectasia
- Rapid progression in few years
- Restrictive pneumopathy

Lung Silicosis

■ Nodular Silicosis

- Glass makers
- Onset after 10-40 years
- Silicotic nodule
 - 2-4 mm
 - Spiral shape
 - Collagen concentric fibers
 - Needle-shaped birifrangent crystals
- Calcific lymphadenopathy

Lung Silicosis

- Progressive massive fibrosis
 - Prolonged and intense inhalation
 - Nodular conglomerates (> 2 cm)
 - Substitutive fibrosis
 - Calcific lymphadenopathy

Lung Silicosis

- Complications
 - Tuberculosis
 - Pulmonary carcinoma
 - Autoimmune diseases (Caplan syndrome)
 - Rheumatoid arthritis
 - Panarteritis Nodosa

Lung Asbestosis

Caused by accumulation of asbestos

- Railway workers
- Maintenance operators
- Painters
 - Long and thin fibers
 - Deposit distally and penetrate septa
 - Alveolitis caused by direct damage
 - Fibroblastic proliferation and fibrosis with honeycomb shape
 - Penetration into the pleura
 - Direct irritating damage of mesothelial cells

Lung Asbestosis

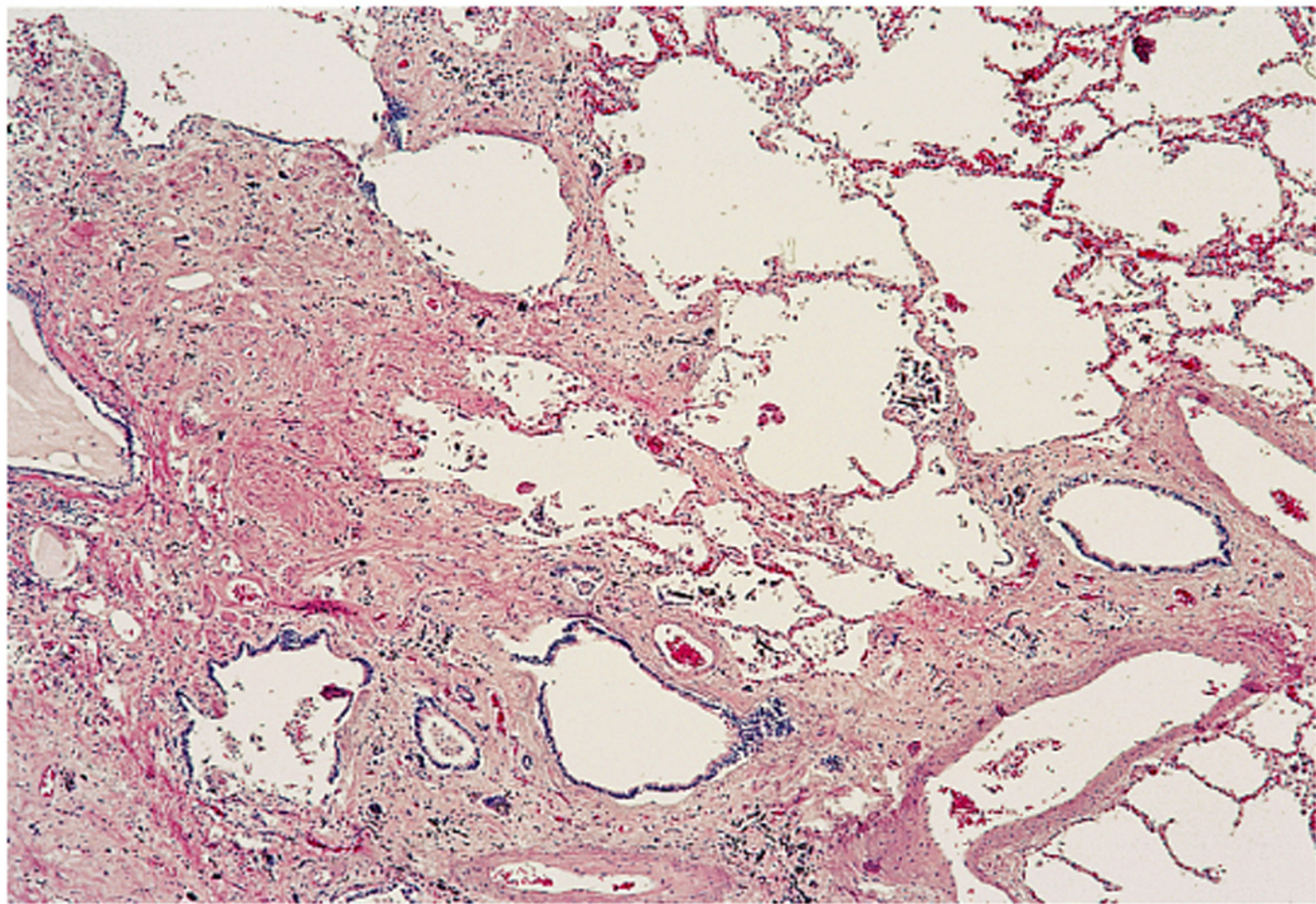
Pleural lesions:

- *Benignant pleural effusions*
- *Pleural plaques*
- *Diffuse pleural fibrosis*
- *Round atelectatic areas*

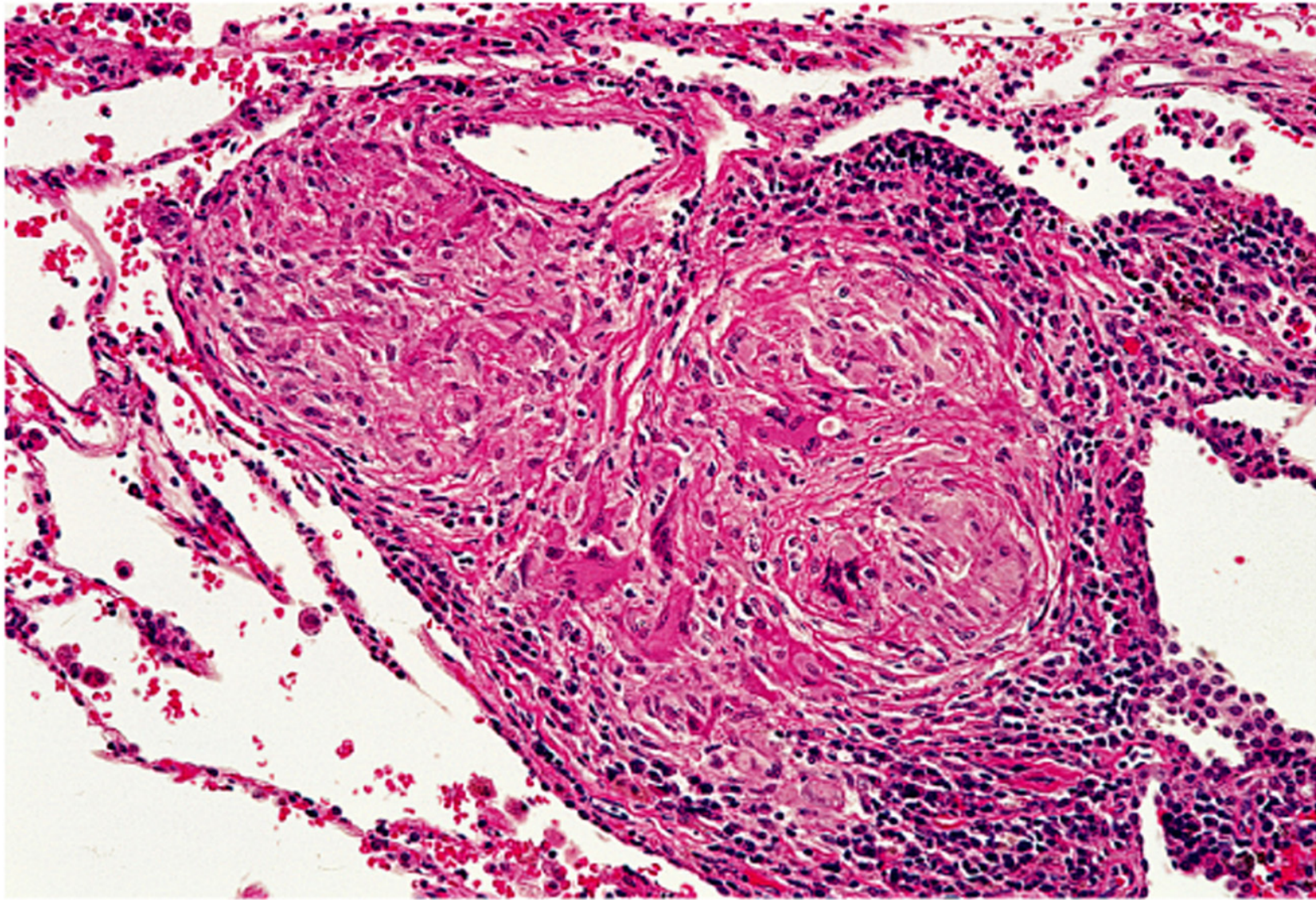
Interstitial pulmonary disease: asbestosis

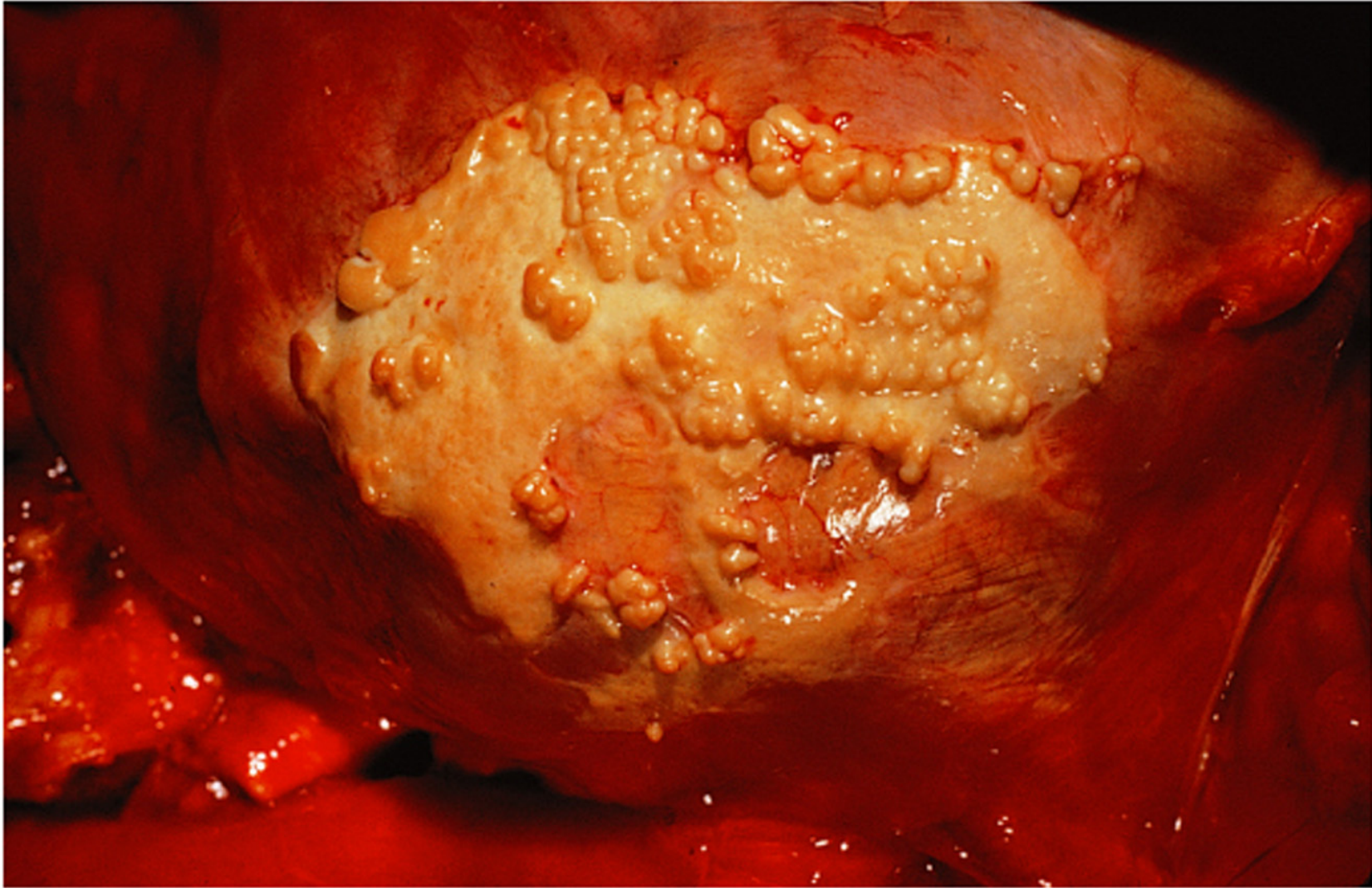
Malignant mesothelioma (rare but specific)

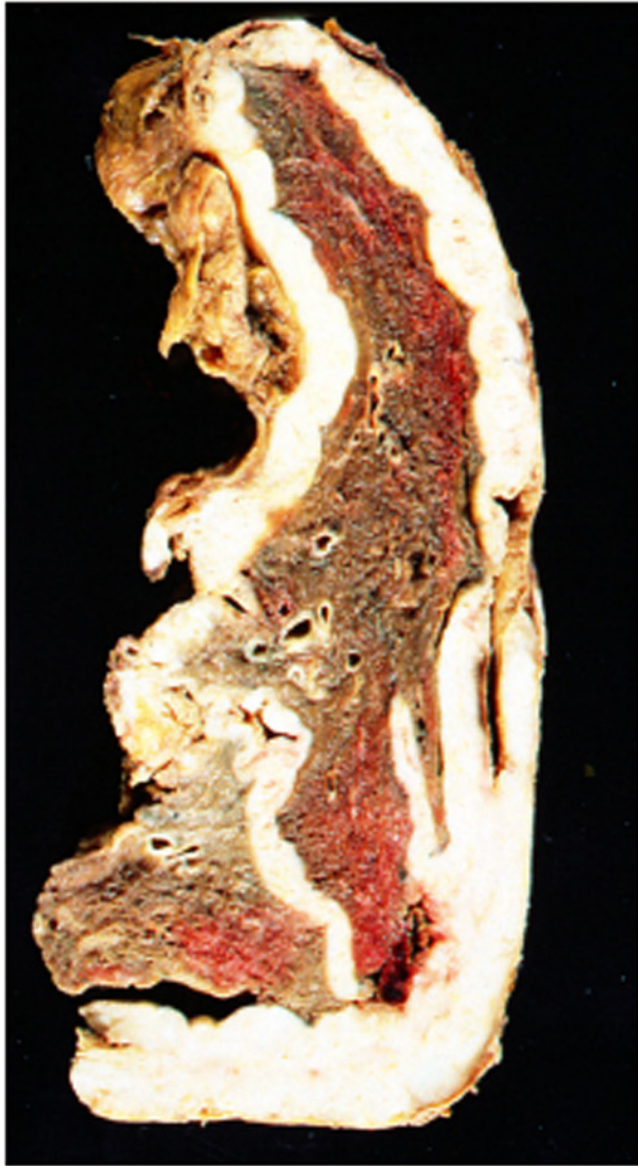
Pulmonary carcinoma (in smokers, frequent but non specific)



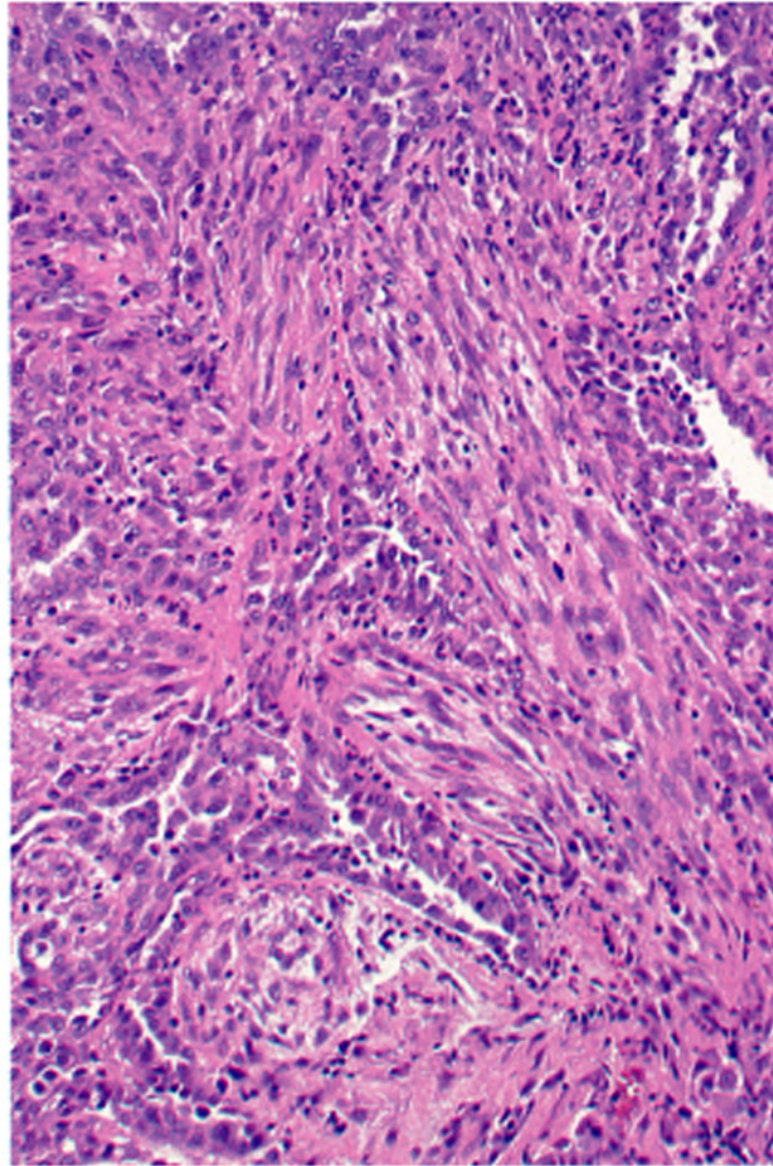








A



B

Lung Berylliosis

Caused by accumulation of beryllium

- Aerospace industry
- Potter
- Nuclear reactor operators
 - Acute Chemical pneumonitis (alveolitis)
 - Chronic pneumoconiosis
 - Early onset (10-15 years)
 - Lower exposition and concentration
 - Sarcoid-like, non caseating granulomas
 - Pleural and septal areas
 - Highest risk of lung carcinoma