

وَقُلْ رَبِّ زِدْنِي عِلْمًا



RESPIRATORY SYSTEM

HAYAT BATCH



SUBJECT : Pathology

LEC NO. : Lab 1

DONE BY : Mahmoud Al Qusairi



Respiratory System Pathology Lab 1

Dr. Ola Abu Al Karsaneh

Upper Respiratory Tract

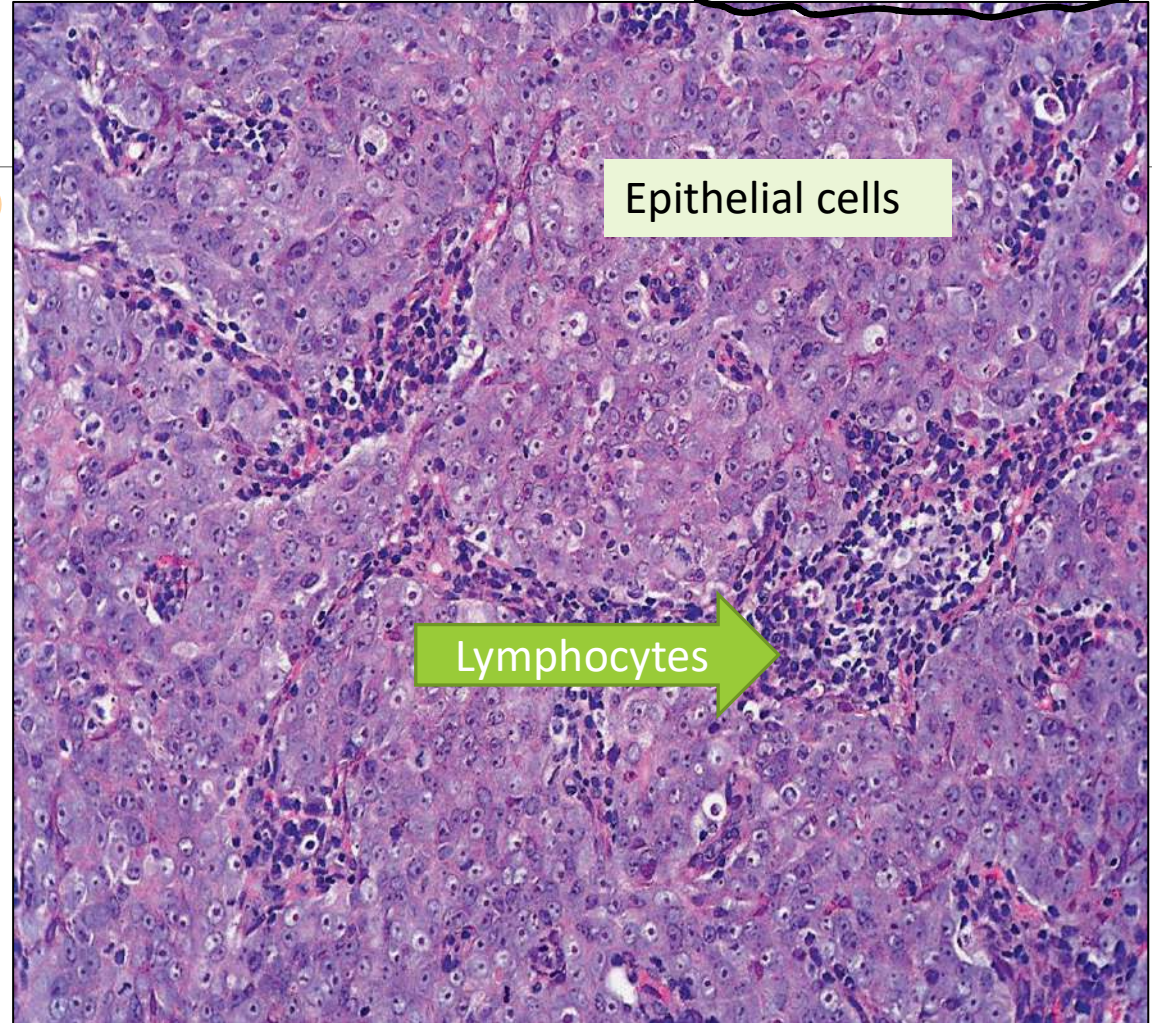


Undifferentiated Nasopharyngeal Carcinoma

Nasopharyngeal carcinoma
undifferentiated carcinoma
(Lymphomaithelioma)

Sheets of epithelial cells
Lymphomaithelioma ← T lymphocytes

- Large epithelial cells with indistinct cell borders (syncytial growth) and prominent eosinophilic nucleoli.
- Accompanied by T lymphocytes.



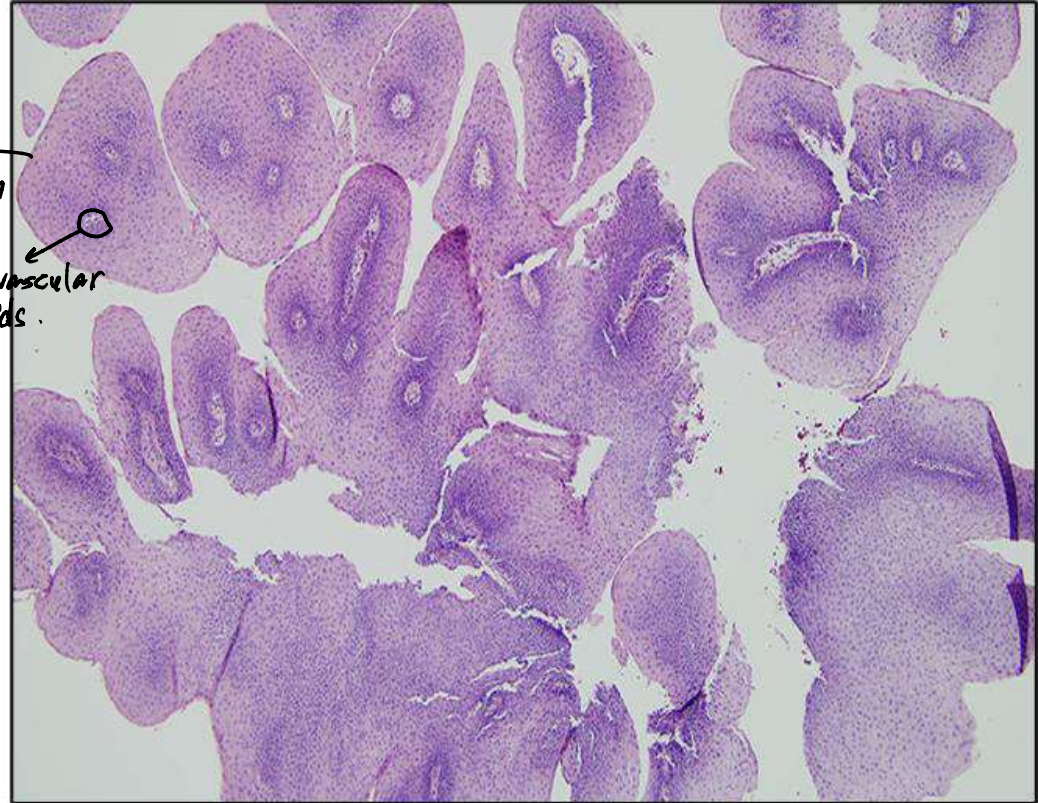
Laryngeal Squamous Papilloma

دوائر تشبه
tips of fingers
هي عبارة عن
squamous epithelium
وبالنسب فيه
fibrovascular cores

Multiple slender, fingerlike projections supported by central fibrovascular cores and covered by stratified squamous epithelium

stratified
squamous epithelium

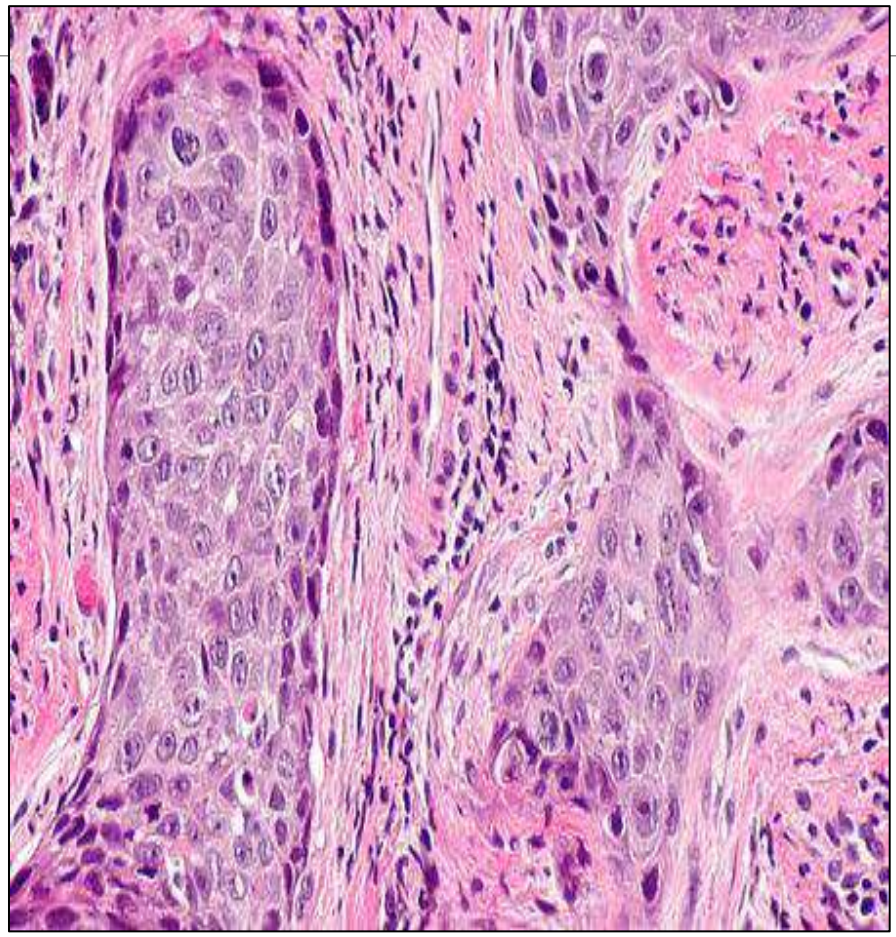
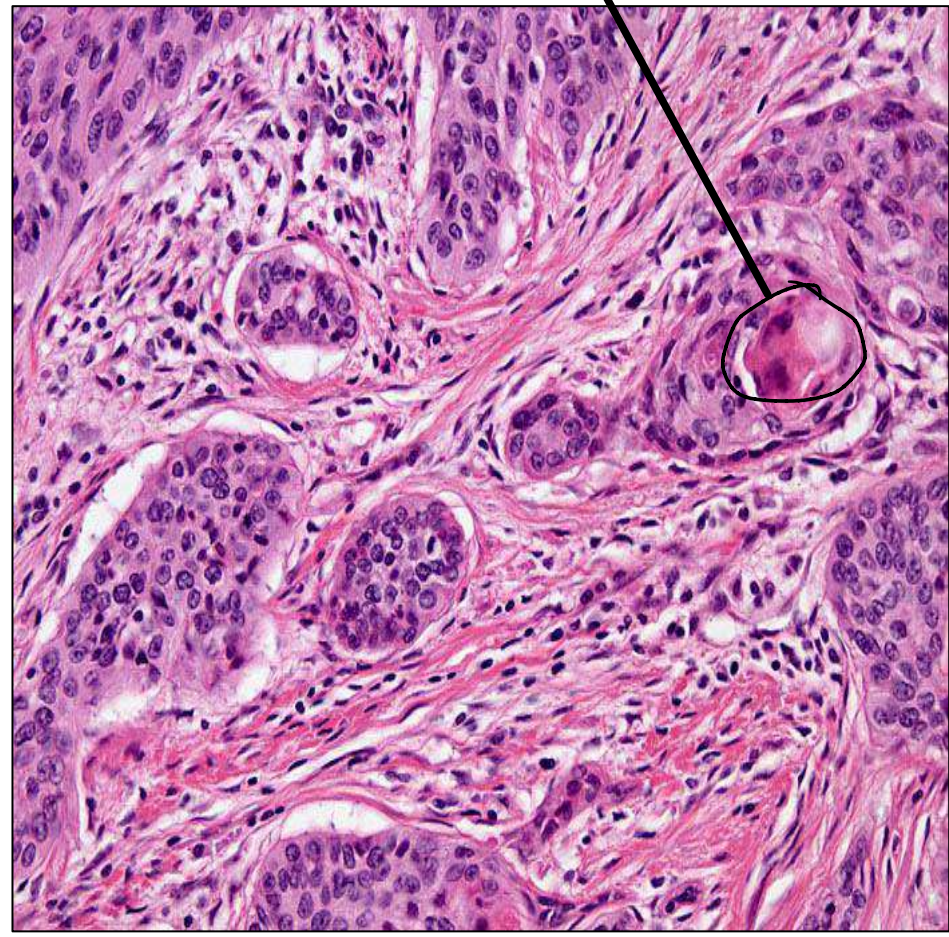
fibrovascular
cores



squamous cell carcinomas. ← Keratin وفيه Malignant tumour

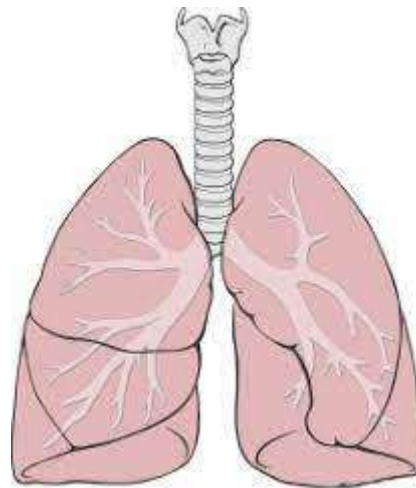
Laryngeal squamous cell carcinoma

Laryngeal carcinoma
→ About 95% are typical squamous cell carcinomas.



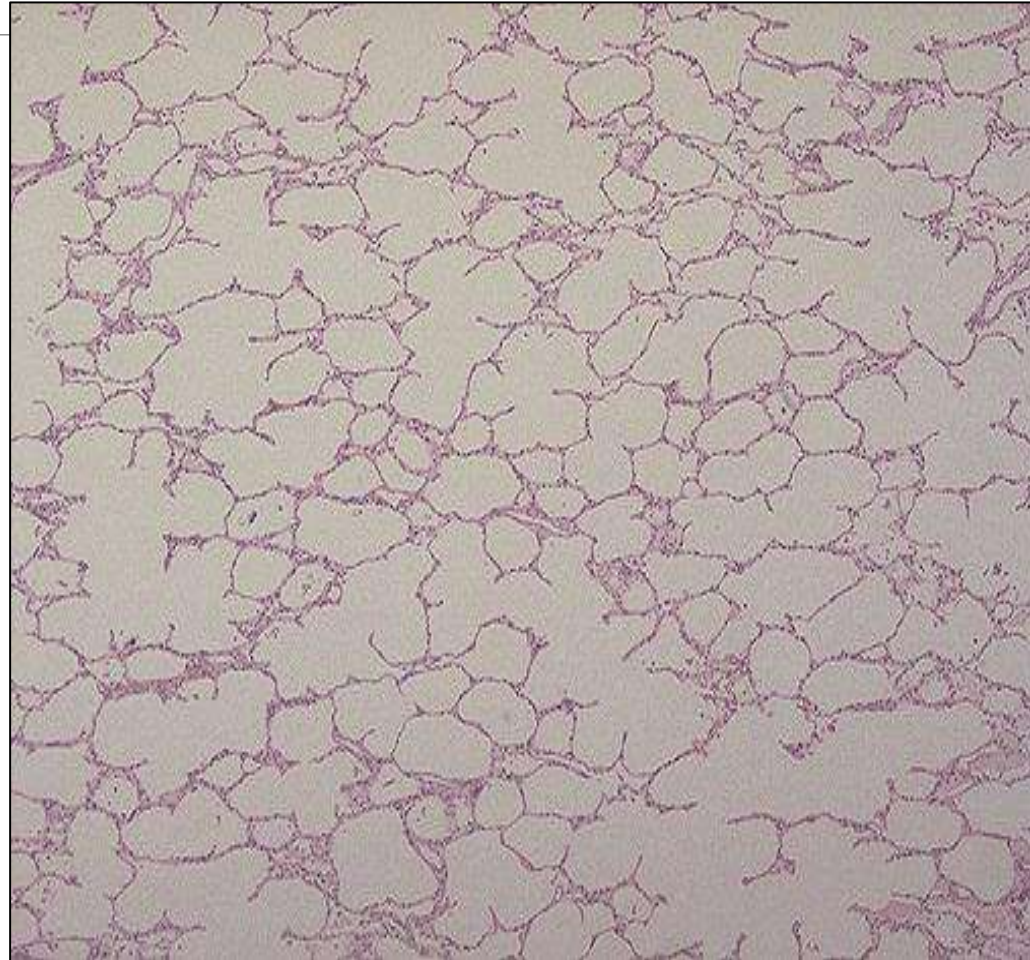
Lower Respiratory Tract

Normal Lung



Normal Lung

very thin wall, Lined by pneumocytes, وجواها في
alveolar macrophages



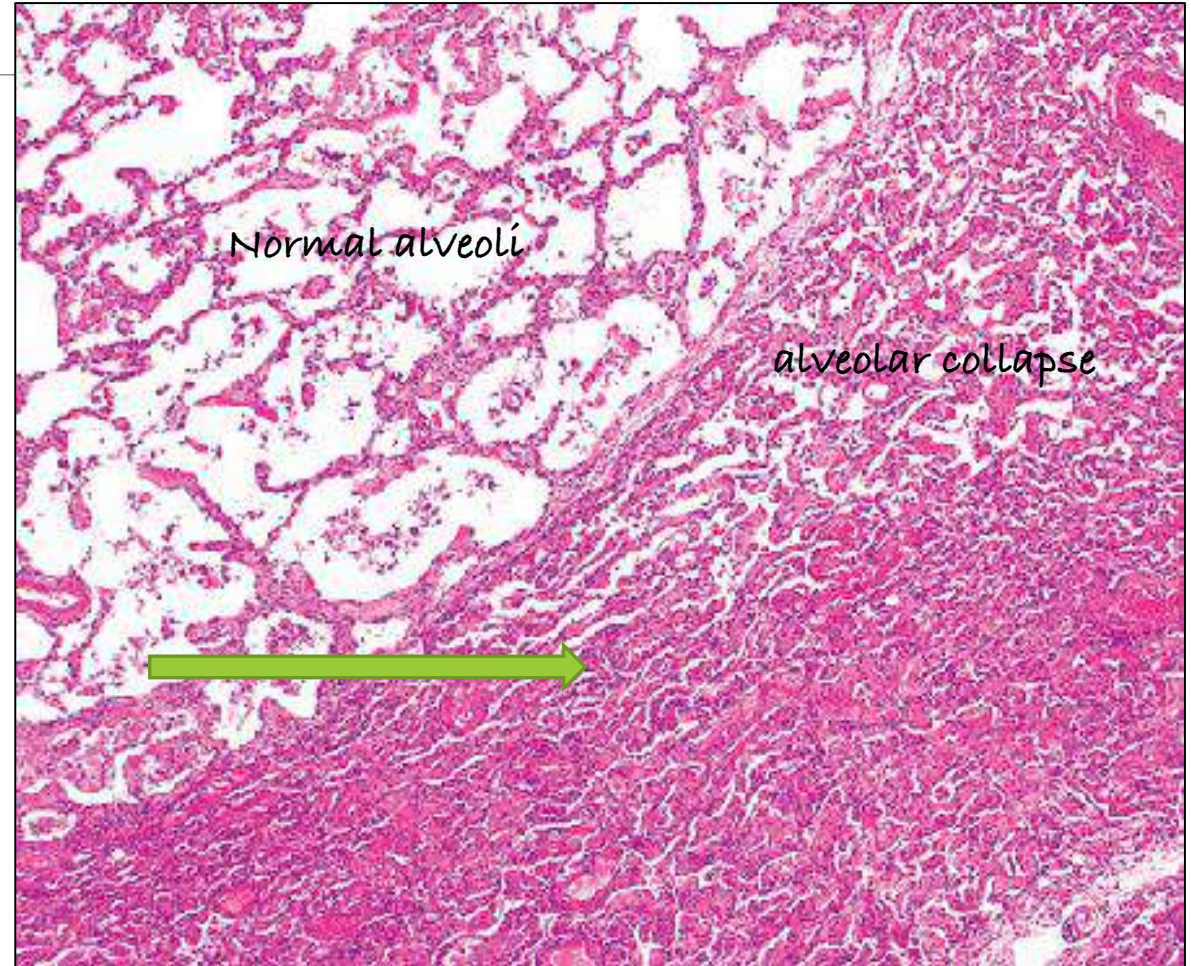
Atelectasis, ARDS

Atelectasis



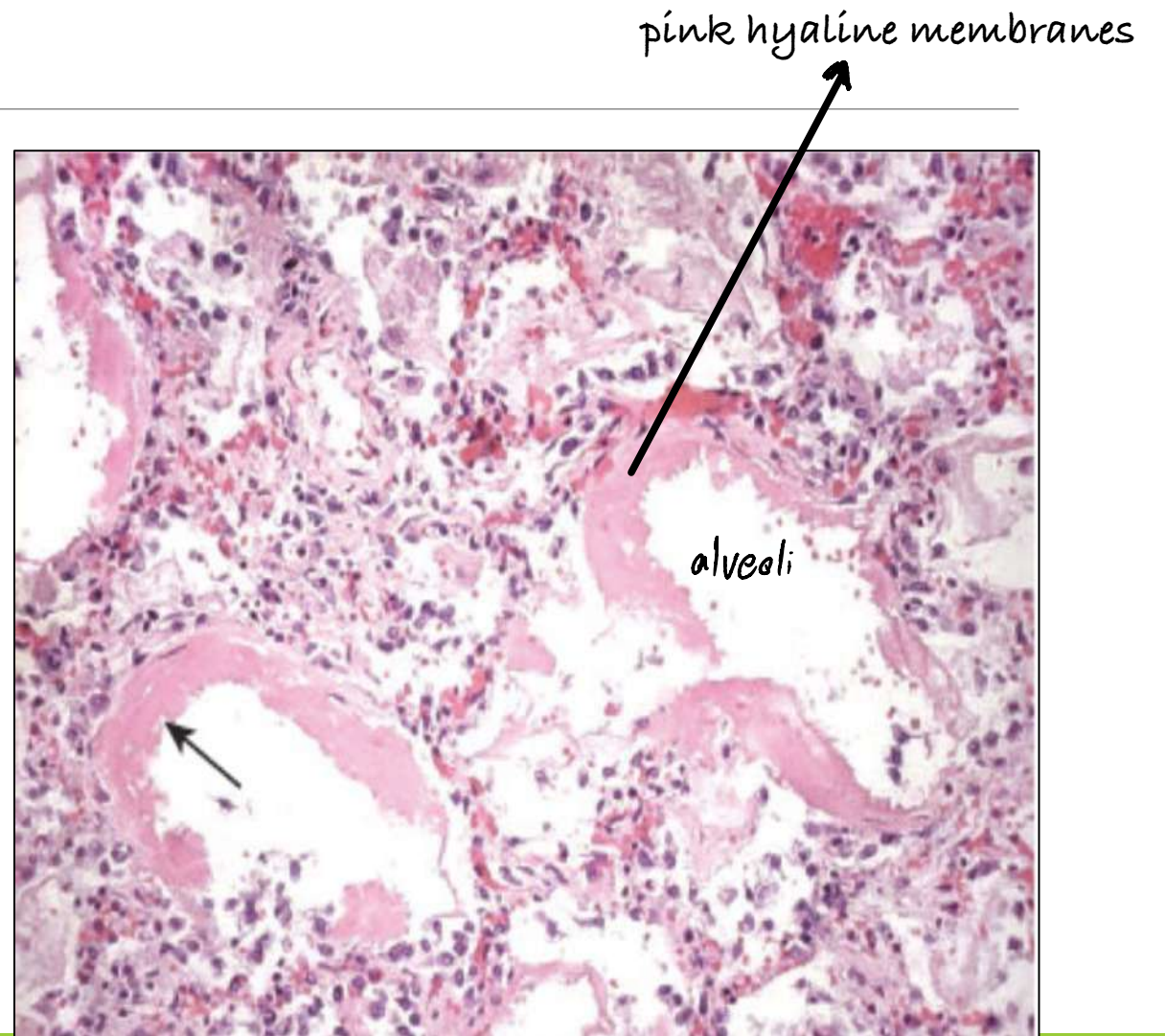
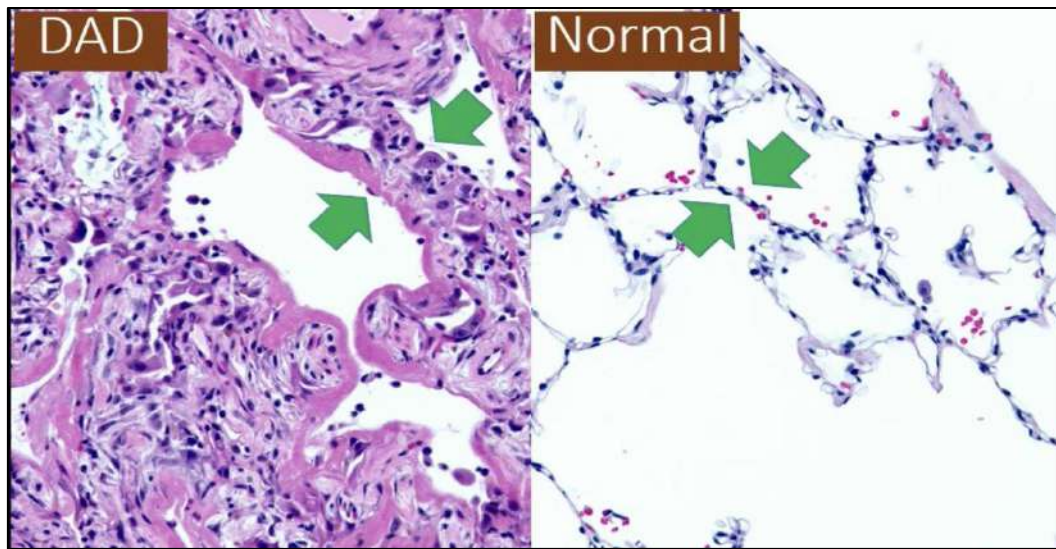
Atelectasis

The alveoli within this lung became deflated.



Diffuse Alveolar Damage

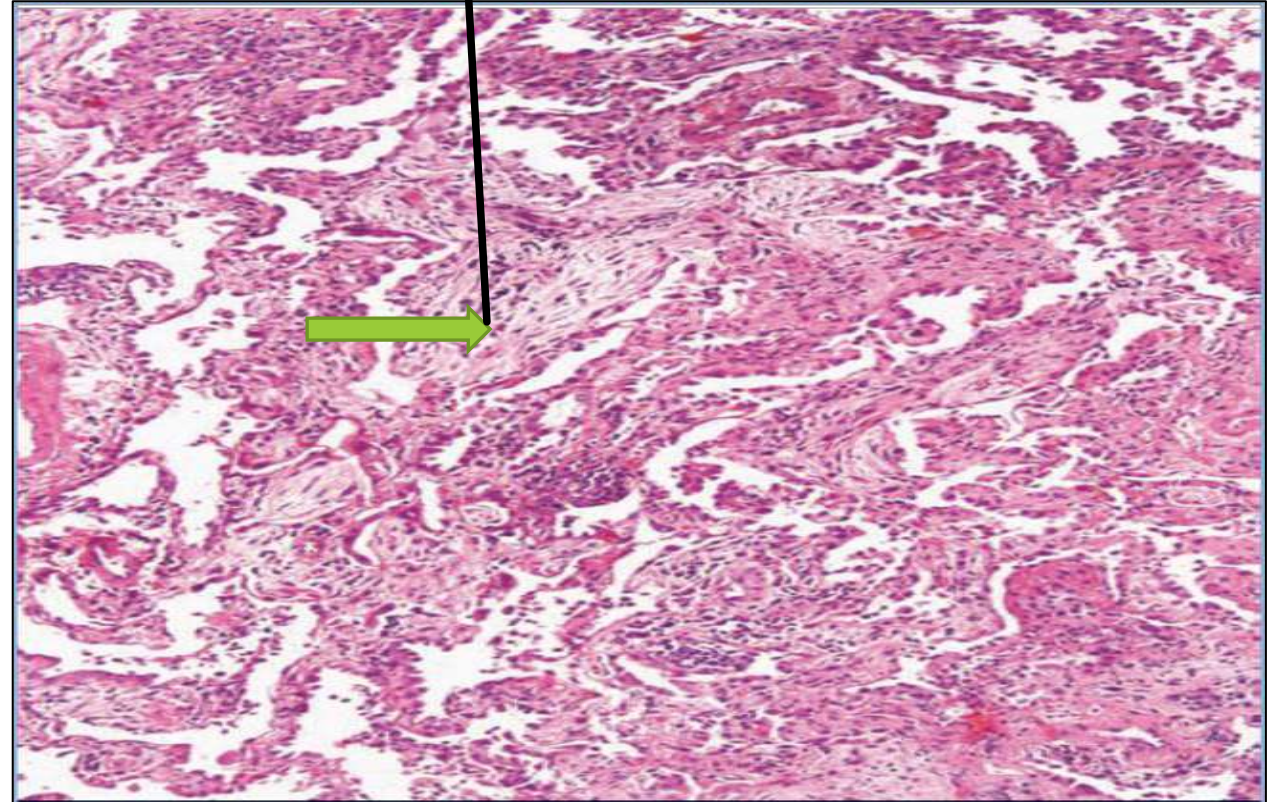
Acute /exudative phase: many alveoli are lined by bright pink hyaline membranes (arrow).



Diffuse Alveolar Damage

Organizing phase DAD with granulation tissue plugs in alveolar ducts (**organizing pneumonia**) (arrow)

intra-alveolar fibrosis
(organizing pneumonia (OP)).

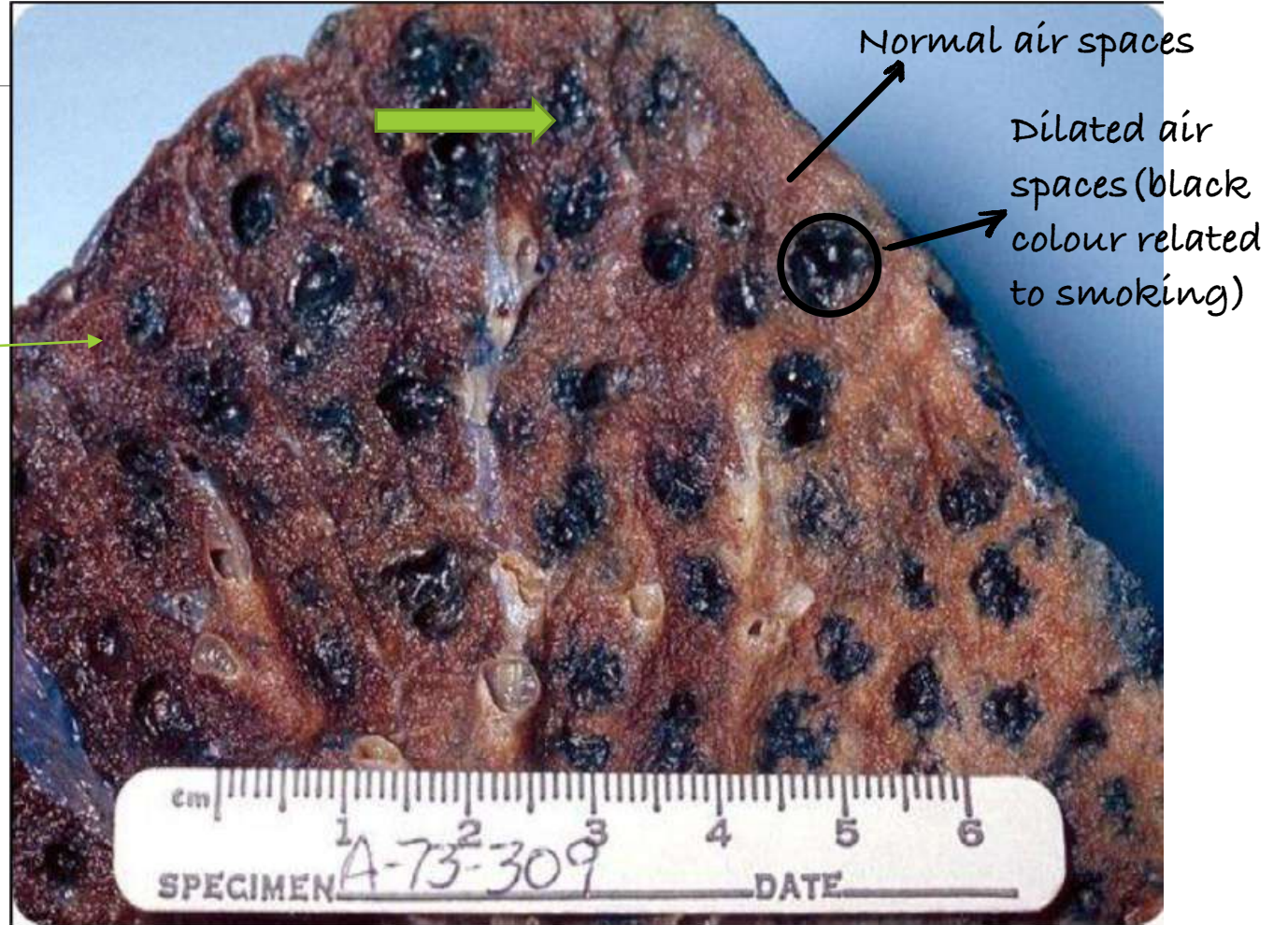


Obstructive Lung Diseases

1. Emphysema.
2. Chronic bronchitis.
3. Asthma.
4. Bronchiectasis

Centrilobular Emphysema

Centrilobular dilatation surrounded by normal lung tissue and black color due to carbon particles.



Panlobular Emphysema

all lung is
infected.

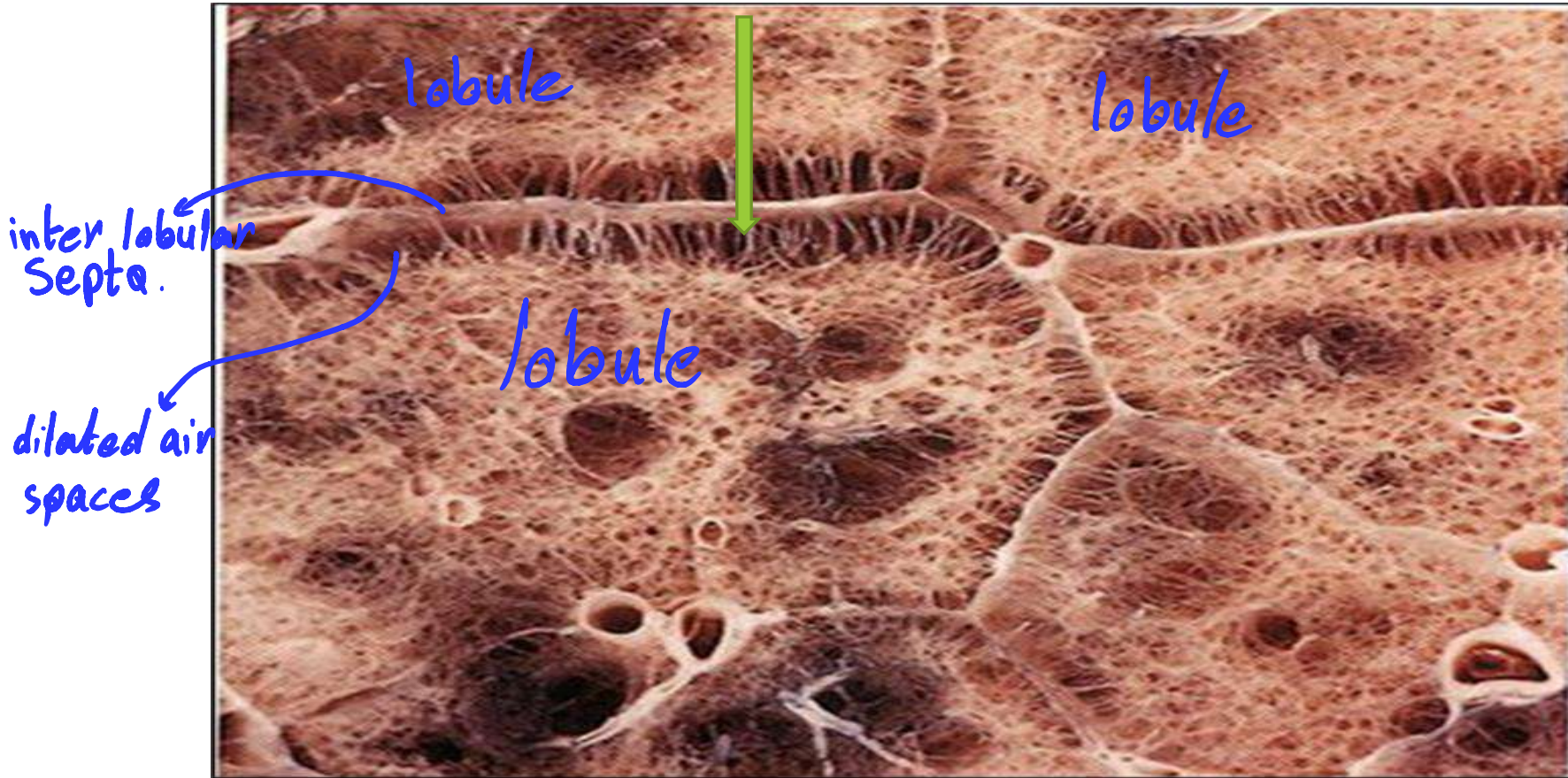
← Dilated air spaces over the entire lung

The expansion is diffuse
throughout each affected acinus



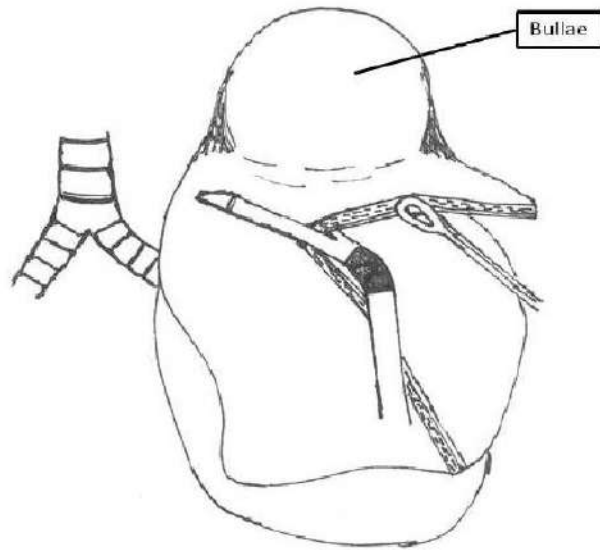
Paraseptal Emphysema

Dilated Air spaces, Interalveolar septa, Interalveolar septa

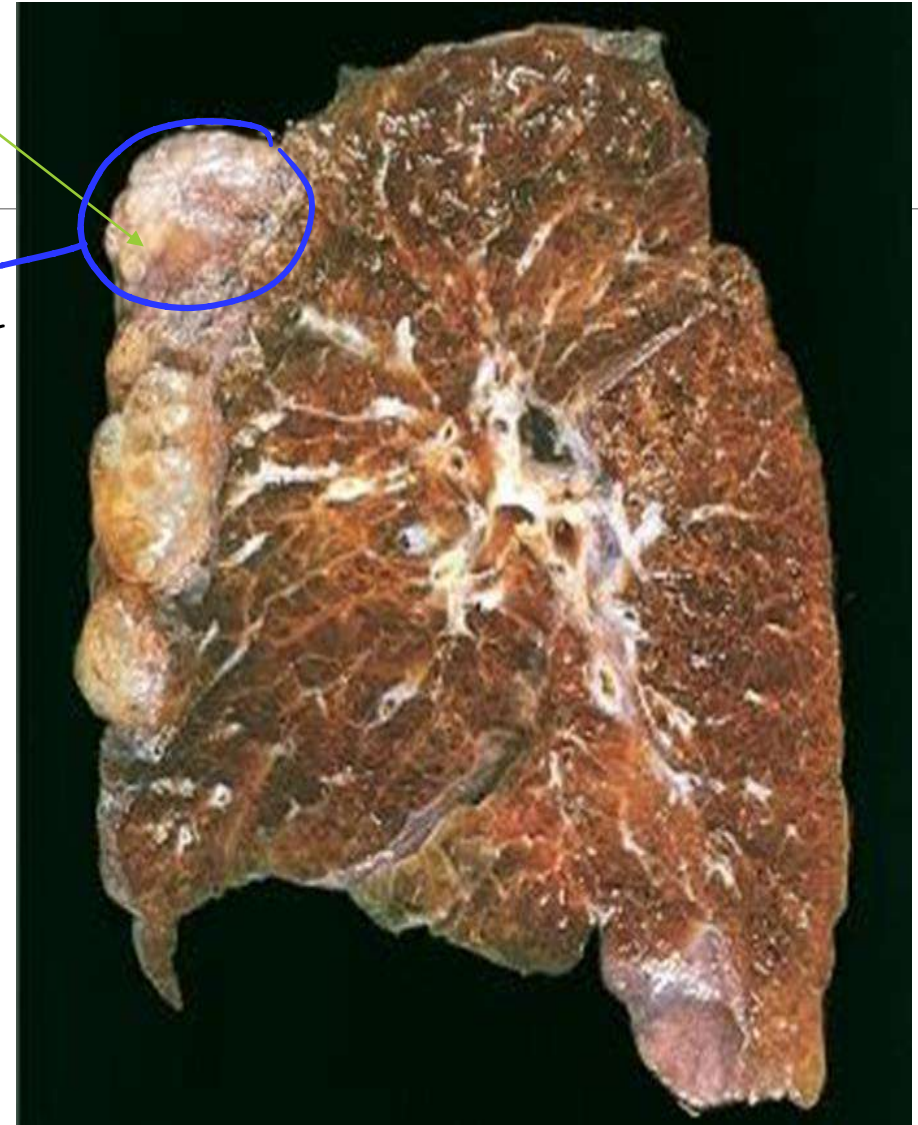


Bullous Emphysema

Peripheral cystic bullae



bullae
(air spaces larger than 1cm)



Emphysema

There is thinning & destruction of alveolar walls , with advanced disease the adjacent alveoli become confluent creating large air-spaces

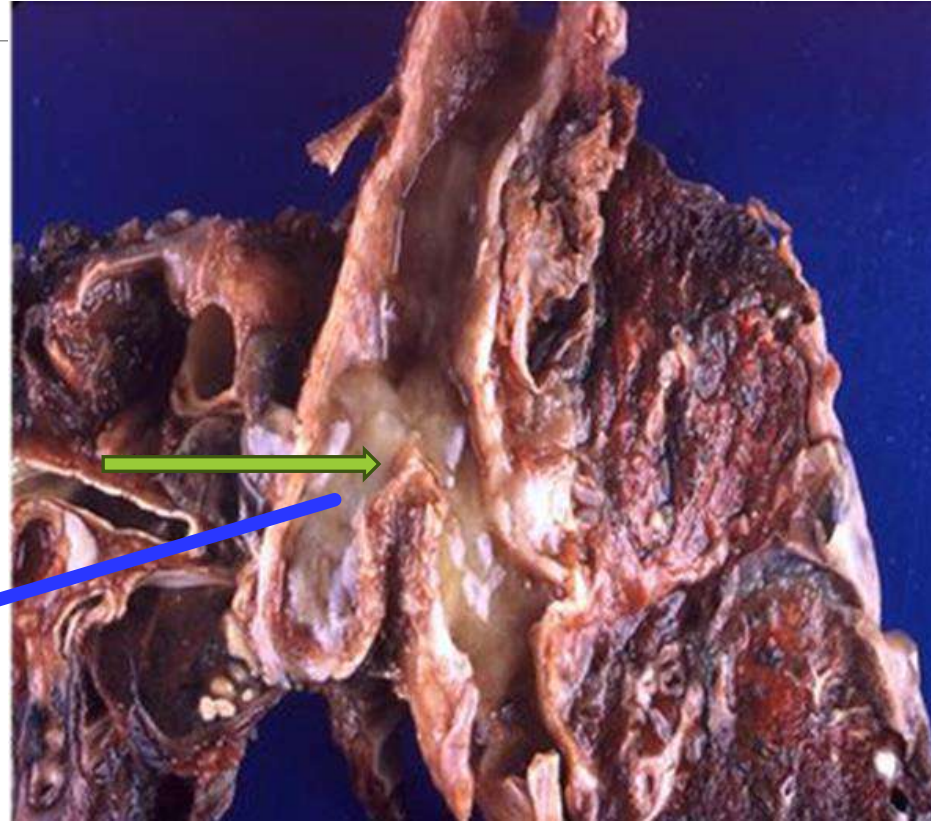
alveoli بتكسر walls تبعثها
↓
وتتحد large air spaces



Chronic Bronchitis

Thick purulent secretion
filling the bronchial lumen.

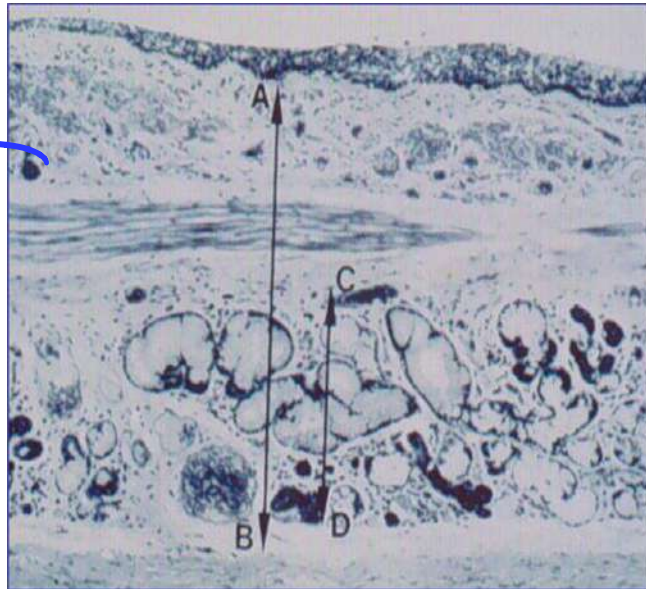
Mucus secretion ↩



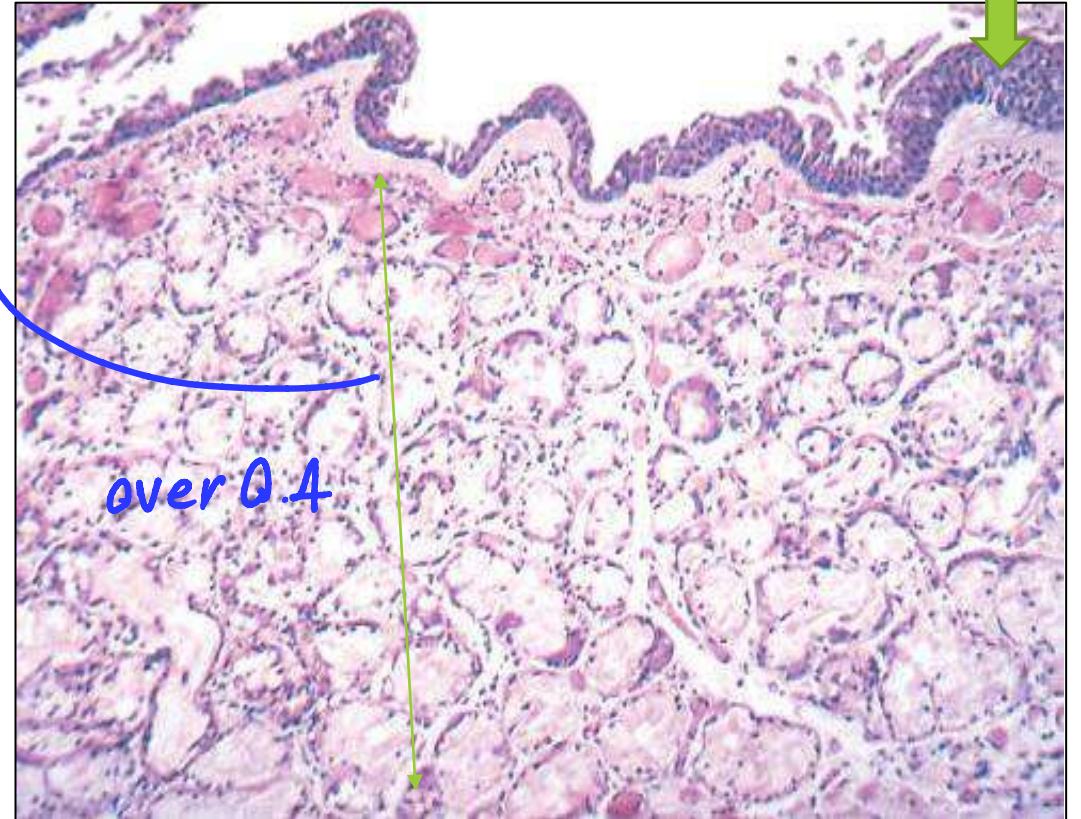
Chronic Bronchitis

Marked thickening of the mucous gland layer (approximately twice normal) and squamous metaplasia of lung epithelium (arrow)

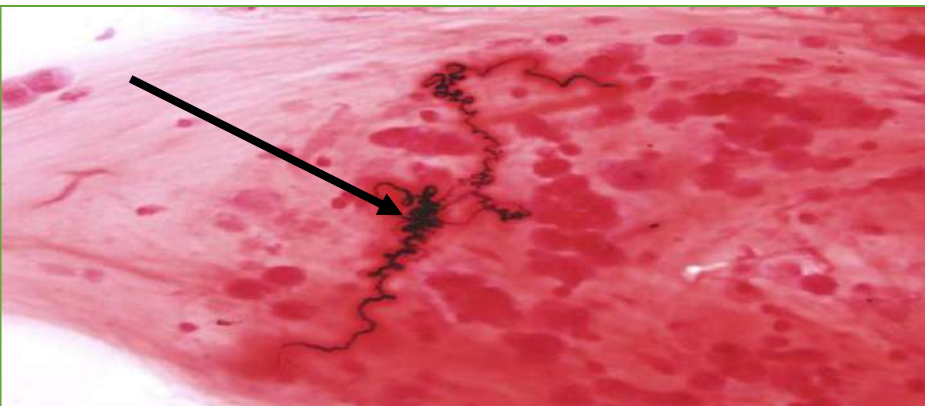
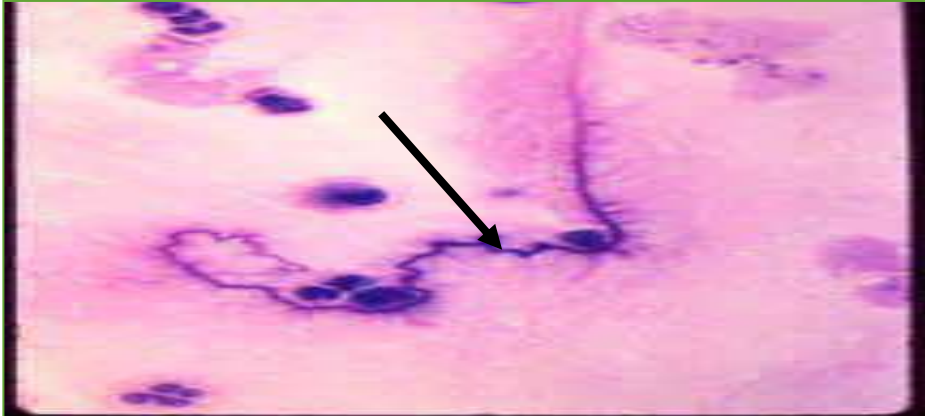
Normal



hypertrophy of mucus glands in the bronchi

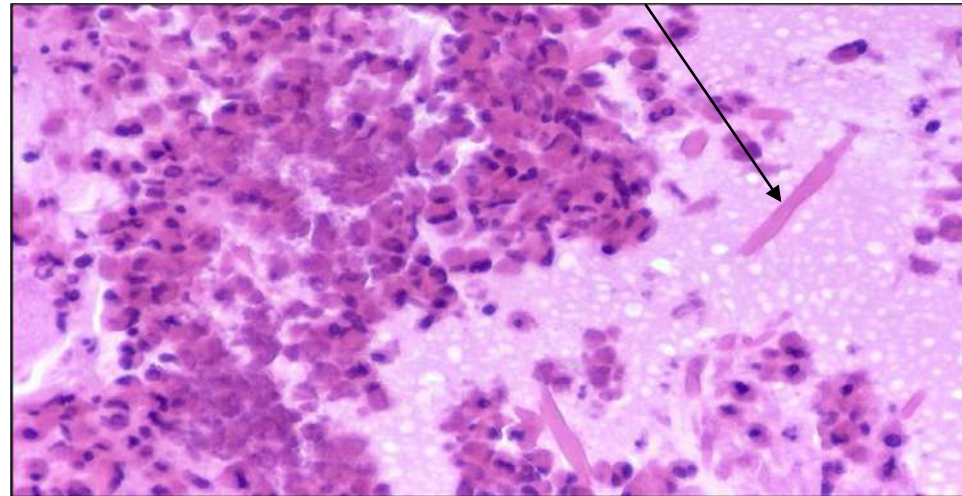
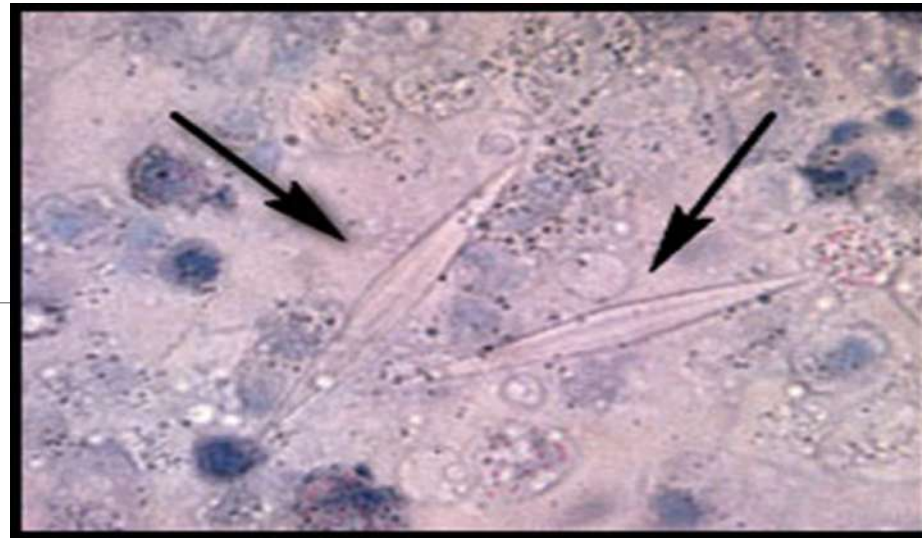


Bronchial Asthma



Curschmann's spirals seen in sputum of asthmatic patients .

mucus plugs containing whorls of shed necrotic epithelial cells

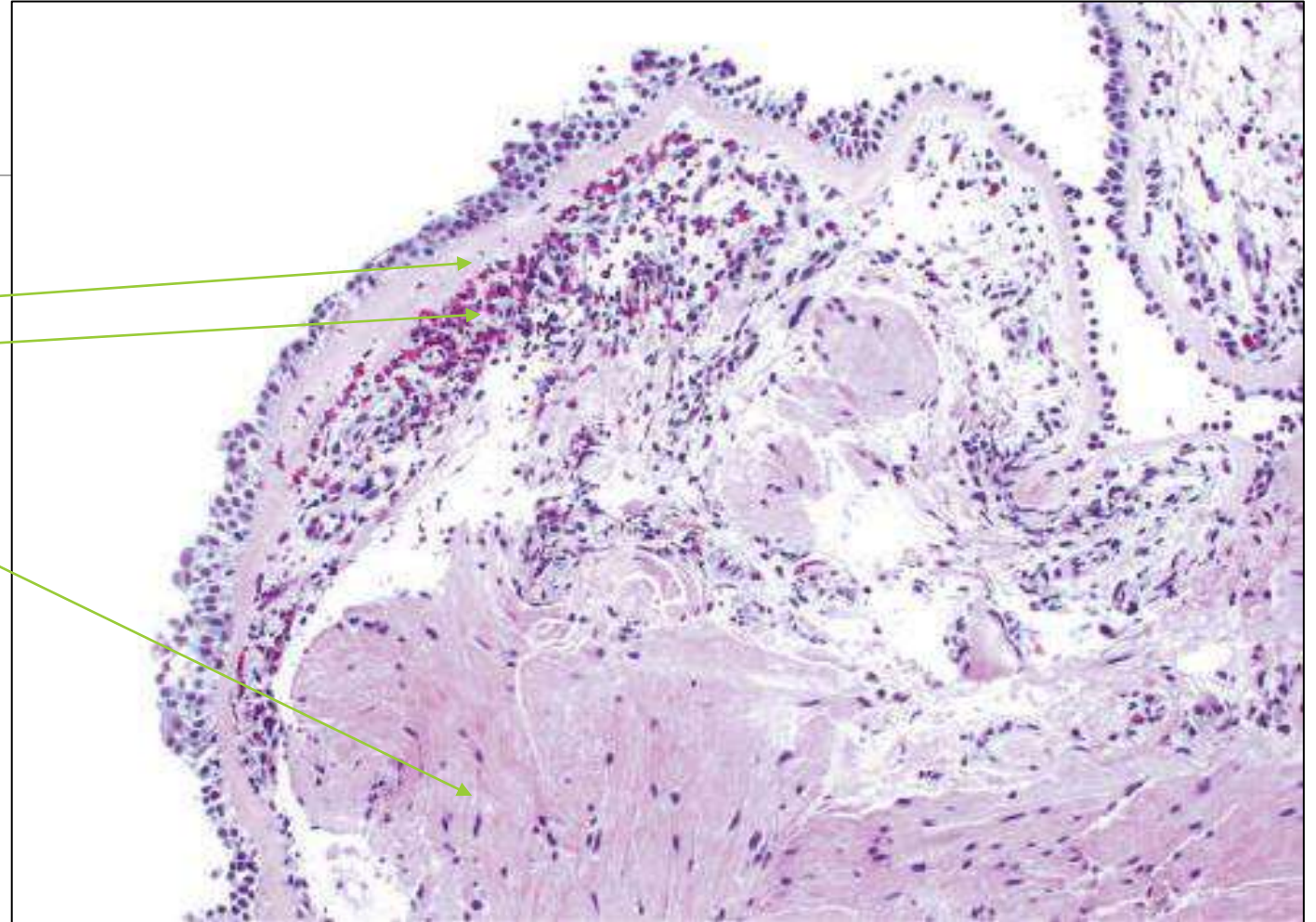


Sputum with **Charcot-Leyden crystals**

Bronchial Asthma

Bronchial biopsy showing sub-basement membrane fibrosis, eosinophilic inflammation, and smooth muscle hyperplasia.

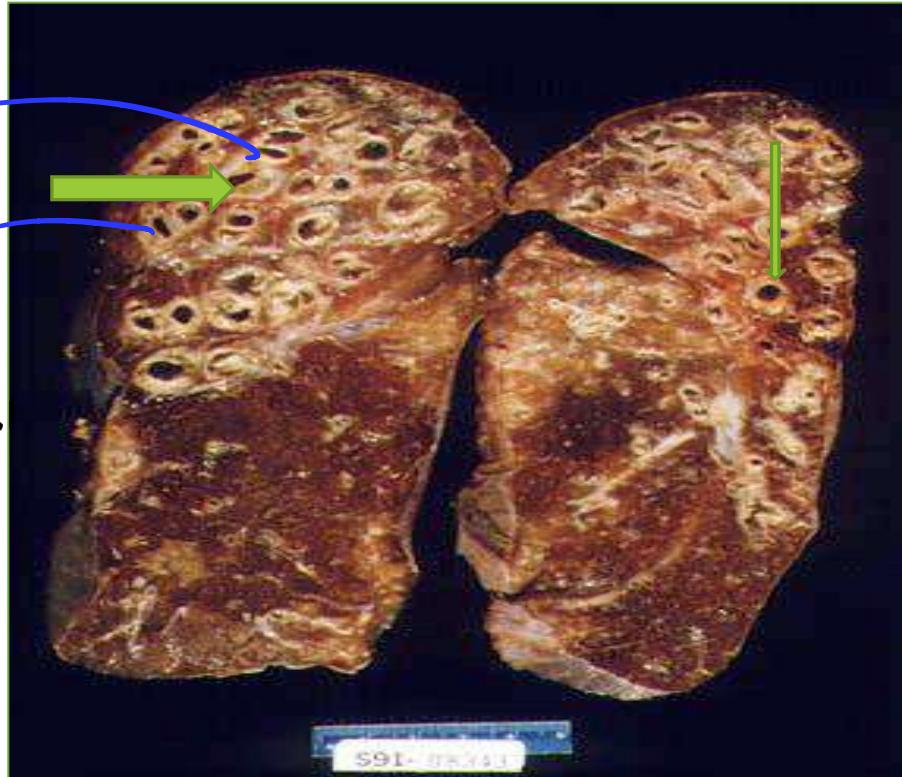
asthma.



Bronchiectasis

Dilated air
ways (bronchi)

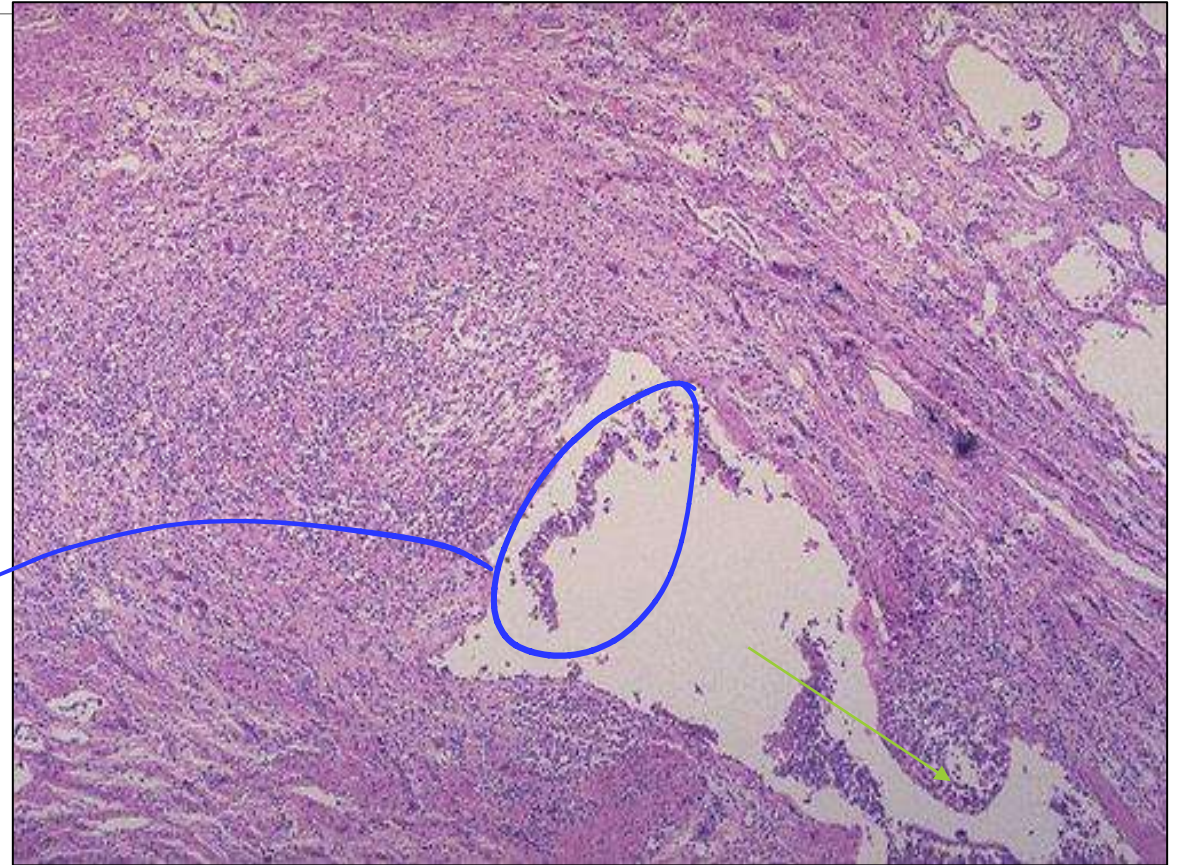
Thick whitish wall
بسبب ال
air way wall موجود في



Bronchiectasis

A dilated bronchus in which the mucosa and wall are not clearly seen because of the necrotizing inflammation with destruction.

Destruction of bronchial lining
بسبب inflammation



Restrictive Lung diseases

unknown cause

Idiopathic pulmonary fibrosis (Usual interstitial pneumonia) (UIP)

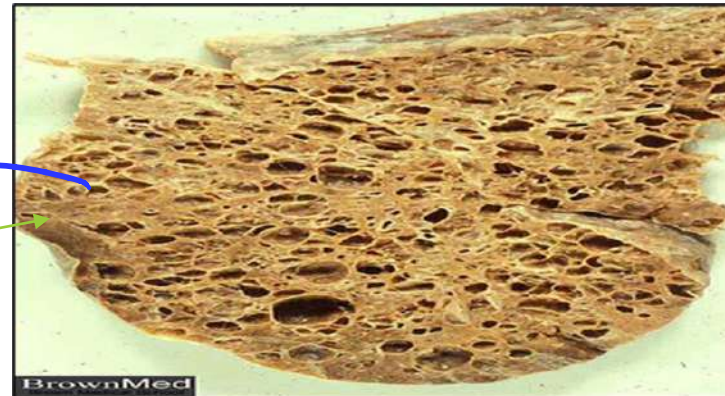
- The pleural surfaces of the lung are **cobblestoned**

في بال lung مناطق فيها fibrosis ومناطق لا
ال fibrosis يسحب ال pleura فبتصير هاي المناطق
منخفضة والمناطق الي ما فيها fibrosis بتكون مرتفعة
فبيبين شكل ال lung مثل الحجارة (cobblestoned)

- Macroscopic Honeycomb.



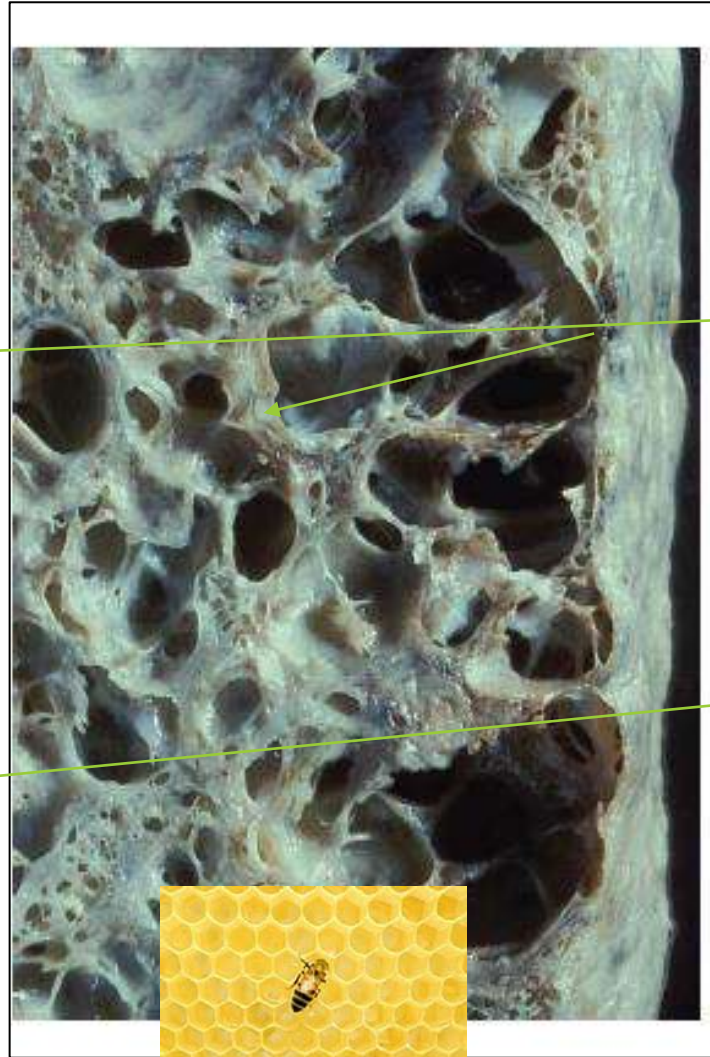
شكل ال lung من الداخل



Usual interstitial pneumonia)



cobblestoned



Macroscopic Honeycomb.

There are both honeycombing and extensive sheets of fibrous tissue; the pleura is also cobblestoned.

UIP, Microscopic Honeycombing

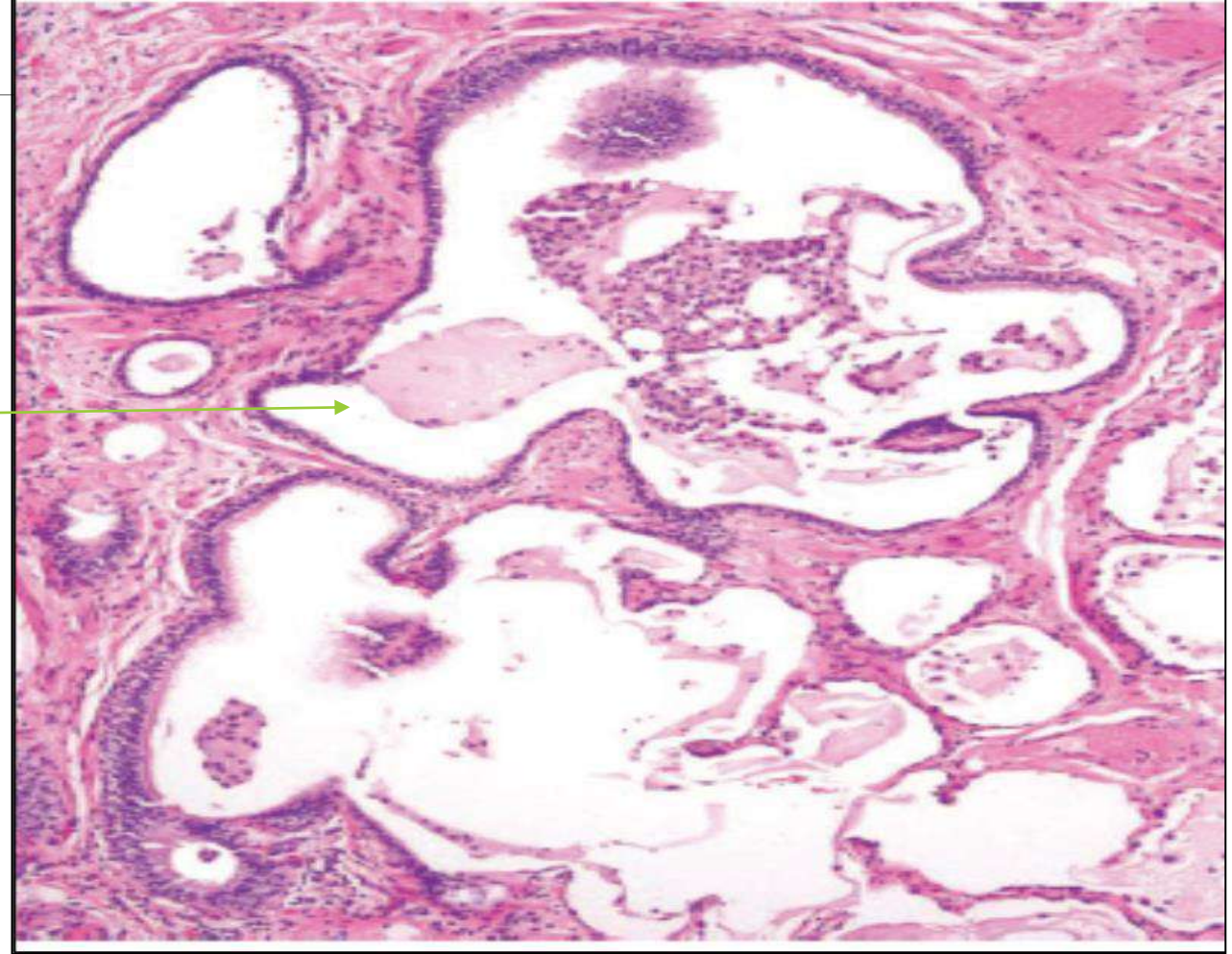
Cystic spaces lined by hyperplastic type II pneumocytes or bronchiolar epithelium (**honeycomb fibrosis**).

Microscopic Honeycombing

بيصير *alveoli* ل destruction
lining لألها يشبه *bronchiol*

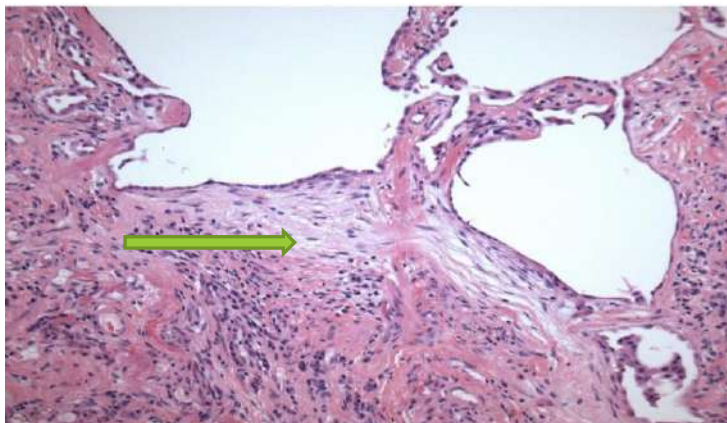


بتتجمع *alveoli* مع بعضهم فيكون
شكلهم مثل *bronchiol*



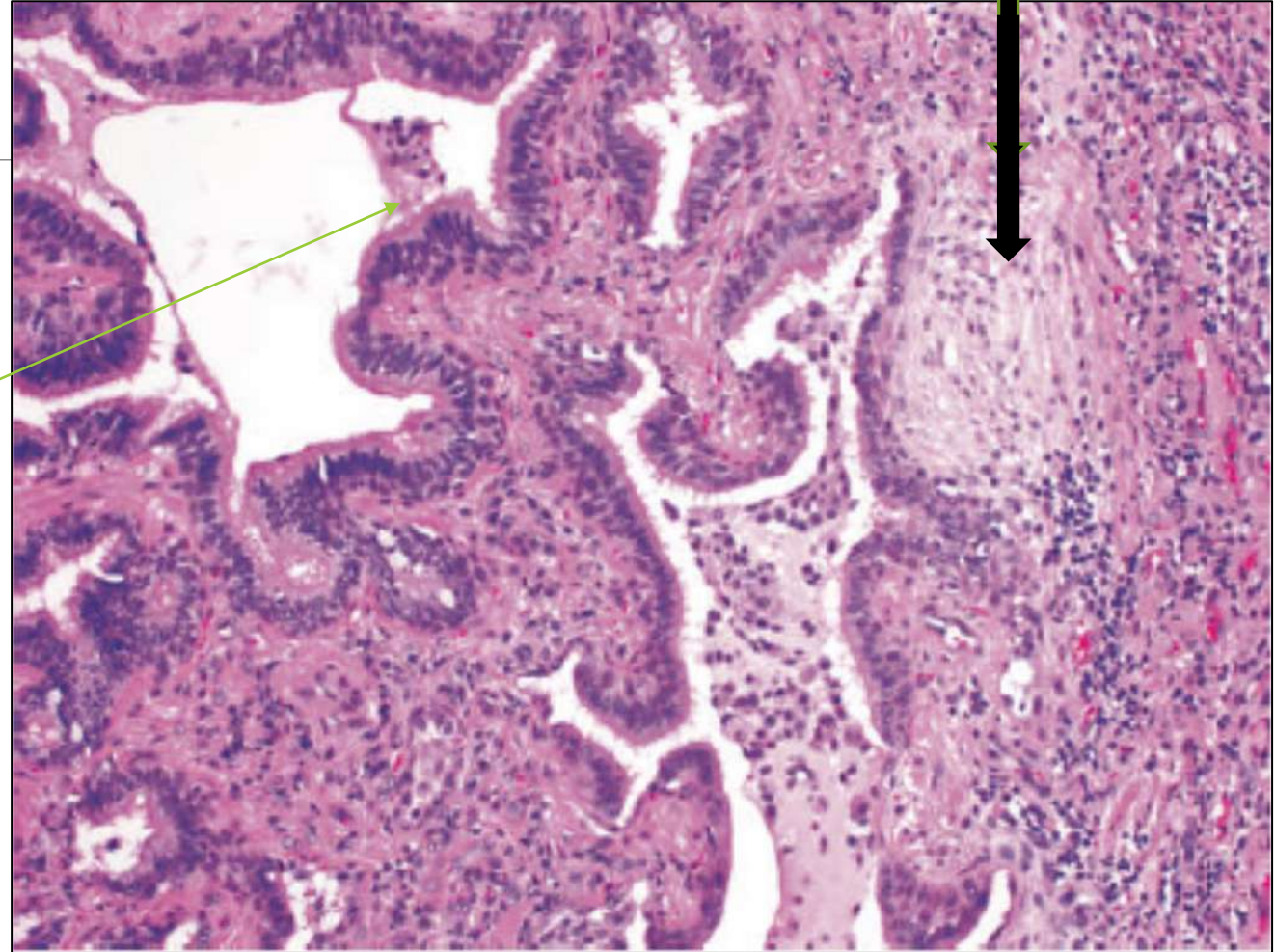
Usual Interstitial Pneumonia (UIP)

Fibroblastic focus with fibers running parallel to the surface and bluish myxoid extracellular matrix (black arrow). Honeycombing is present to the left.



بیشبه organising pneumonia
ولكن هذا ال fibroblastic focus بيكون في interstitial
بينما organising pneumonia بتكون داخل alveoli

Fibroblastic focus



Non-specific interstitial pneumonia (NSIP)

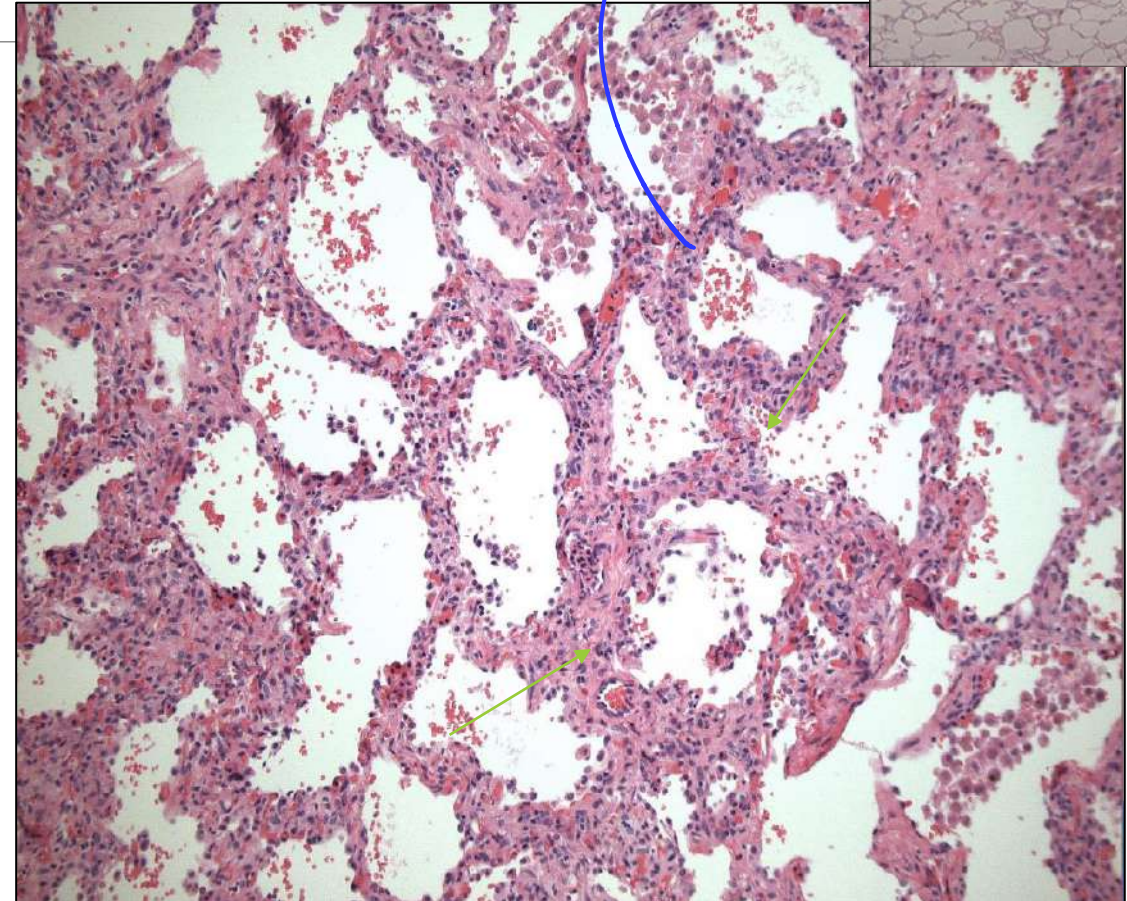
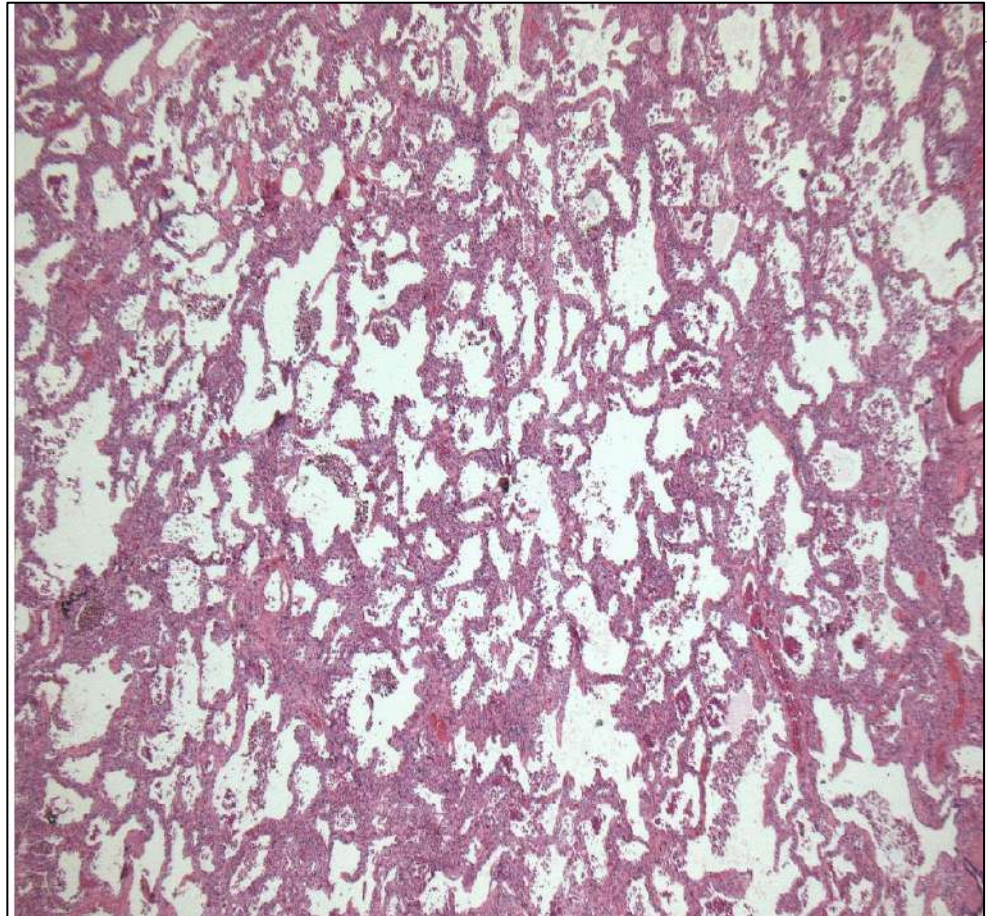
thick wall of alveoli

بسیب

fibrosis او inflammation

architecture مع الحفاظ على

او كليهما



Cryptogenic Organizing Pneumonia

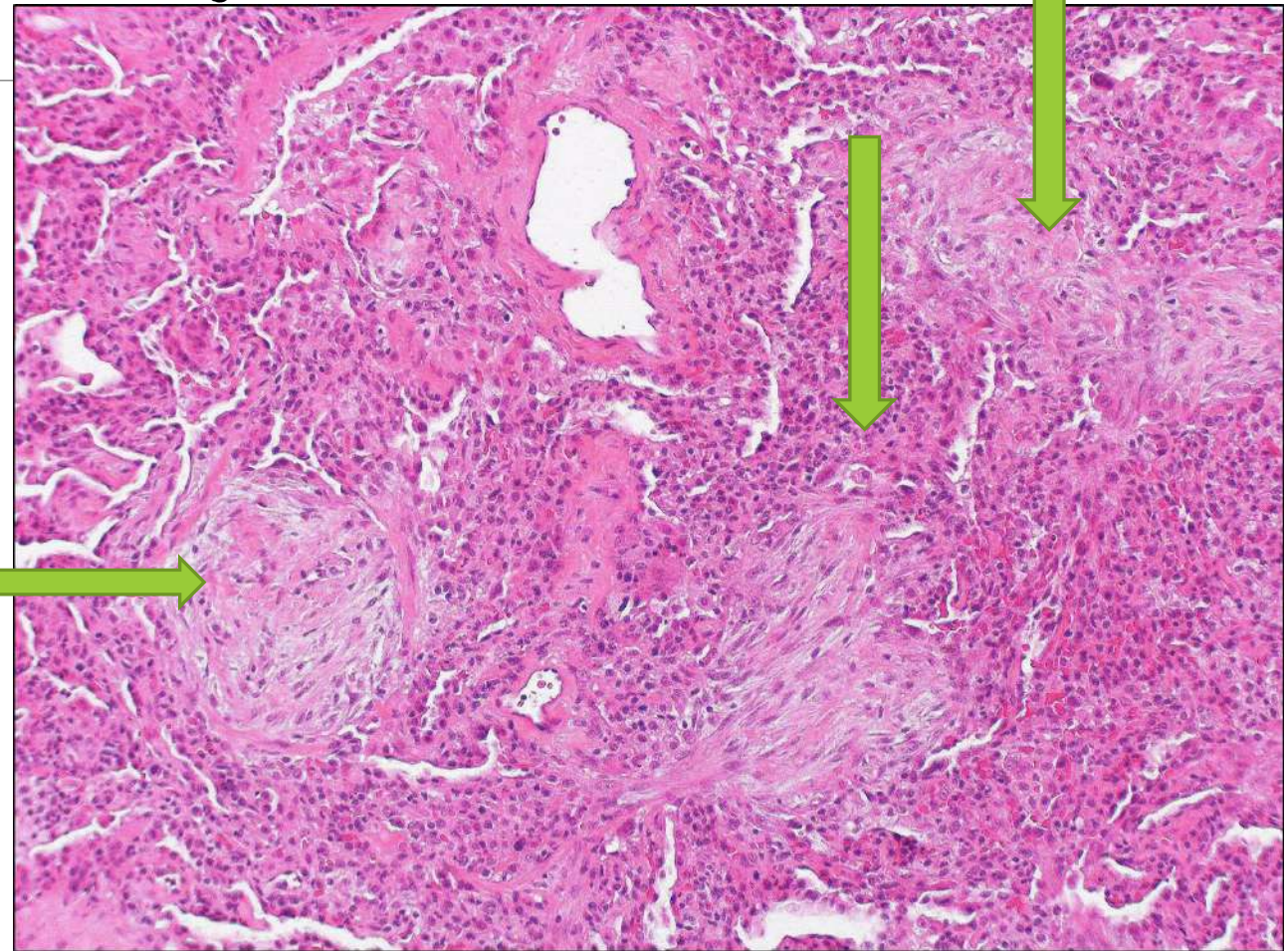
Organising pneumonia (multiple) + unknown aetiology



cryptogenic organising pneumonia

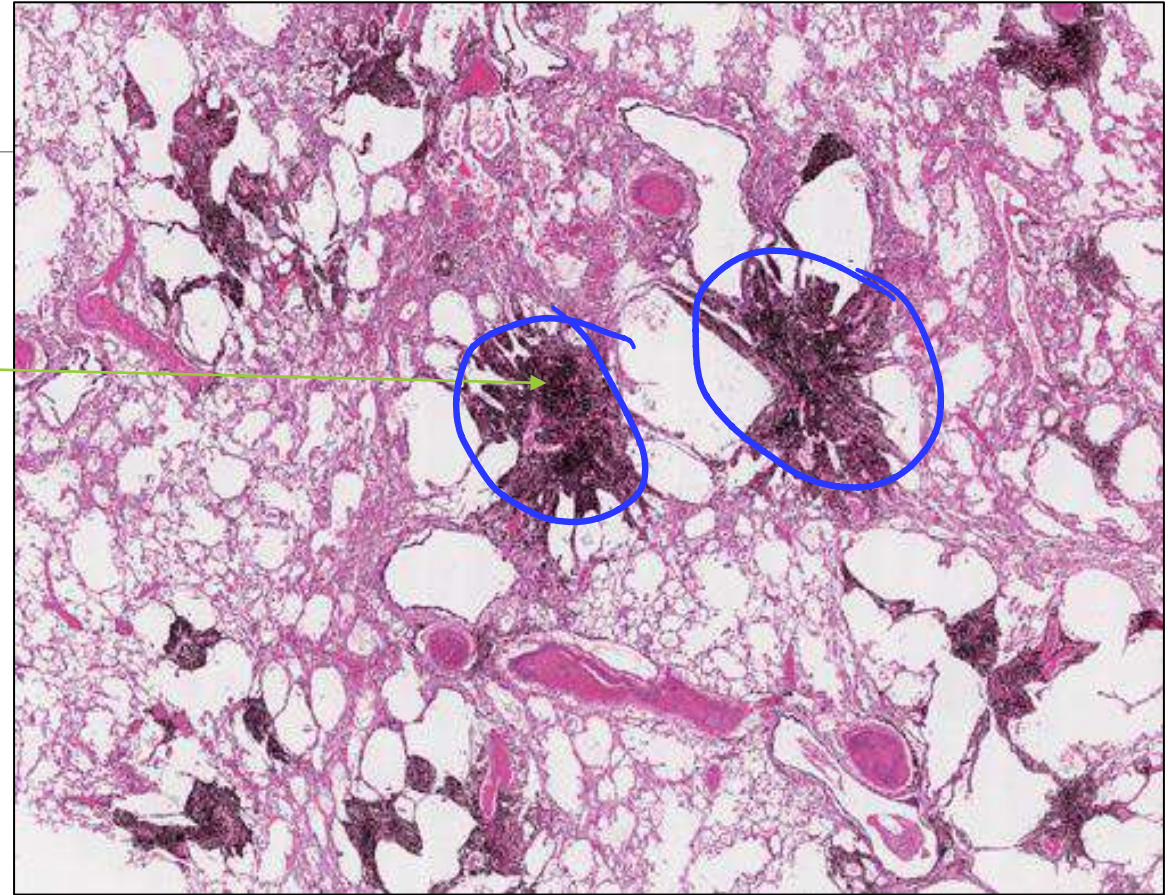
Polypoid plugs of fibrosis in bronchioles, alveolar ducts & alveoli (**Masson bodies**) (arrows).

Name of organising pneumonia in cryptogenic organising pneumonia



Coal-worker Pneumoconiosis

- Macules.
 - Carbon particles deposited in peri-bronchial tissue within macrophages & extra cellularly.
- Black substance deposited in the lung*



Silicotic Nodule

It is composed mainly of concentrically (whorled) arranged hyalinized collagen fibers

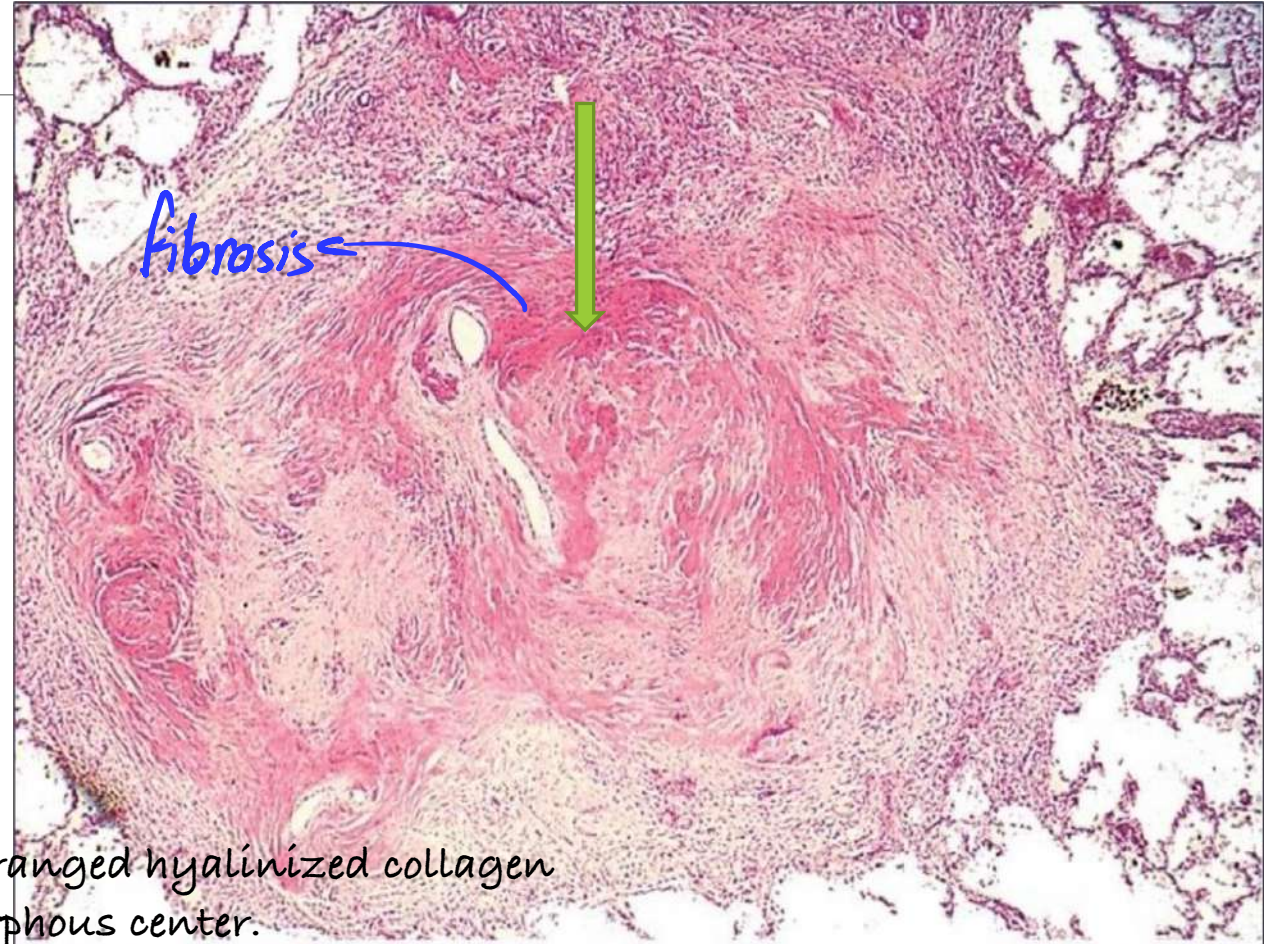
Common in workers in sandblasting, ceramics, glass, and stone cutting.



inhalation of silica substance



Fibrosis ⇒ Concentrically (whorled) arranged hyalinized collagen fibers surrounding an amorphous center.



Asbestosis, Asbestos Bodies

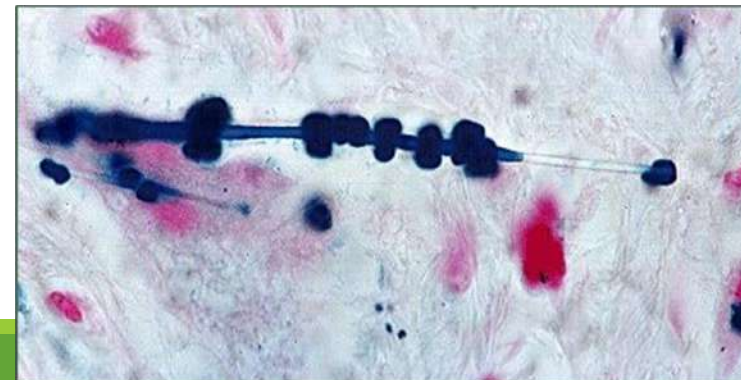
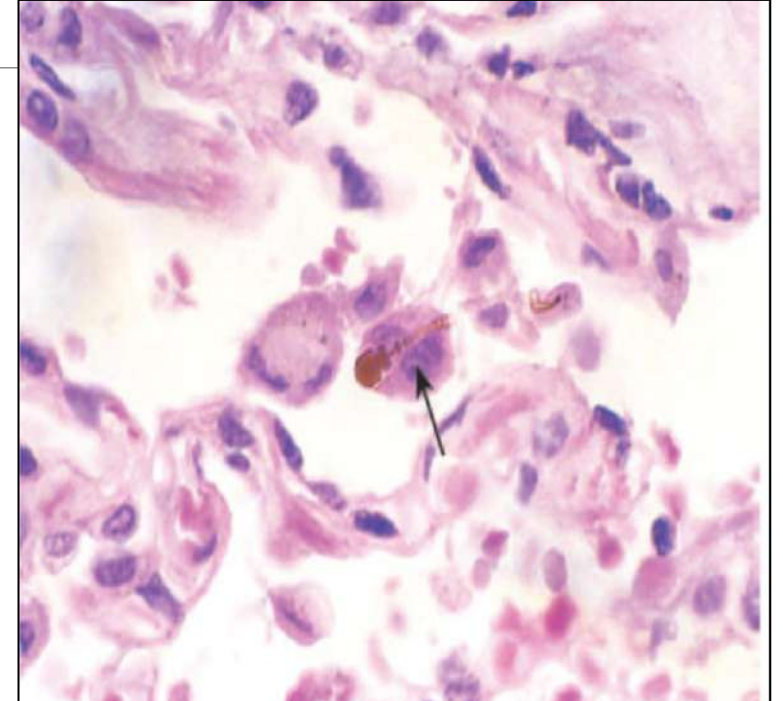
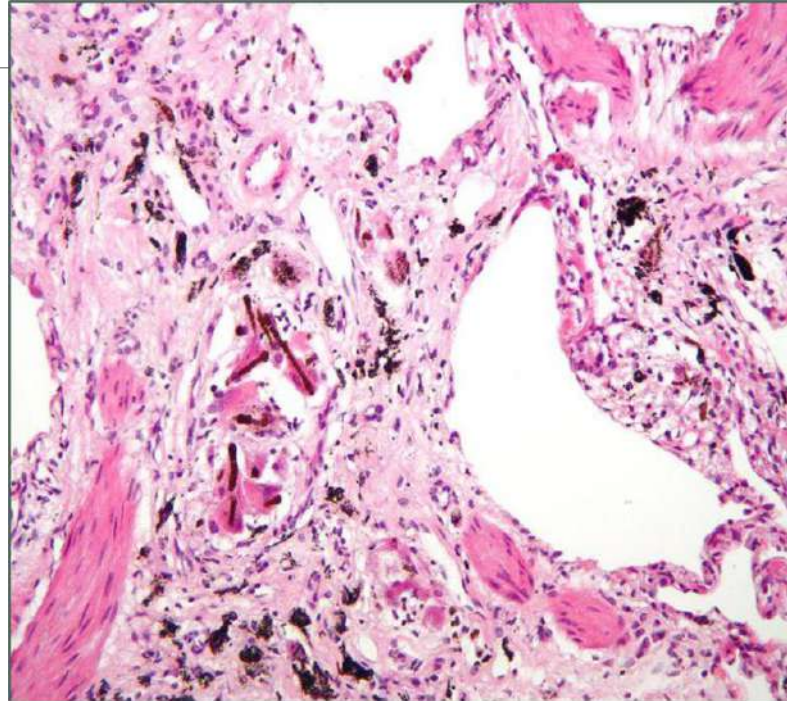
beaded bodies → golden brown

تحتوي على iron لذلك يمكن صبغها

ب Prussian blue stain



Blue colour

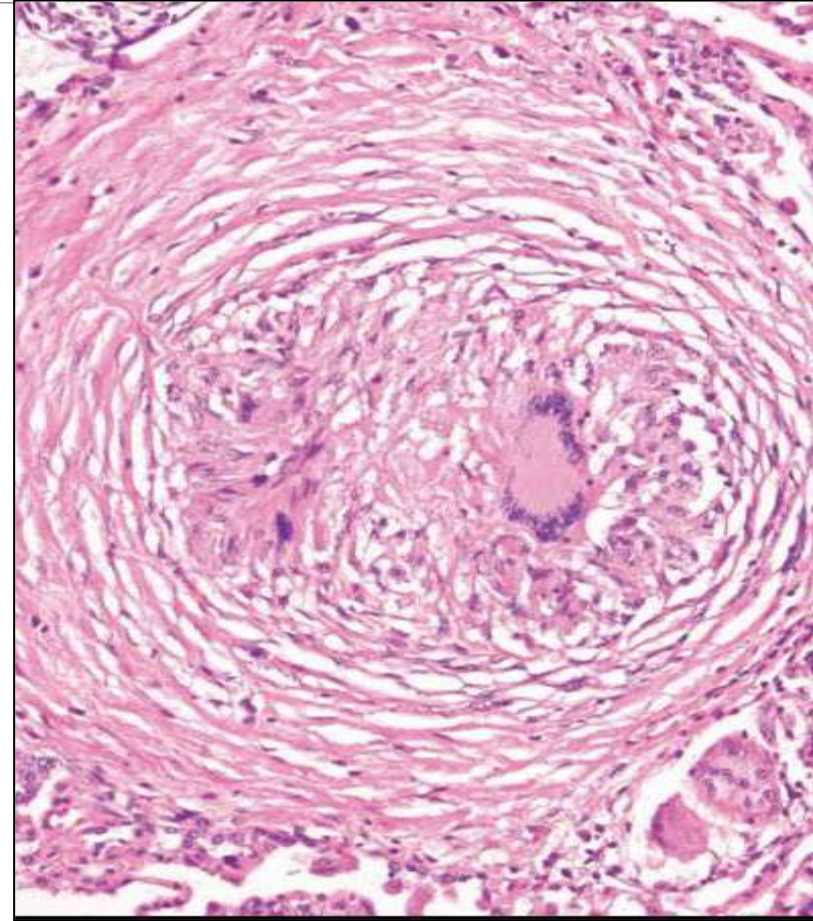
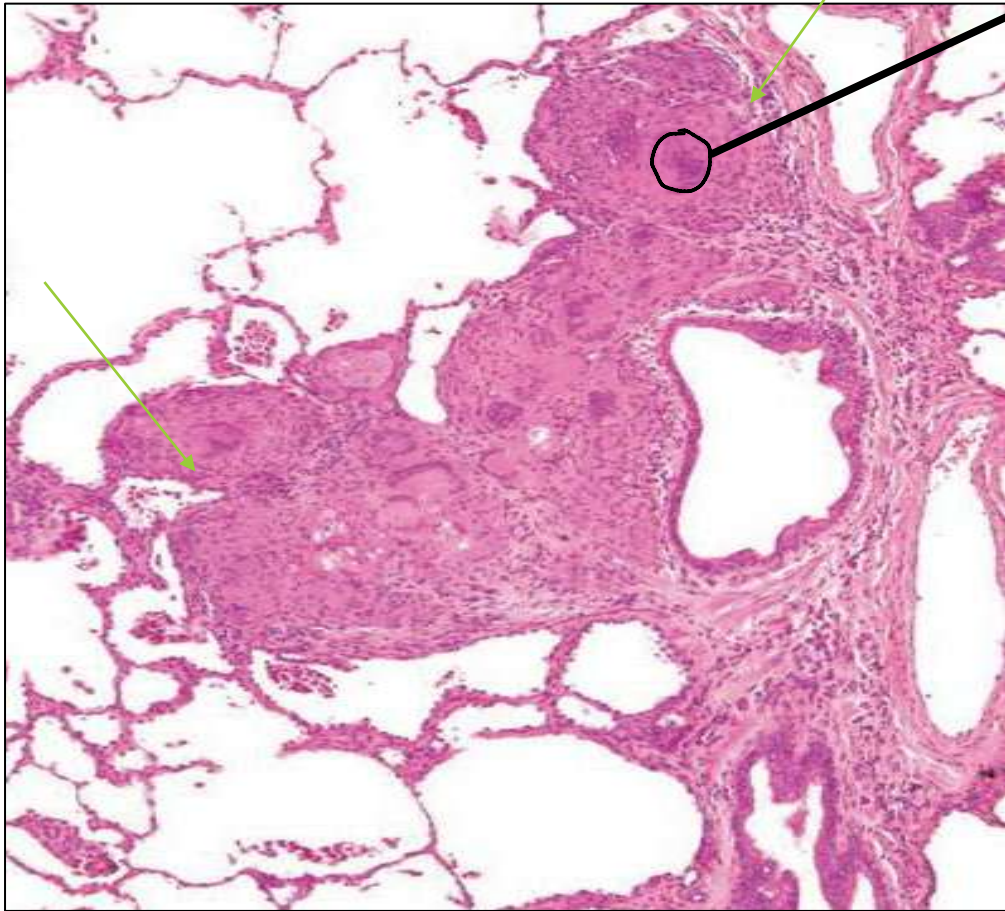


Sarcoidosis

Localised aggregate of histiocytes (epithelioid cells) epithelial cells شكلهم بيشببه
Multi-nucleated giant cells ومعهم
surrounded by lymphocytes or fibrosis ويتكون

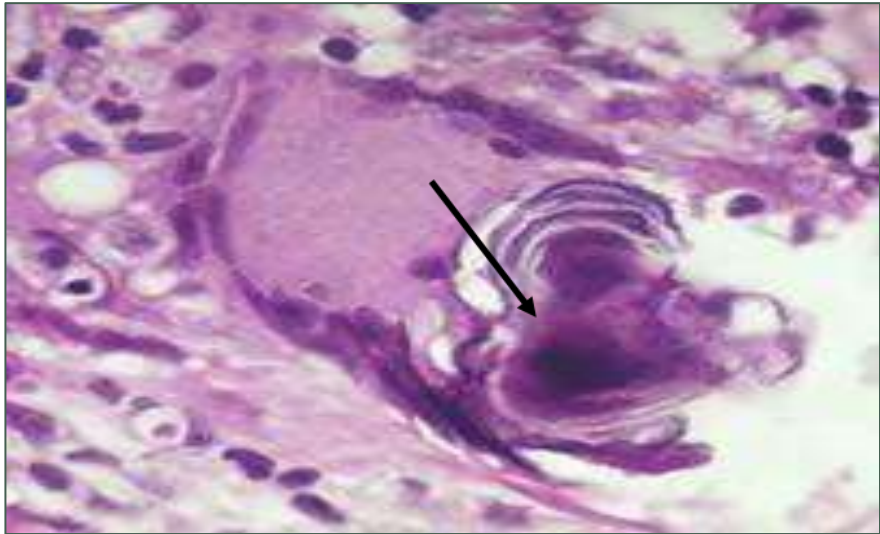
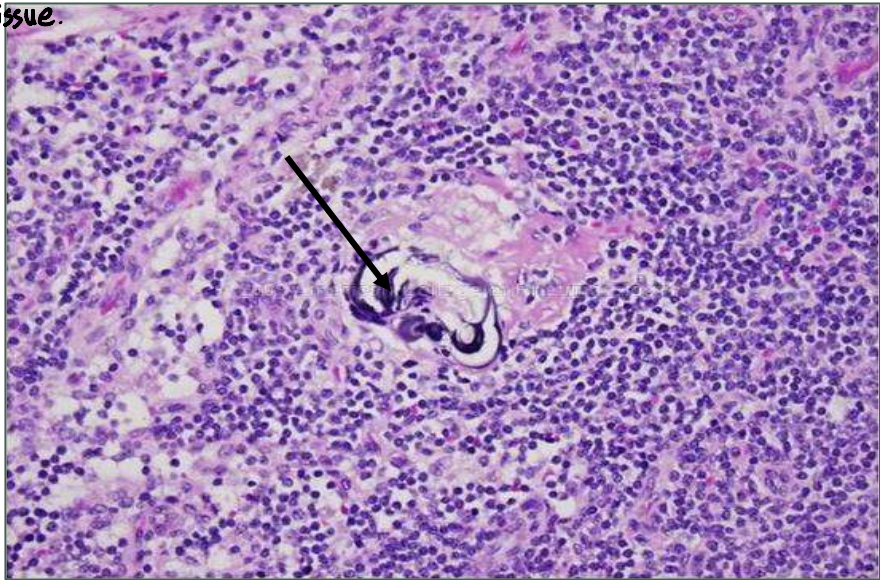
Multiple granulomas around a bronchovascular bundle in sarcoid.

Sarcoid granuloma with prominent concentric lamellar fibrosis.



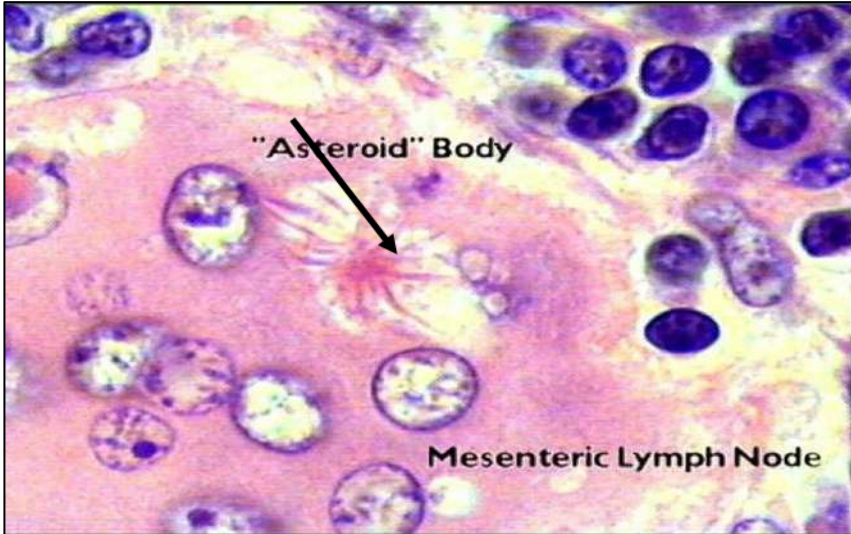
calcification in granuloma
Bluish color + deposits in
tissue.

Schaumann Bodies



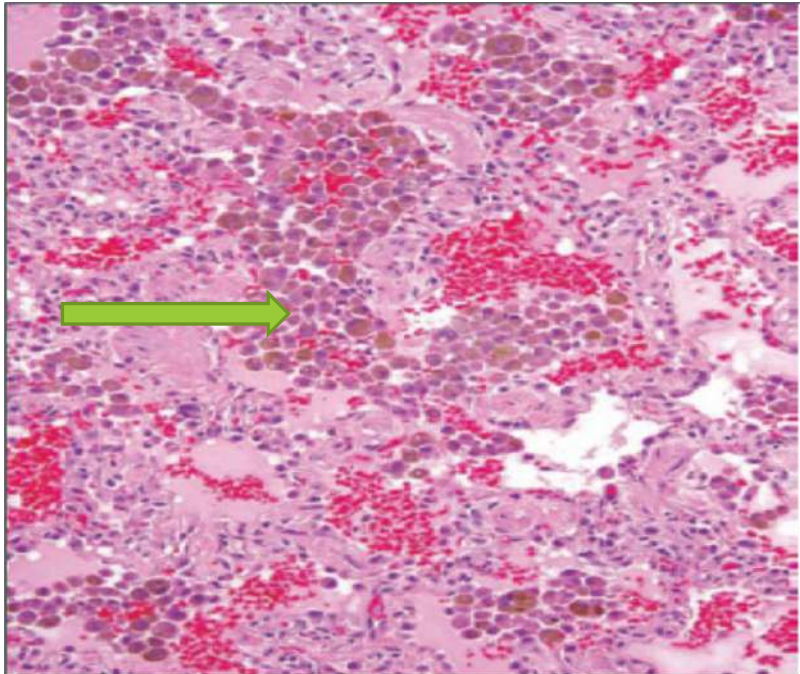
Asteroid Bodies

Star like structure



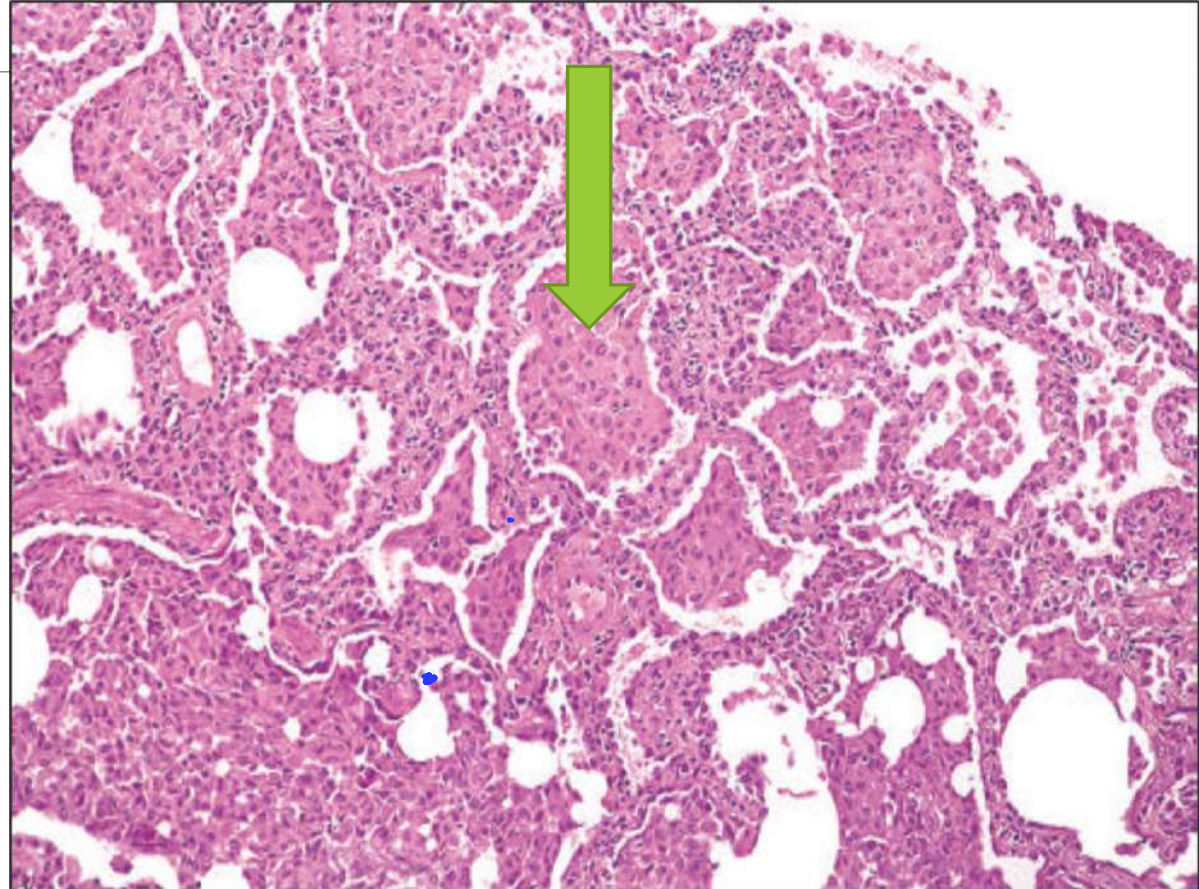
Desquamative Interstitial Pneumonia(DIP)

-Proliferation of pigmented alveolar macrophages filling the alveoli.



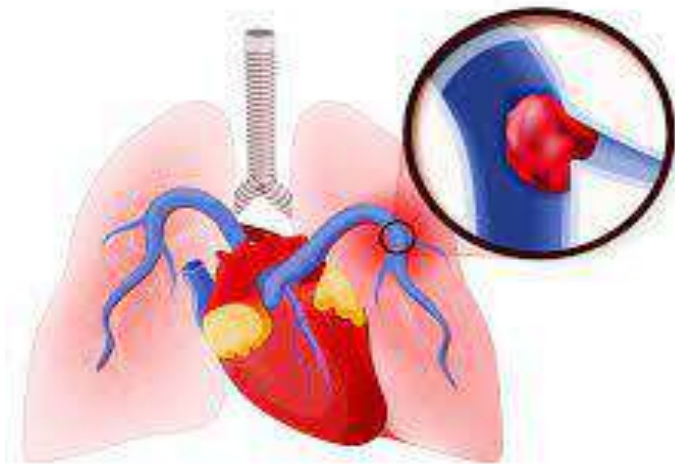
Accumulation of large numbers of macrophages containing
dusty-brown pigment (smoker's macrophages) in
the air spaces.

→ pigmented macrophages.



Vascular Diseases

Pulmonary embolism

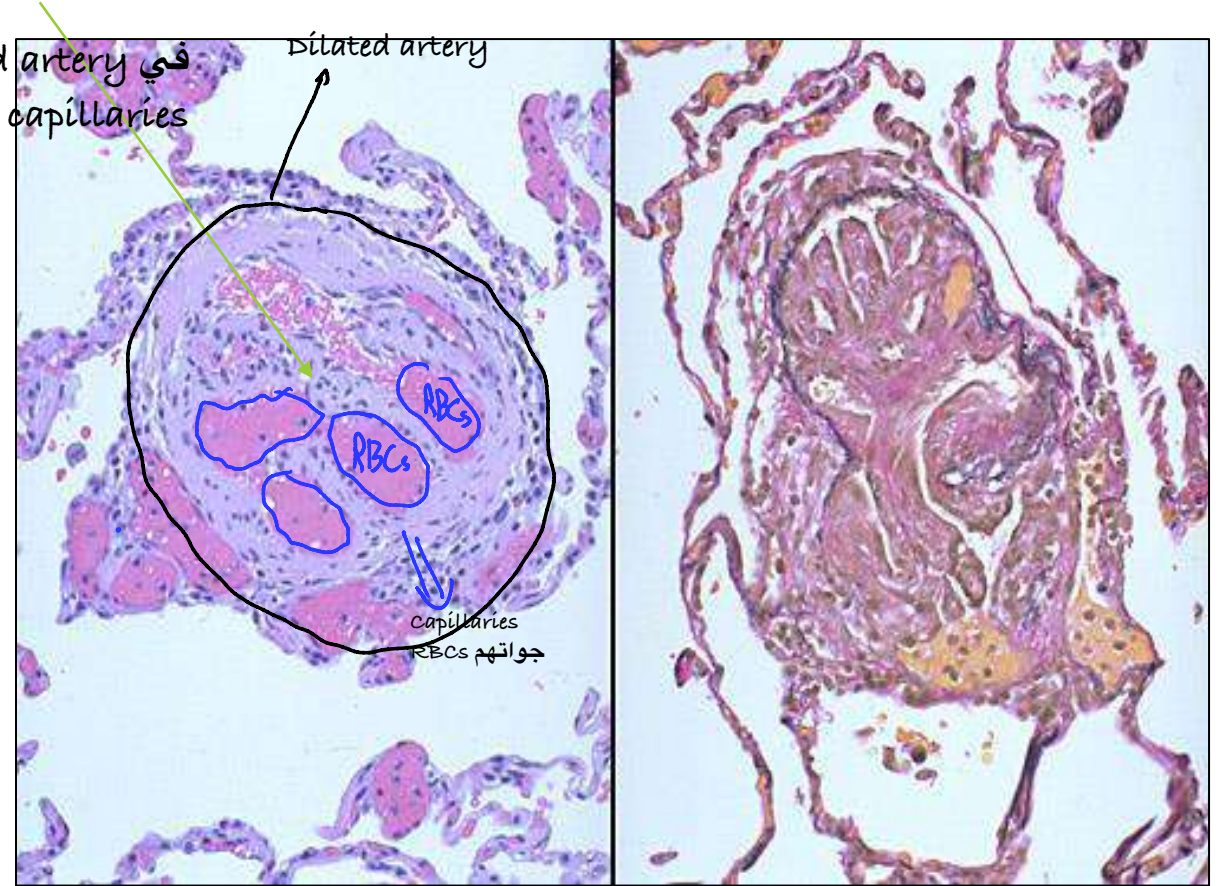


Plexiform Lesion with Pulmonary Hypertension

Characteristic for pulmonary hypertension

في جواته مجموعة من dilated artery
على شكل network or web capillaries

- A plexiform lesion is seen in a peripheral pulmonary artery, on the left with an H&E stain and on the right with an elastic tissue stain.



Diffuse alveolar hemorrhage syndrome

(A) Large numbers of intraalveolar hemosiderin-laden macrophages on a background of thickened fibrous septa.

(B) Prussian blue: an iron stain highlights the hemosiderin.

