

وَقُلْ رَبِّ زِدْنِي عِلْمًا



RESPIRATORY SYSTEM

HAYAT BATCH

SUBJECT : Pathology lab

LEC NO. : 2

DONE BY : Dana Khalaf 🎀



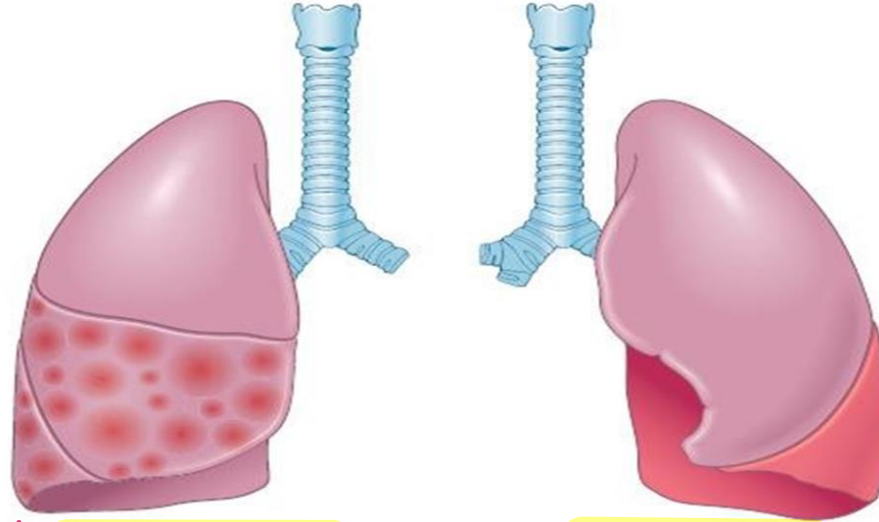
اللاب رح يغطي آخر أربع محاضرات اللي همه
.. tumours و pulmonary infections

Respiratory System Pathology Lab 2

Dr. Ola Abu Al Karsaneh

Pulmonary Infections

تصنيف bacterial infection حسب anatomic distribution:



1. Bronchopneumonia ← Patchy process

يعني مو كل المناطق effected وممكن تكون بأكثر من lobe

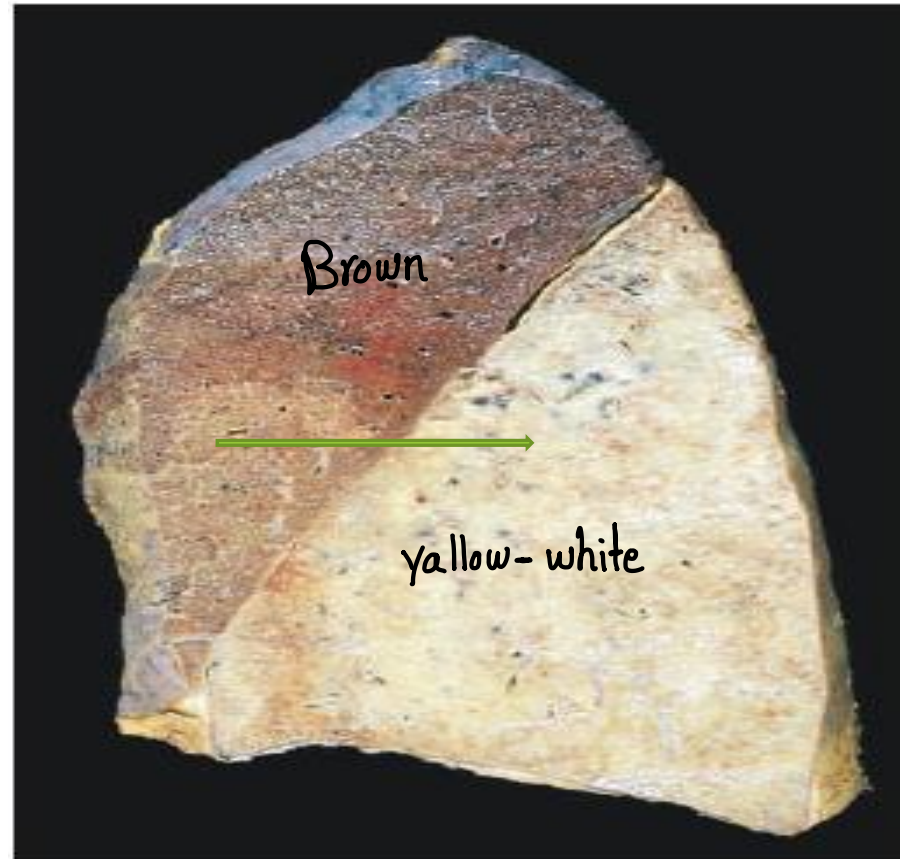
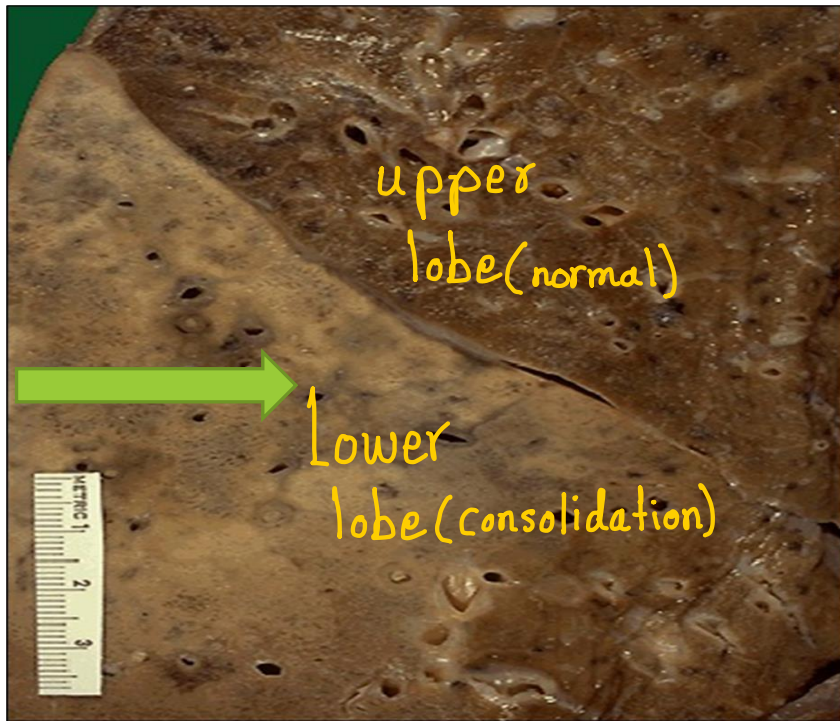
2. Lobar pneumonia → consolidation بتأثر ع lobe

كامل او ع جزء كبير بشكل continues

Figure 12-31 The anatomic distribution of bronchopneumonia and lobar pneumonia.

Lobar Pneumonia

*
- Consolidation of the entire lobe



Bronchopneumonia

*

Patchy distribution of bronchopneumonia



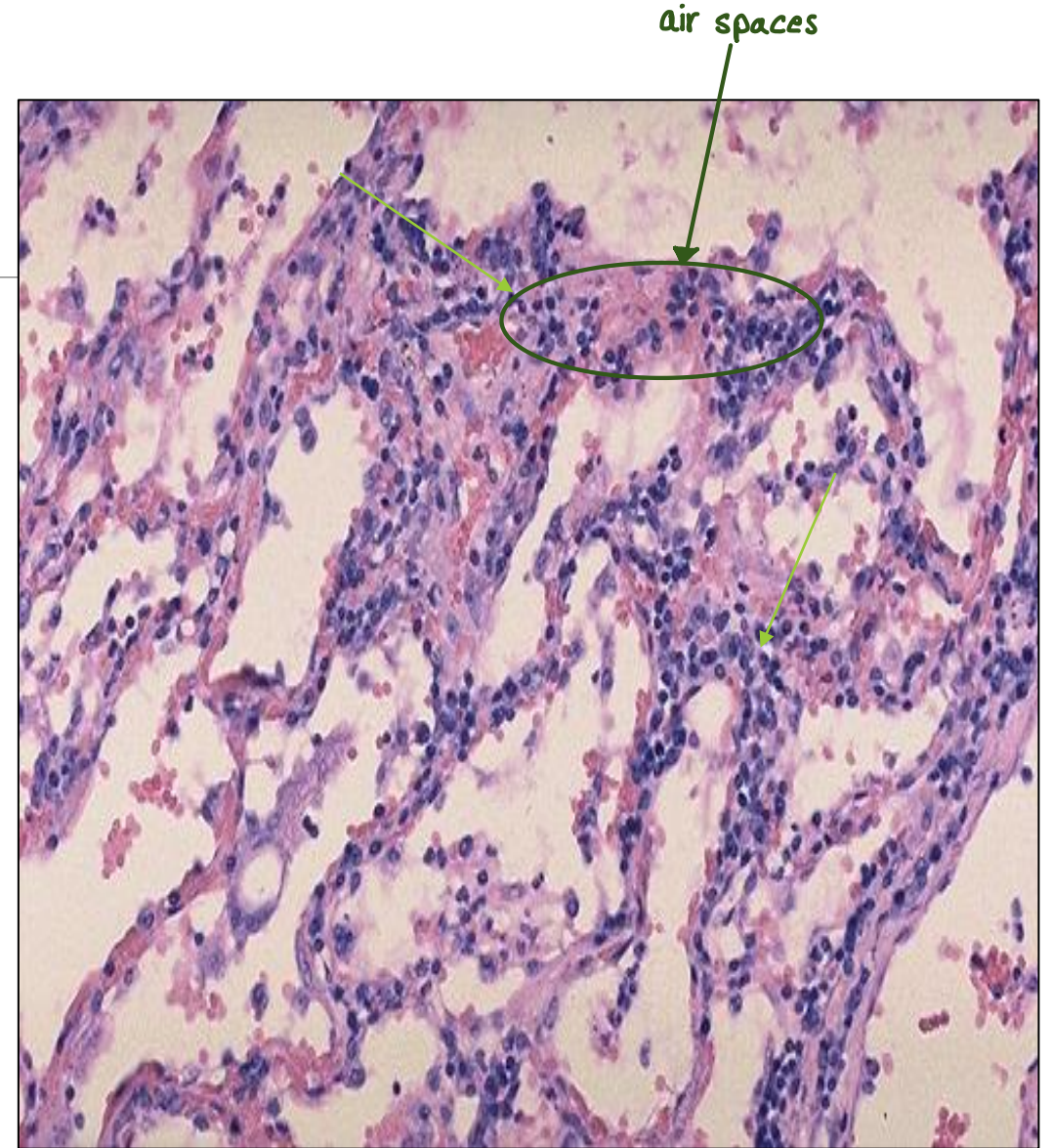
Figure 15-33 Bronchopneumonia. Section of lung showing patches of consolidation (arrows).



Atypical Pneumonia

Here is the microscopic appearance of viral pneumonia with **interstitial lymphocytic infiltrates**. Note that there is **no alveolar exudate**.*

ال التهاب ال interstitium بكون داخل ال
او ب alveolar wall ع شكل lymphocyte
(mononuclear cells)



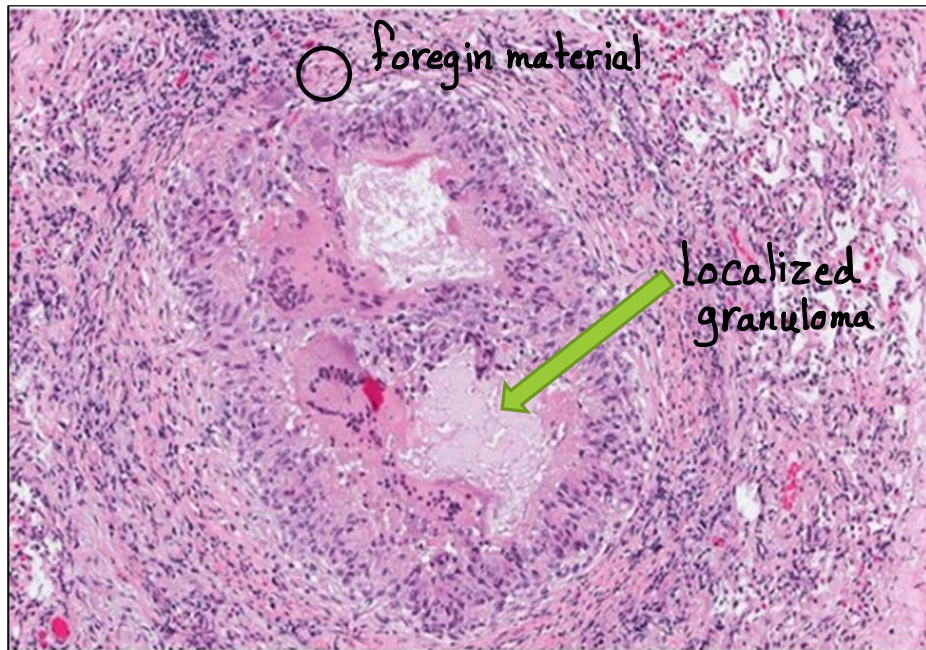
unconscious, stroke, repeated vomiting: اكثر شي عند الناس:

lung ويتميزوا ب aspiration ل foreign material ف بنشوف مادة غريبة بال

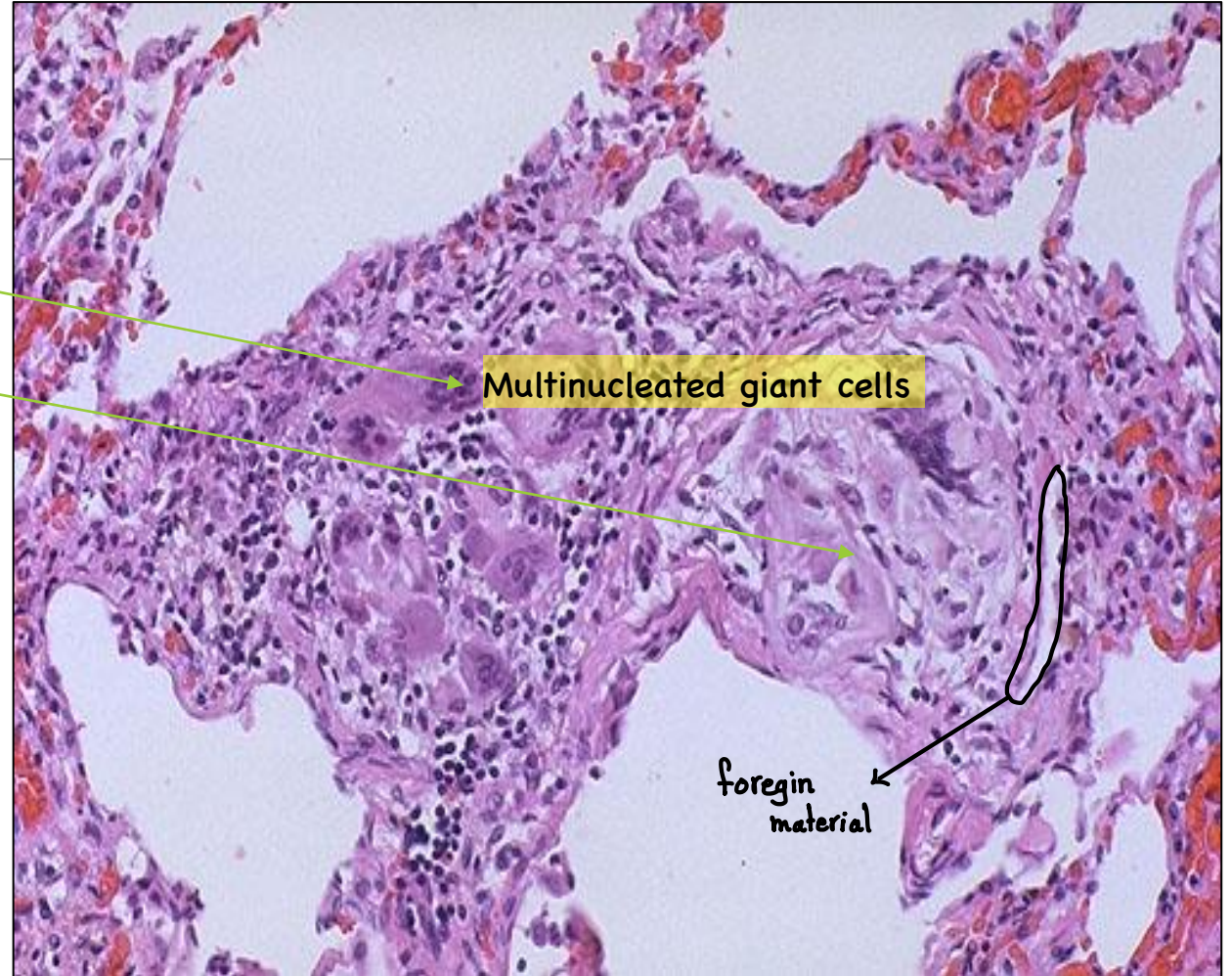
necrosis, abscess formation, granuloma ممكن تكون عاملة

Aspiration Pneumonia

A localized foreign body giant cell response to the aspirated material



Typical Granulomatous appearance



multinucleated giant cells مكونة ال granuloma من histiocyte وفيهم

Abscesses

ال abscess ممكن يصير بطرق وبأسباب مختلفة
و grossly بكون عشكل cavity بسبب
destruction in the lung

- Irregular-shaped cavities within lung parenchyma filled with necrotic tissue.



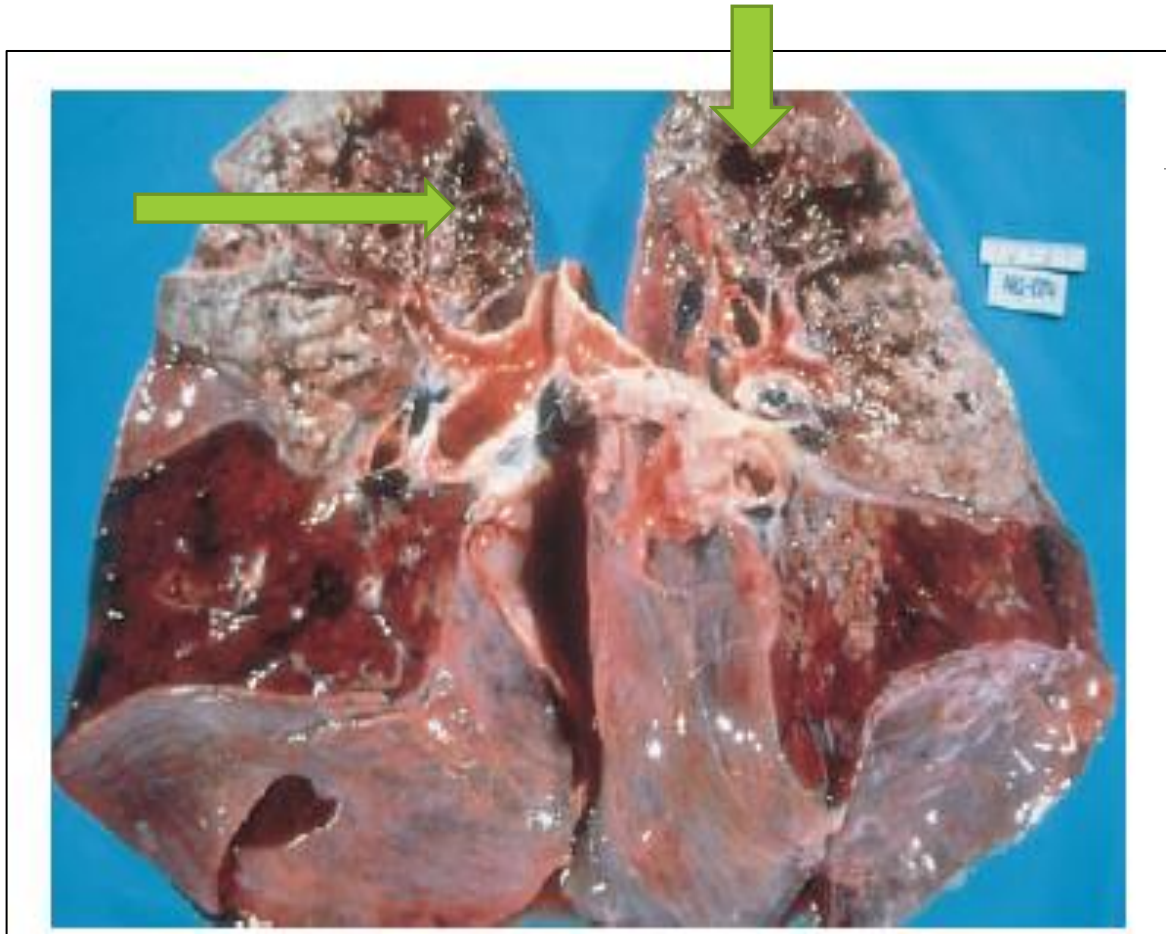
Ghon Complex With Primary Tuberculosis

There is a small tan-yellow ^{1.}subpleural granuloma in the mid-lung field on the right. In the hilum is a small yellow tan ^{2.}granuloma in a hilar lymph node next to a bronchus. This is the "Ghon complex" that is the characteristic gross appearance with **primary tuberculosis.**

Promenant lymph node involvement

ال consolidation اللي بنشوفه بكون غالبا ب lower part من upper lobe او ب upper part من lower lobe يعني تقريبا ب middle of the lung ويكون جنب pleura





بكون ب apical part

Secondary pulmonary tuberculosis.

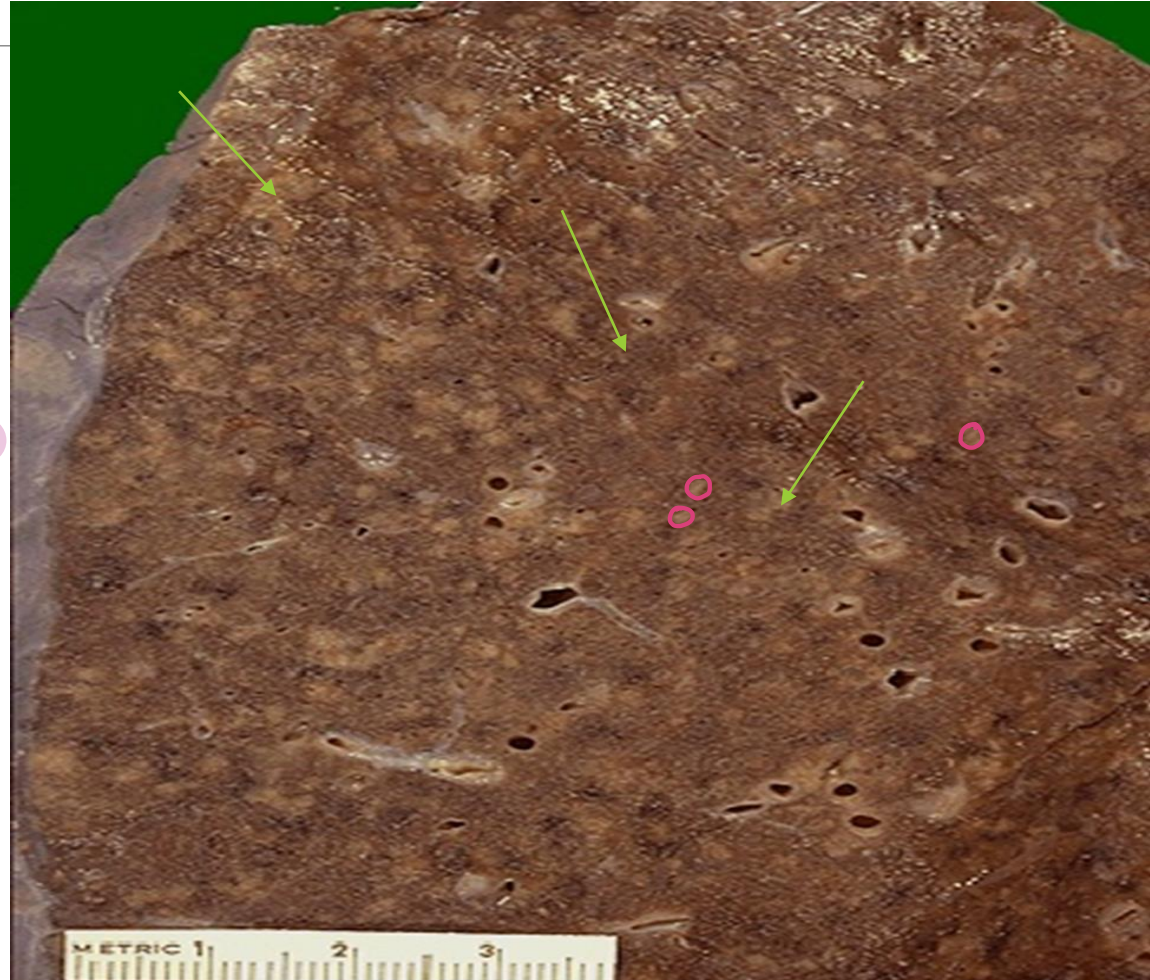
The upper parts of both lungs are riddled with gray-white areas of caseation and multiple areas of softening and ↑cavitation.

الجسم تعرض لهاد organism من
قبل فيتكون response أقوى

Miliary pulmonary TB:

- Individual lesions are small foci of yellow-white consolidation ← scattered through the lung parenchyma.

مخبرین کلی
Lung
کثیرا عاملة
Seeding



منطقة necrosis ، لونها يكون pink

Surrounded by histiocyte اللي الهم pink cytoplasm

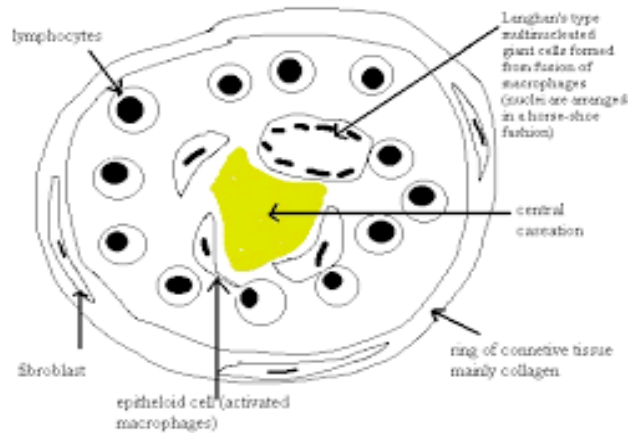
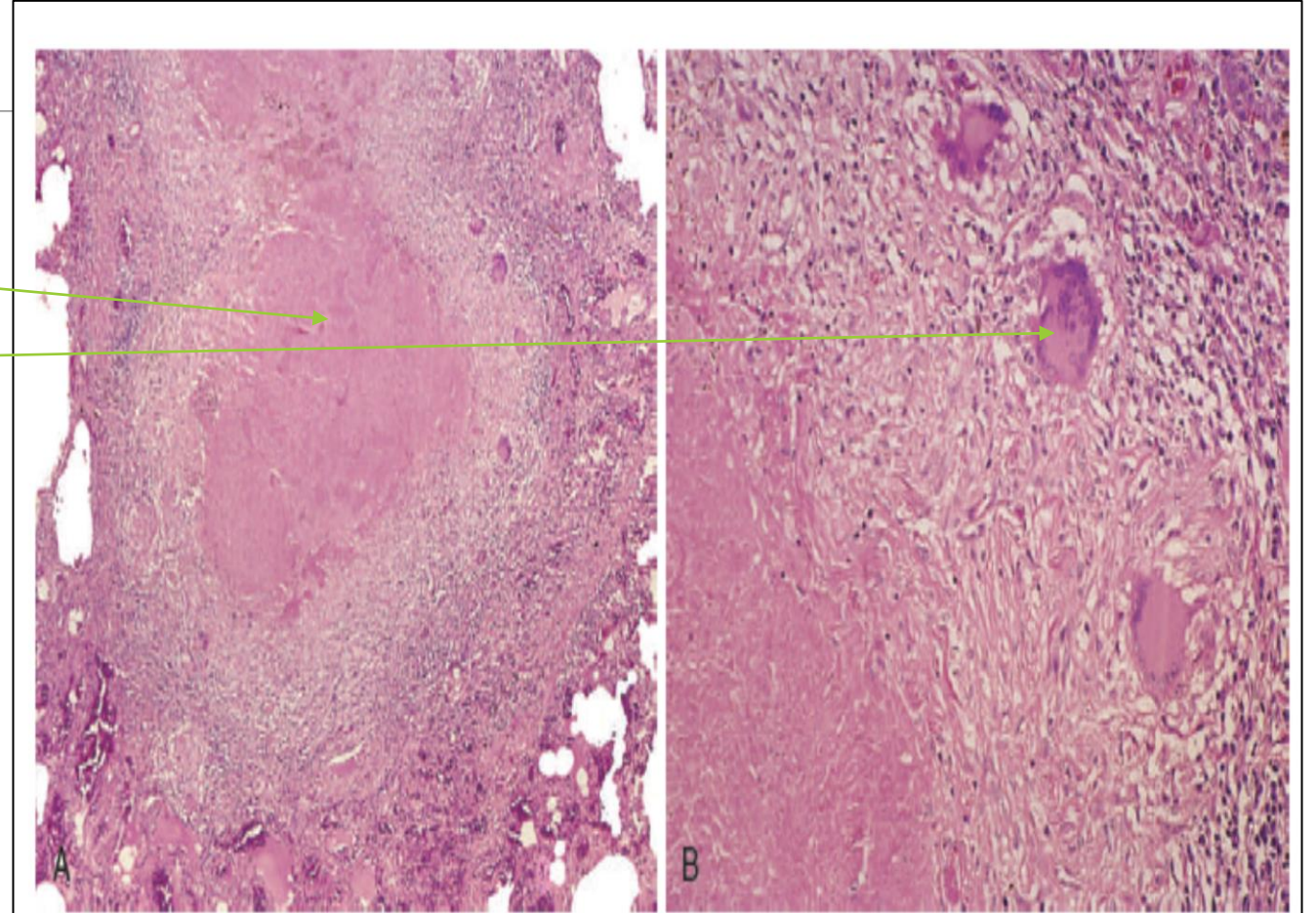
وبينهم في multinucleated giant cells

main characteristic pathology

Granuloma, TB [primary + secondary]

Necrotizing

A characteristic tubercle at low magnification: (A) and at higher power (B) shows central granular caseation surrounded by epithelioid and multinucleate giant cells.



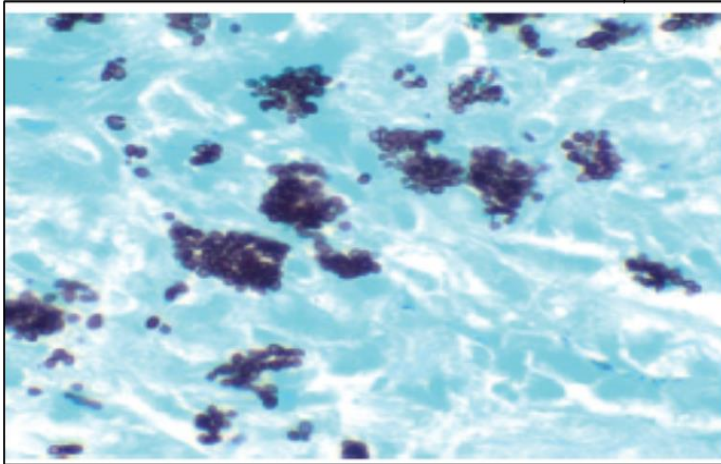
حتى احدد سبب granuloma لازم احدد organism جواها

ممکن fungal infection تعملي granuloma

Histoplasma Capsulatum

Each macrophage is filled with $\rho \rightarrow$ +round numerous **small organisms**. The organisms have a **clear zone around a central blue nucleus**, which gives the cell membrane the appearance of a capsule.

لونهم اسود, silver stain لل Positive

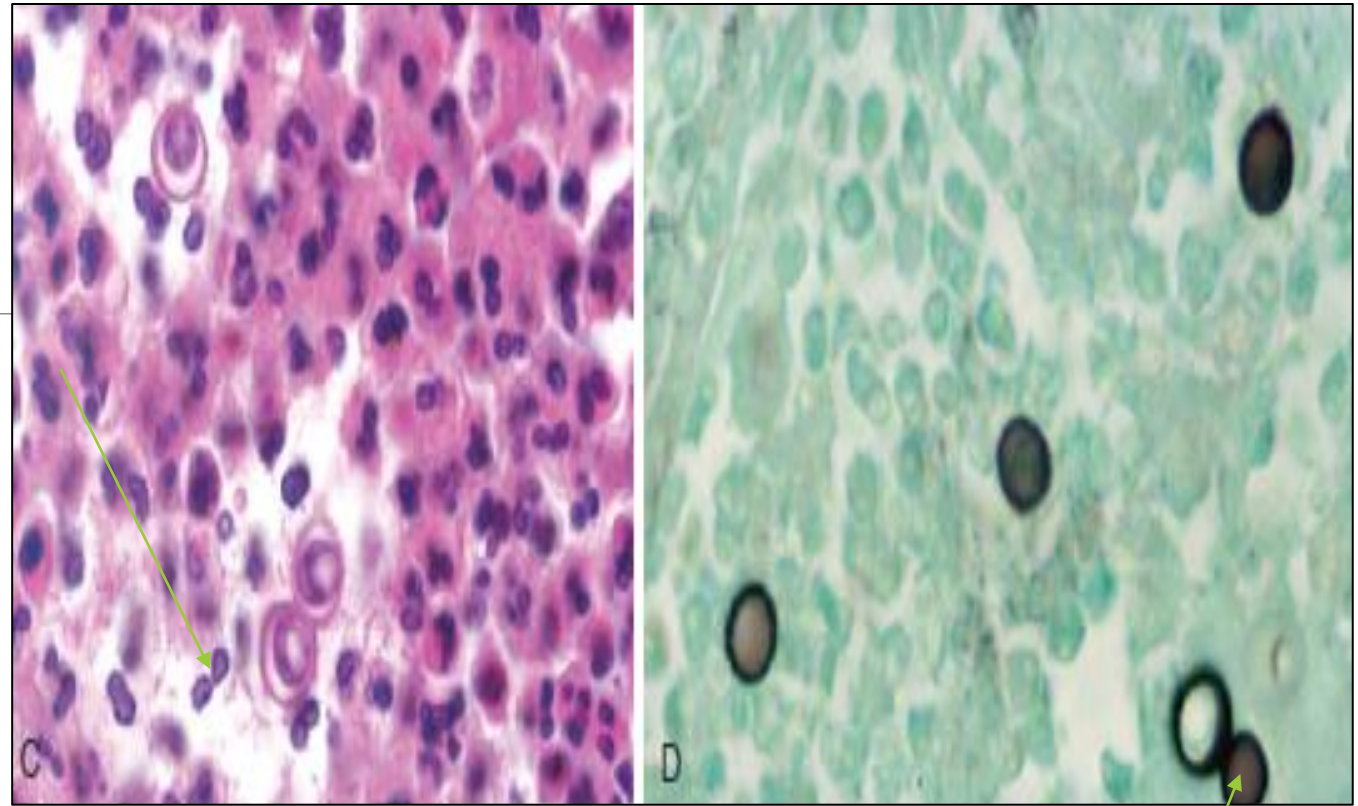


Blastomycosis

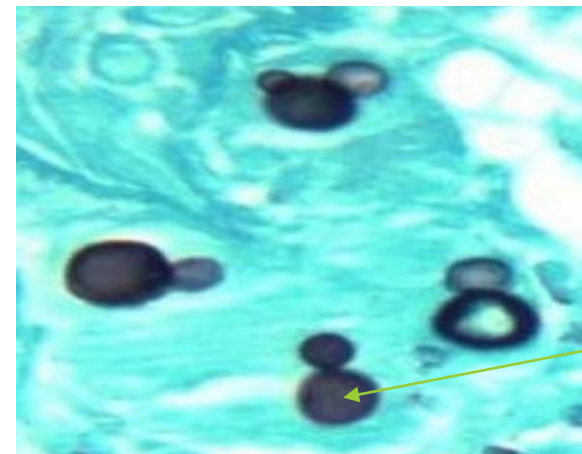
تبرعم

(C) Blastomycosis, with rounded budding yeasts, thick wall, and nuclei (D) Silver stain highlights the broad-based budding.

ماسكين ببعض ، وحدة اكبر من الثانية

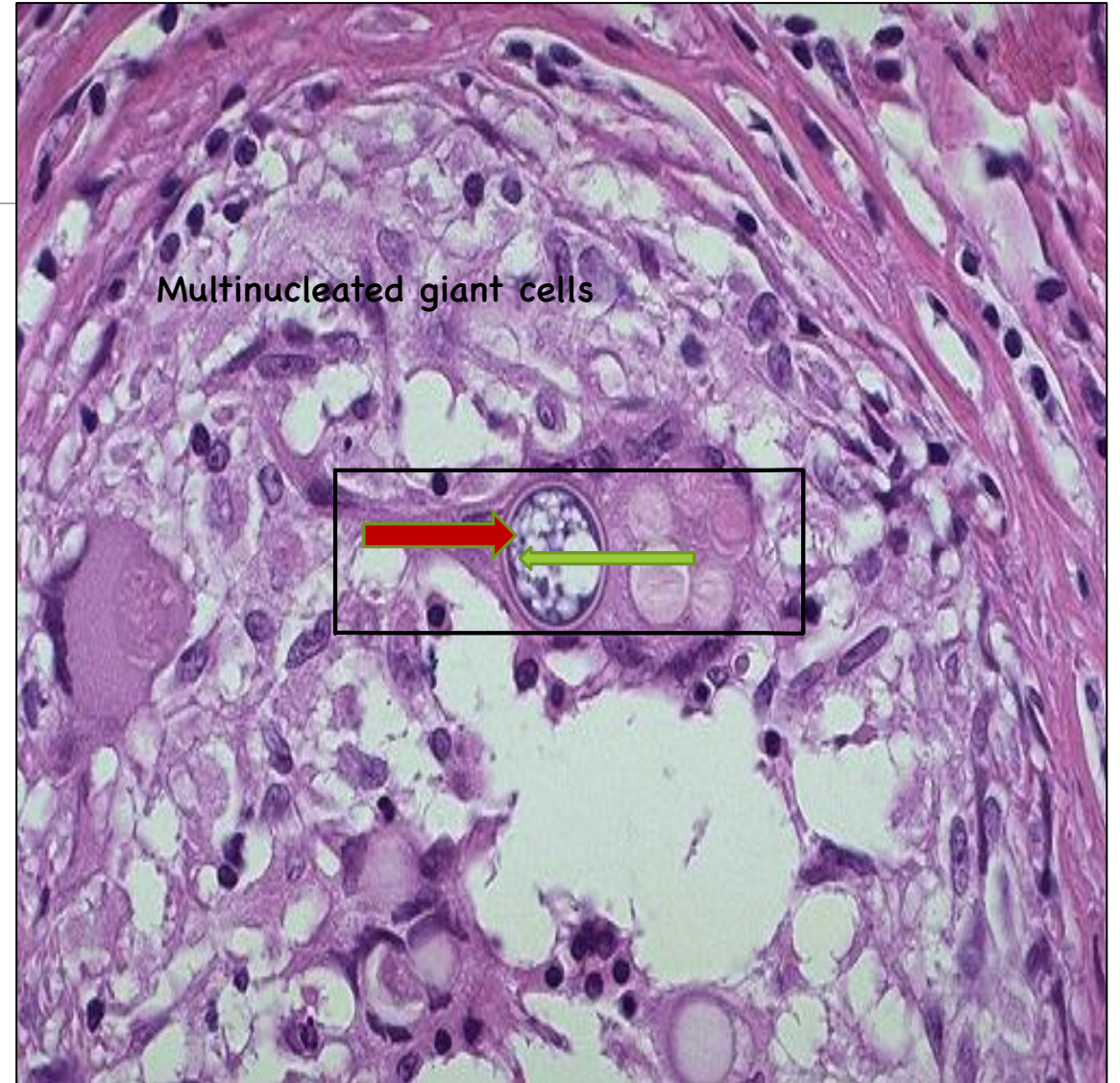
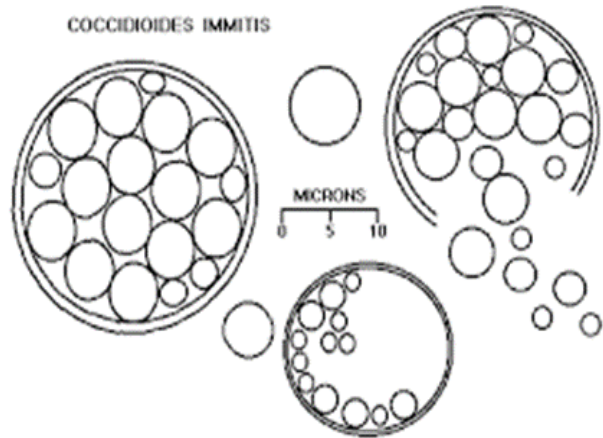


Silver stain ✓



Granuloma with coccidioidomycosis immitis

At higher magnification, the **thick wall** of the *C. immitis* spherule is seen in a giant cell in the center of this image. The **spherule contains endospores** *

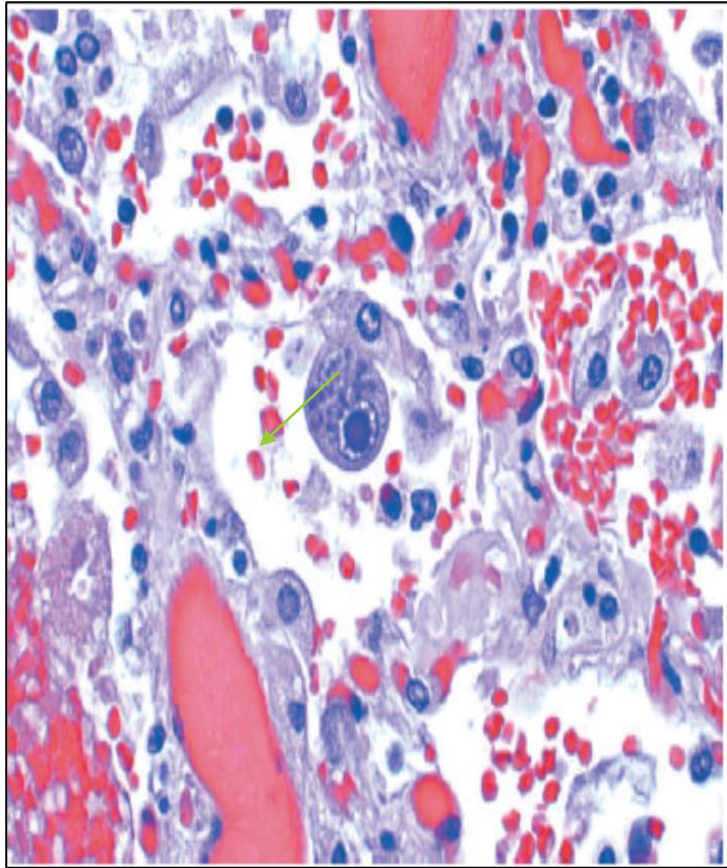


immunocompromised patients بتصير ب

CMV Cytomegalovirus

in cytoplasm + nucleus
Very large cells that have large basophilic intranuclear inclusions with a small clear halo. Basophilic stippling can sometimes be seen in the cytoplasm.

Owl-eye appearance



→ Large epithelial cell

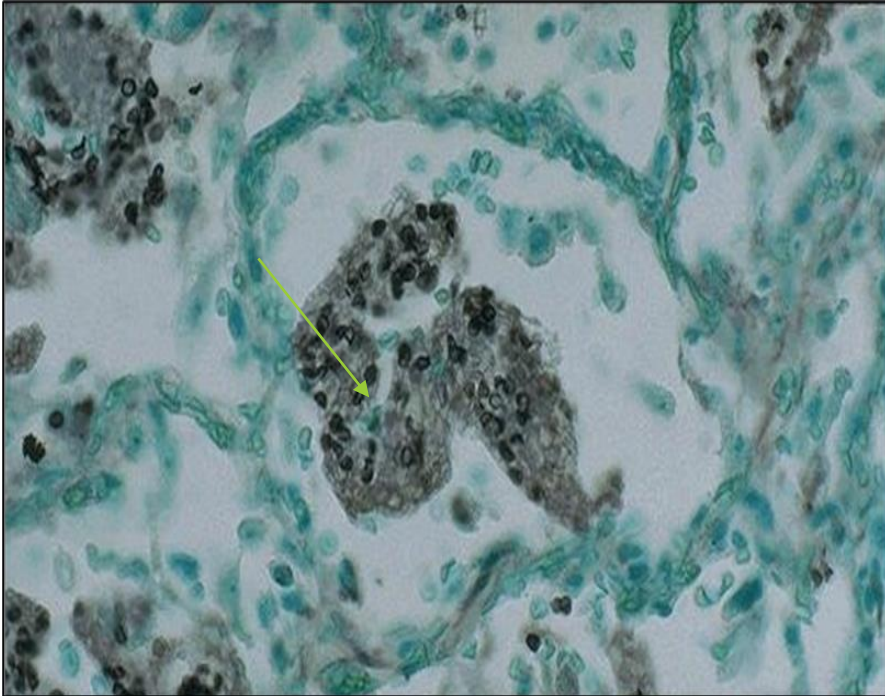
Inclusion

فطريه كائنات

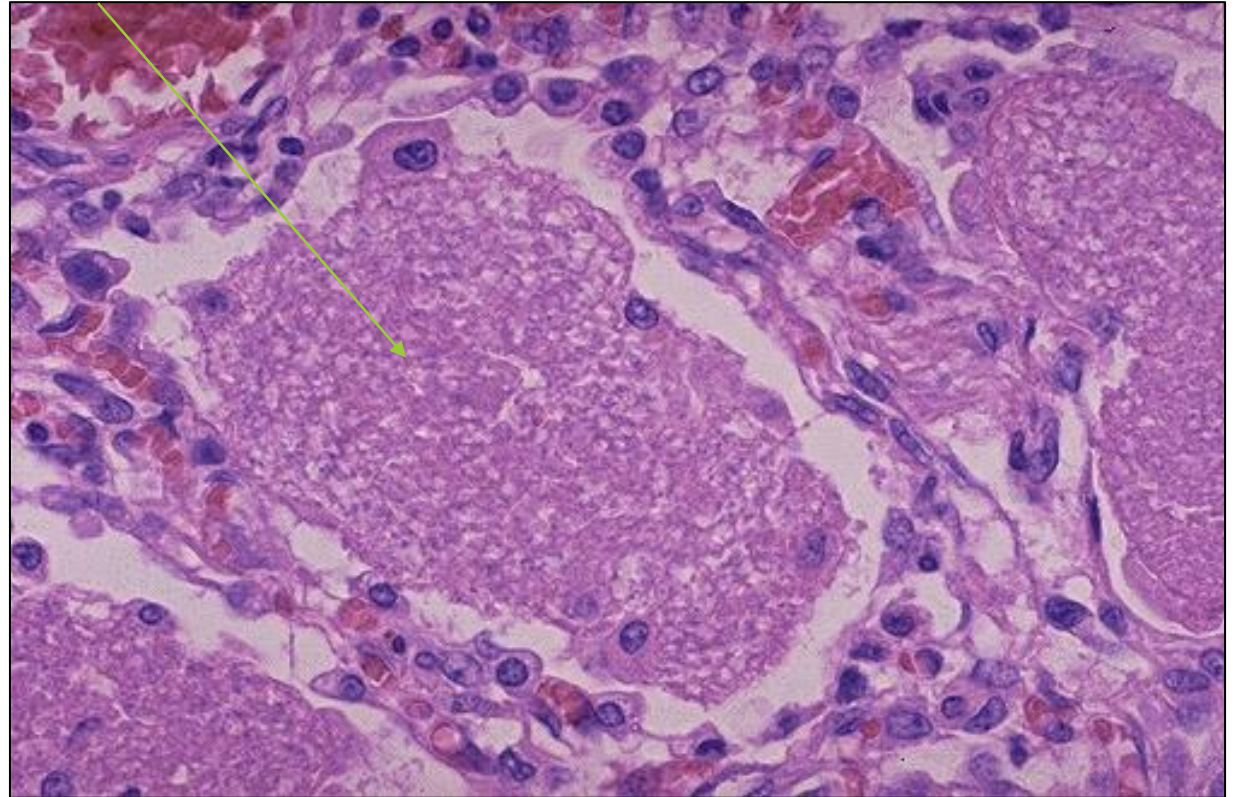
PJP (Pneumocystis jirovecii pneumonia)

At higher magnification, the granular pink exudate of Pneumocystis jirovecii pneumonia is seen.

باستخدام silver stain ممكن نشوف (organism (round ,cup shaped)

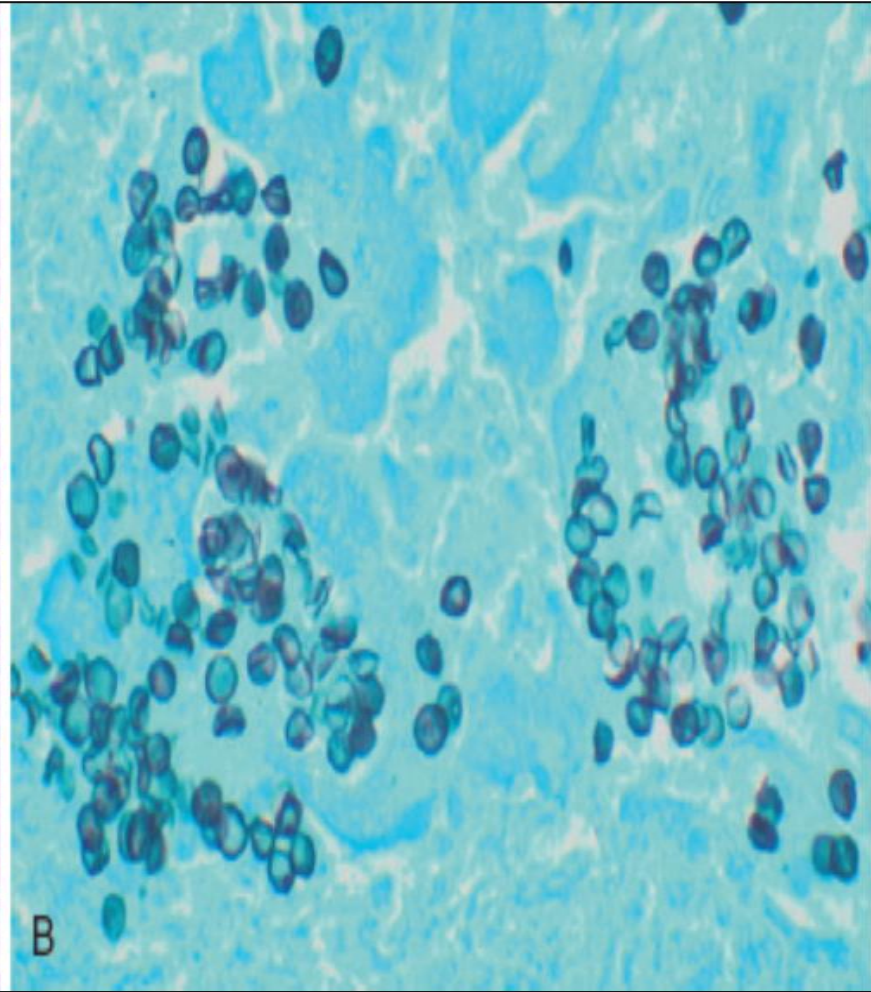
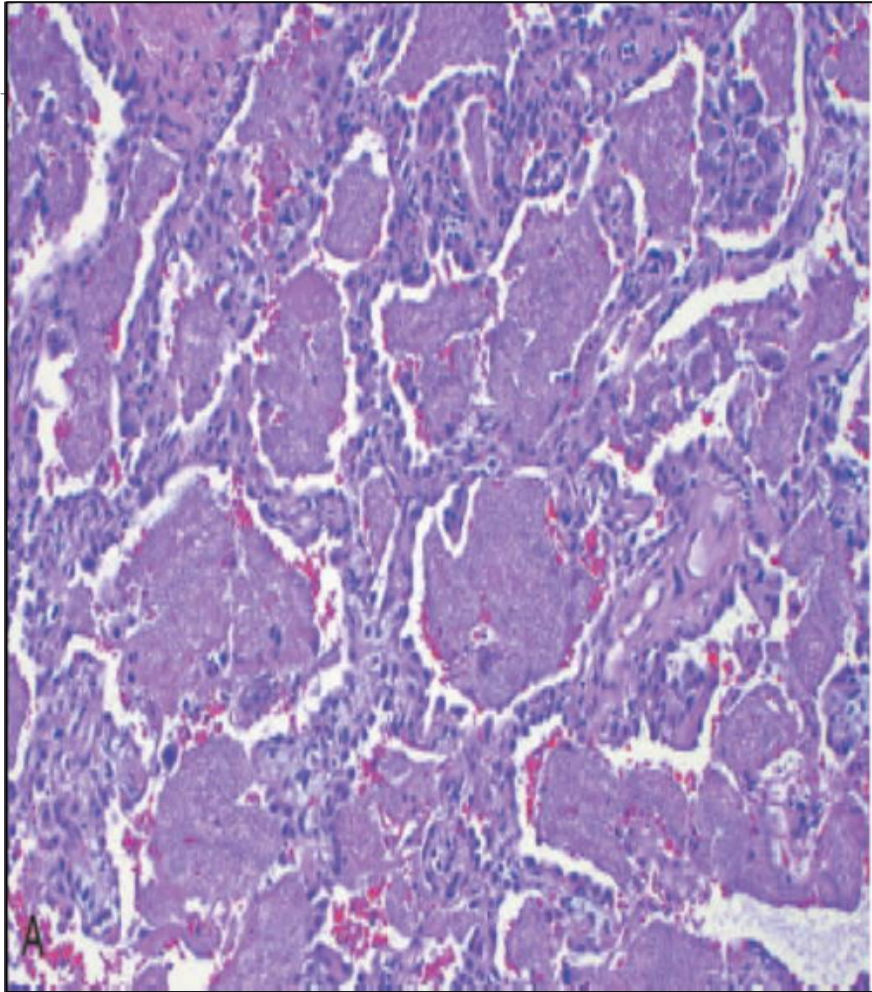


Intra-alveolar foamy pink staining exudate
(Cotton candy)



PJP

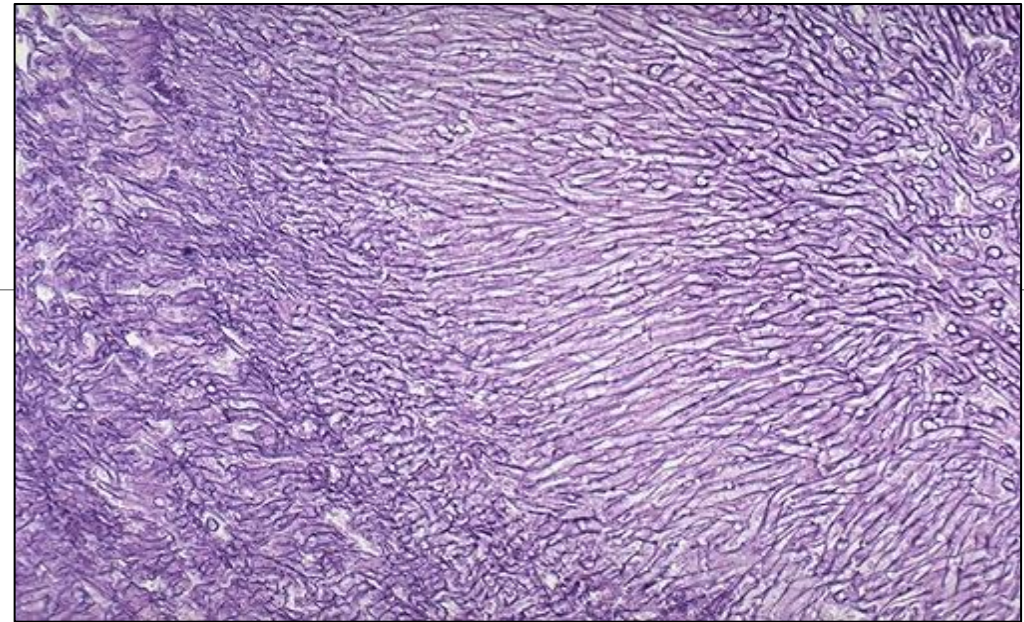
In silver stain



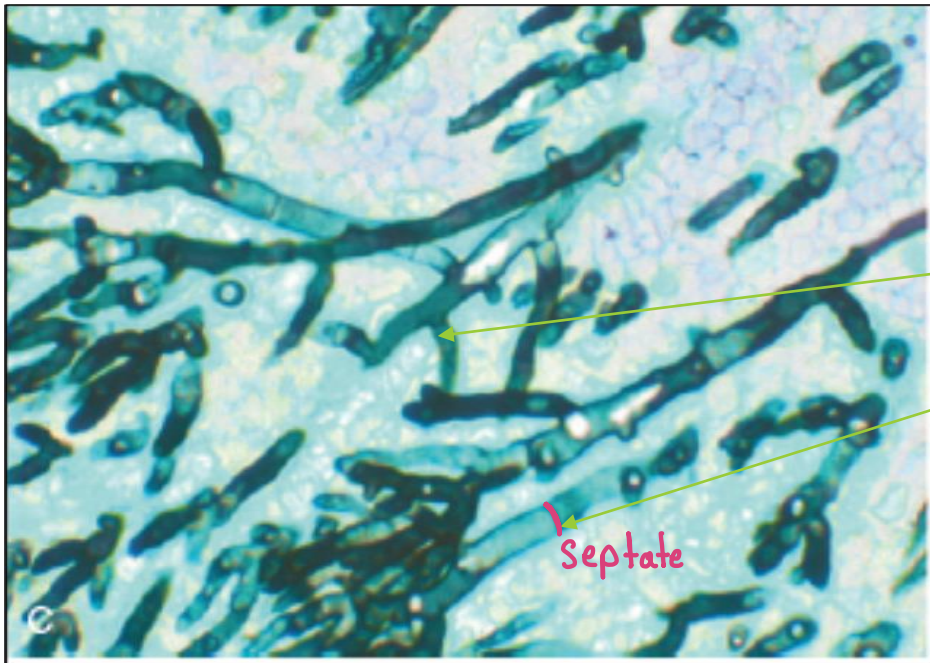
Aspergillus

filaments، خيوط

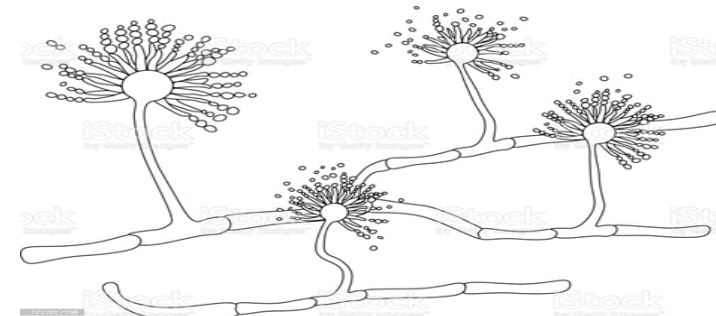
Branching, septate hyphae are close-packed here and radiating outward in this aspergilloma.



In silver stain



(GMS) stain shows ^{زاوية حادة..*} septate hyphae with acute-angle branching, consistent with Aspergillus

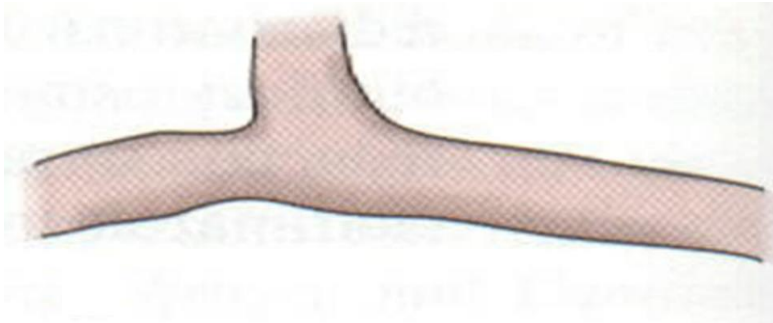
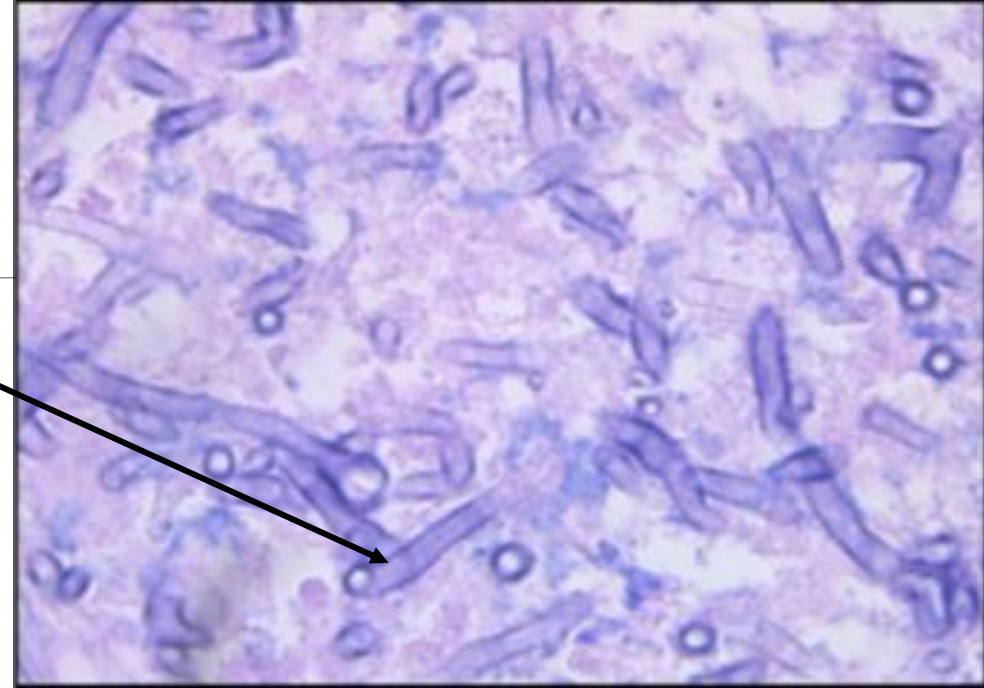


عفن *Aspergillus*
Mucormycosis

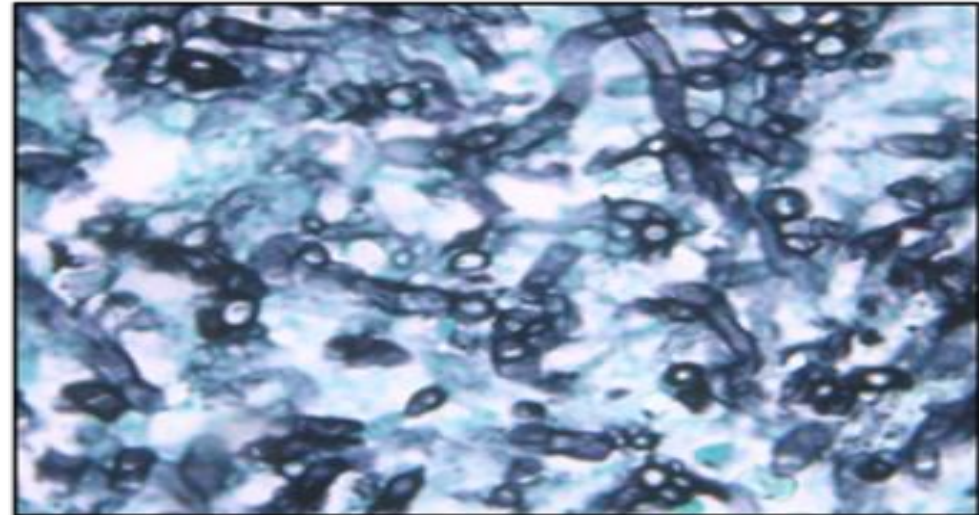
*

قائمة

Broad non-septate hyphae with right-angled branching characteristic for *Mucor* in H&E and GMS stains.

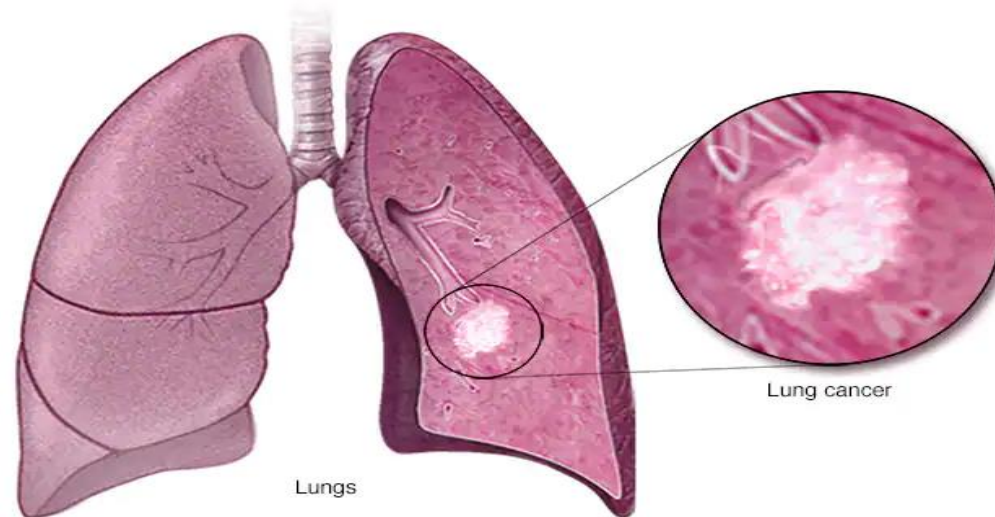


Mucor has nonseptate hyphae with right-angle branching.



اغلبهم carcinoma

Lung Tumors



peripheral عندھا بتحب تطلع glandular structure

Adenocarcinoma

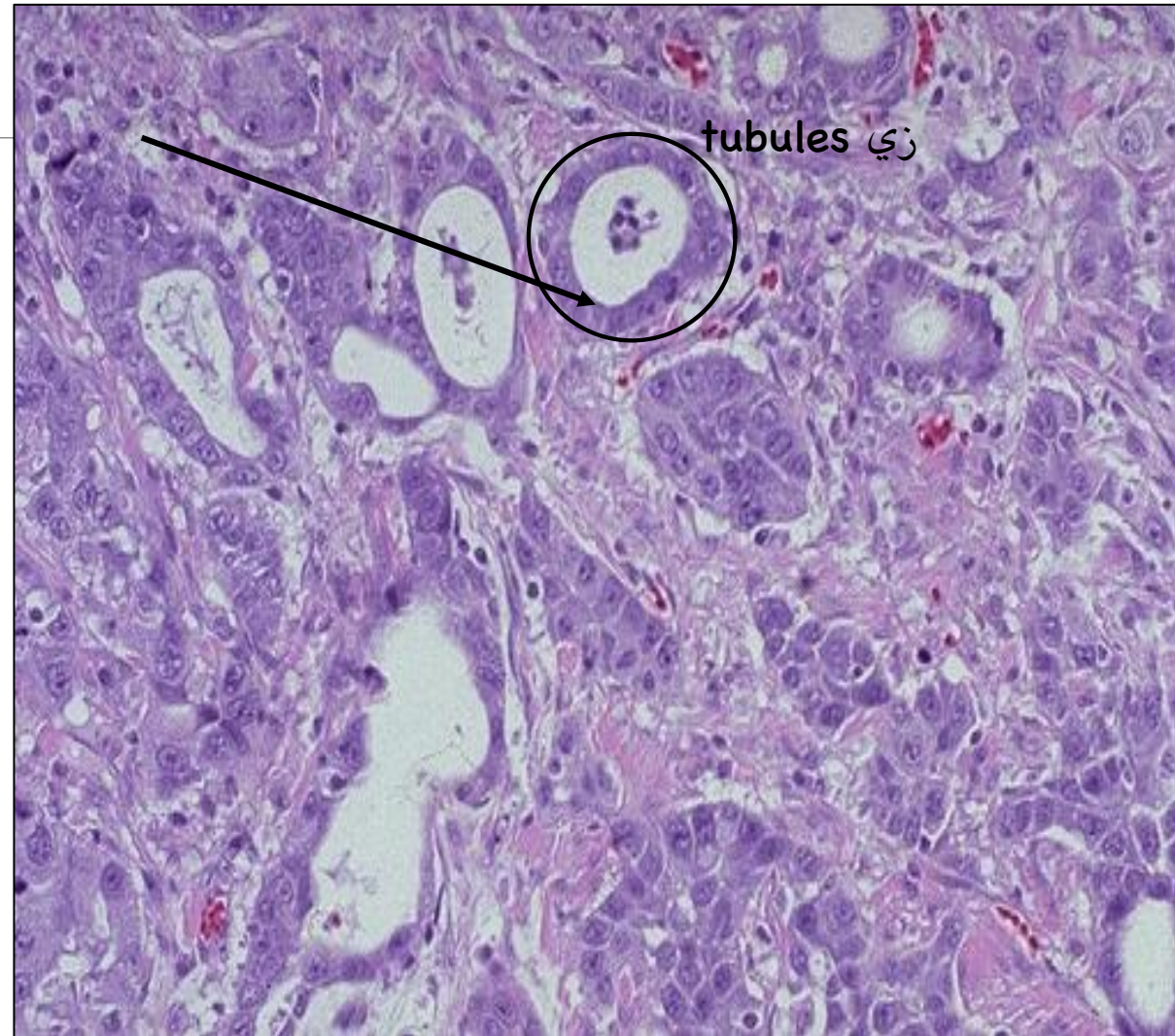
This mass is a peripheral adenocarcinoma of the lung.



Adenocarcinoma

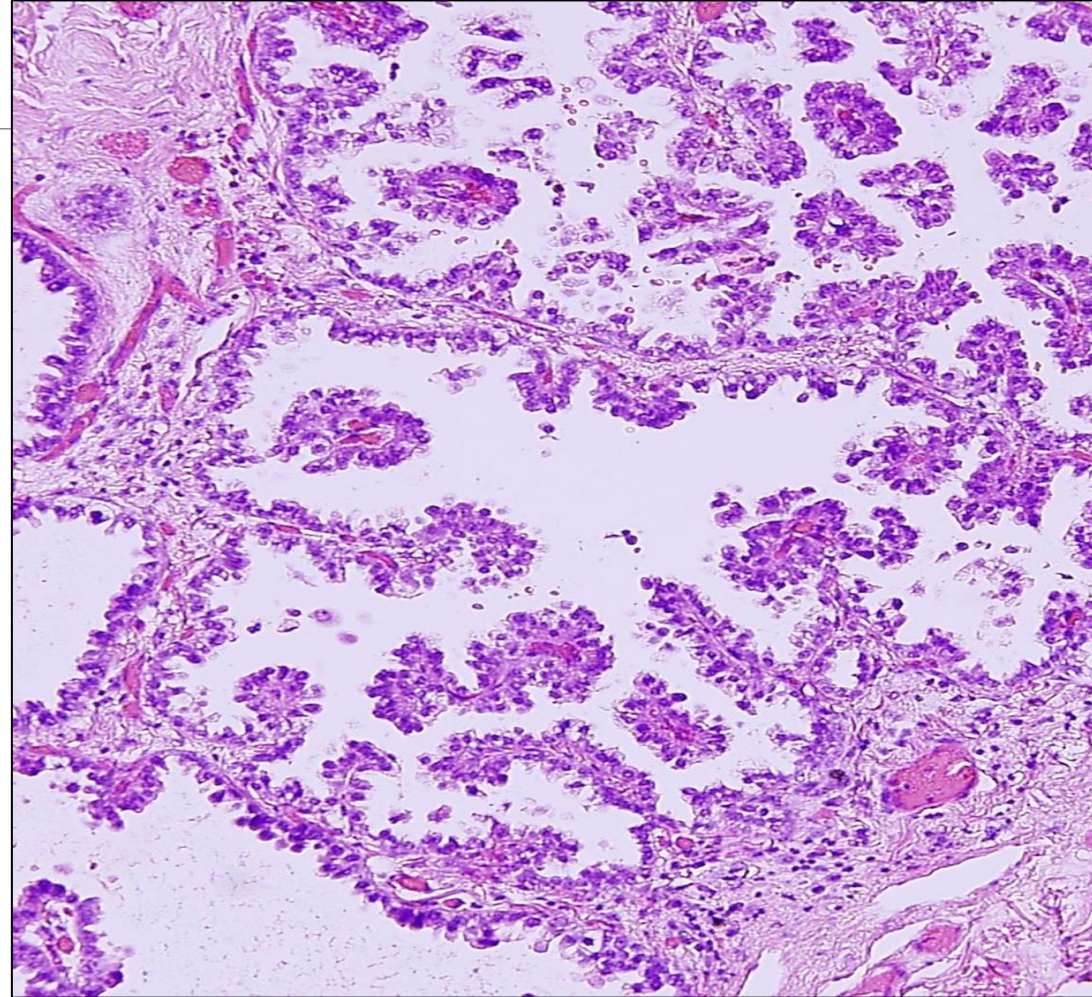
The **glandular** structures formed by this neoplasm are consistent with a moderately differentiated adenocarcinoma.

Acinar type



زيب الشجرة
Papillary
Adenocarcinoma

داخلهم fibrovascular core



SCC (squamous cell carcinoma)

A larger squamous cell carcinoma in which a portion of the tumor demonstrates **central cavitation**

Squamous = central = cavitation

بكون ب central اكثر
قريب من منطقة hilum



مطلوبة

Histology

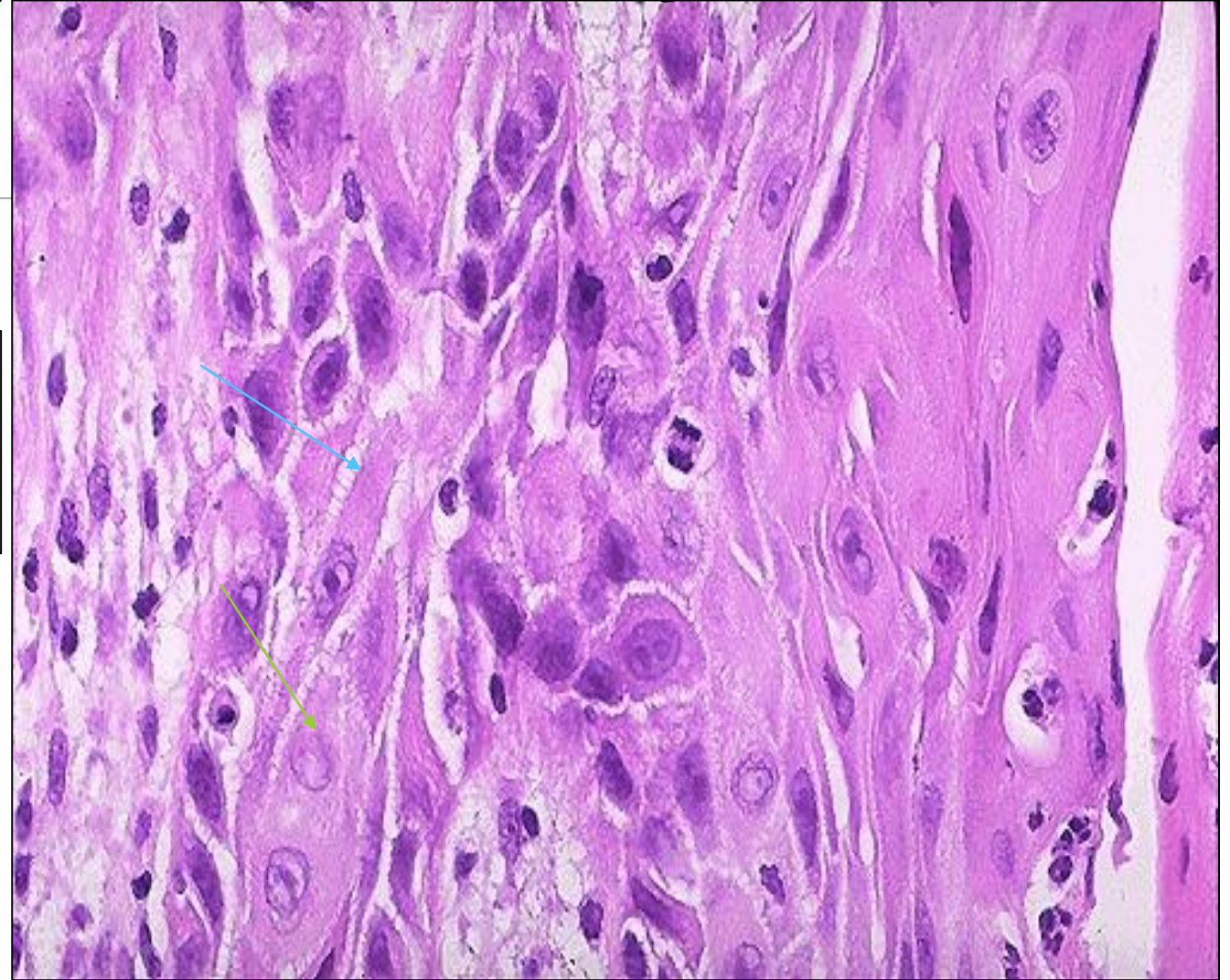
SCC (squamous cell carcinoma)

The pink cytoplasm with distinct cell borders and **intercellular bridges** is characteristic of squamous cell carcinoma.

Malignant ⇐ الخاليا dysplastic وكبيرة و
invasive, distrustive tumor

في شغلتين مميزات ل squamous:

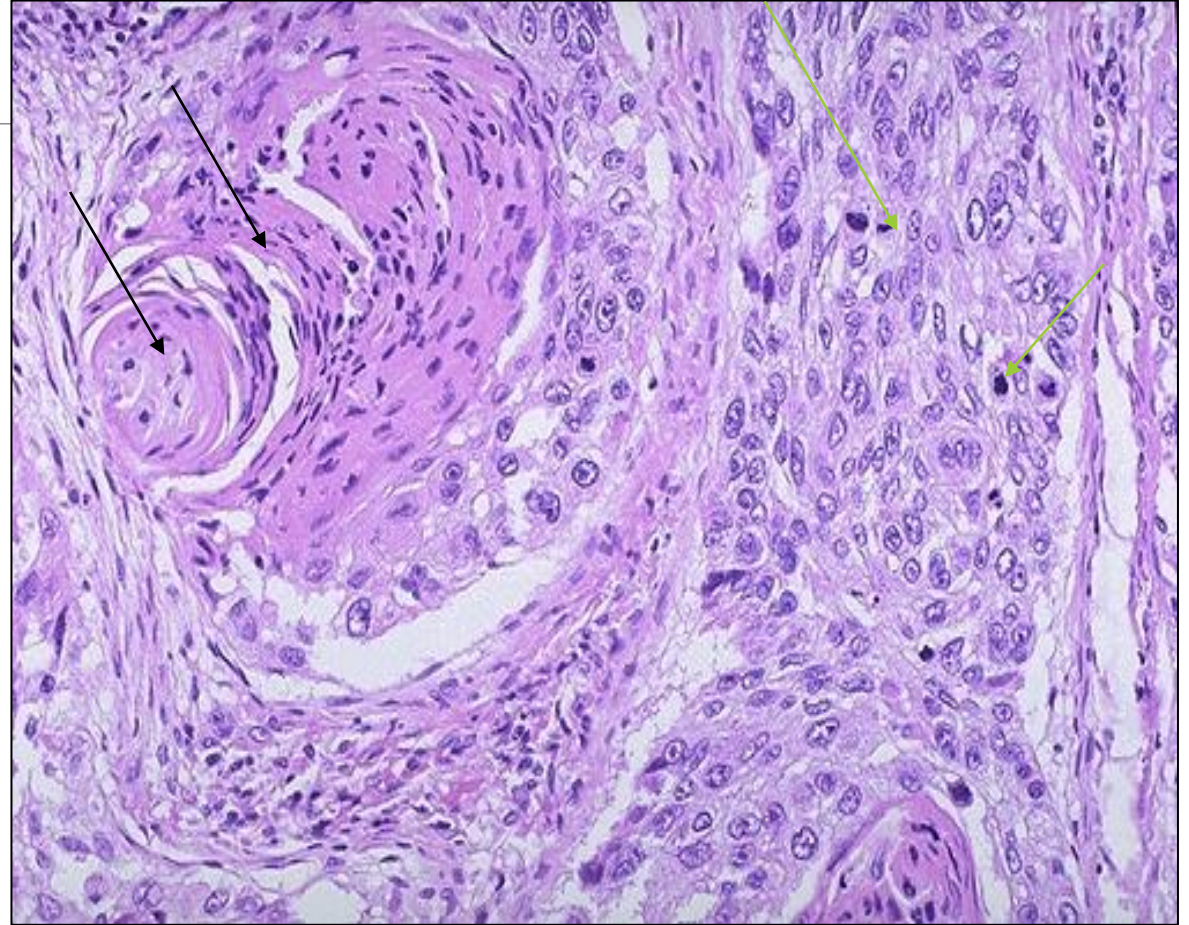
- 1- intracellular bridges (white space)
- 2- keratin (pink)



SCC (squamous cell carcinoma)

In this squamous cell carcinoma at the upper left is a **keratin pearl**. At the right, the tumor is less differentiated, and several dark **mitotic figures** are seen.

لغائف

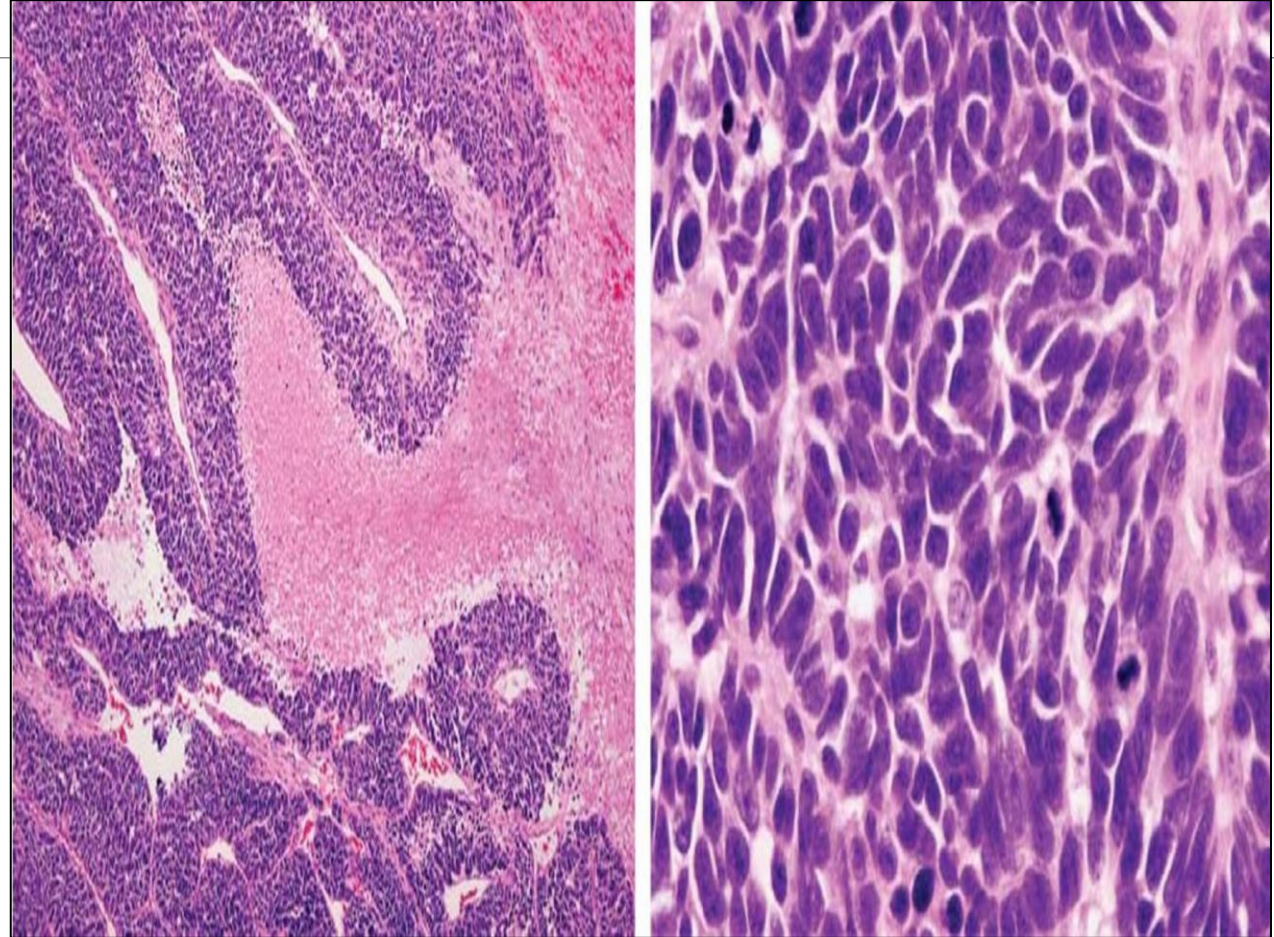


بطلع من neuroendocrine cells

Small Cell Carcinoma

This is the microscopic pattern of a small cell carcinoma in which small dark blue cells with minimal cytoplasm are packed together in sheets

خلايا كثير صغيرة ومافي كثير سيتوبلازم وفي جنبهم necrosis

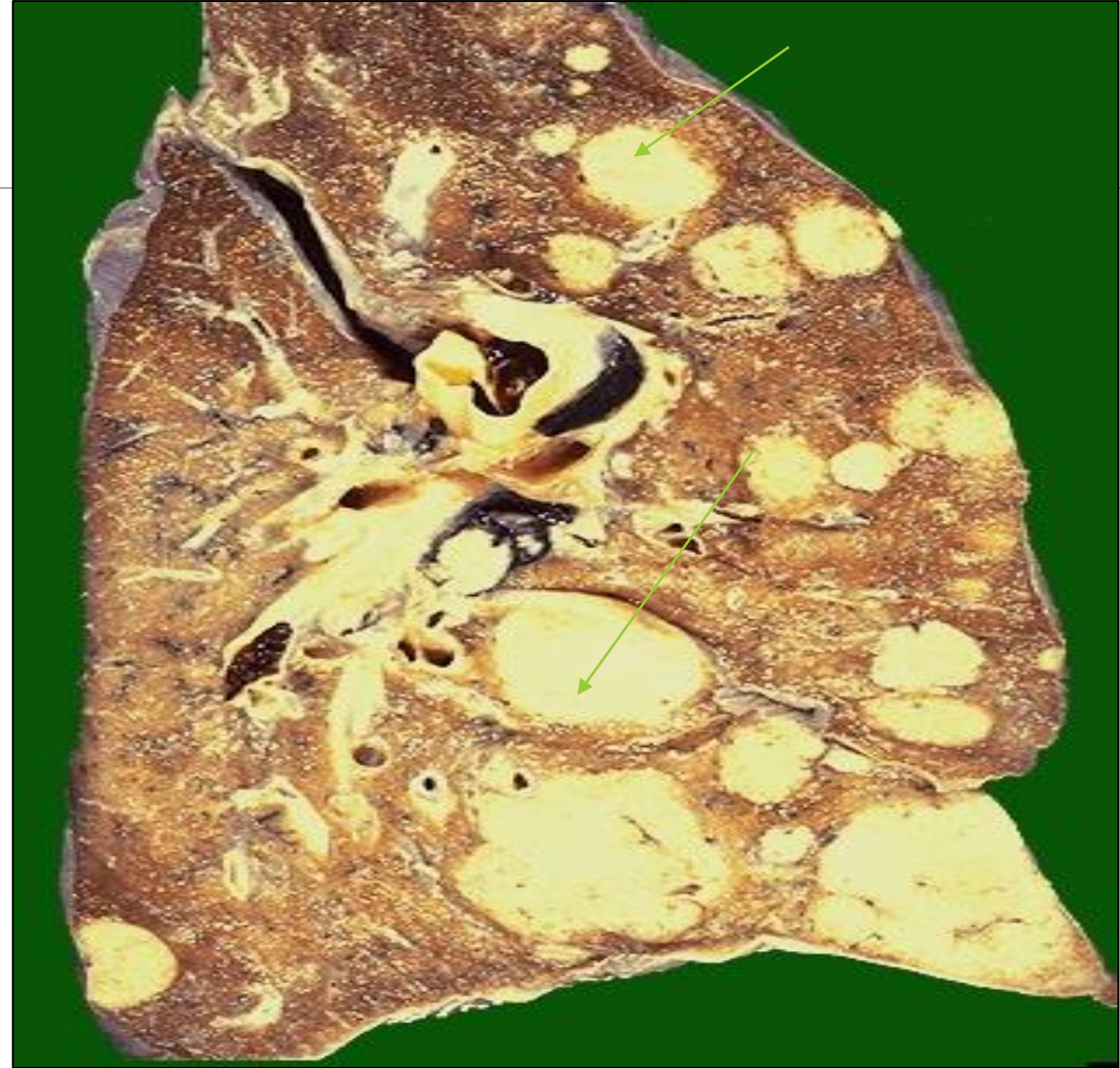


Secondary deposit

Metastatic Carcinoma

بما انو الورم بأشكال وأحجام مختلفة معناها جاي من برا lung

Multiple variably-sized masses are seen in all lung fields. These nodules are characteristic for metastatic carcinoma

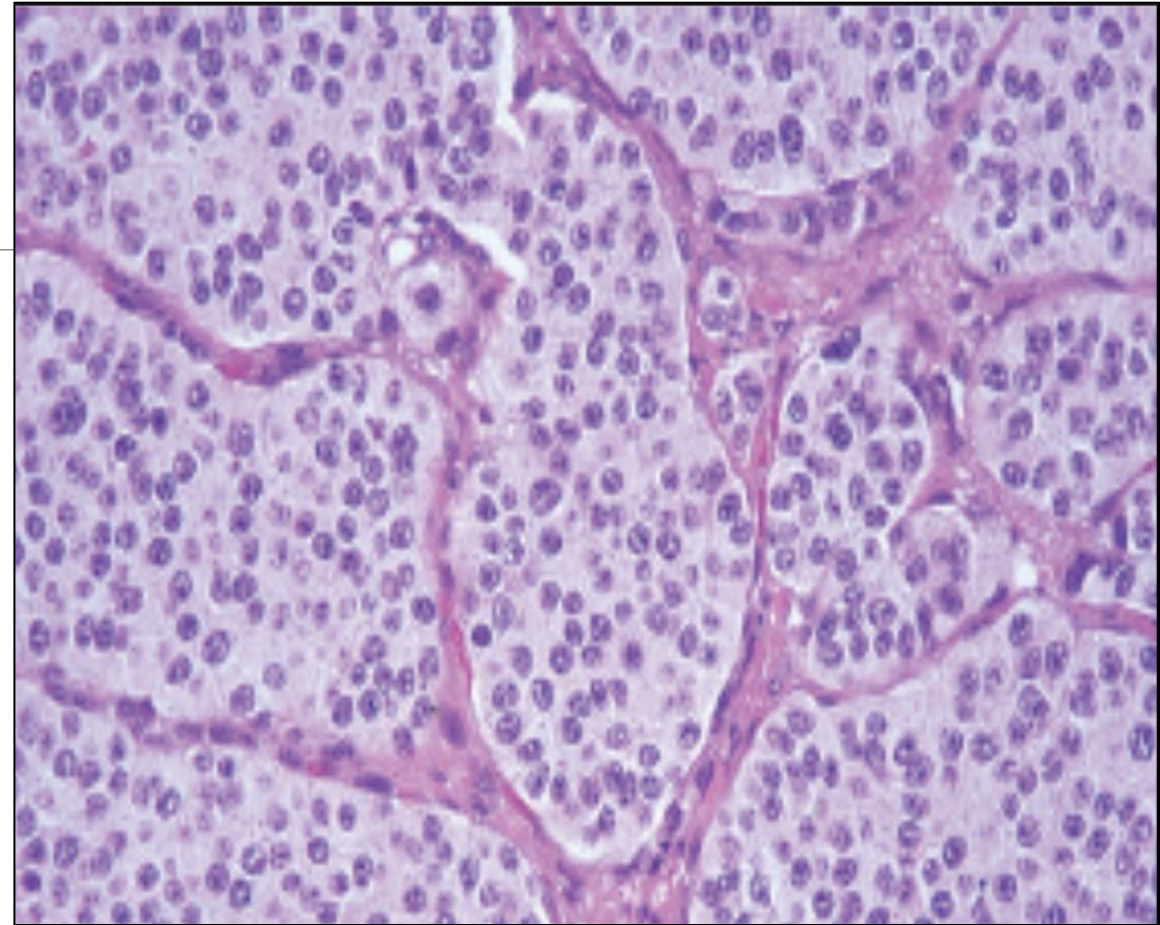


بطلع من neuroendocrine cells

Typical Carcinoid

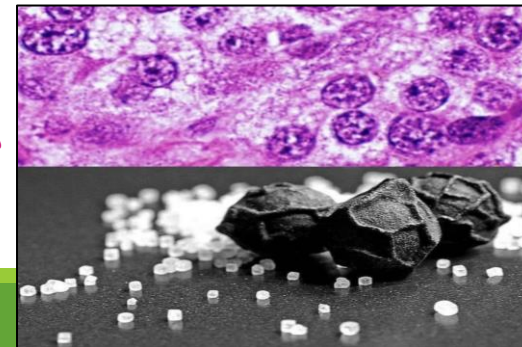
Tumor small cell carcinoma من اقل خطورة

Histologic appearance demonstrates small, rounded, uniform nuclei with salt and pepper chromatic pattern and moderate cytoplasm.



<2 mitoses/2 mm² and No necrosis

الكروماتين تكبتل جوا النواة ففي
مناطق سوداء ومناطق بيضاء

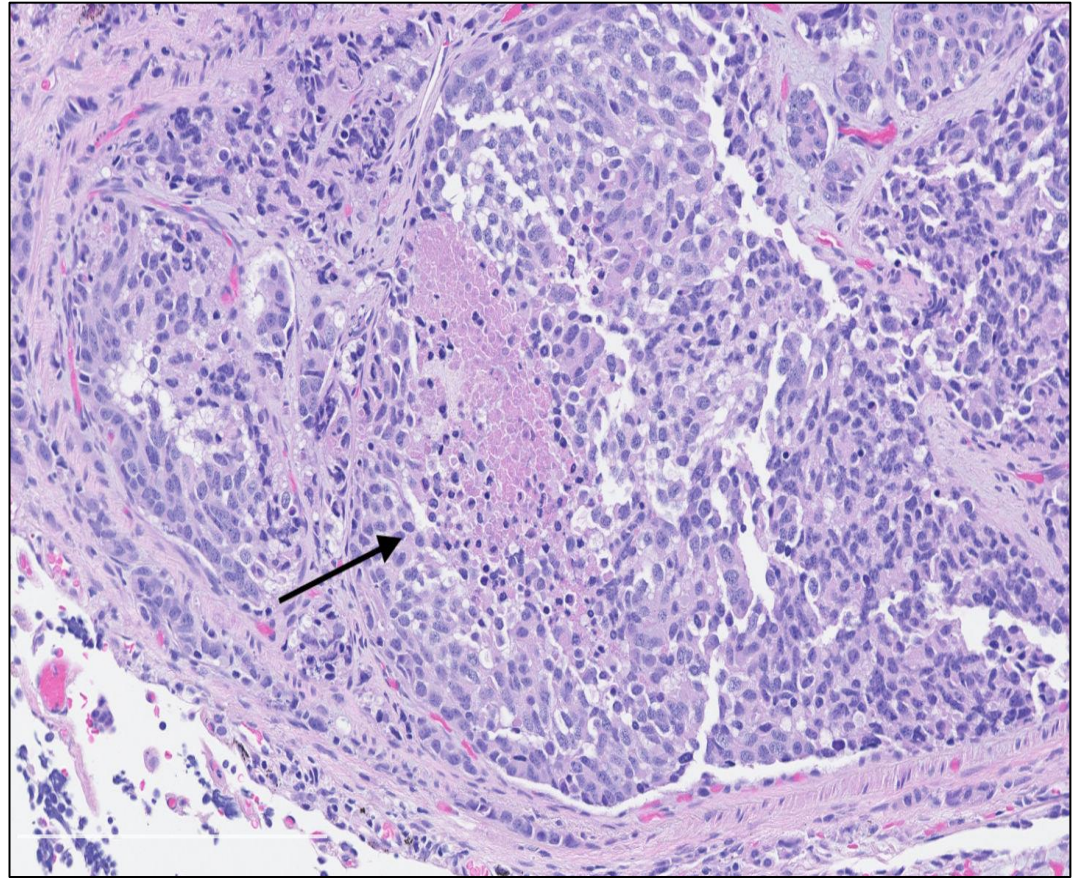
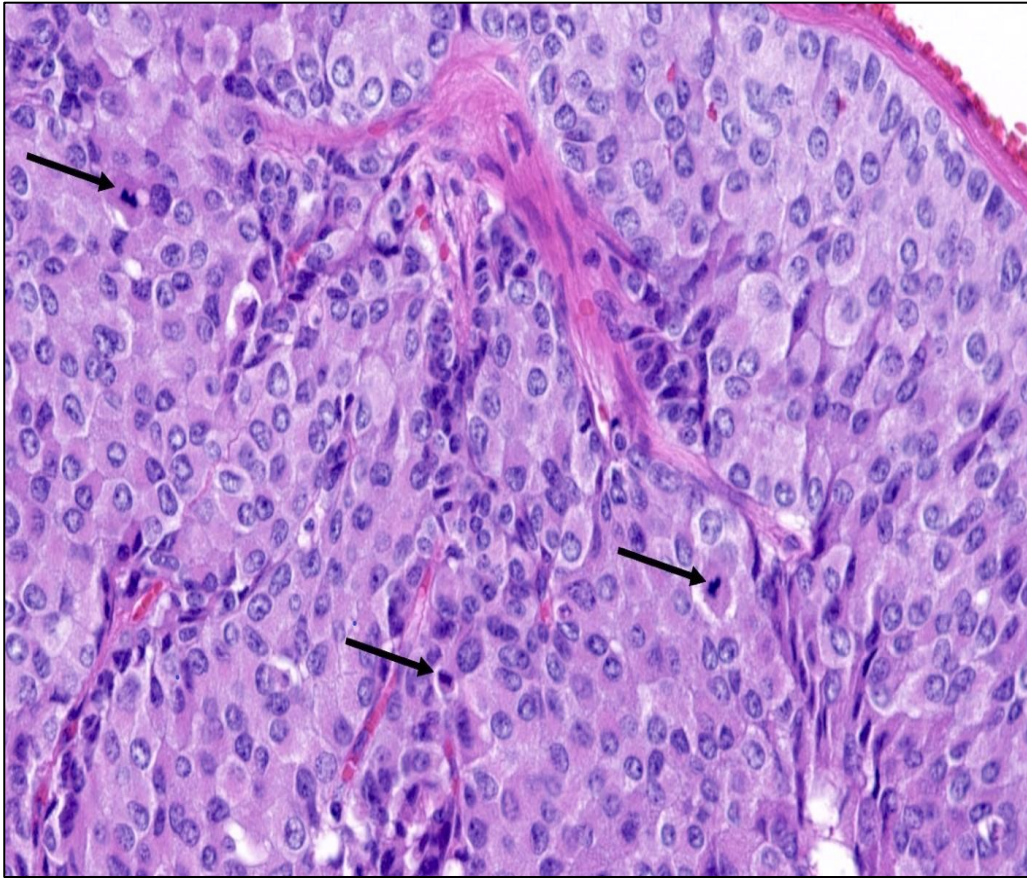


مهم: ما بنقدر نميز بين typical, atypical عالصورة بس، لانو احنا حتى نميز بينهم بدي اشوف شغلتين ب tissue: necrosis, mitosis.. يعني إذا انوصفلنا tumor مكون من خلايا uniform وفيهم salt and pepper chromatic pattern ،، لكن لازم تبيينلنا عدد necrosis, mitosis لنميز (شوفوا الأرقام عند كل نوع وابصموهم)

Atypical Carcinoid Tumor

مو الحتر

2-10 mitoses/ 2mm² and/or foci of necrosis, usually punctate and focal



Most common benign tumor in the lungs

Pulmonary Hamartoma ... يتم اكتشافه صدفة

- A benign lung neoplasm. These uncommon lesions appear on chest radiograph as a "coin lesion".

شبه العملة



مهمة جدًا

Pulmonary Hamartoma

Composed mostly of benign **cartilage** on the right with a fibrovascular stroma and entrapped **respiratory epithelium** on the left.

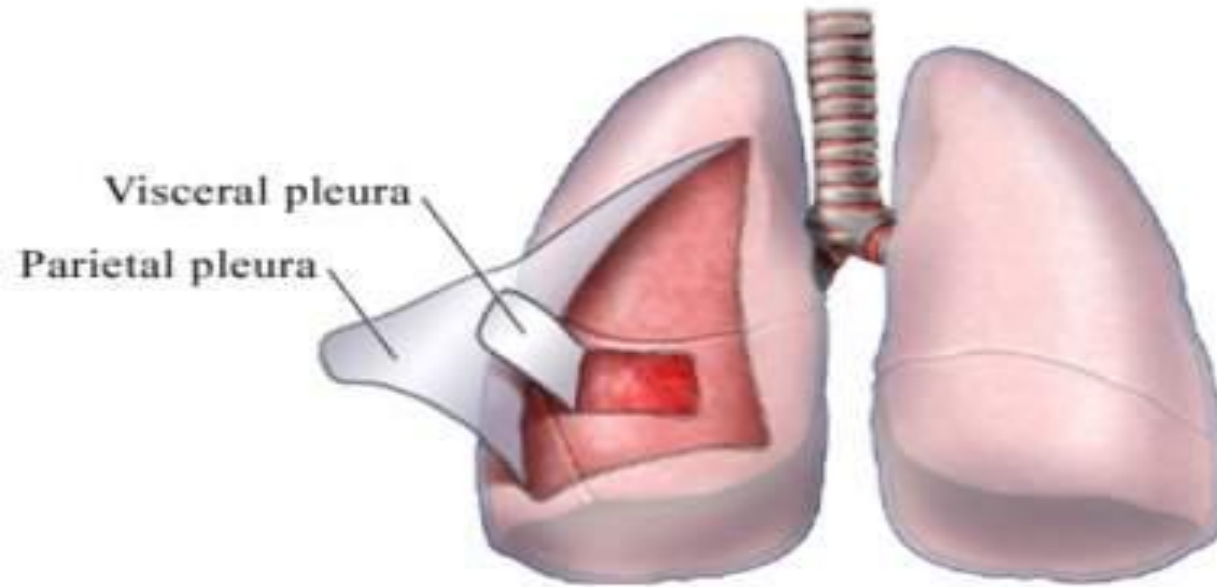
بكون مكون من نفس مكونات ال lung يعني في
cartilage, respiratory epithelium

وفي **fibrous tissue** موجود بالنص وممكن نشوف شوية **fat**
لكن ترتيبهم غلط فعملو كتلة



Cover لل lung

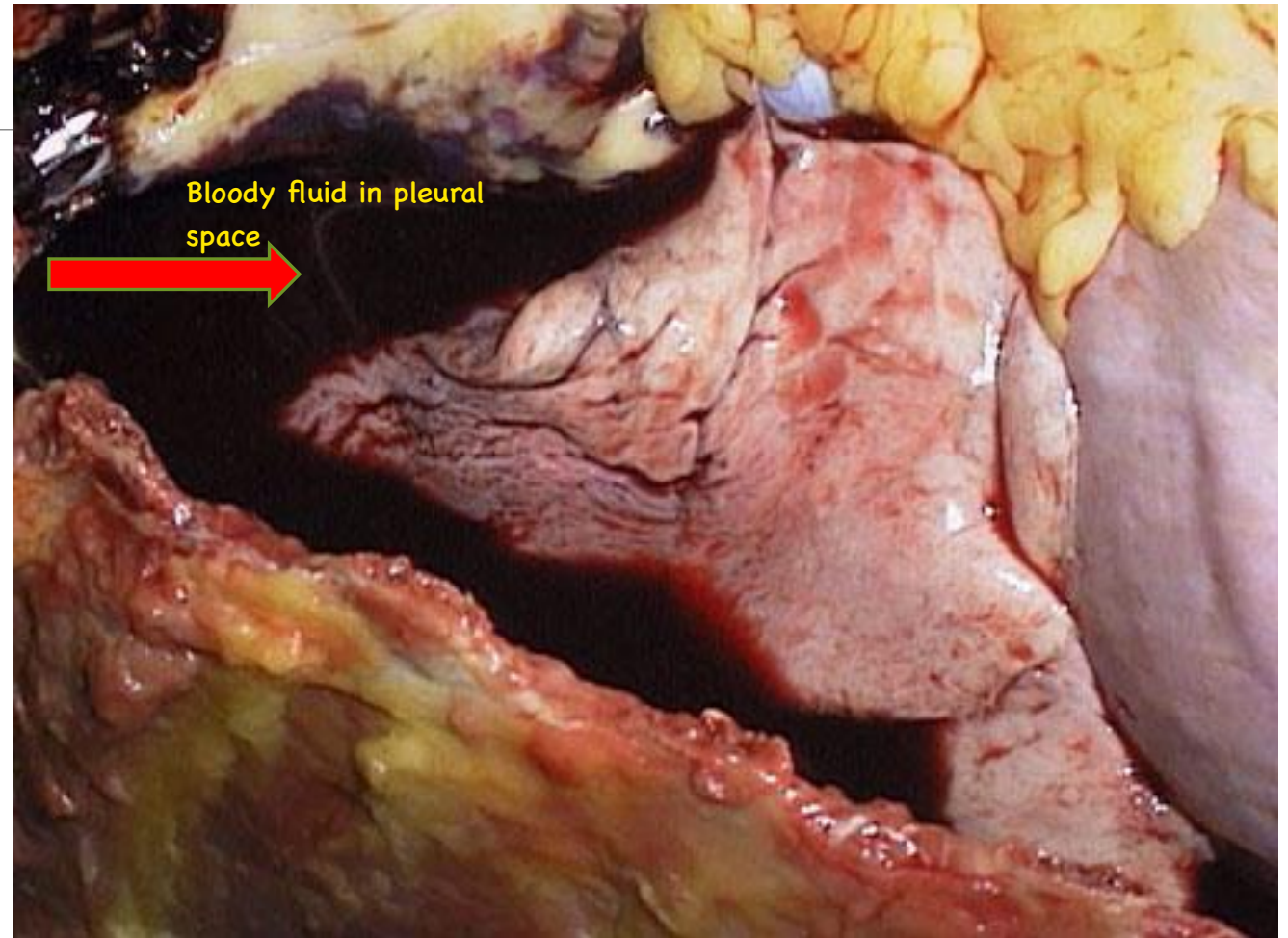
Pleural Pathology



Hemothorax

The right lung is atelectatic and floating in **bloody fluid** filling the right chest cavity because of trauma.

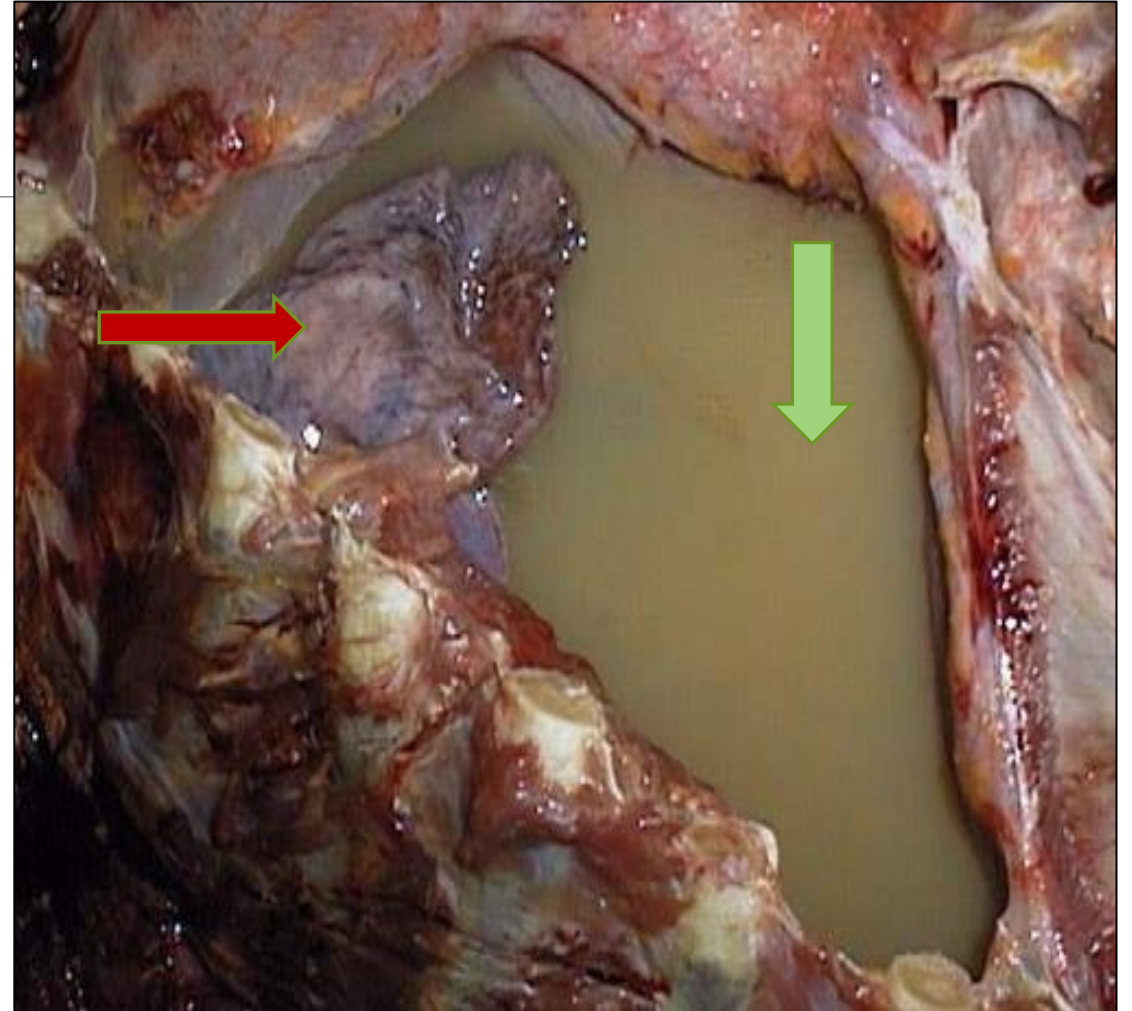
Fluid
lung base
etc



Chylothorax

The right pleural cavity is filled with a cloudy milky yellowish-tan fluid, characteristic for a chylothorax. The right lung is markedly atelectatic. Collapse

Lymph





لا تنسوا تدعوا لأهلنا بغزة 🇵🇸 🙏 ❤️

بالتوفيق ... 🎀 ❤️

dana

