

# Al-Mustaqbal University



**Pathophysiology 3<sup>rd</sup> stage**

**Lab - 5 -**

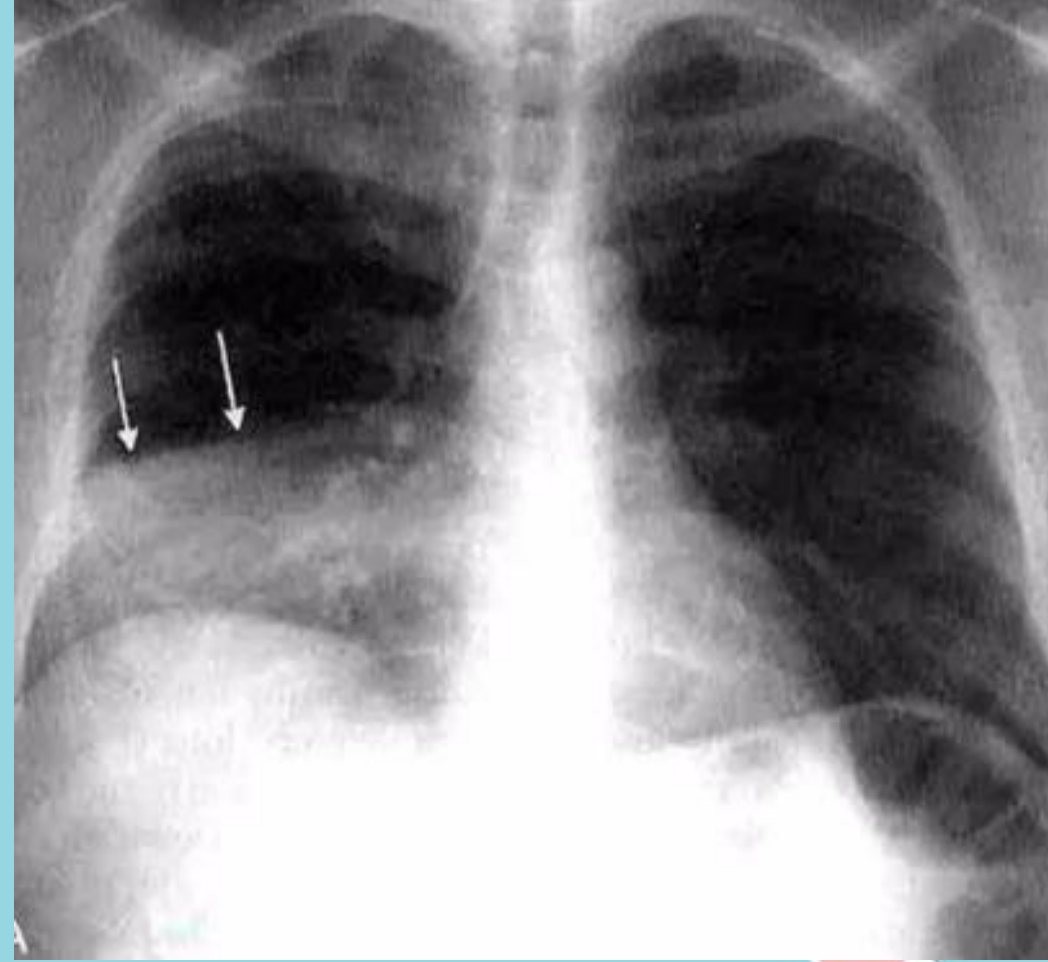
**Lobar Pneumonia Stages**

**Dr. Hasanain Owadh**



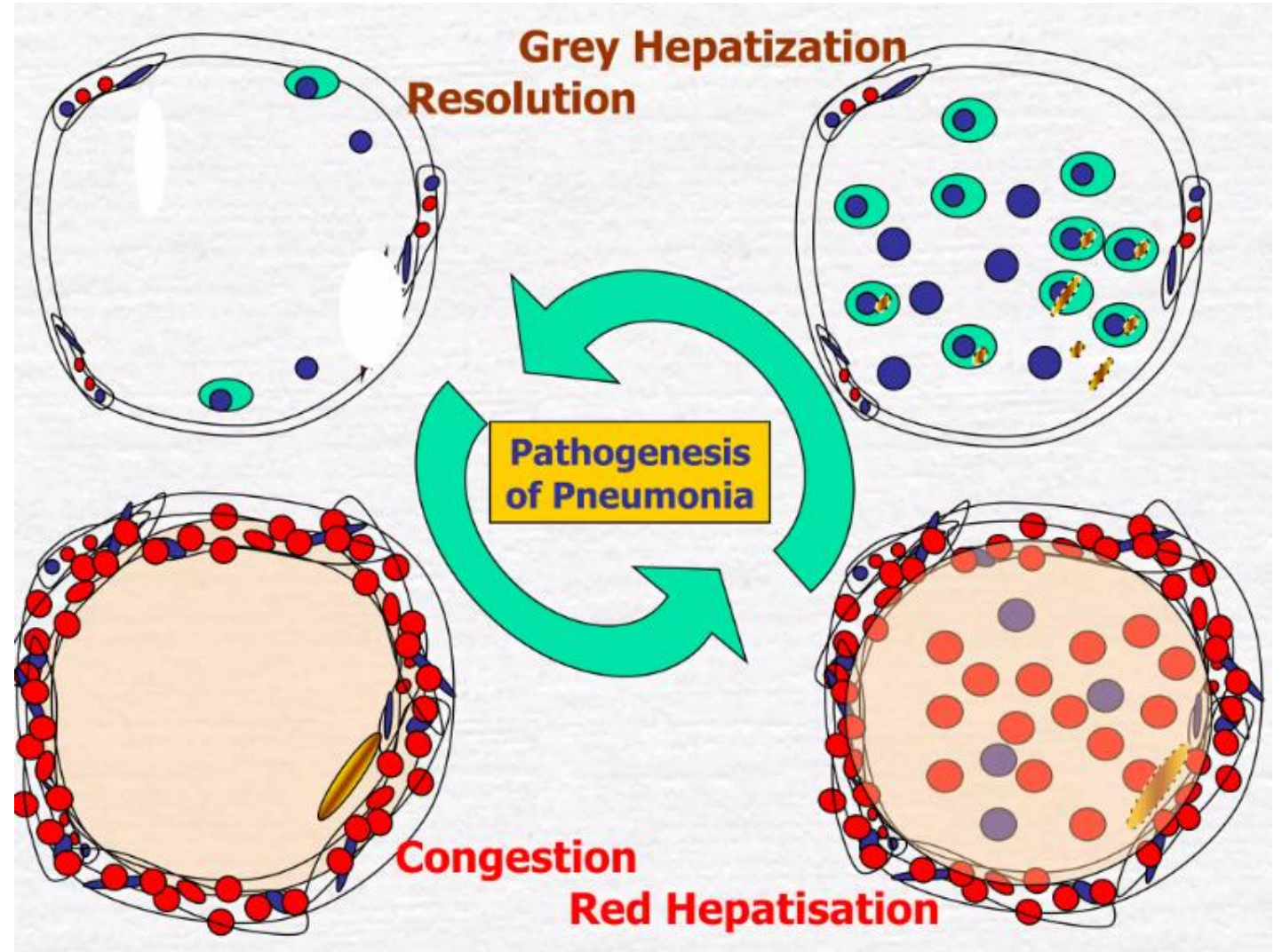
## **Lobar pneumonia:**

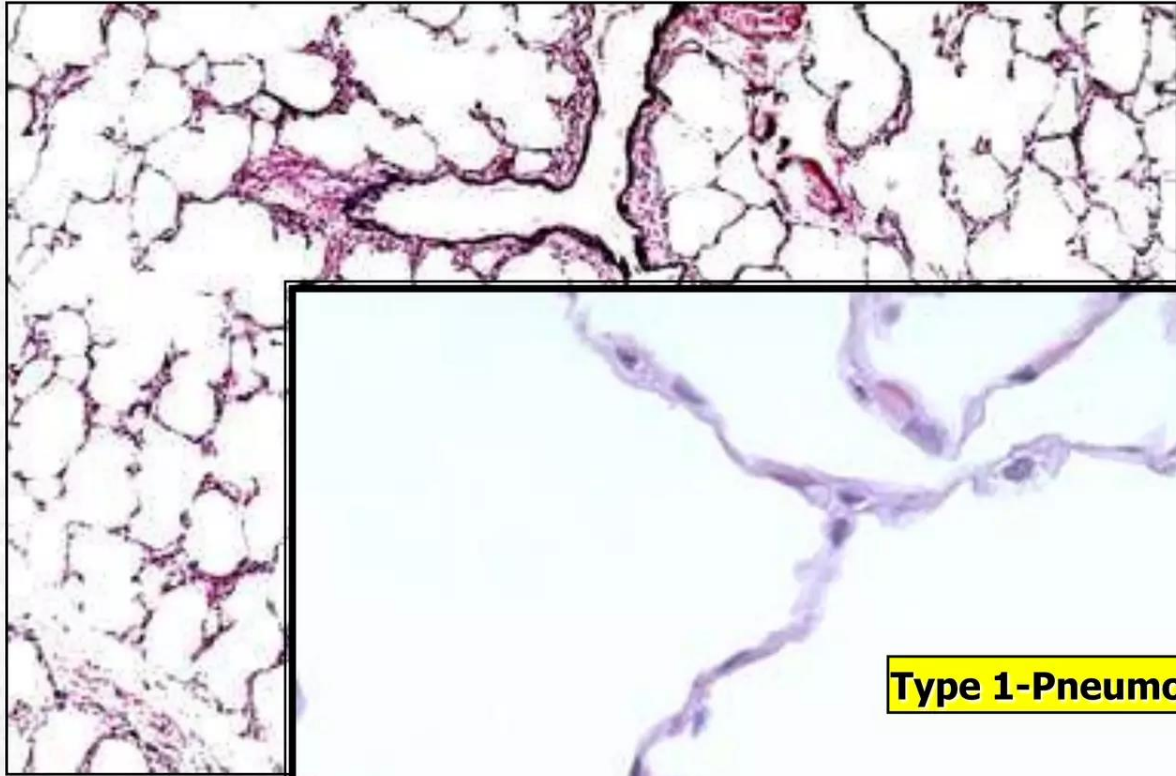
is a form of pneumonia characterized by inflammatory exudate within the intra-alveolar space resulting in consolidation that affects a large and continuous area of the lobe of a lung.



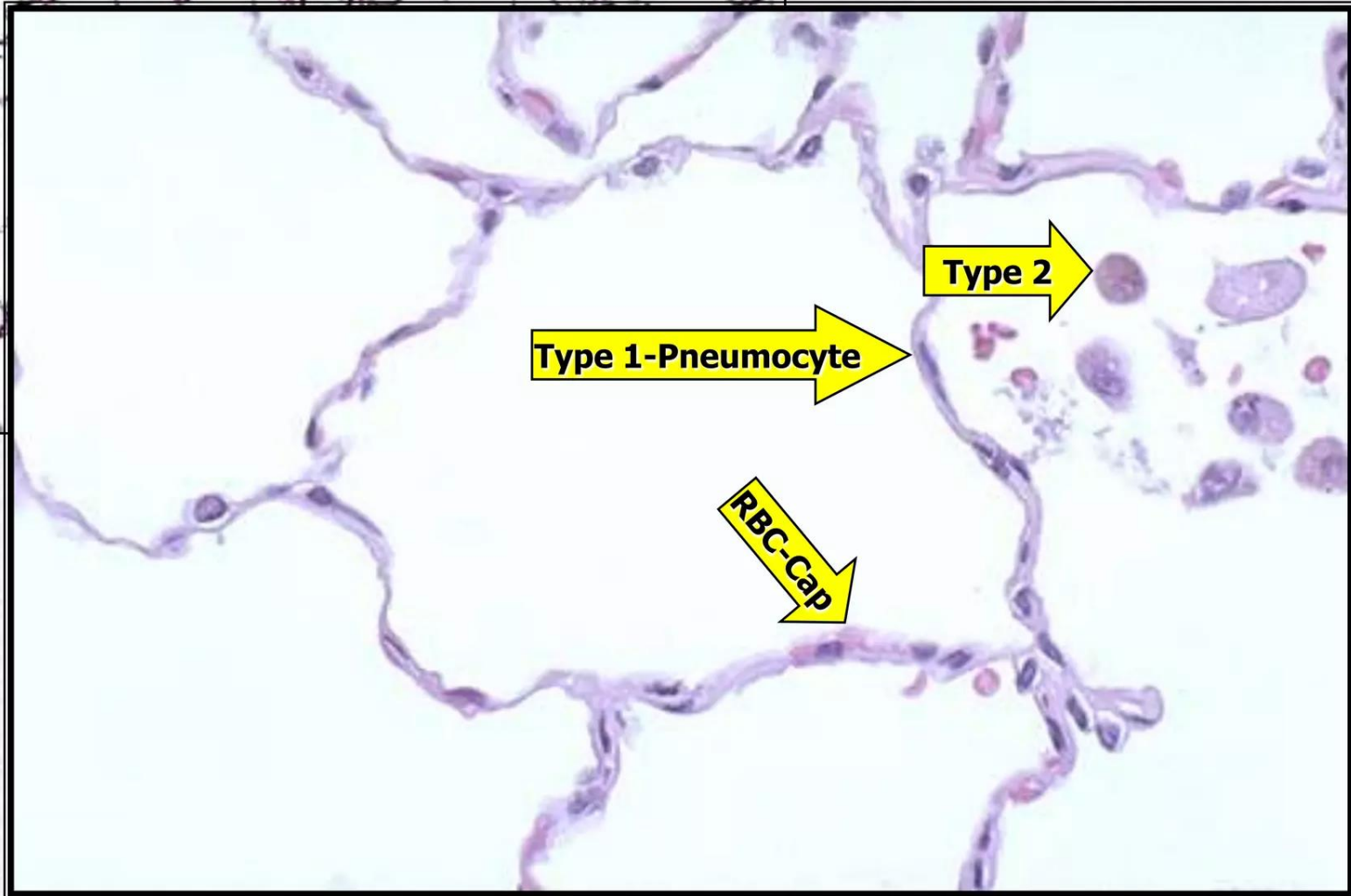
# The four stages of lobar pneumonia include

- Stage 1: Congestion.
- Stage 2: Red hepatization.
- Stage 3: Gray hepatization.
- Stage 4: Resolution.





## Normal Lung





## Lobar pneumonia

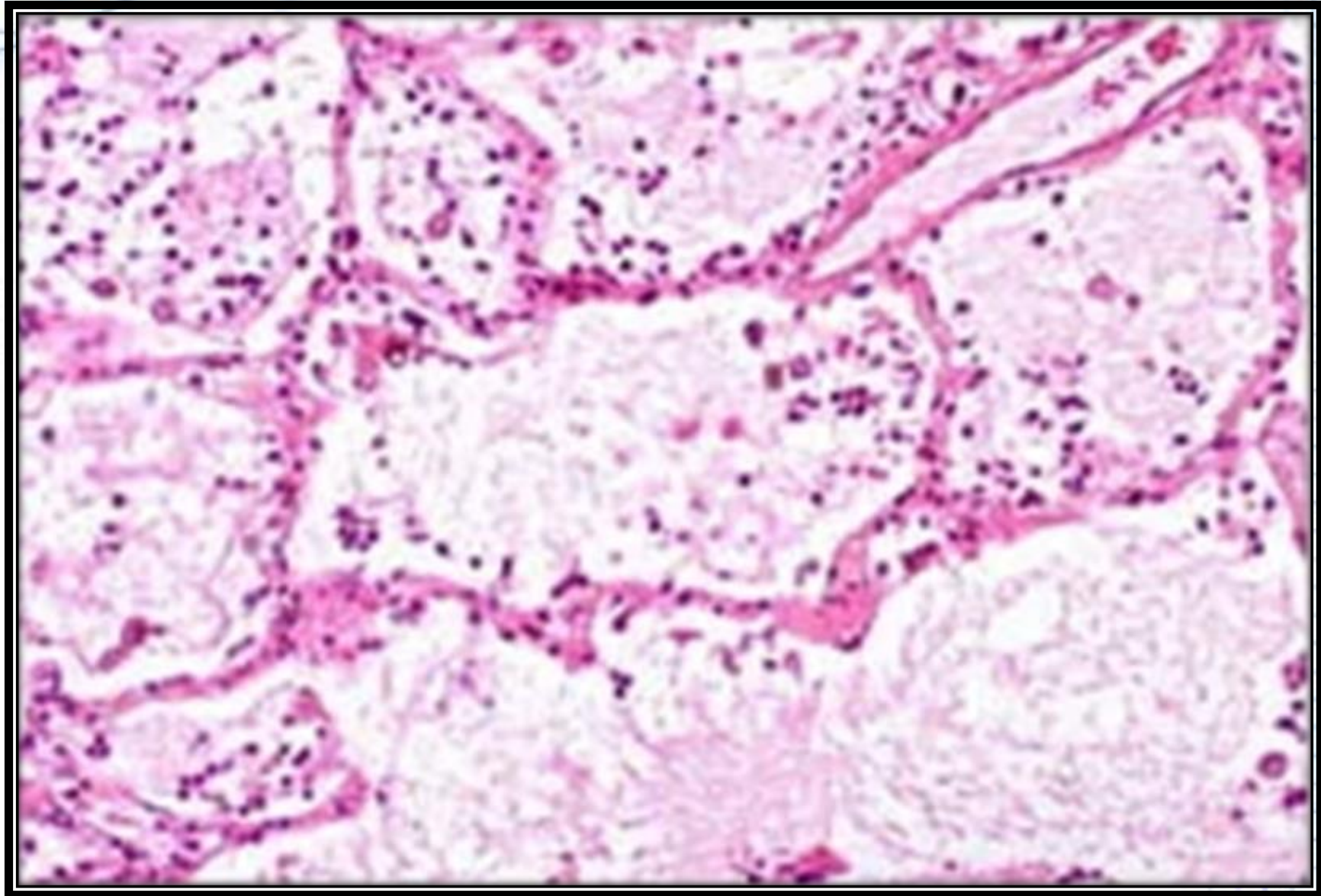
### Stage 1:

### Congestion

in the first 24 hours: This stage is

characterized histologically by  
1- intra-alveolar exudate,

2- small numbers of neutrophils, often numerous bacteria.



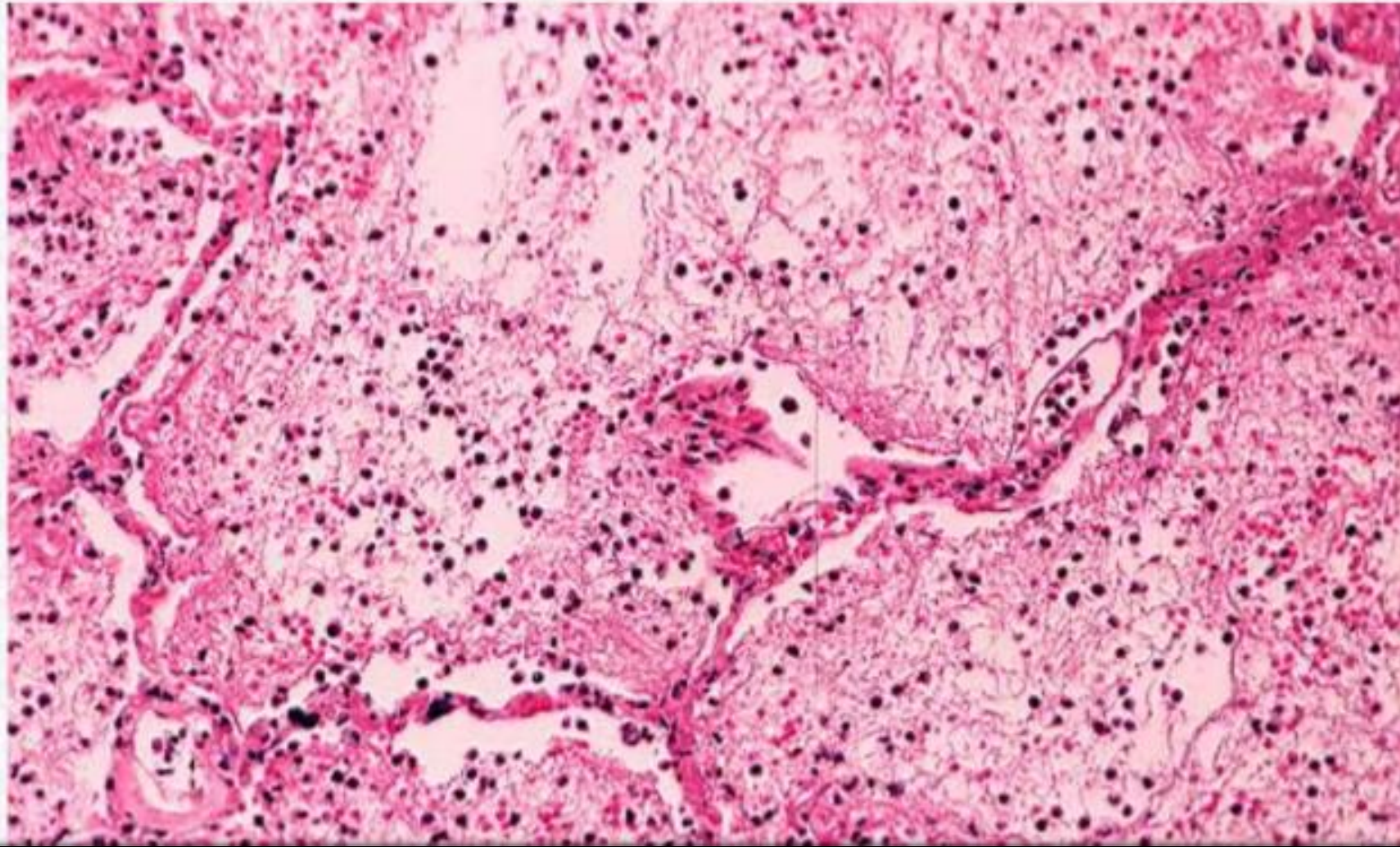
**Lobar pneumonia** Stage 2:  
**Red hepatization or consolidation**

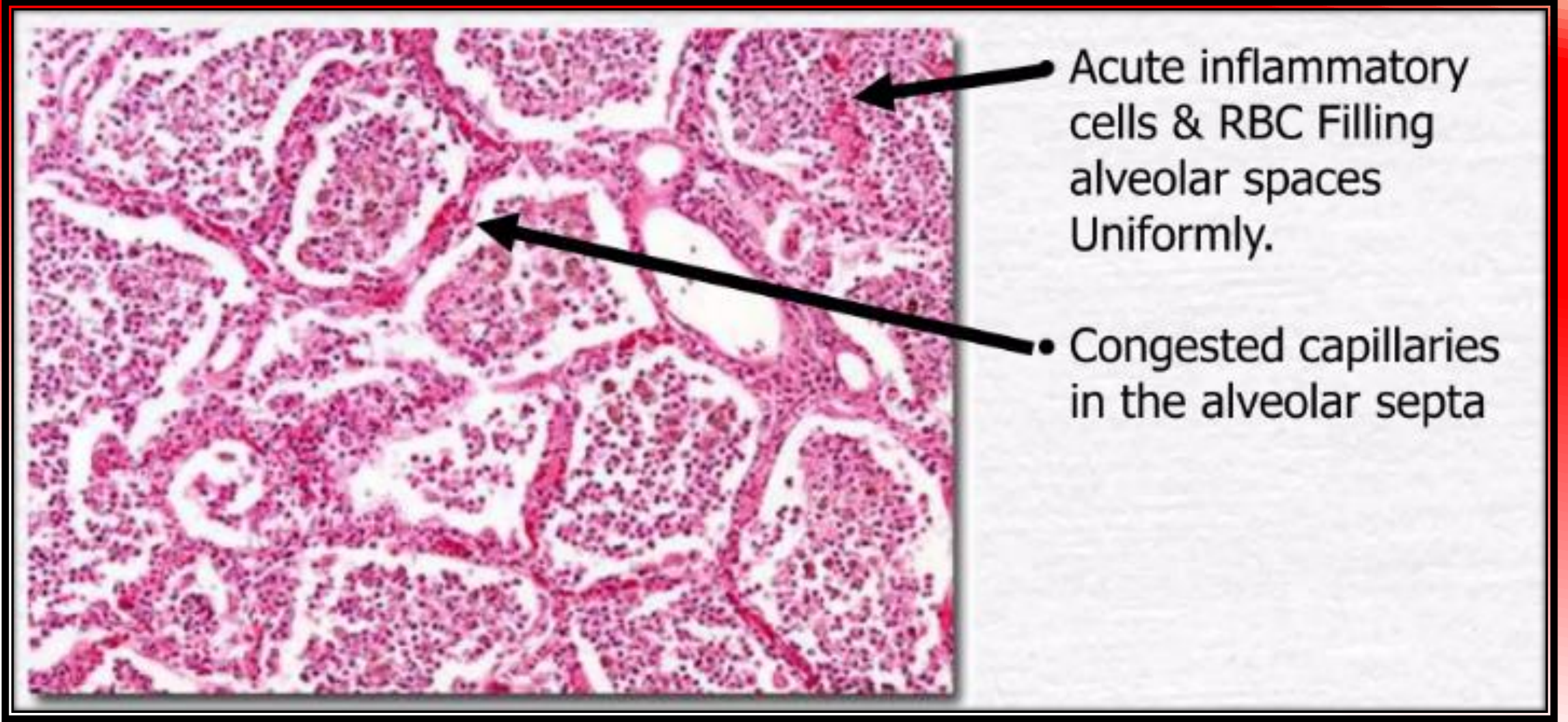
The gross appearance has been likened to that of the liver, hence the term "hepatization".



# Lobar Pneumonia: Microscopy:

Congestion → red hepatization





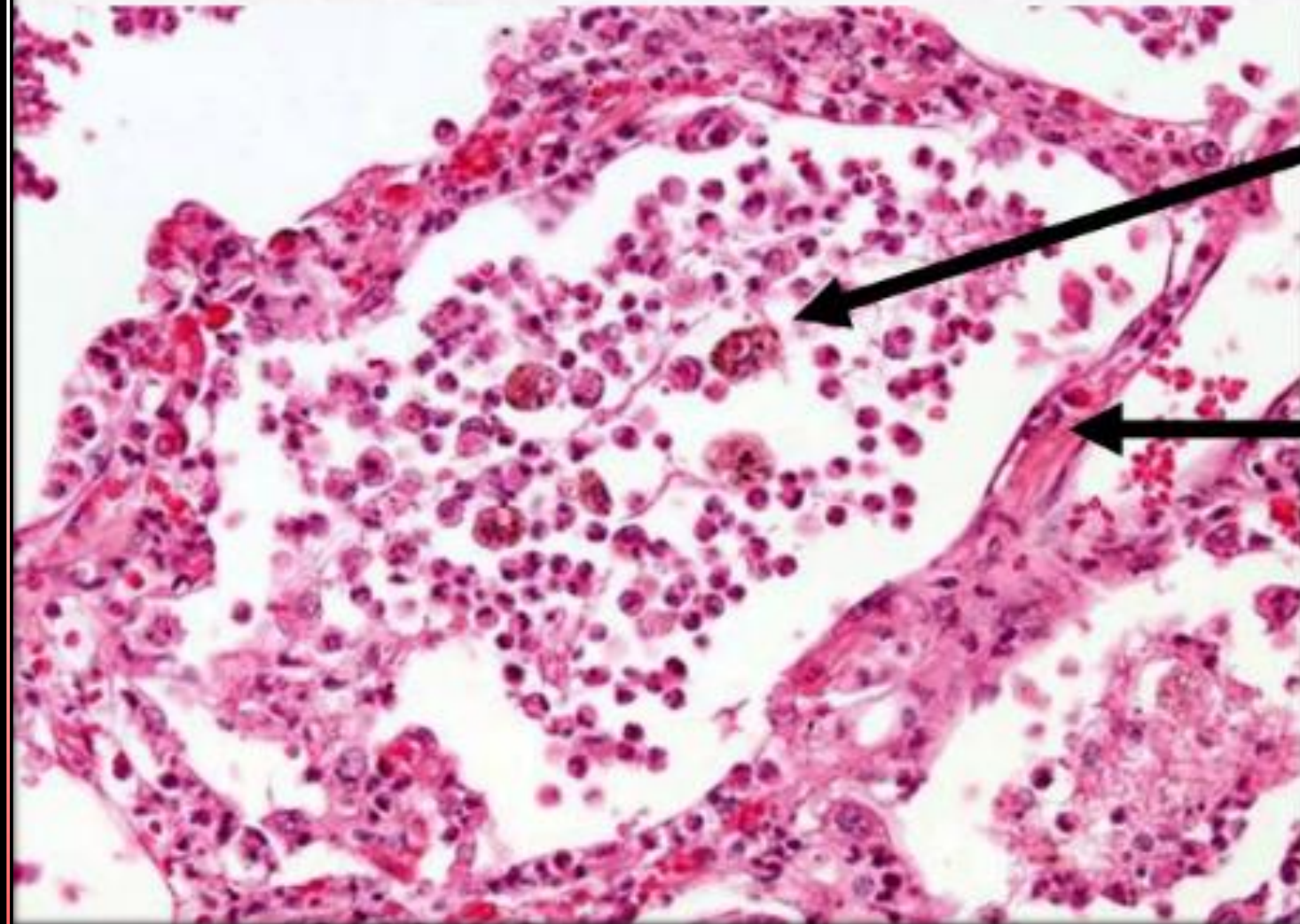
Acute inflammatory cells & RBC Filling alveolar spaces Uniformly.

• Congested capillaries in the alveolar septa

**Red hepatization or consolidation:** Vascular congestion persists, with extravasation of red blood cells into alveolar spaces, along with increased numbers of neutrophils and fibrin.



# Lobar Pneumonia: Red hepatization.



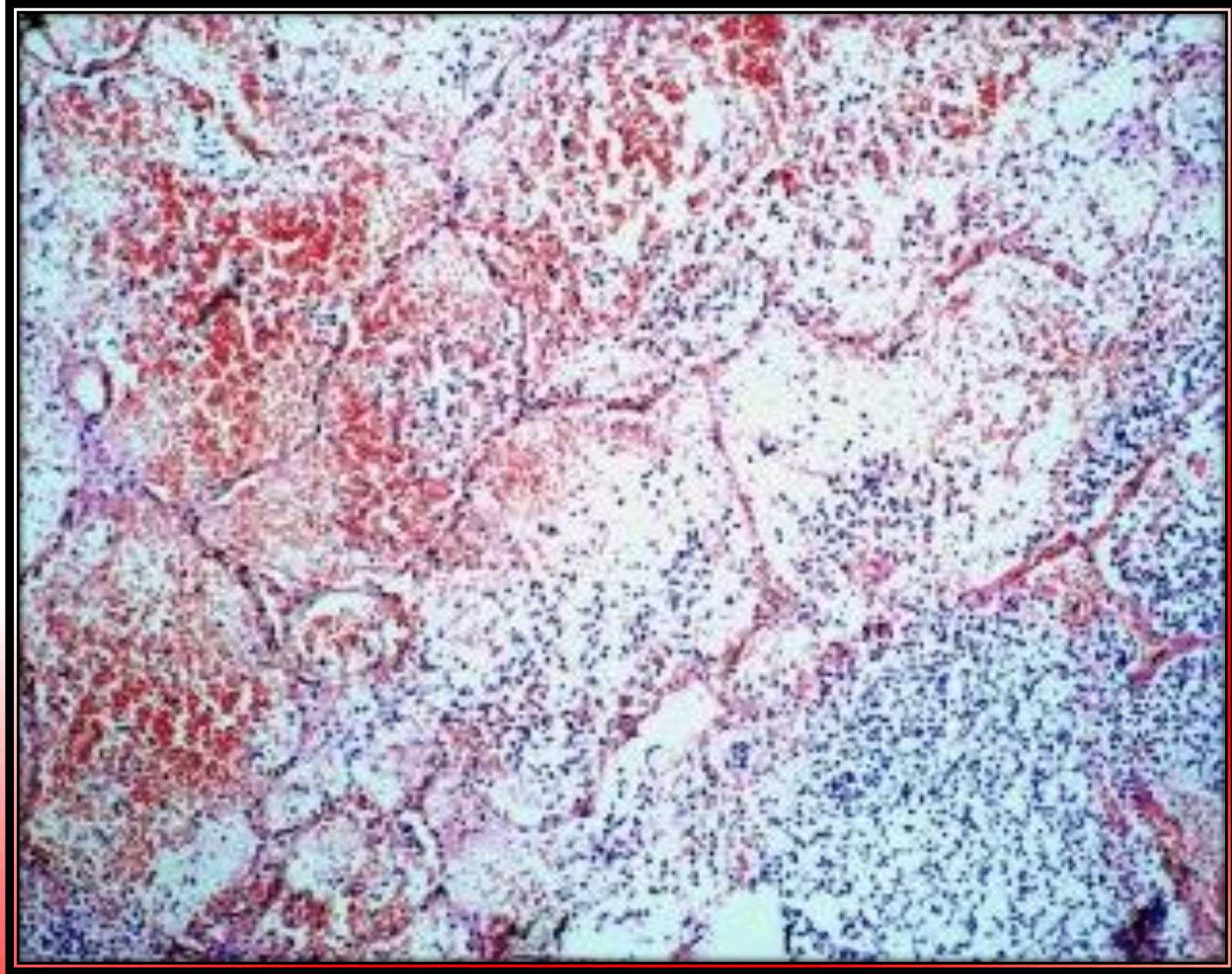
Acute inflammatory cells. Filling alveolar spaces Uniformly.

Congested capillaries in the alveolar septa

“Red hepatization”

Blood vessel congestion.

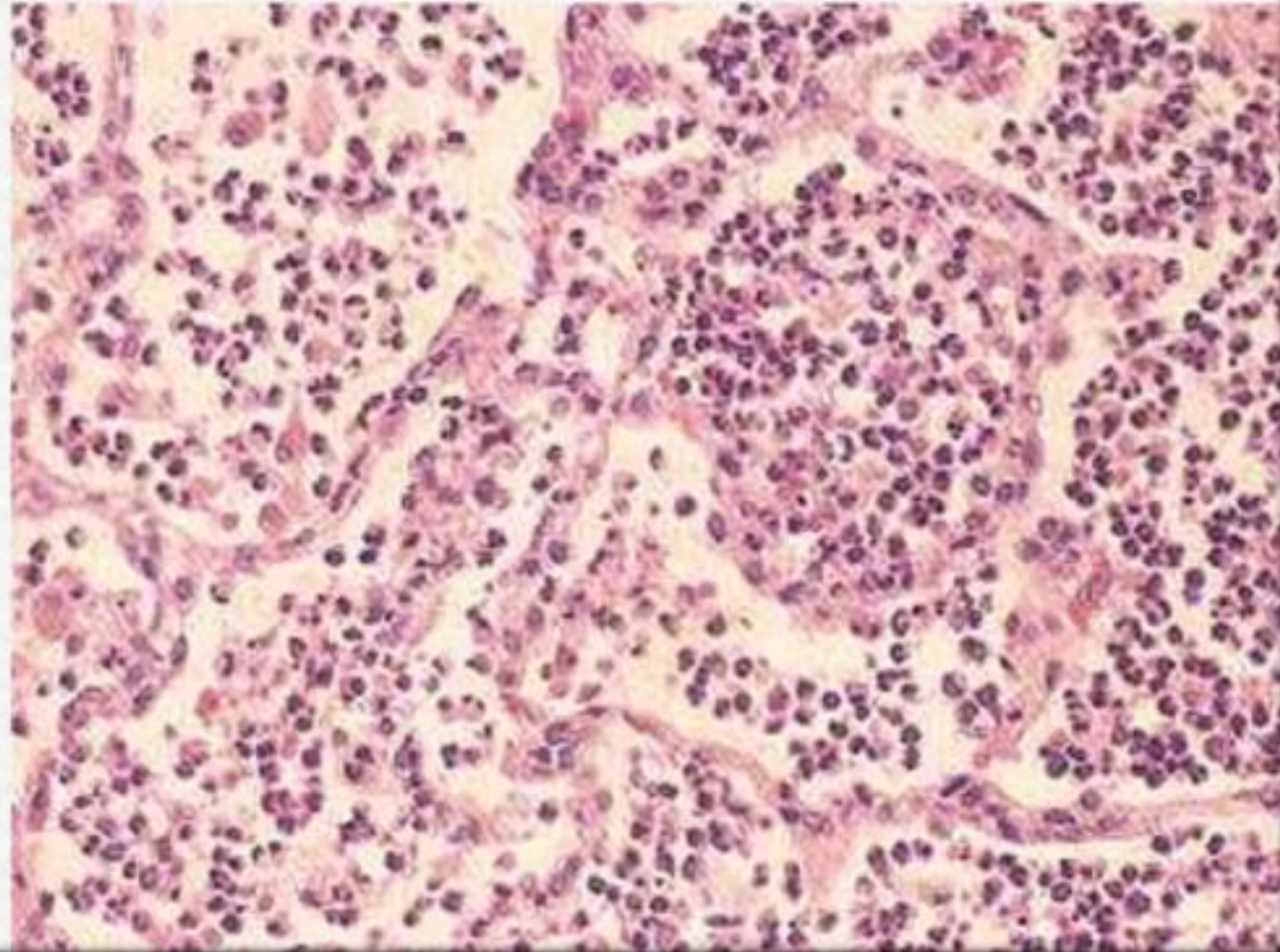
In the lumen of alveoli  
1-erythrocytes,  
2-fibrin,  
3-several neutrophils.



- **Grey hepatization:** grossly the color is paler and the cut surface is drier. This is when death typically occurs in severe cases.

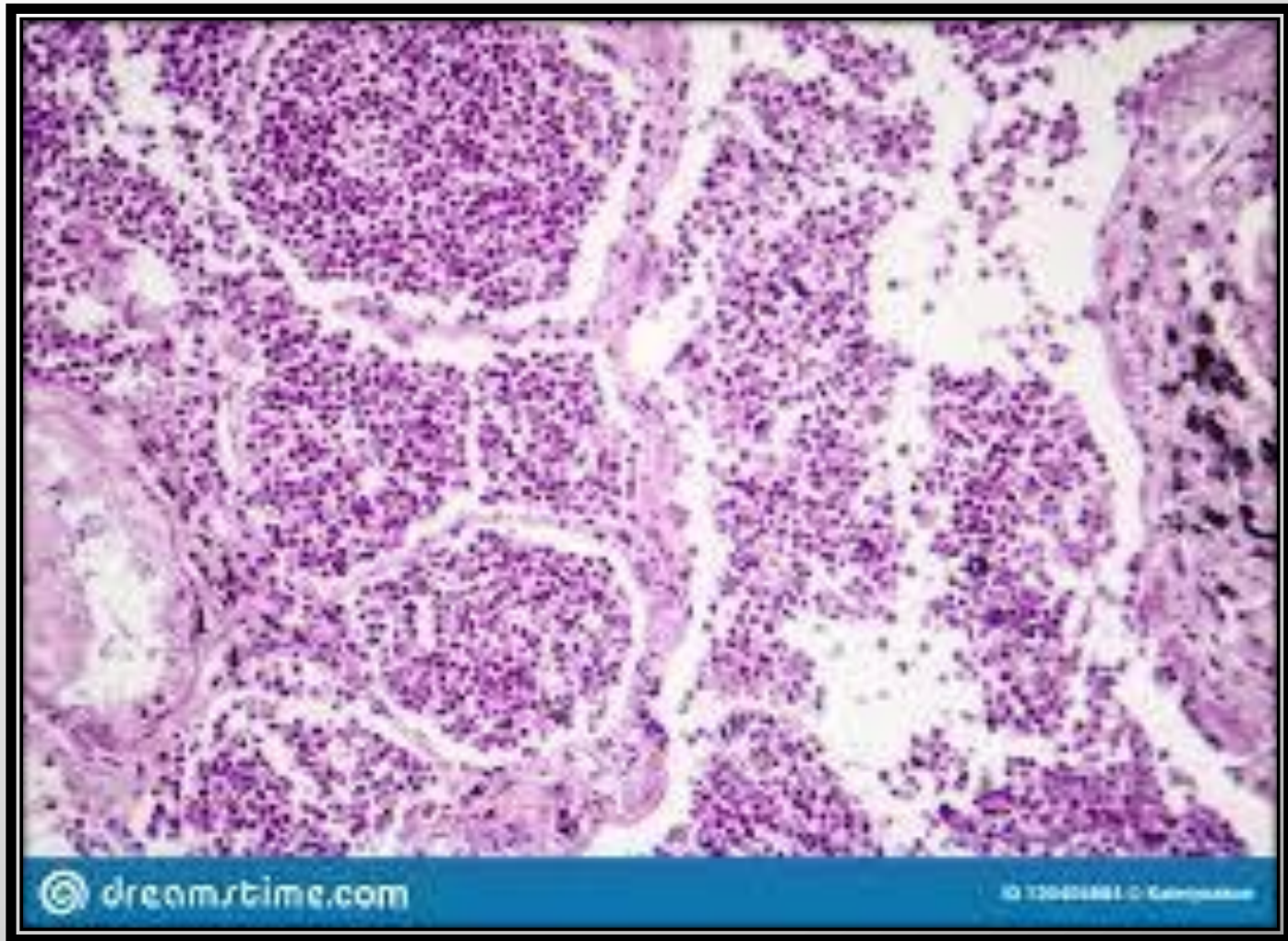


Lobar Pneumonia: Red → Grey  
hepatization.

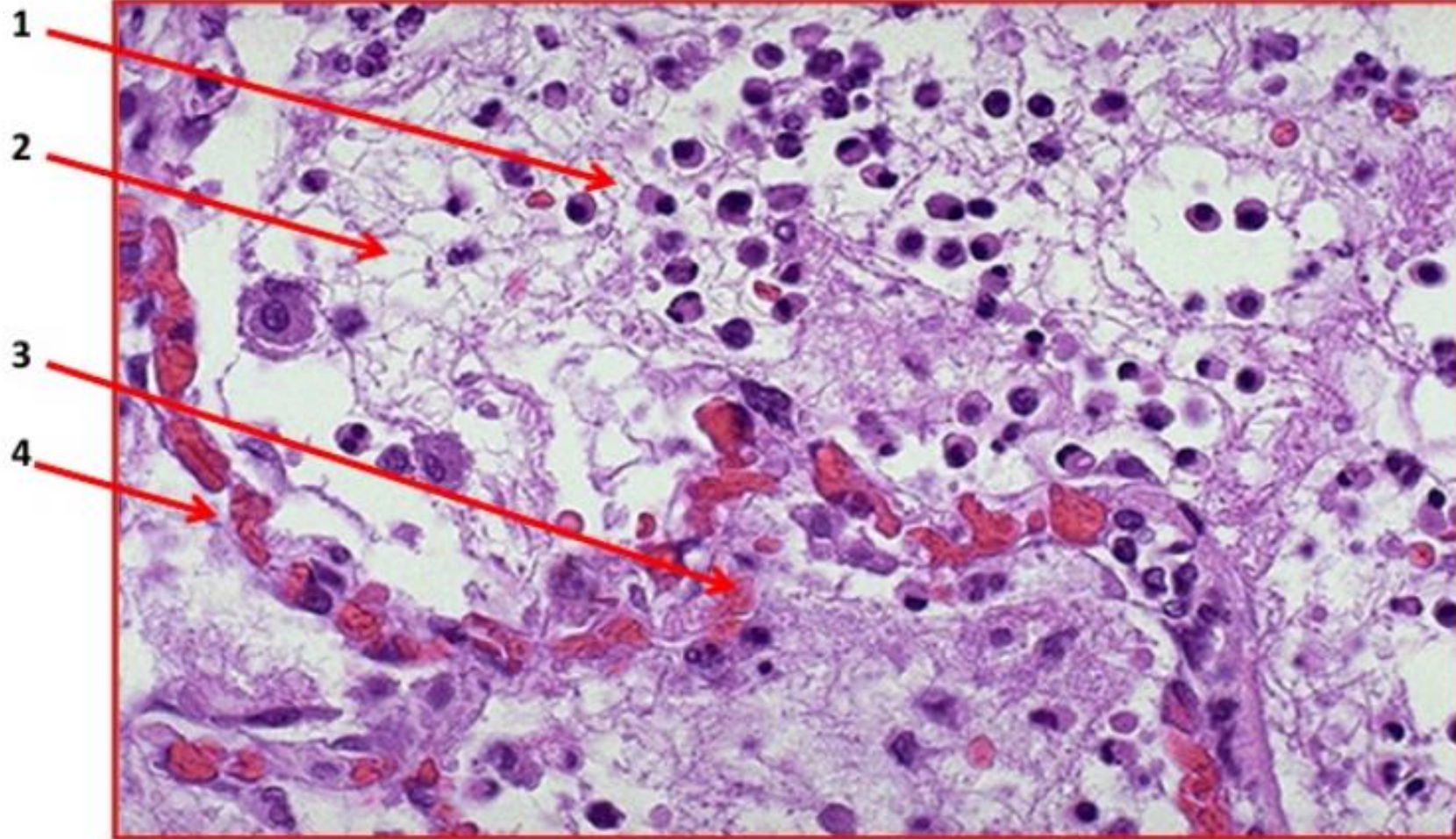


**Lobar pneumonia** Stage  
3: Lobar (gray hepatic  
phase) Gray hepatization

- **Grey hepatization:**
- Red blood cells disintegrate, with persistence of the neutrophils and fibrin.



# Lobar Pneumonia, Grey Hepatization



- 1) Inflammatory cells
- 2) Clumps of fibrin and edema
- 3) Fragmented RBCs
- 4) Congested alveolar capillaries

Stage 4: **Resolution**

Fluids and breakdown products from cell destruction are reabsorbed.

Macrophages (large white blood cells) are present and help to clear (neutrophils) and left over debris.

