



Practical Revision CVS

Pathology team

CVS PHOTOS

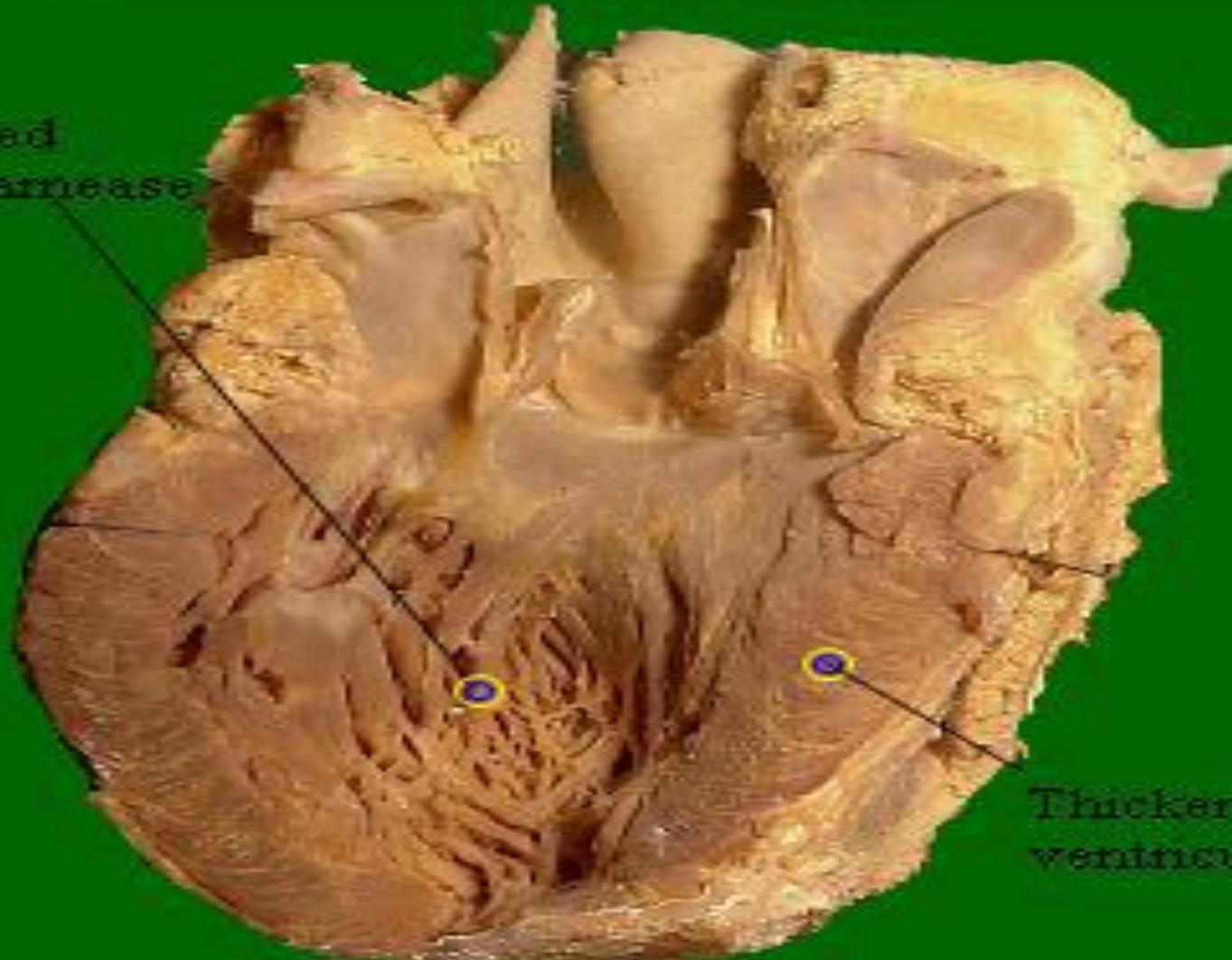
- 1) Left ventricular hypertrophy (Mostly hypertensive heart)**
- 2) Massive pulmonary Embolism**
- 3) Dry gangrene of the foot**
- 4) Moist gangrene of forearm**

Left ventricular hypertrophy (Mostly hypertensive heart)

- **Specimen:** Whole Heart
- **Weight:** 420 gm.
- **The left ventricular myocardium:** Thickened.
- **The columnae (trabeculae) carneae:** Hypertrophied.
- **Both coronary arteries:** Show atheroma.
- **The aortic valve:** Normal

Left ventricular hypertrophy (mostly Hypertensive heart)

Hypertrophied
trabeculae carneae



Thickened
ventricular wall

Left ventricular hypertrophy (mostly Hypertensive heart)

Atheromatous
aortic plaques



Massive pulmonary Embolism

▪ Definition:

It is the circulation of an insoluble material (solid, liquid, or gaseous) in the blood and its sudden impaction in a narrow vessel. This material is called an embolus.

▪ Pulmonary embolism:

Sources:

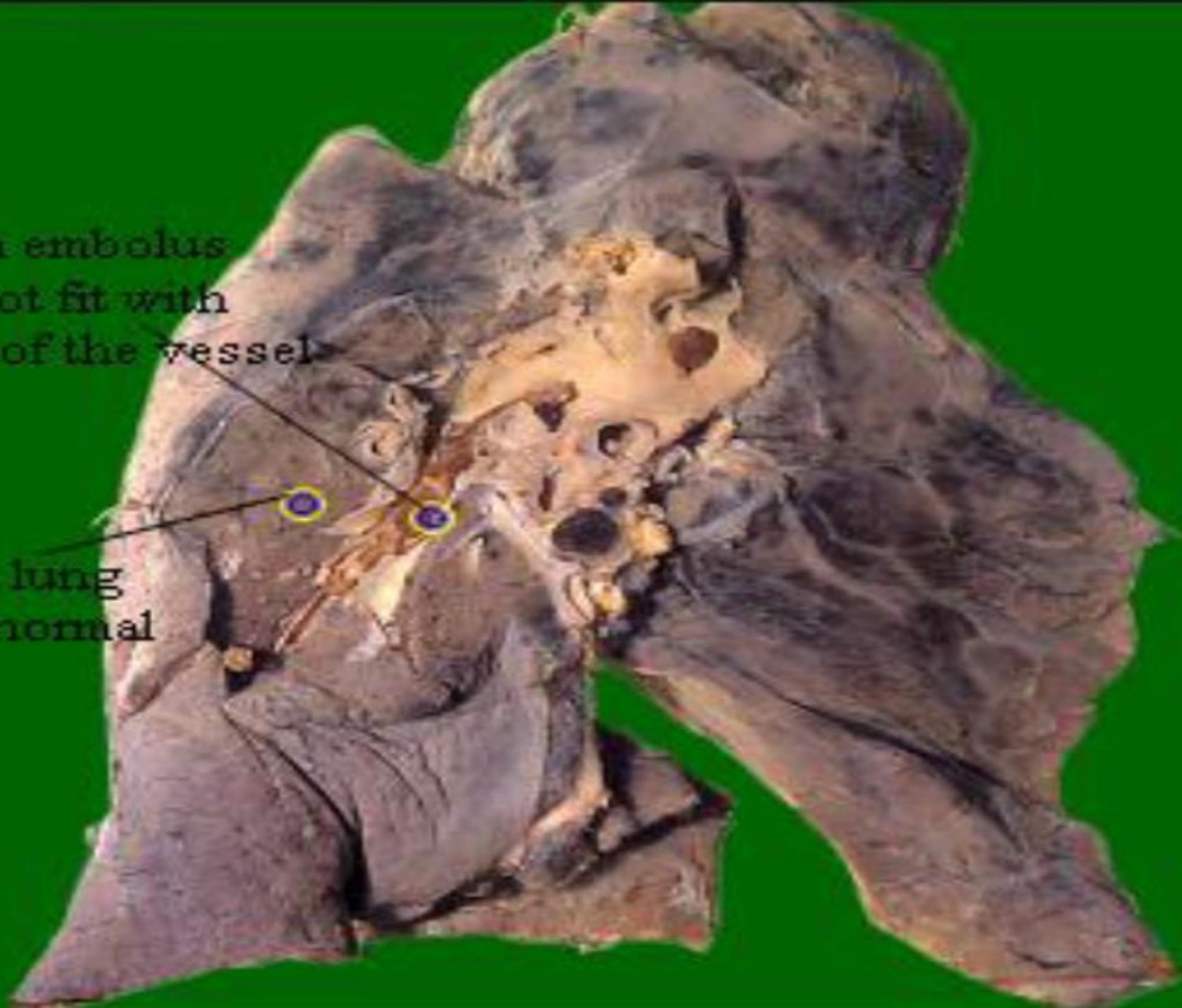
✓ Recent thrombi of calf veins in lower limbs (Most common).

✓ Thrombi in the Rt. side of the heart.

▪ **Effects** :Effects on the lung depend upon the size of the embolus and state of the lung.

Dry brown embolus
which is not fit with
the shape of the vessel

Adjacent lung
tissue is normal



Dry brown embolus
which is not fit with
the shape of the vessel



Inner side of the
vessel wall

Part of the embolus
within a branch
of the vessel

anthracotic
pigmentation



Gangrene

- **Definition:**

A type of necrosis most often affects the lower extremities or bowel and it is secondary to vascular occlusion , associated with saprophytic bacterial infection.

Dry gangrene of the foot

Gross examination

- **Specimen:** foot & leg
- **Size:** limb is shrunken & shriveled (due to gradual arterial occlusion with persistent venous and lymphatic drainage + surface evaporation)
- **Surface:** skin is wrinkled (due to tissue shrinkage)
- **Color:** blackened foot up to ankle (due to ischemic necrosis followed by putrefaction with production of hydrogen sulphide)
- **Line of demarcation:** reddish white line near ankle, separating proximal healthy part from distal gangrenous one (zone of acute inflammation in the neighboring healthy part due to irritation by toxic products of putrefaction)
- Autoamputation of little toe (separation of gangrenous toe)



Dry shriveled appearance

Black colour of the foot

Autoamputation
of the little toe

Dry shriveled, mummified appearance



Blackened foot



Moist gangrene of forearm

Gross examination

Specimen: forearm and hand of a child

Size: Limb is swollen (evidenced by increased depth of finger creases & obliteration of palm concavity) (due to sudden arterial and venous occlusion following severe crushing injury)

Surface: skin is macerated (due to ischemic necrosis followed by putrefaction)

Color: bluish (congestion)

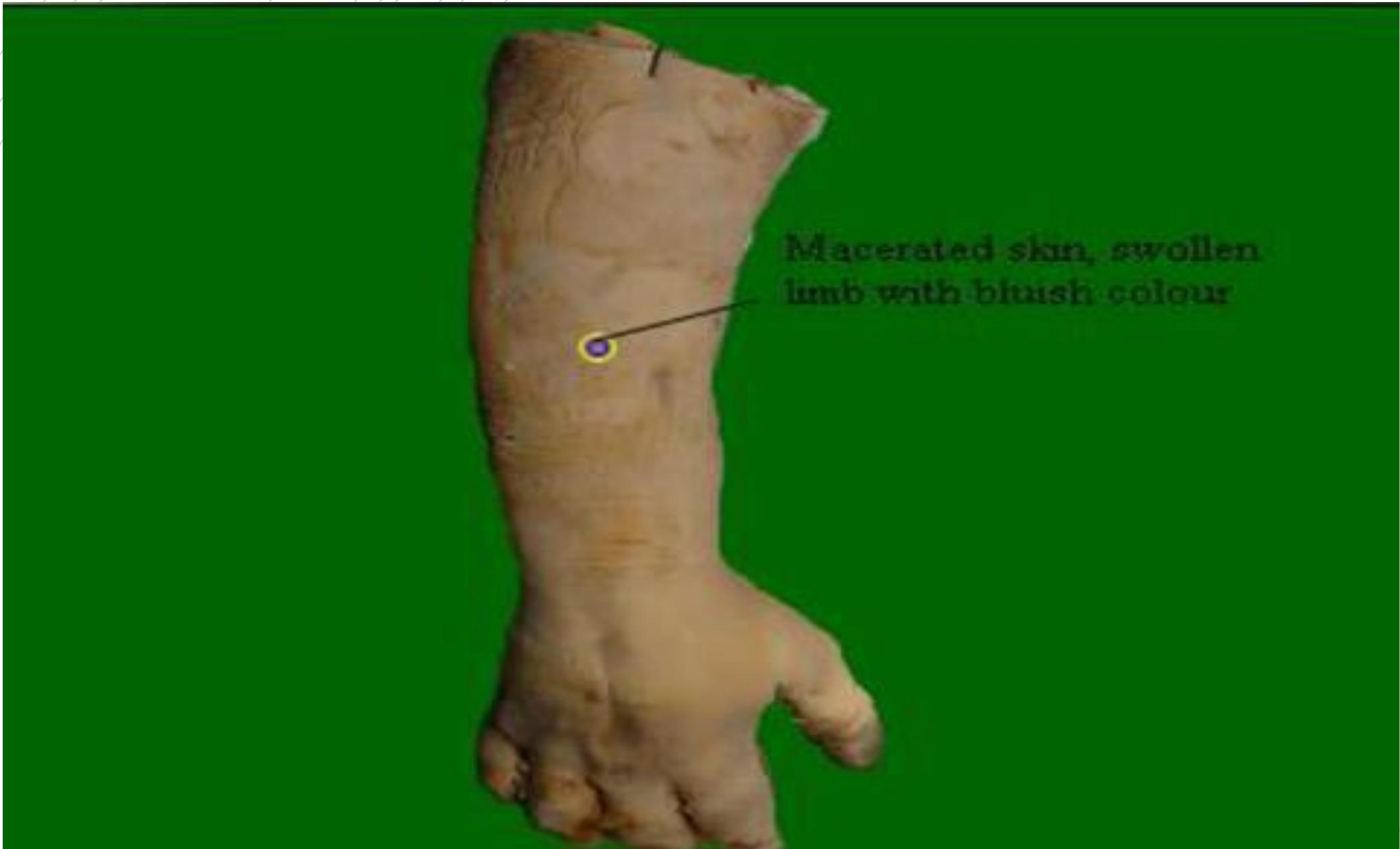
No line of demarcation (due to rapid spread of gangrene)

Maceration of the skin

Skin is macerated and bluish in color

Increased depth of finger creases denoting swelling of the limb





Macerated skin, swollen limb with bluish colour

CVS SLIDES

- 1) Thrombosis**
- 2) Chronic venous congestion lung**

1) Thrombosis

- **Definition:**

Formation of a compact mass composed of the circulating blood elements inside a vessel or a heart cavity during life.

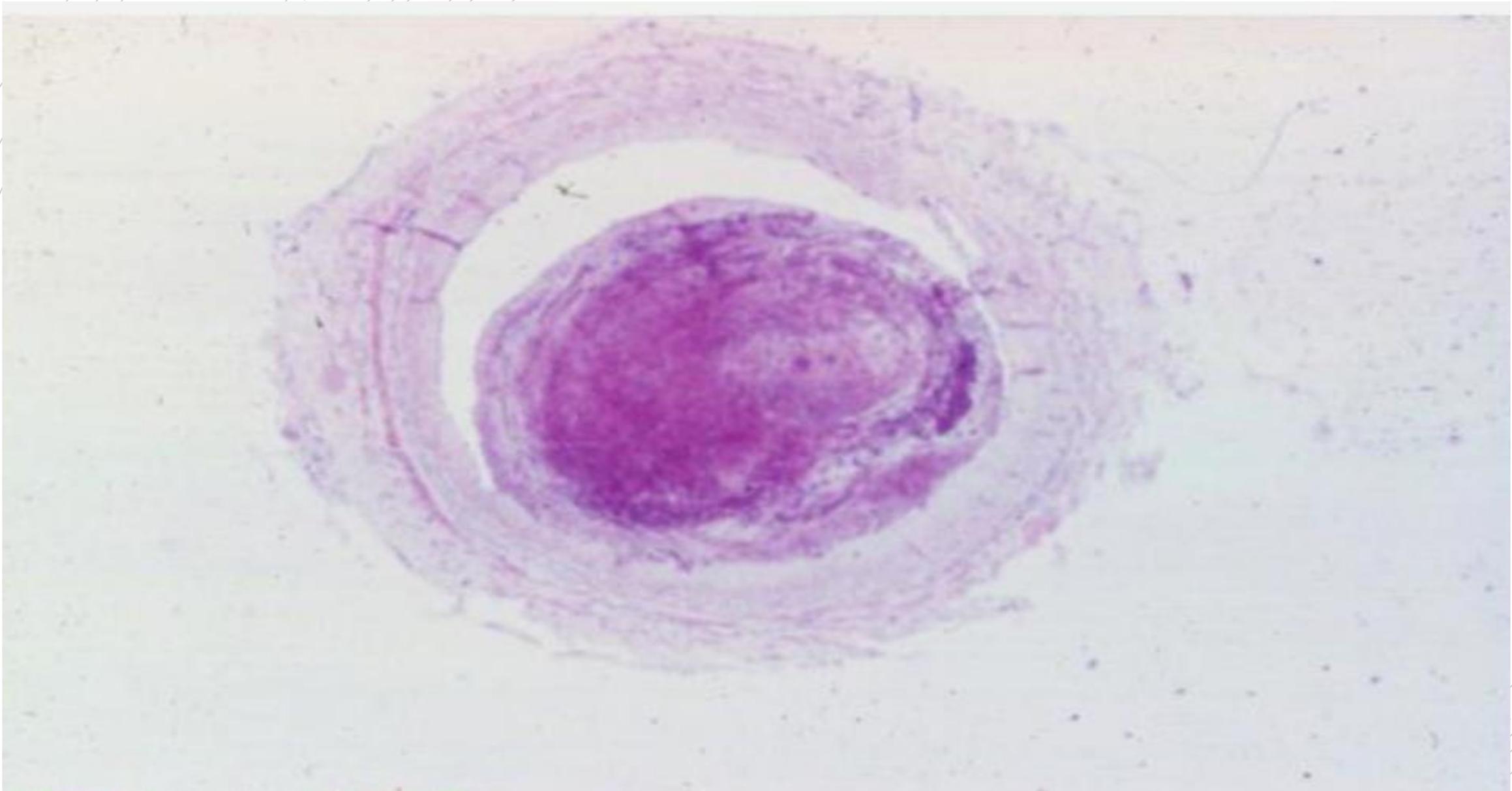
- **Morphology:**

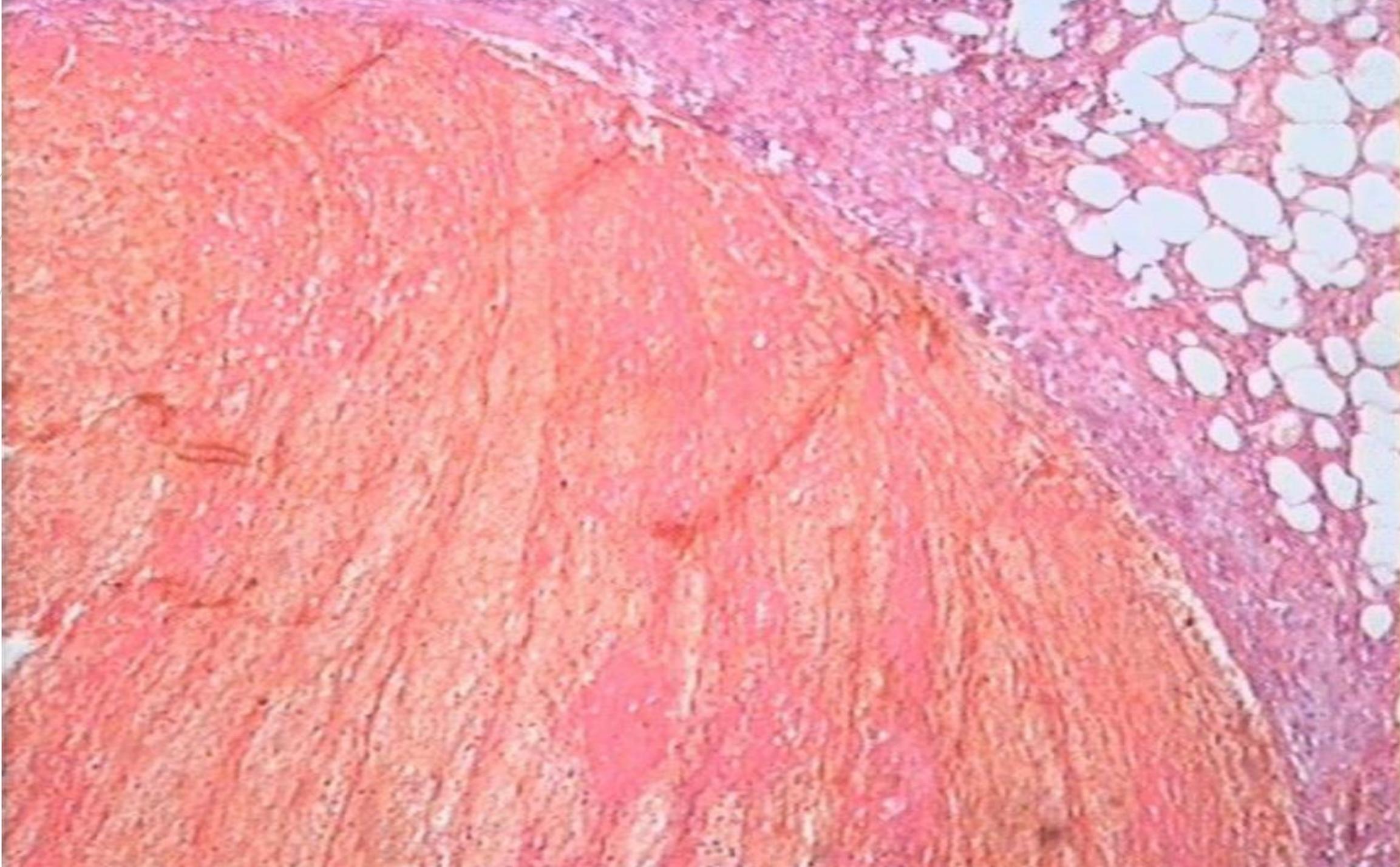
Section in a blood vessel (vein) the lumen is occluded by a mass formed of blood elements:

A pale mass of platelets is attached to the vessel wall (head of the thrombus).

Pale lines of fused platelets are deposited perpendicular to the head of the thrombus (lines of Zhan).

In-between lines of Zhan there fibrin network entangling other blood elements.

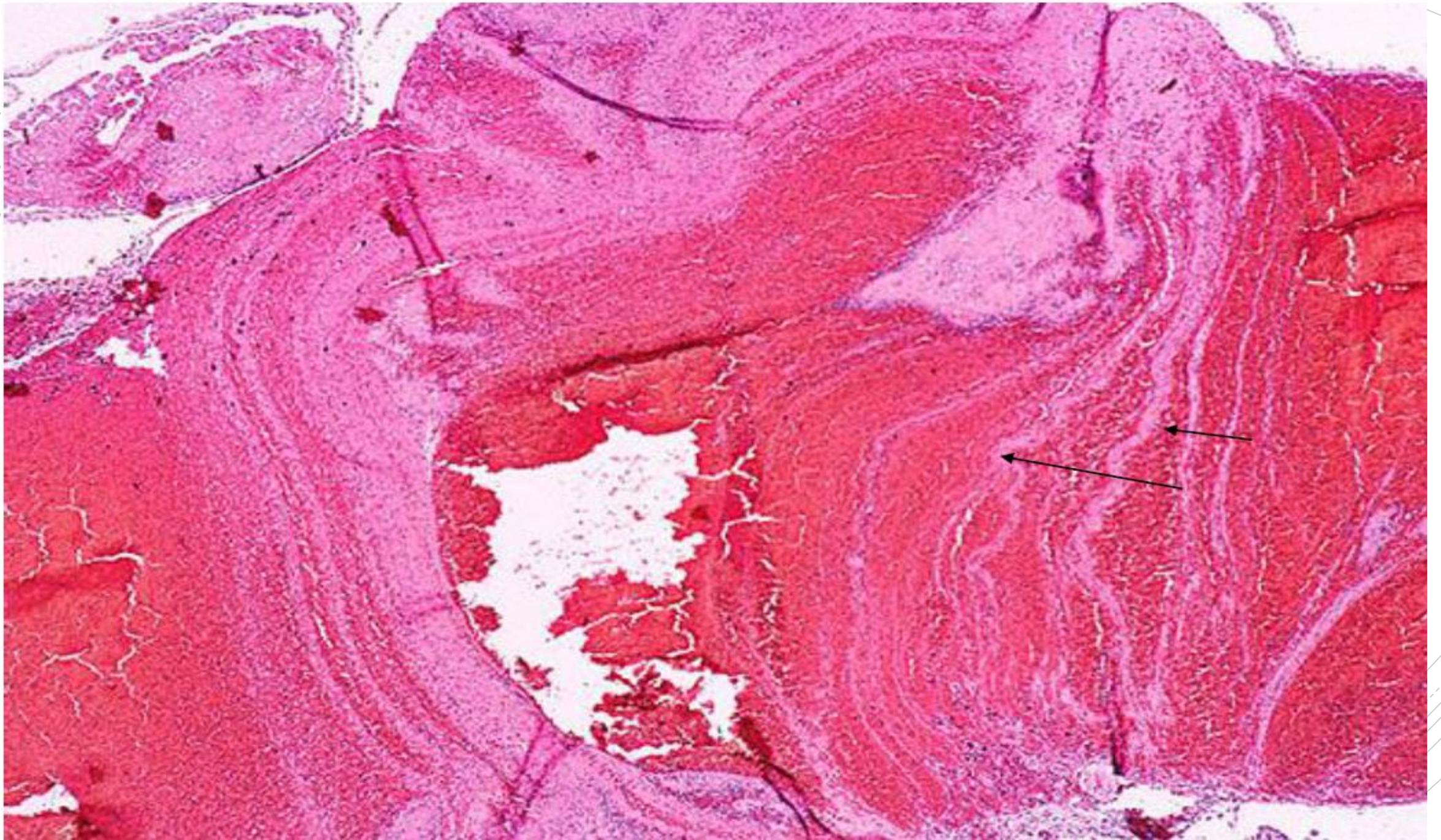


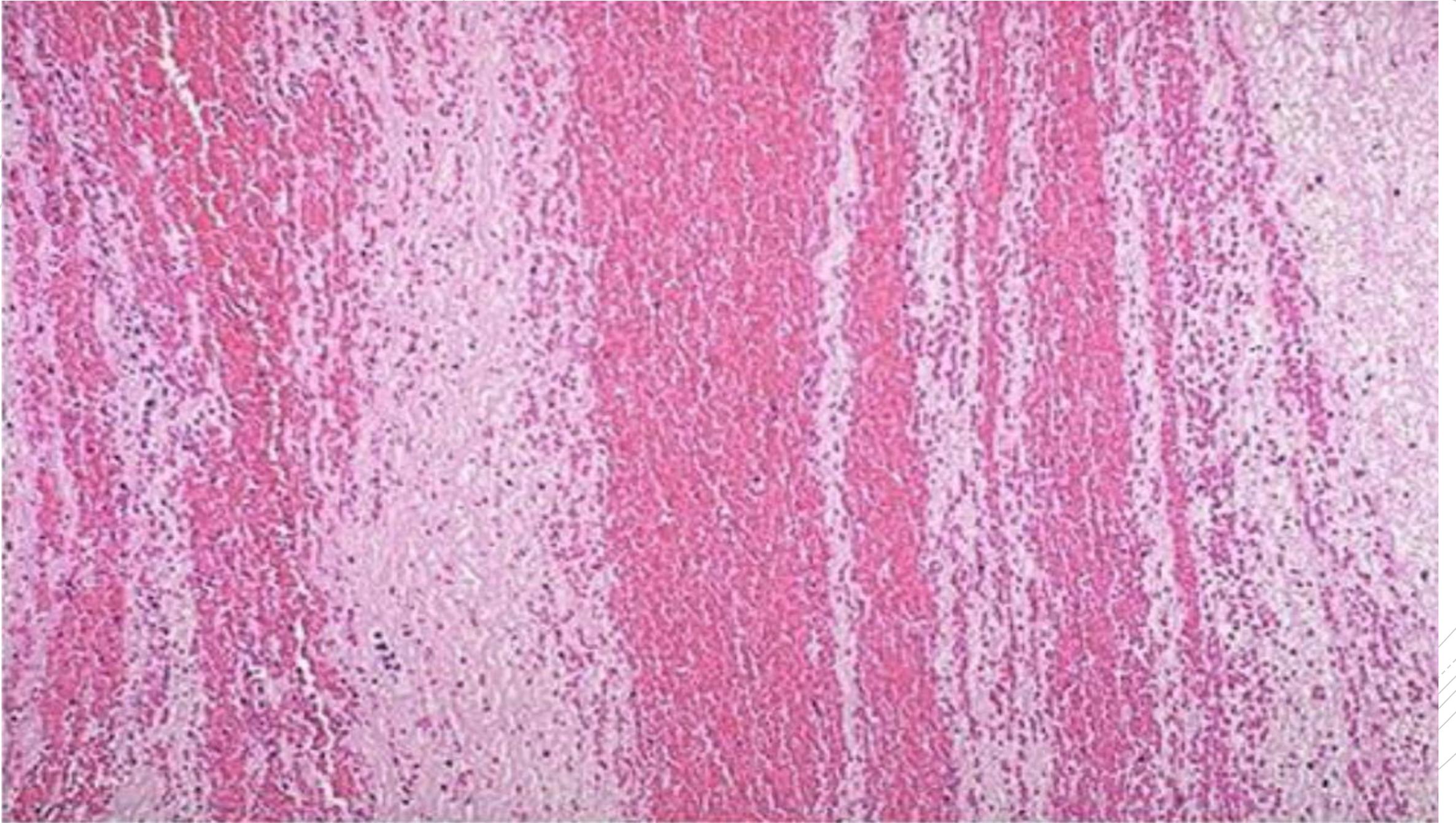


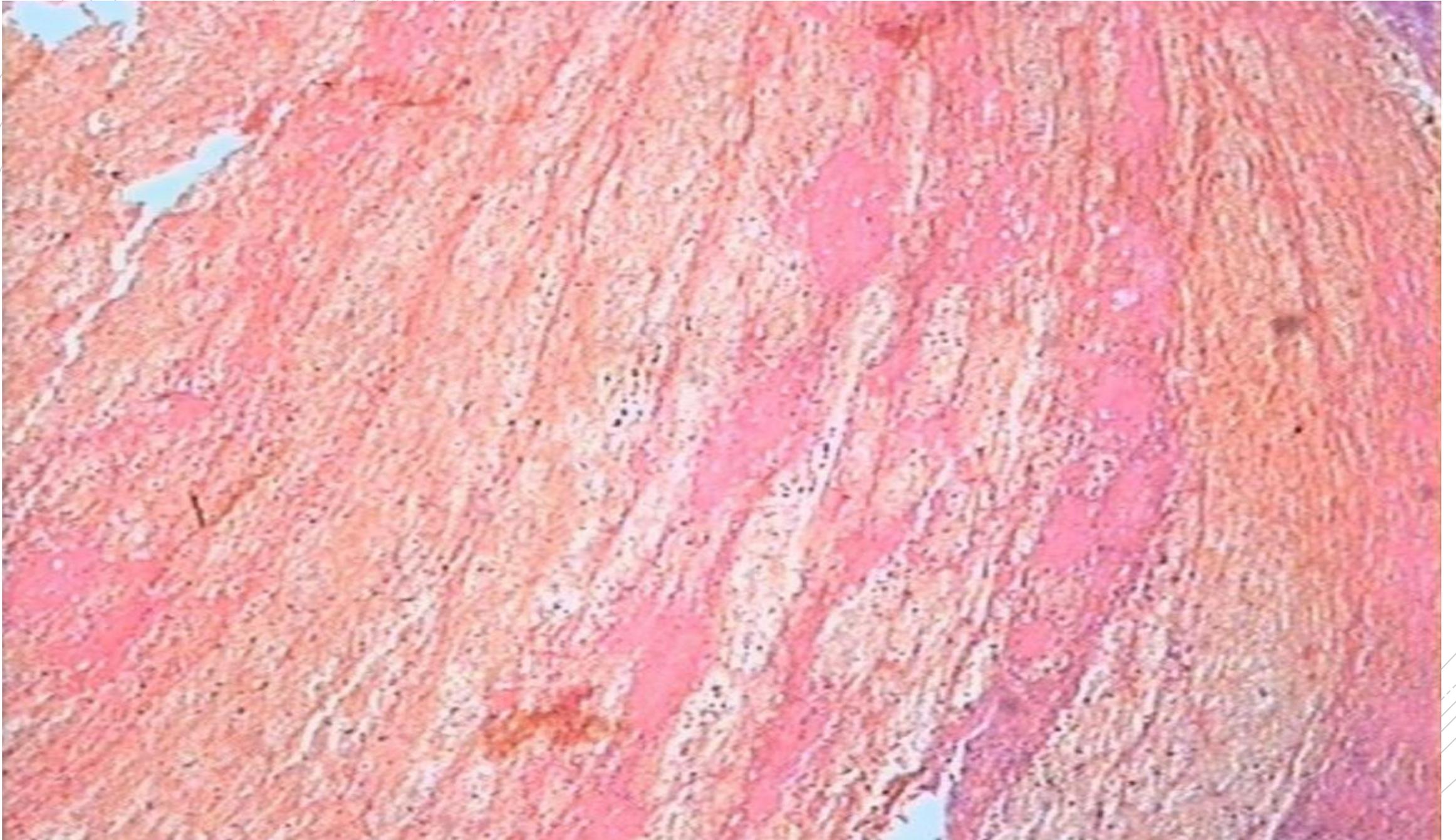


Lines of Zahn

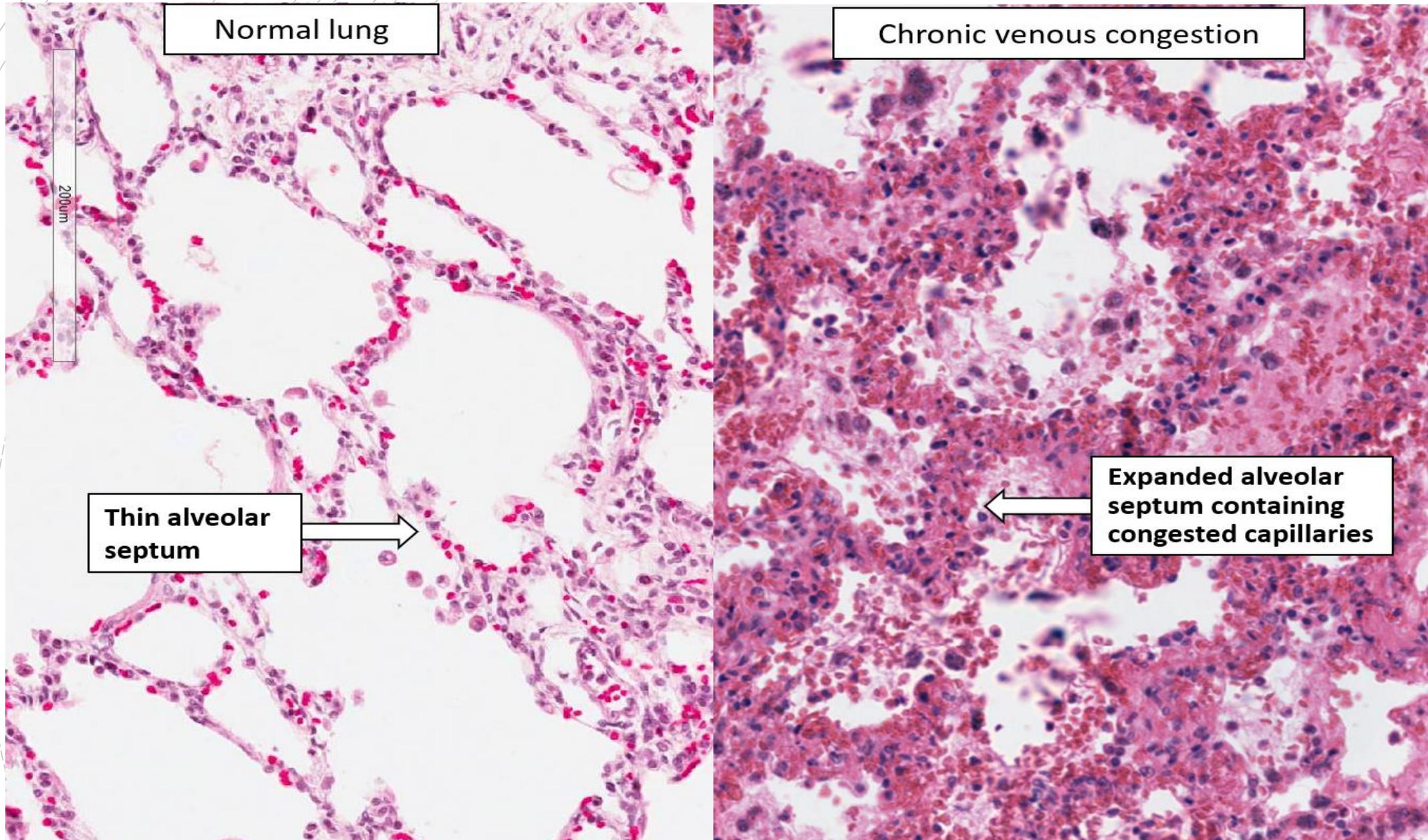
Entangled BRCs







3) Chronic venous congestion lung



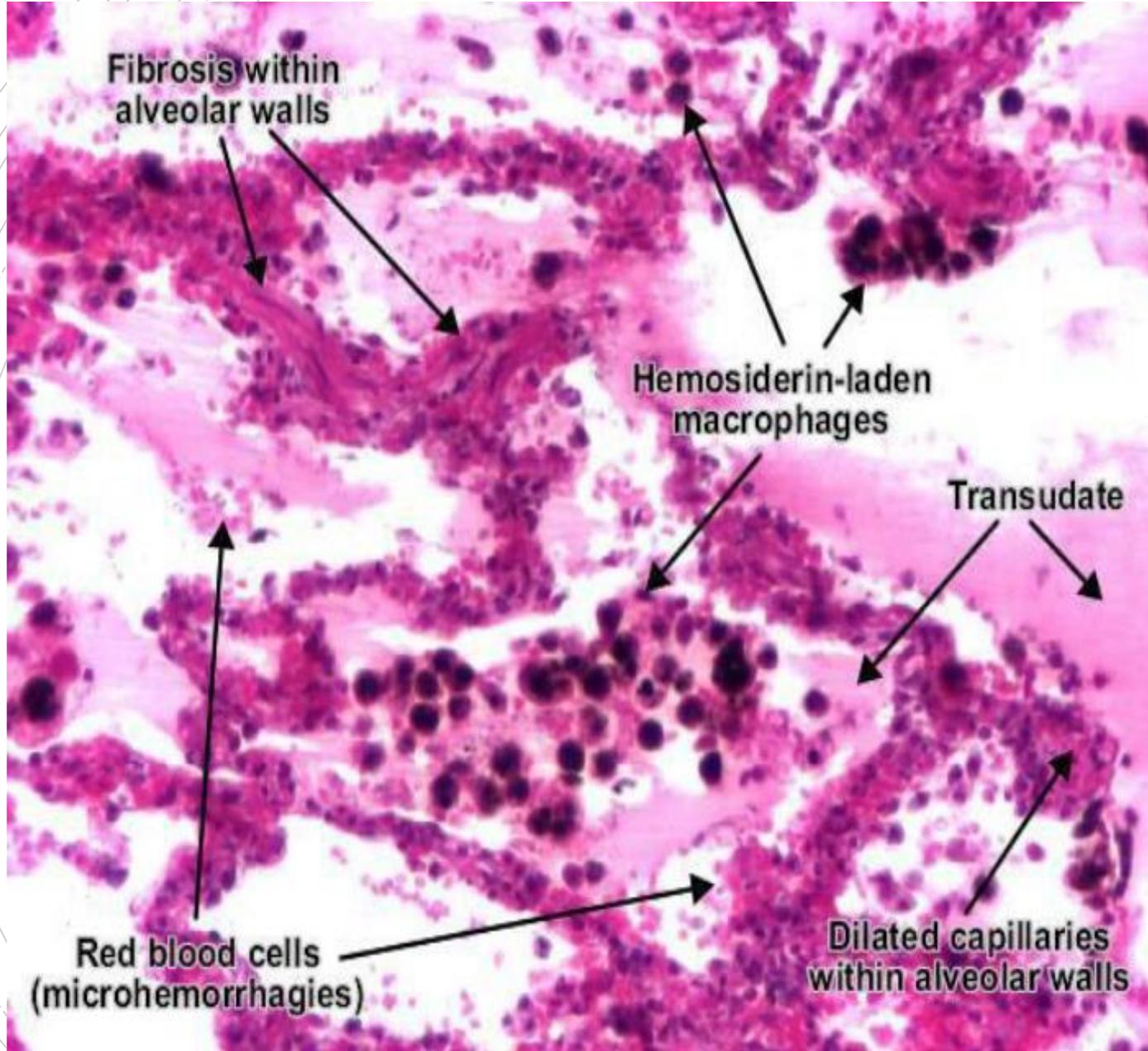
Chronic venous congestion lung

Microscopically:

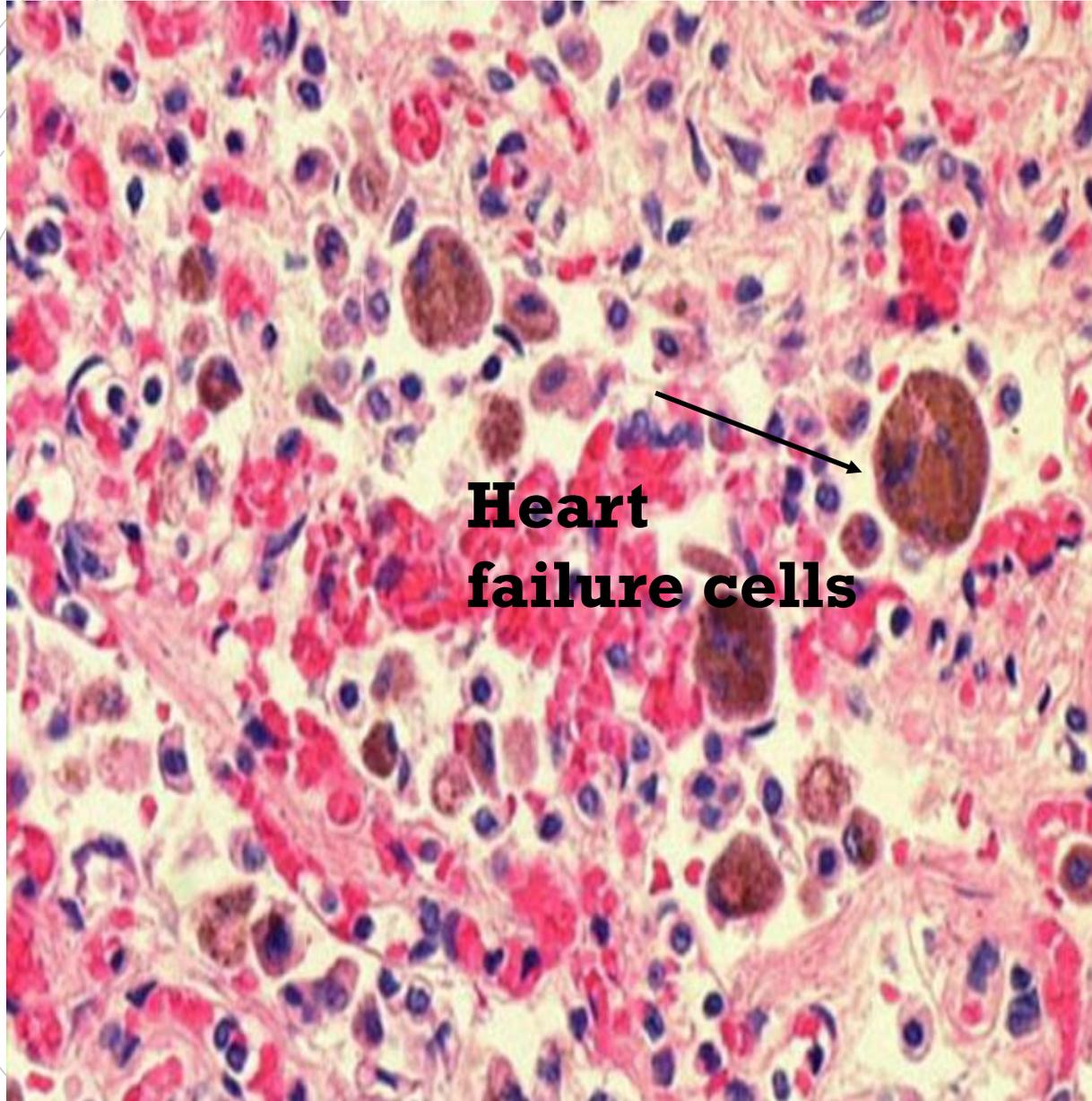
- The congested area of the lung shows thickened alveolar septa by congested capillaries and fibrosis.
- The alveolar spaces contain a homogeneous pink transudate
- Also, there are intact and hemolysed RBCs with many heart failure cells (macrophages engulfing RBCs and hemosiderin)



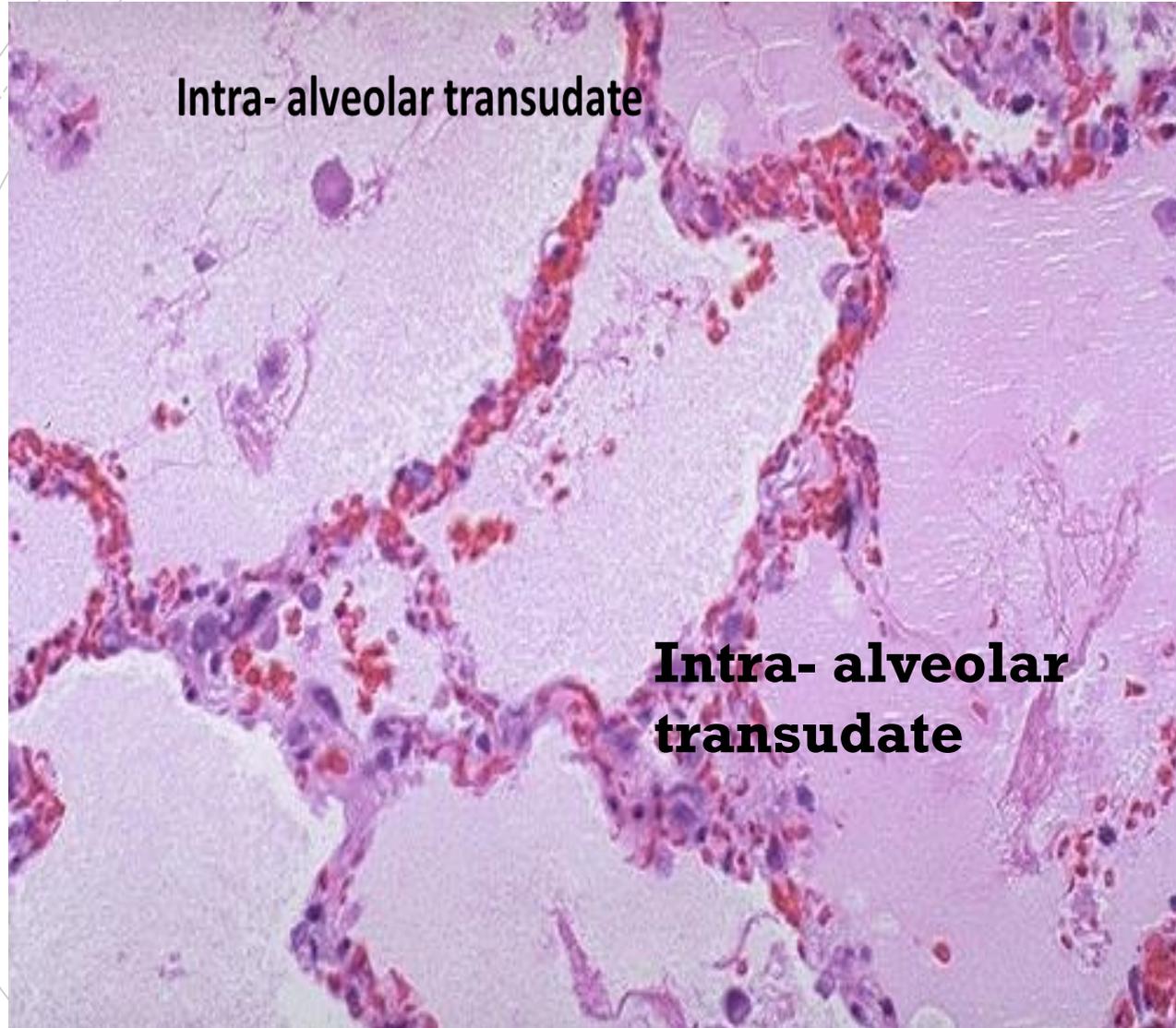
Chronic venous congestion lung



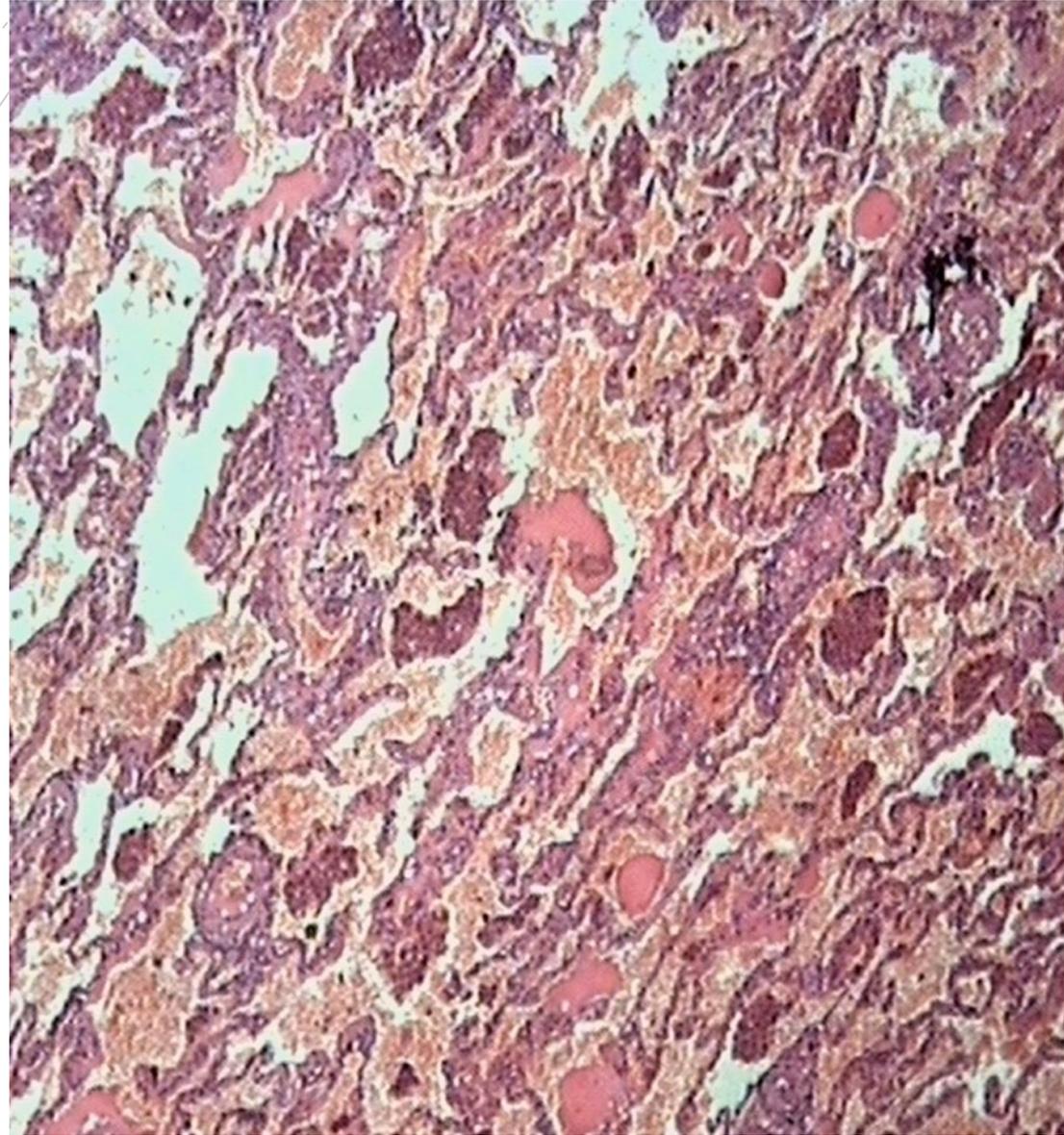
Chronic venous congestion lung

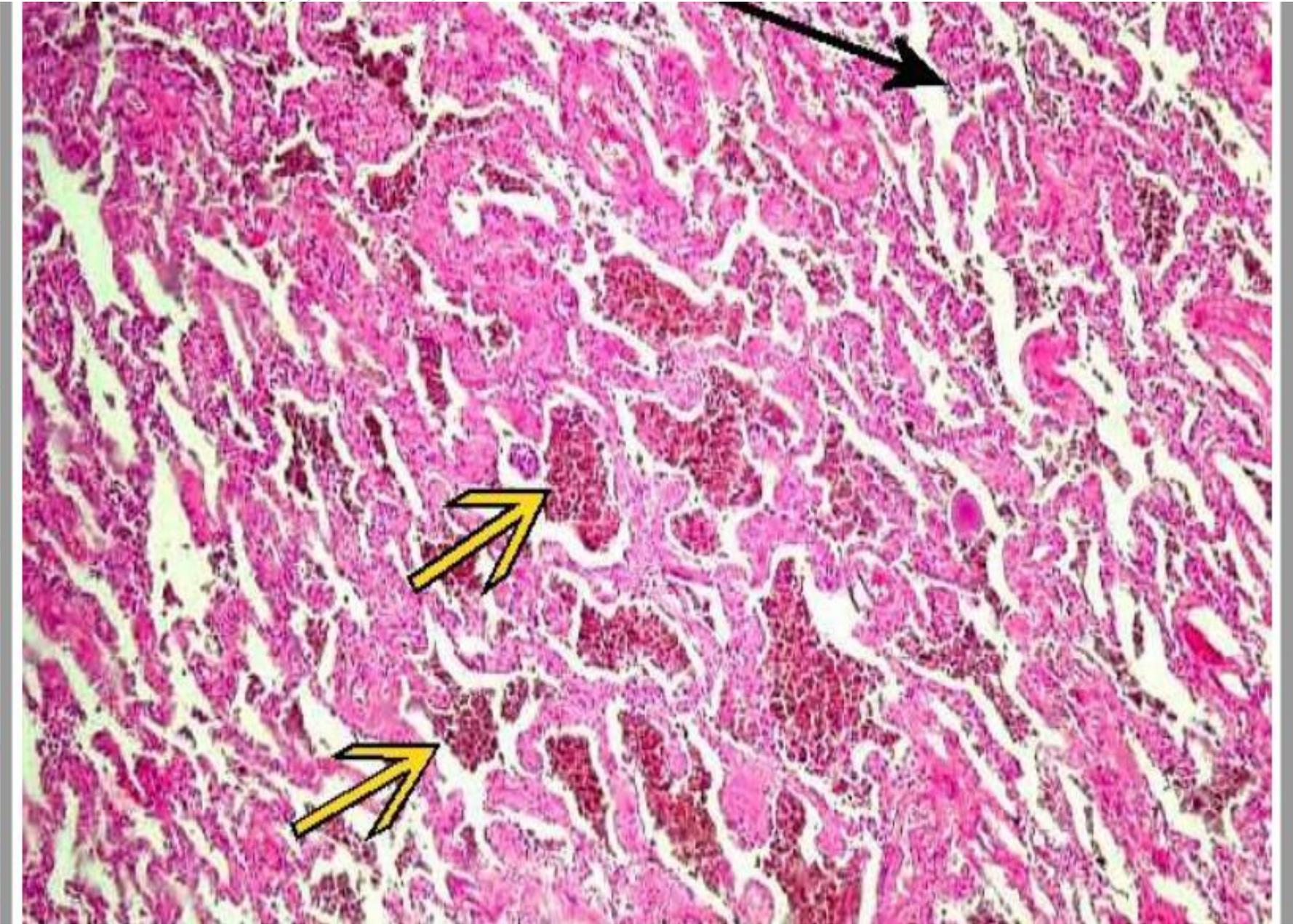


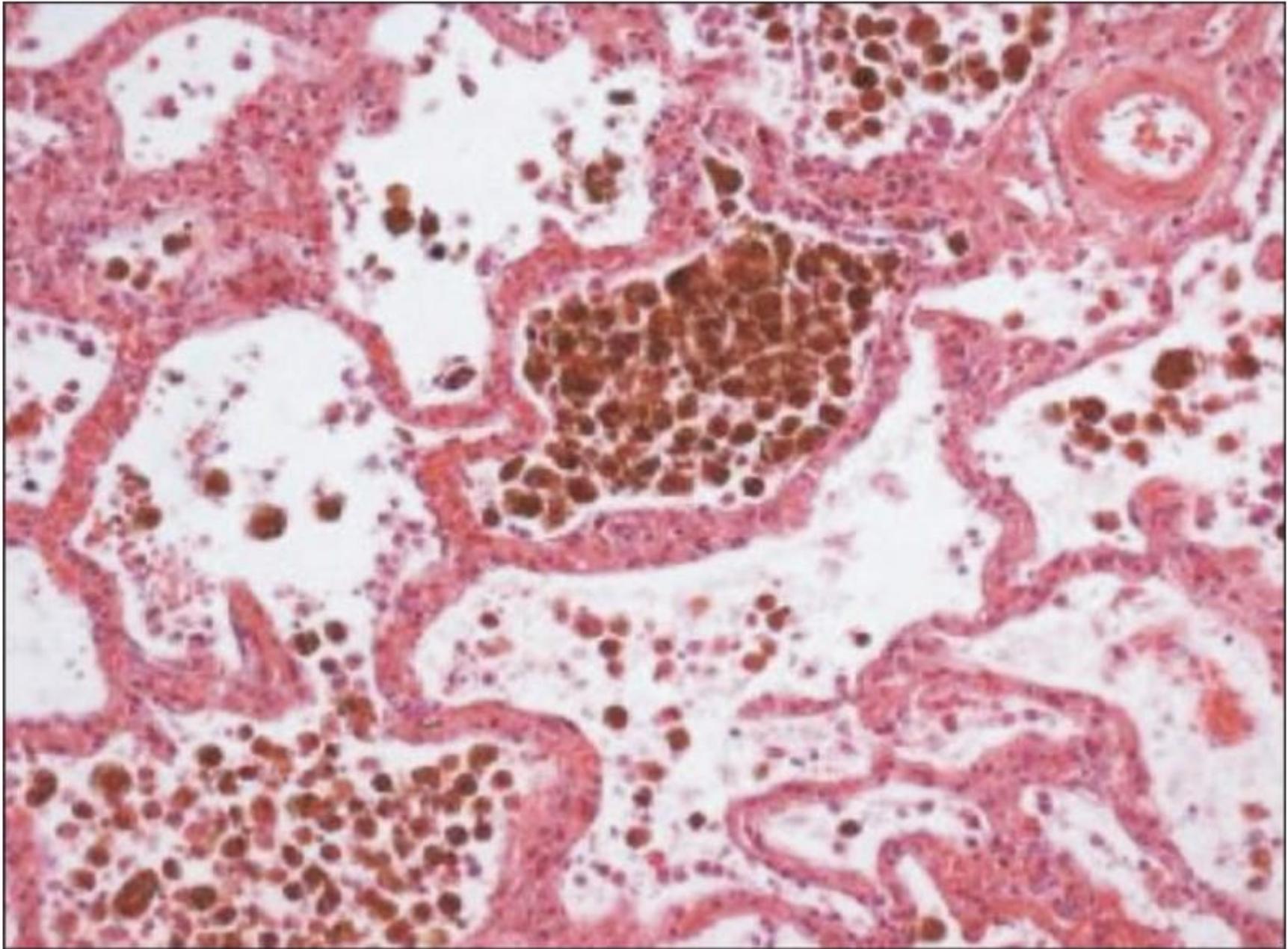
Chronic venous congestion lung

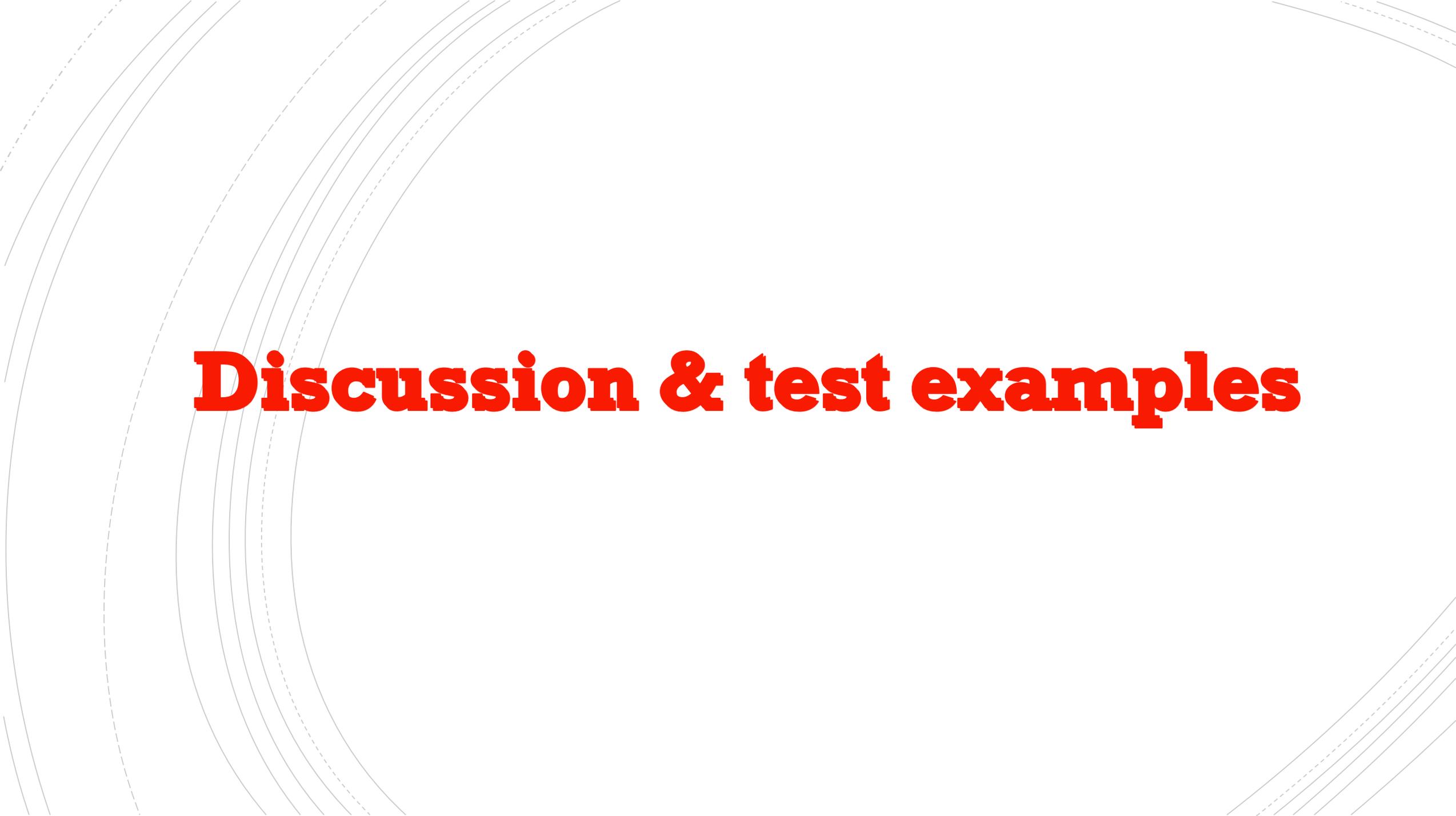


Chronic venous congestion lung







The background features several concentric, curved lines in shades of gray, some solid and some dashed, creating a sense of depth and movement. The lines are centered around the text and extend towards the corners of the frame.

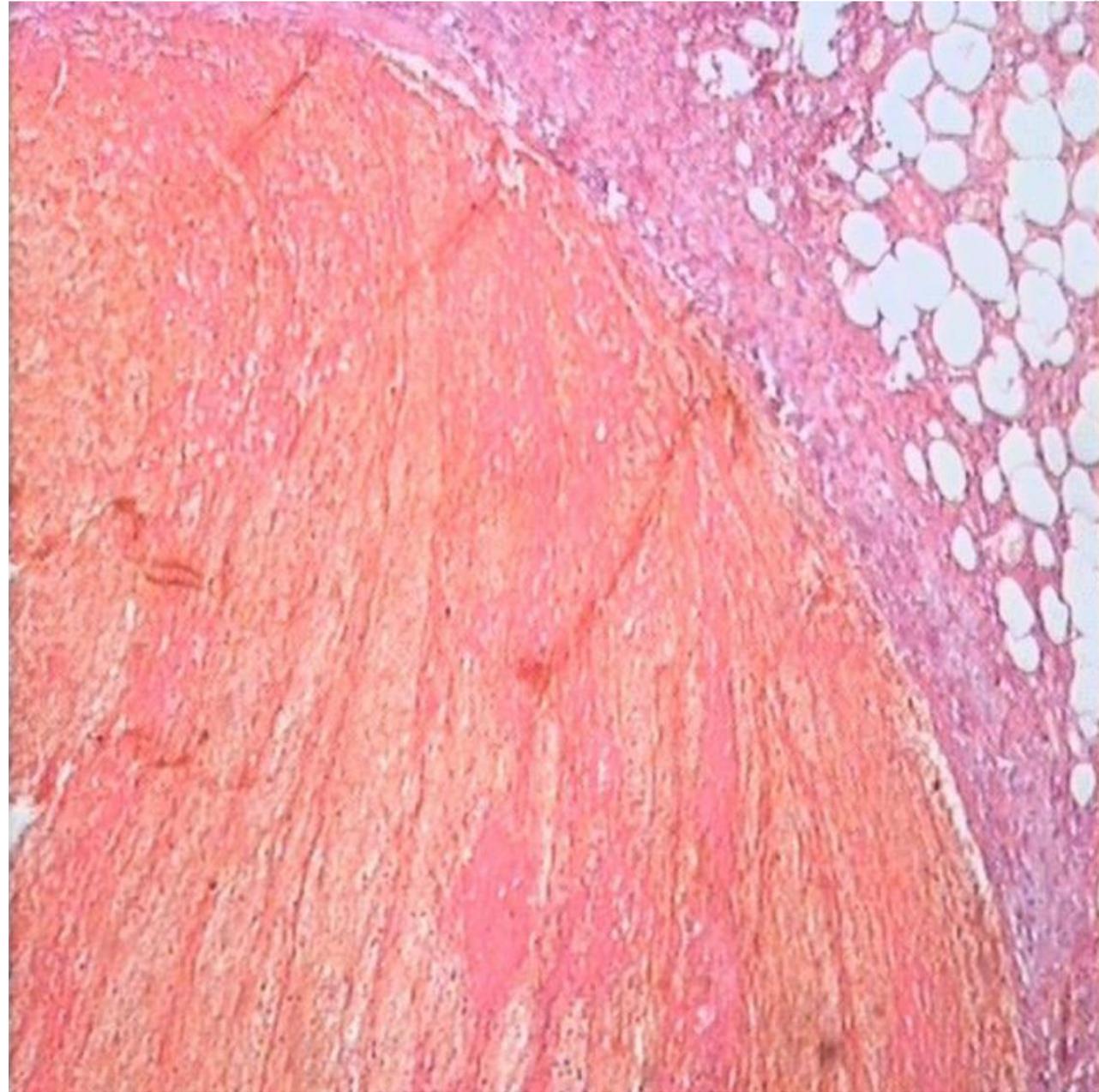
Discussion & test examples

Q1: Identify the lesion

**Q2: Comment on the color
and line of demarcation**

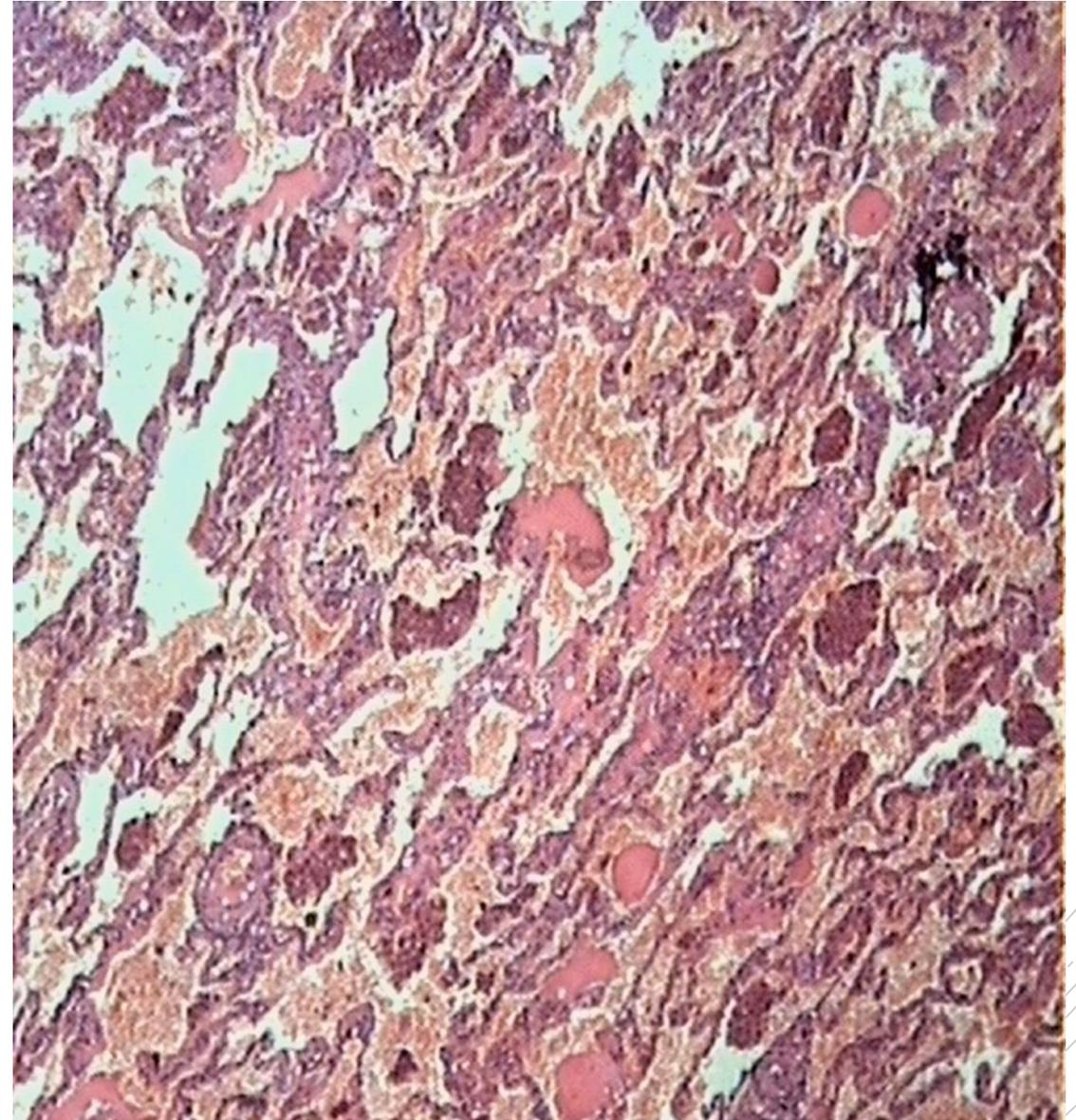


Q1: Identify the slide
Q2: What are lines of
Zhan



Q1: Identify the slide

**Q2: Enumerate the contents of
alveolar spaces**



Thank you

