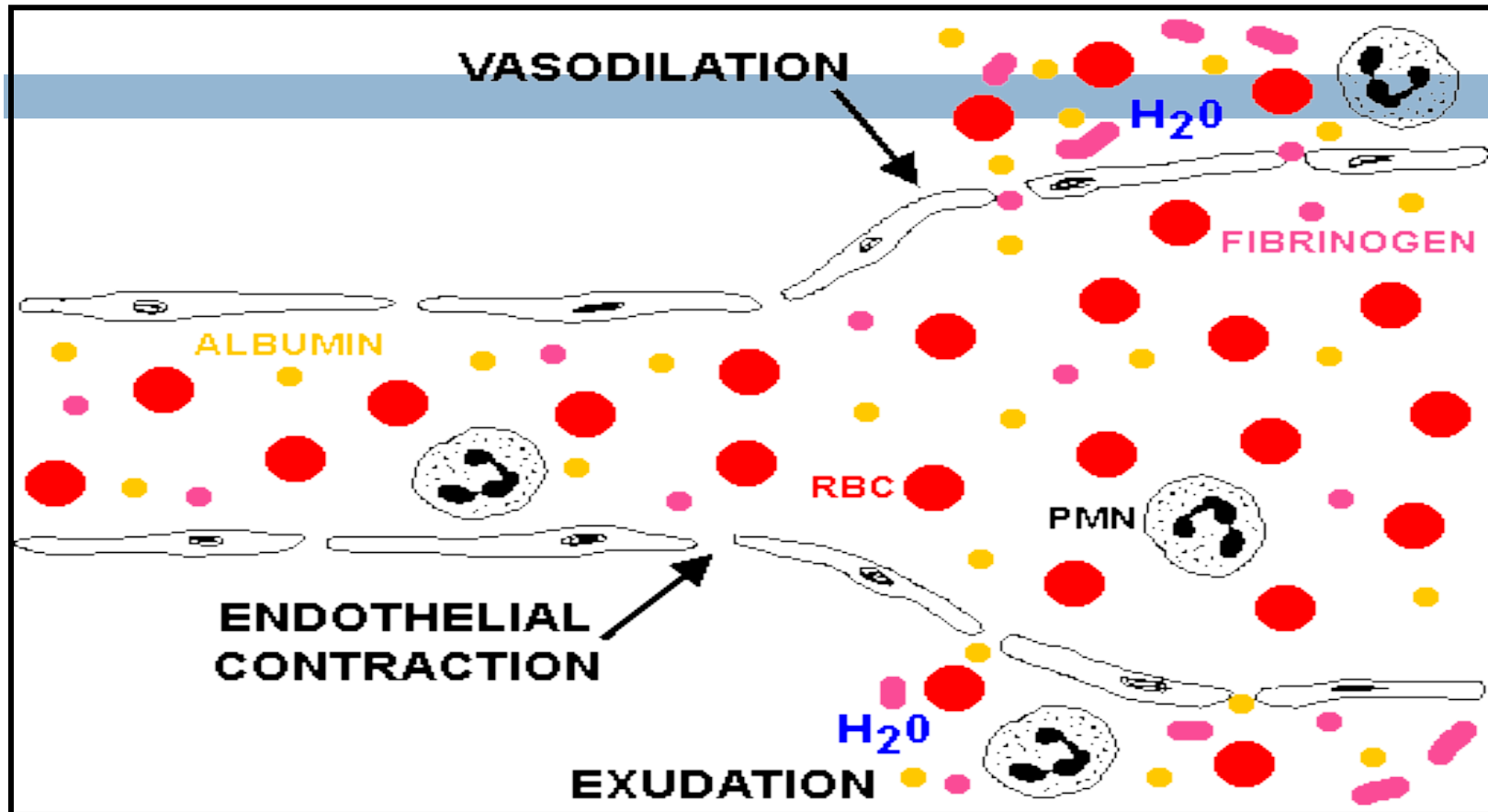


PRACTICAL 2

CELL INJURY & INFLAMMATION - II

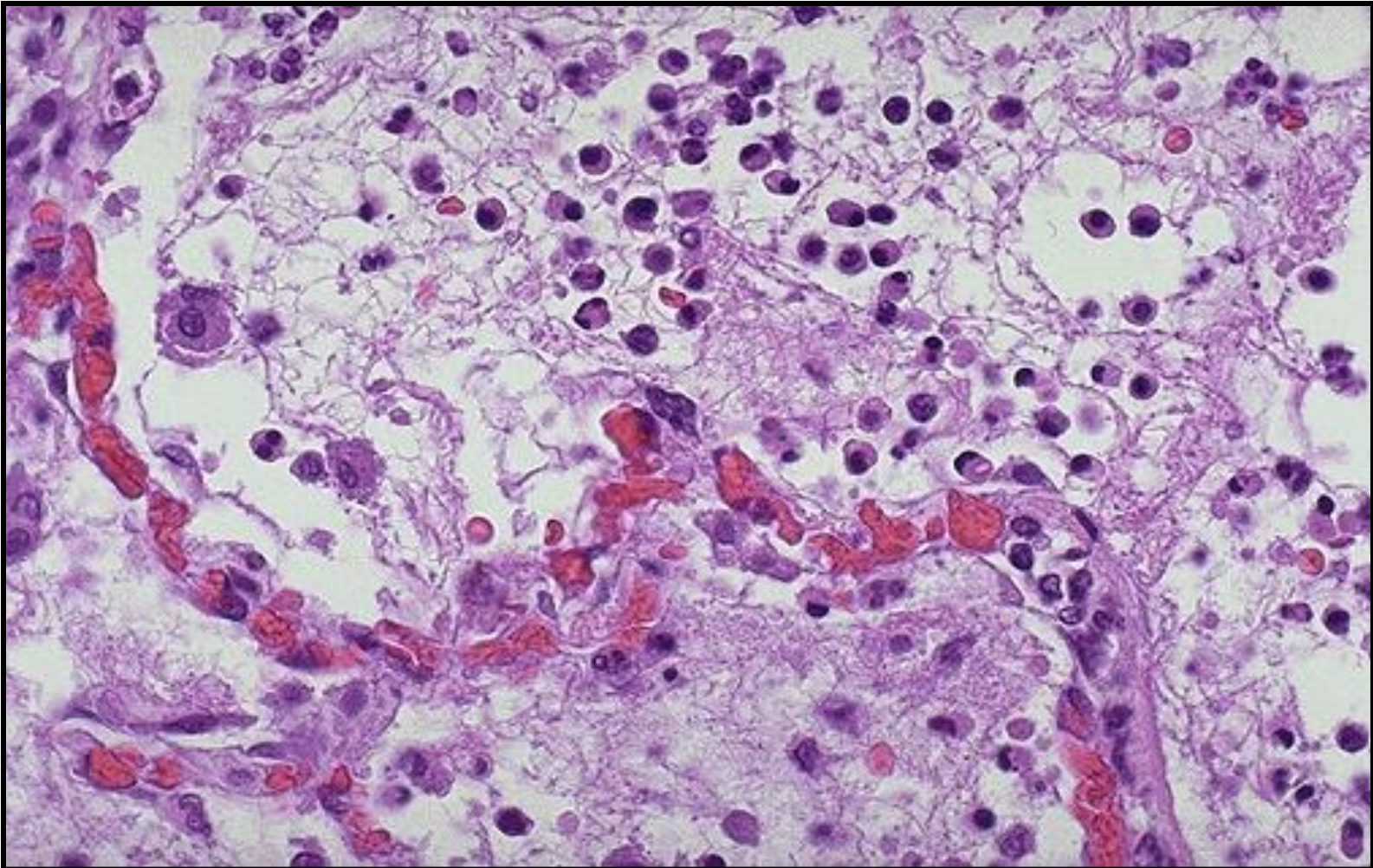
I - Acute Inflammation

Pathogenesis of Exudation



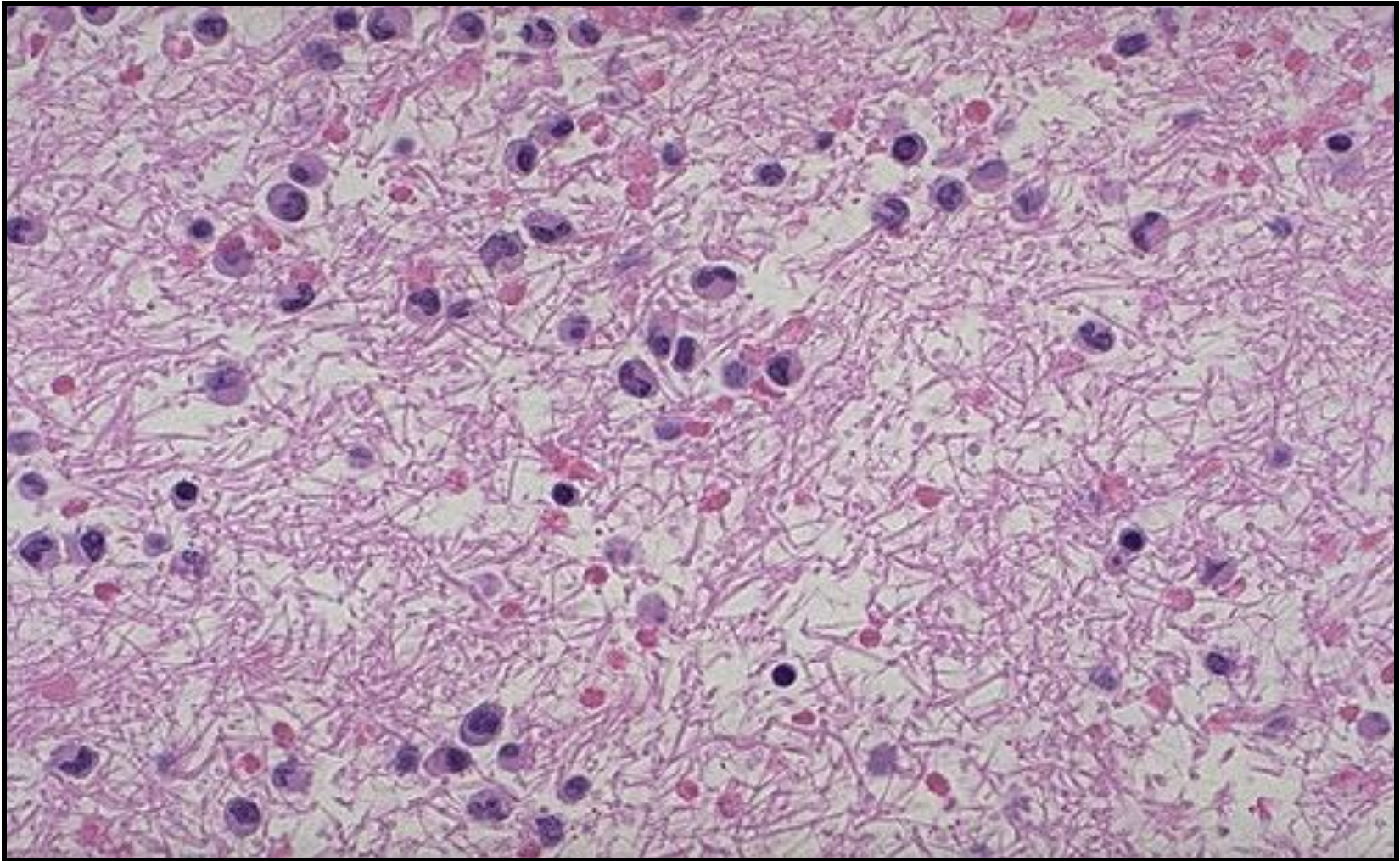
The diagram shown here illustrates the process of exudation, aided by endothelial cell contraction and vasodilation, which typically is most pronounced in venules. Collection of fluid in a space is a transudate. If this fluid is protein-rich or has many cells then it becomes an exudate.

Exudation in the Alveolar Space



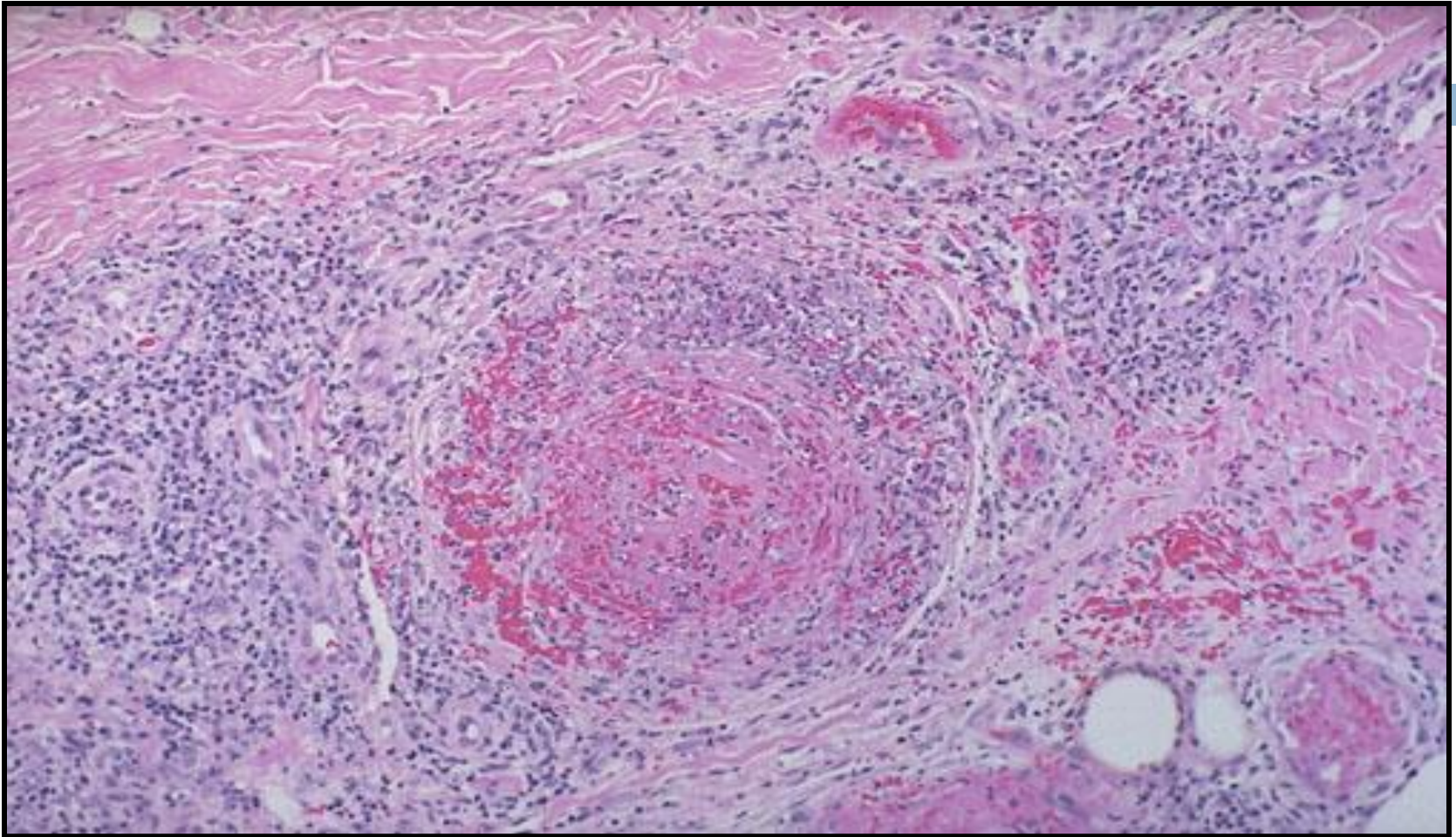
Here is vasodilation with exudation that has led to an outpouring of fluid with fibrin into the alveolar spaces along with PMN's indicative of an acute bronchopneumonia of the lung,

Exudation of Fibrin in Acute Inflammation



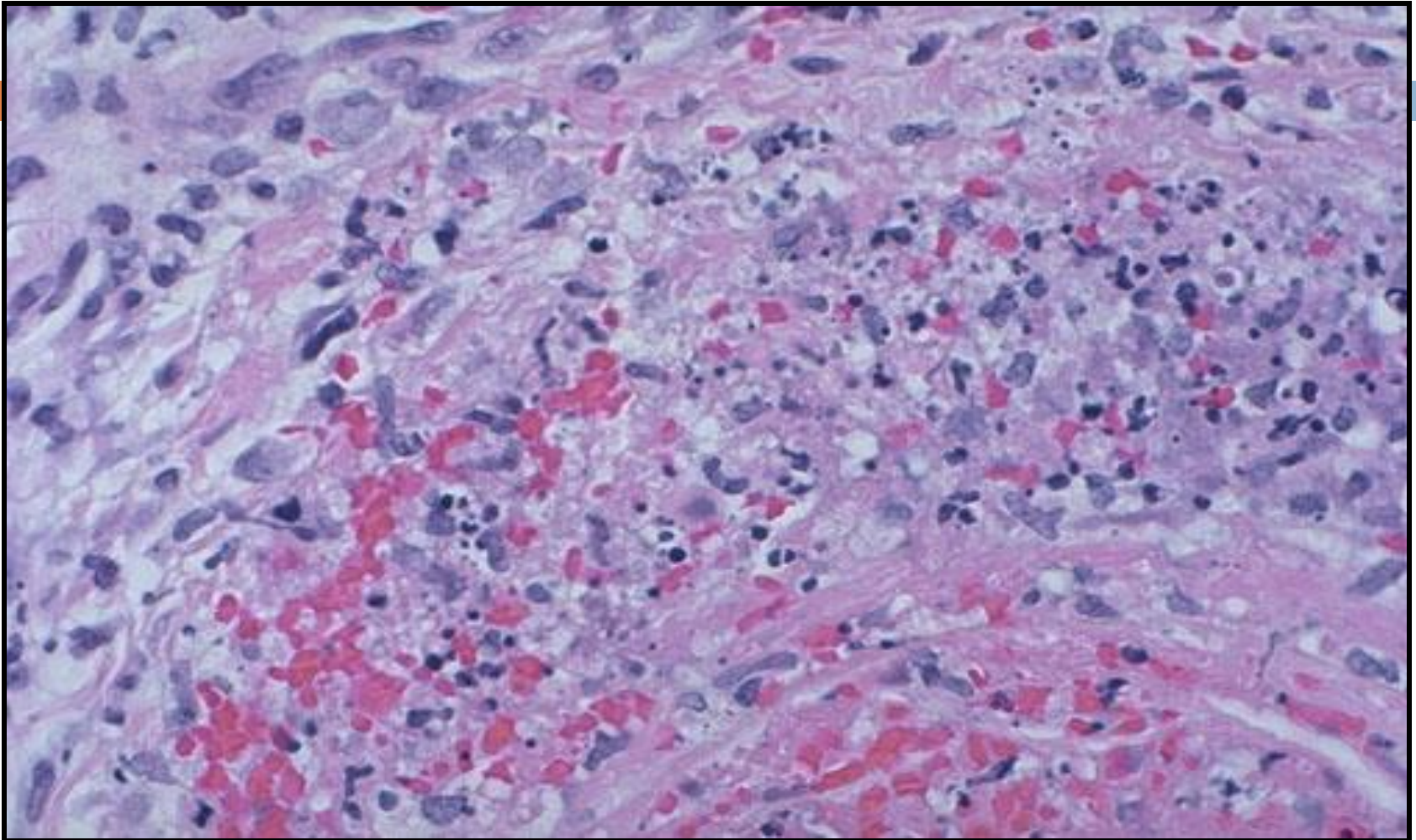
Here is an example of the fibrin mesh in fluid with PMN's that has formed in the area of acute inflammation. It is this fluid collection that produces the "tumor" or swelling aspect of acute inflammation.

Inflammation with Necrosis - LPF



The vasculitis shown here demonstrates the destruction that can accompany the acute inflammatory process and the interplay with the coagulation mechanism. The arterial wall is undergoing necrosis, and there is thrombus formation in the lumen.

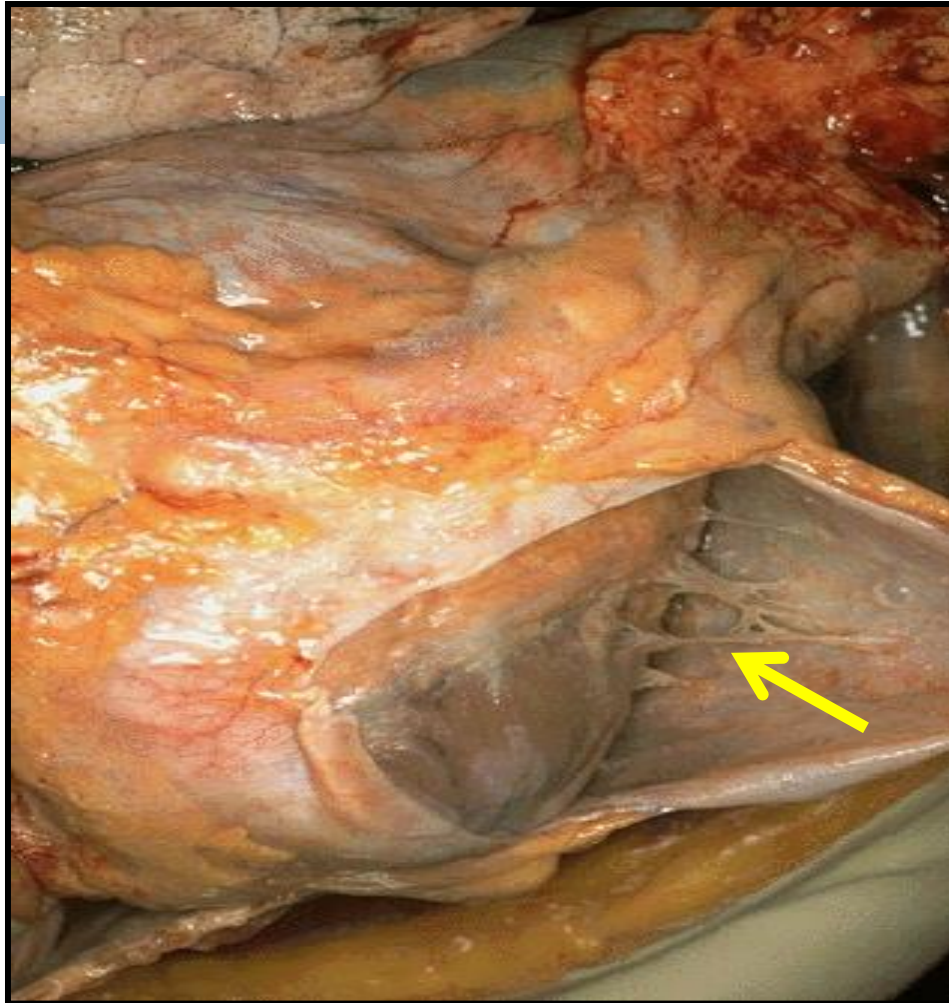
Inflammation with Necrosis - HPF



At higher magnification, vasculitis with arterial wall necrosis is seen. Note the fragmented remains of neutrophilic nuclei (karyorrhexis). Acute inflammation is a non-selective process that can lead to tissue destruction

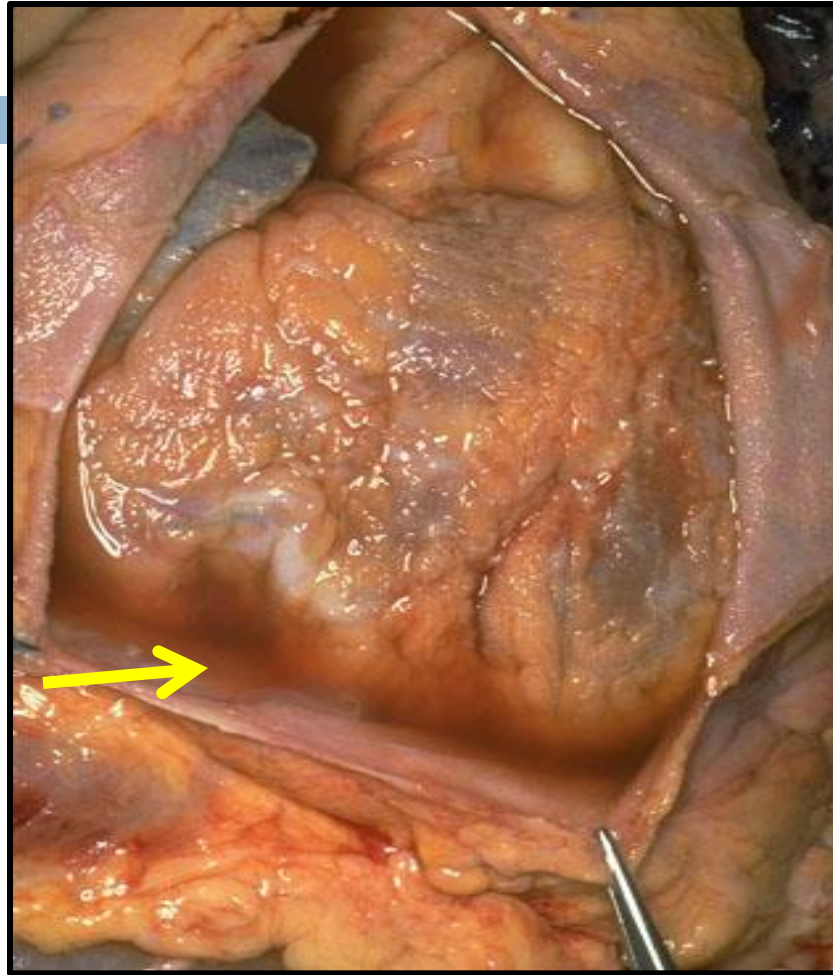
1 - FIBRINOUS PERICARDITIS

Acute Fibrinous Pericarditis - Gross



Here, the pericardial cavity has been opened to reveal a fibrinous pericarditis with strands of stringy pale fibrin between visceral and parietal pericardium

Acute Fibrinous Pericarditis - Gross

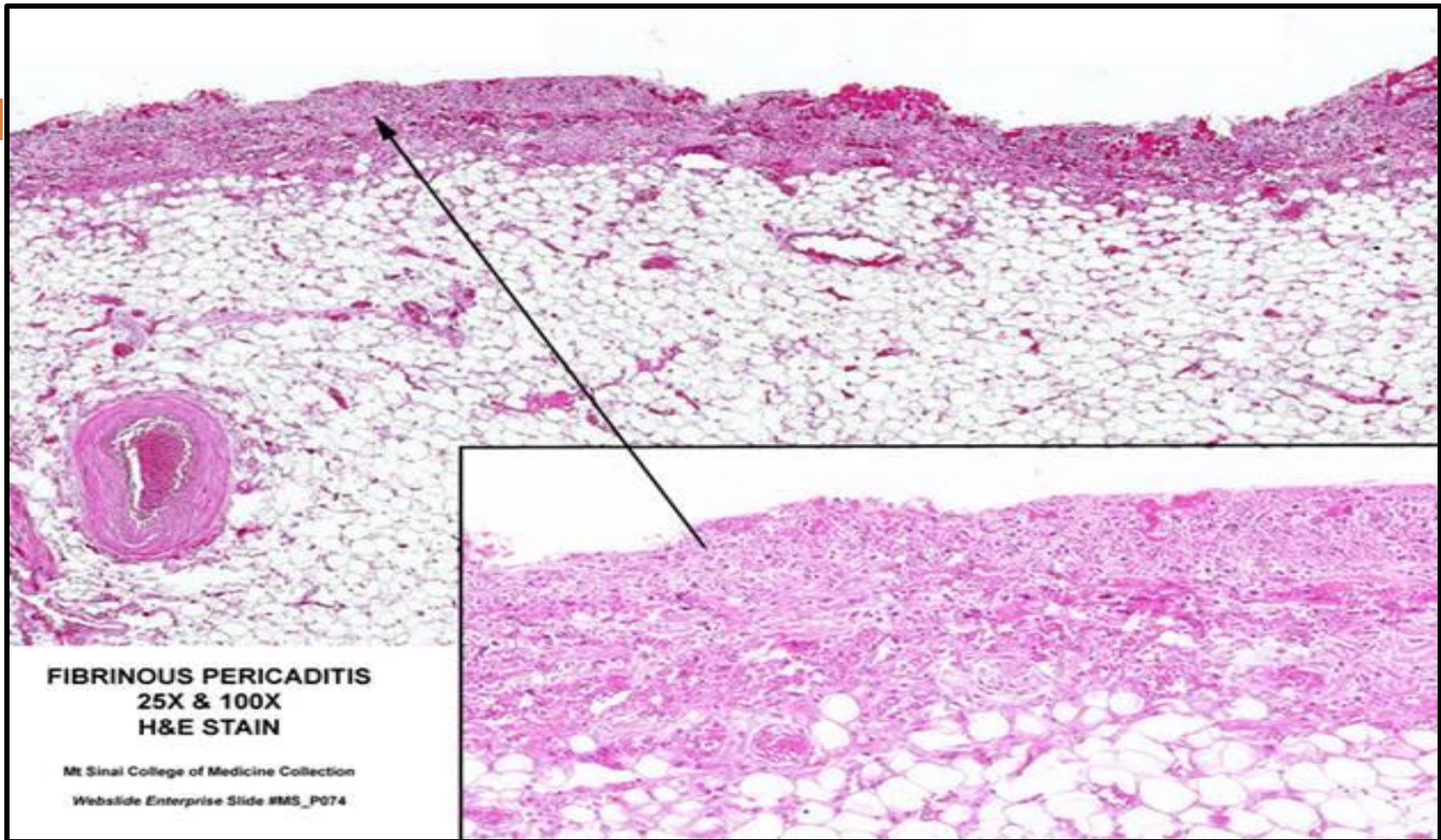


Serous fluid at the bottom of the pericardial cavity (arrow) is visible. The epicardial surface appears roughened, compared to its normal glistening appearance; due to the strands of pink-tan fibrin that have formed

Acute Fibrinous Pericarditis - Microscopically

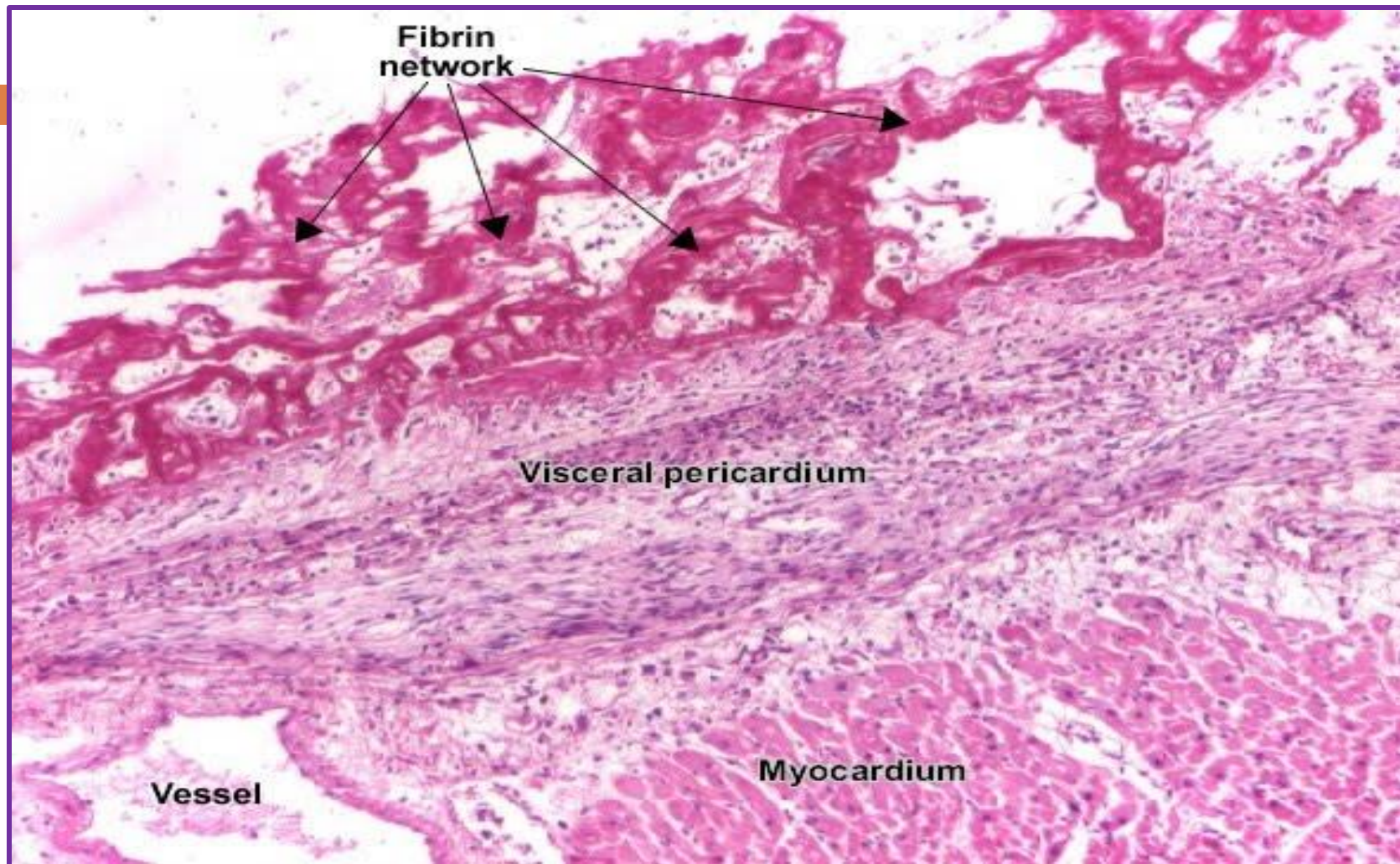
Right

Left



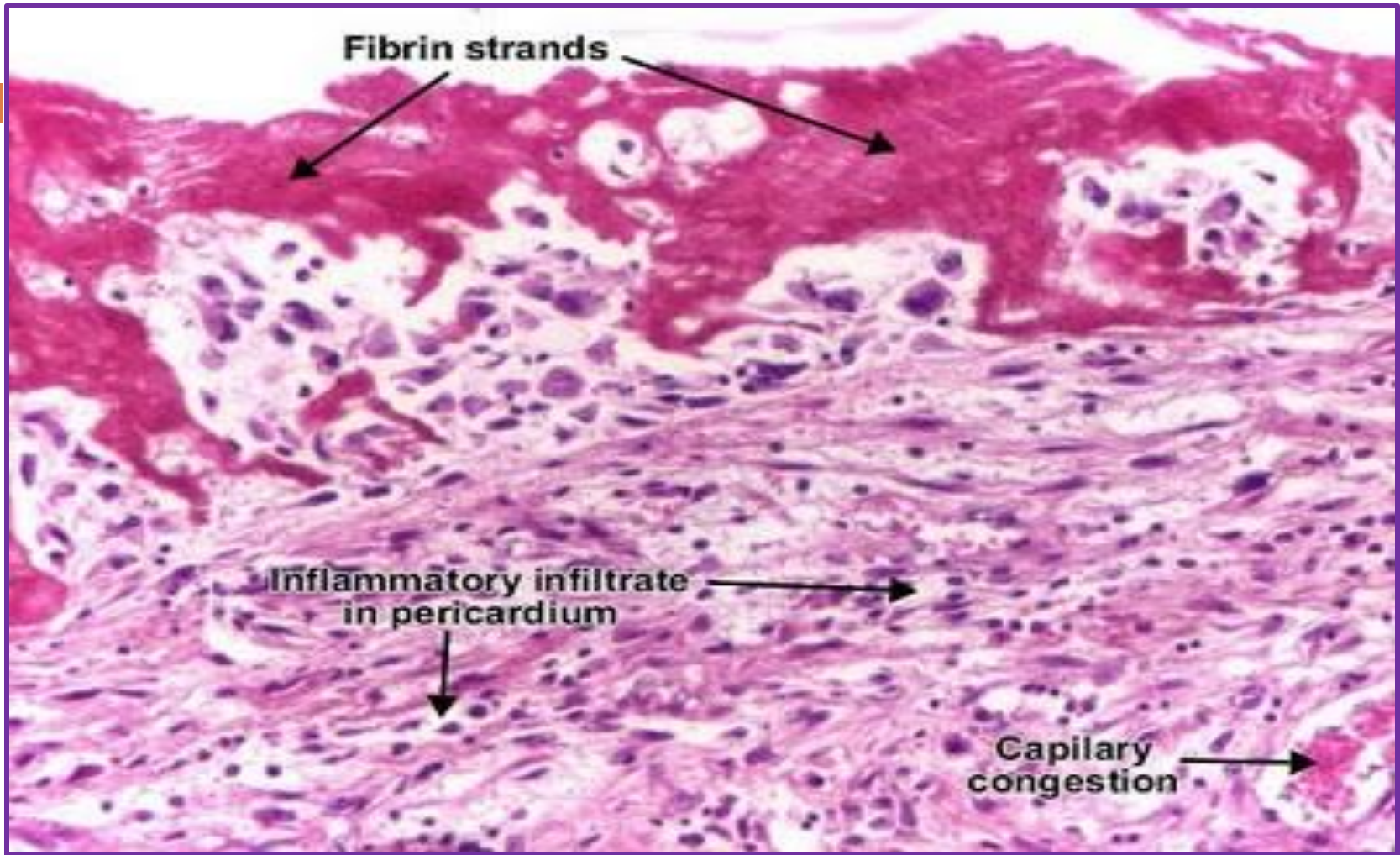
The fibrinous exudate is seen to consist of pink strands of fibrin gutting from the pericardial surface at the upper right .The exudate on the surface is shown enlarged in the inset. Note a considerable number of erythrocytes trapped in the mesh of fibrin threads.

Acute Fibrinous Pericarditis - LPF



The pericardium is distorted by thick irregular layer of pinkish fibrinous exudate with some red cells and inflammatory cells

Acute Fibrinous Pericarditis - HPF



The subpericardial layer is thickened by edema and shows dilated blood vessels, chronic inflammatory cells and areas of calcification.

2- ACUTE APPENDICITIS

Normal Appendix - Gross



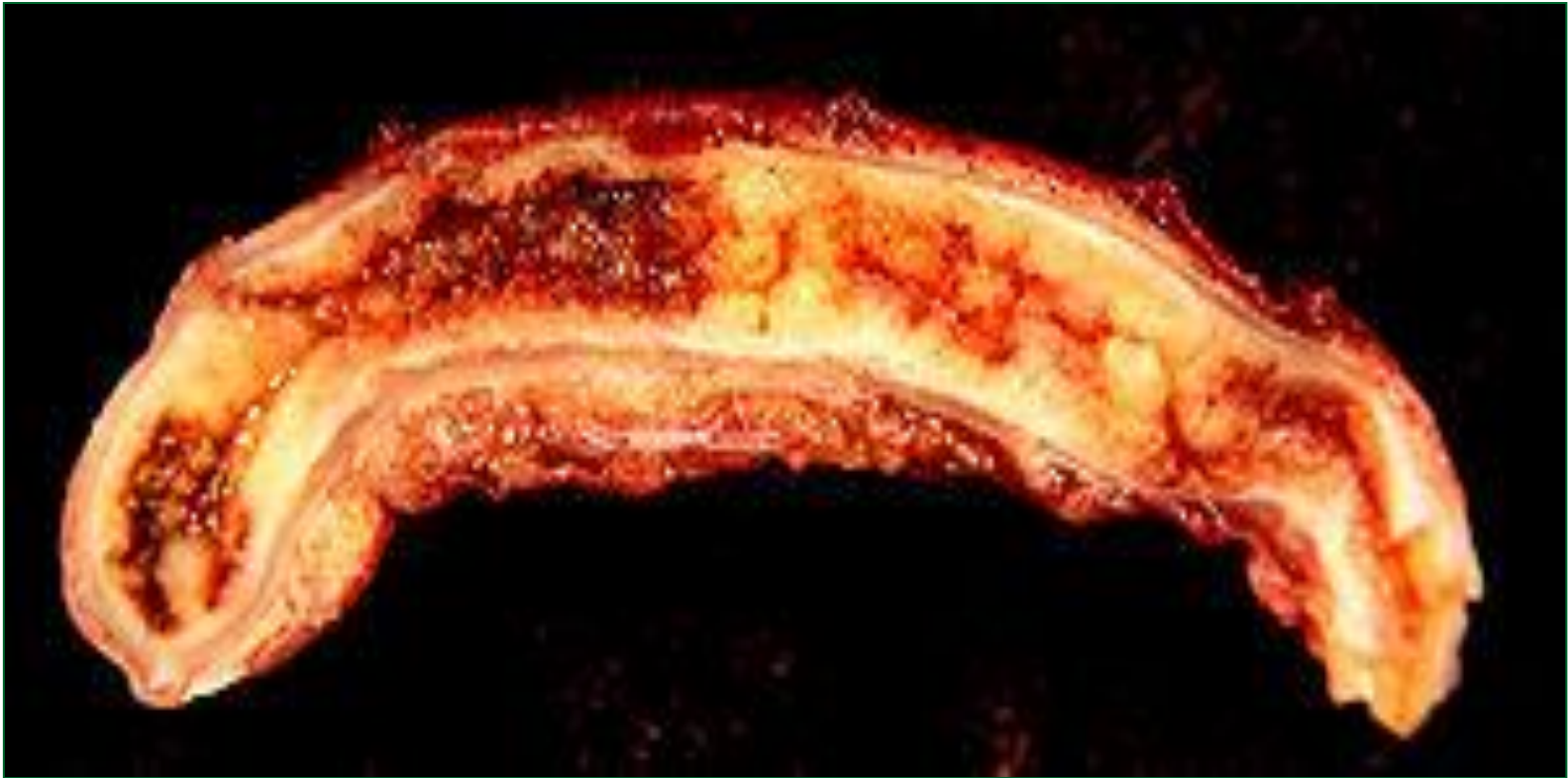
This is the normal appearance of the appendix against the background of the caecum.

Acute Appendicitis - Gross



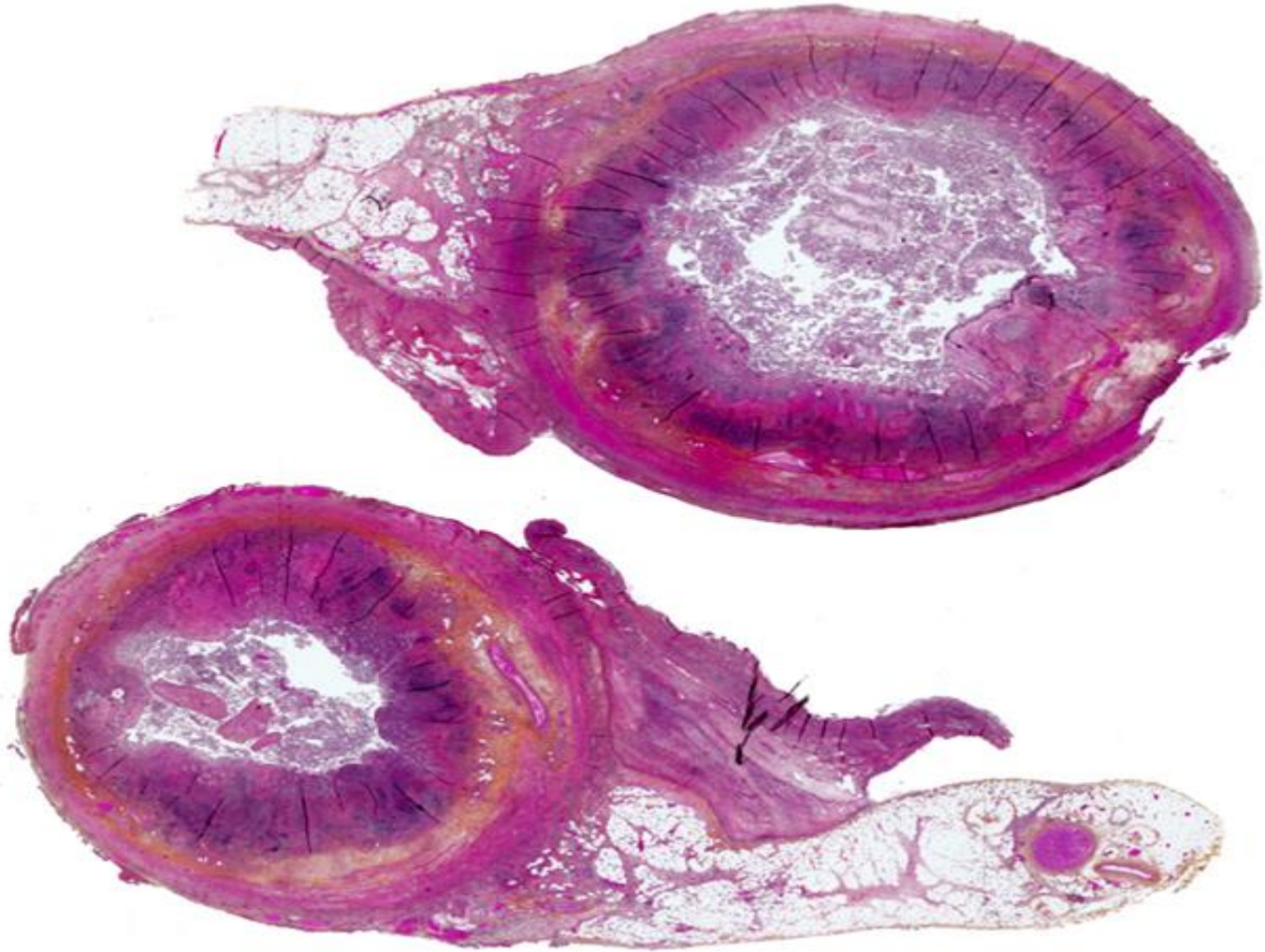
Seen here is acute appendicitis with yellow to tan exudate and hyperemia, including the periappendiceal fat superiorly, rather than a smooth, glistening pale tan serosal surface

Acute Appendicitis – Longitudinal section

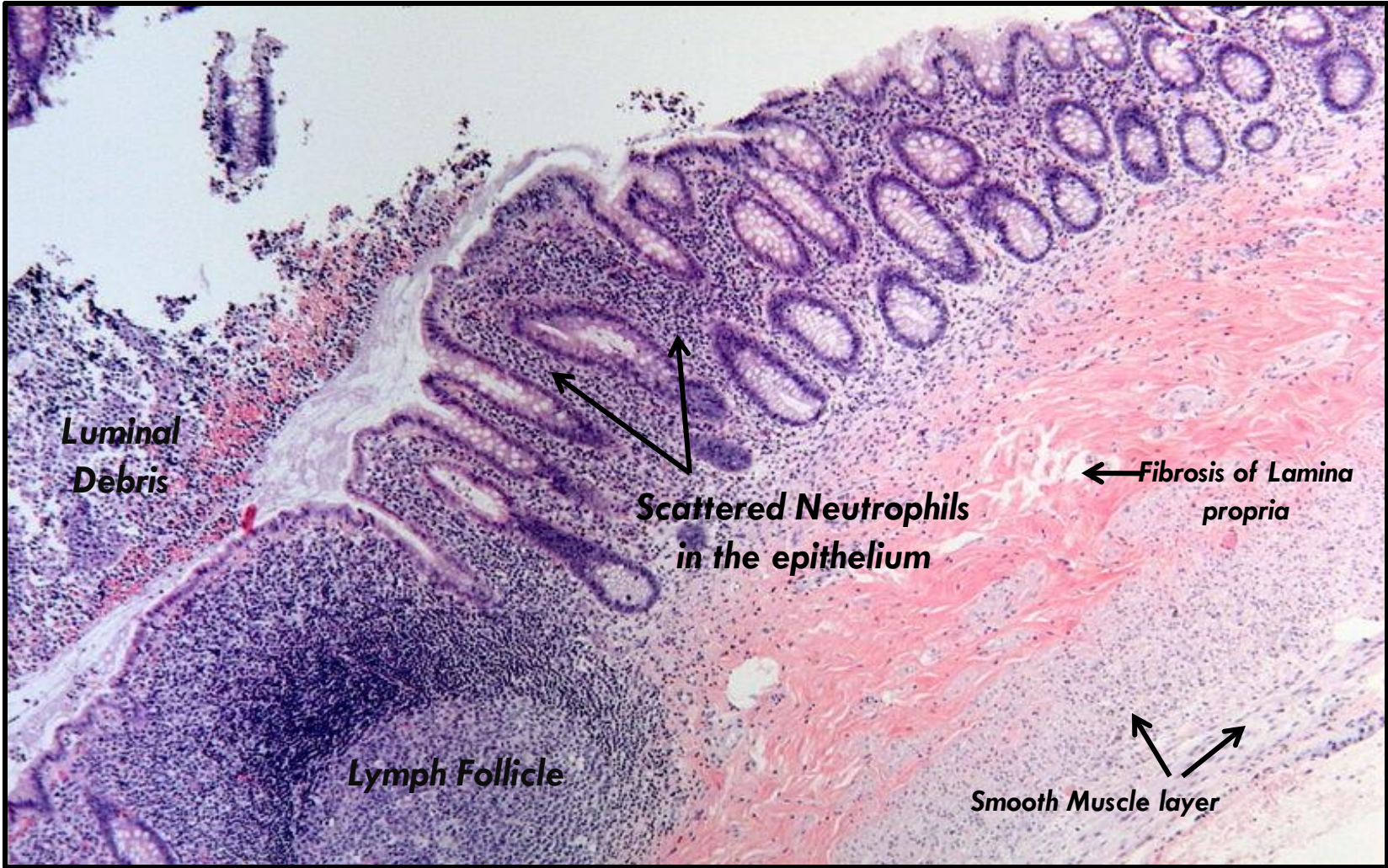


A case of acute appendicitis : The organ is enlarged and sausage-like (botuliform). This longitudinal section shows the angry red inflamed mucosa with its irregular luminal surface. This appendix does not show late complications, like transmural necrosis, perforation, and abscess formation

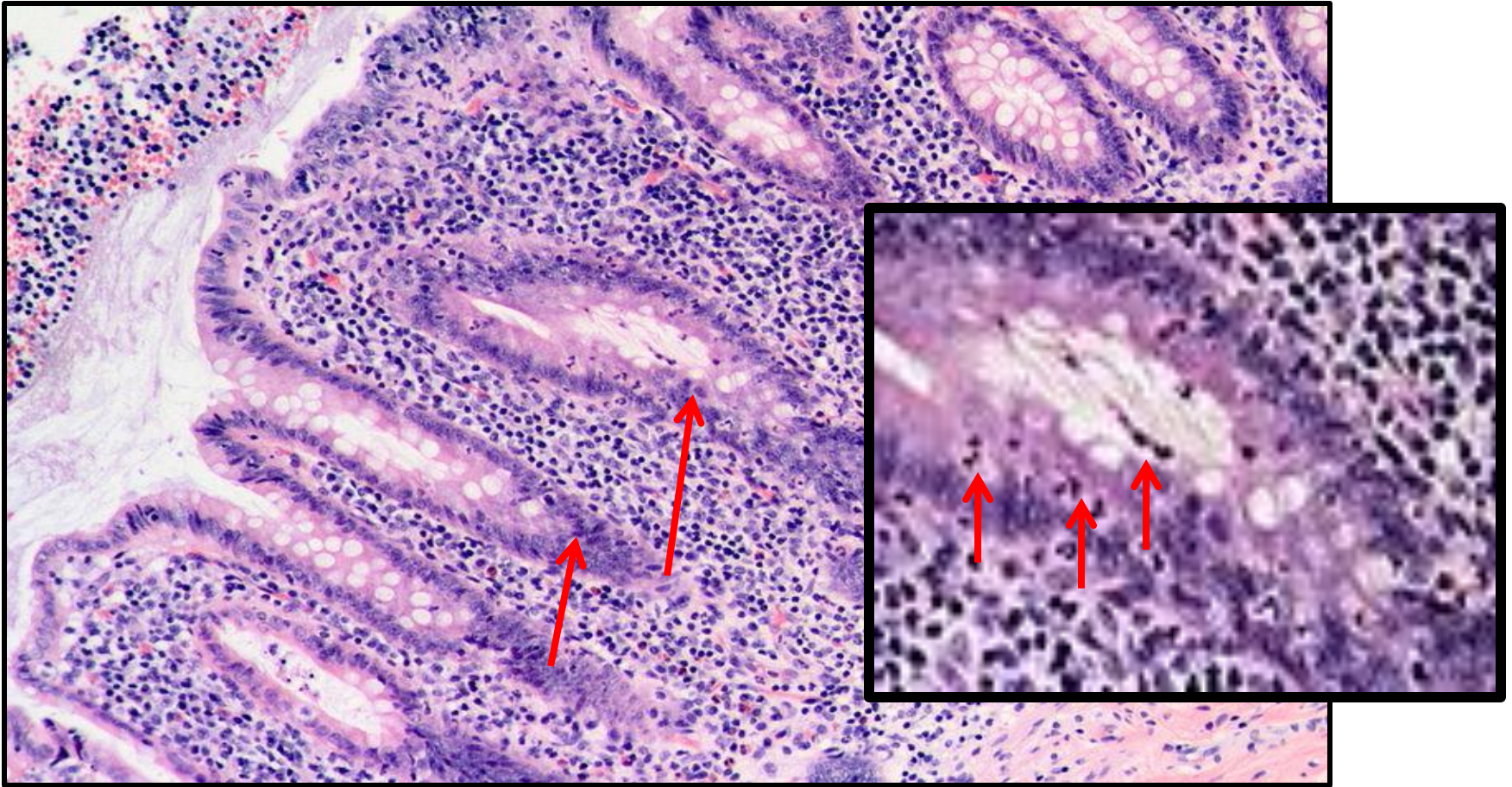
Acute Appendicitis – LPF of the cut section



Acute Appendicitis – LPF

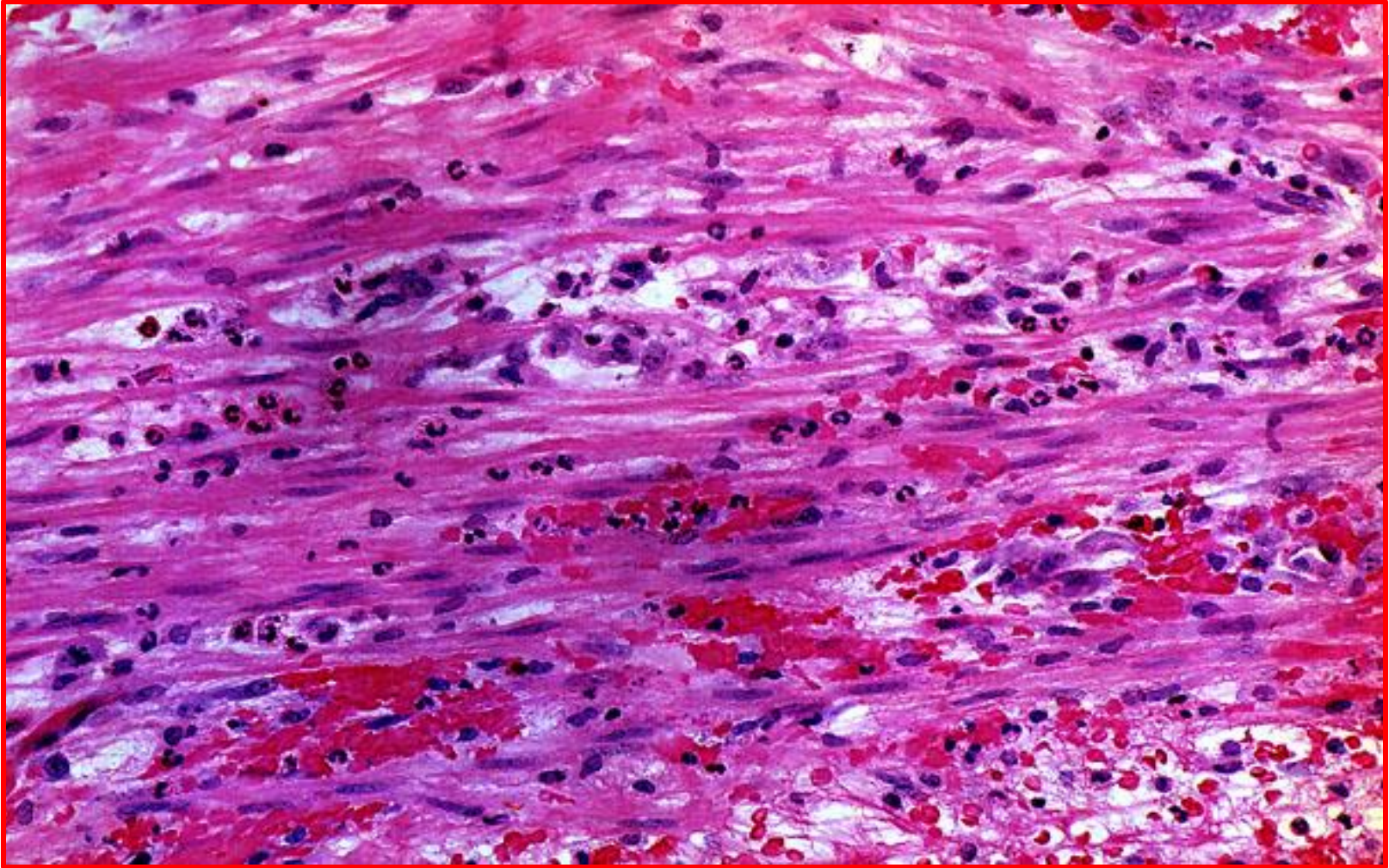


Acute Appendicitis – HPF



Scattered Neutrophils in the crypt epithelium

Acute Appendicitis – Histopathology



This slide shows the muscle layer of the appendix which is permeated with numerous polymorphonuclear leukocytes

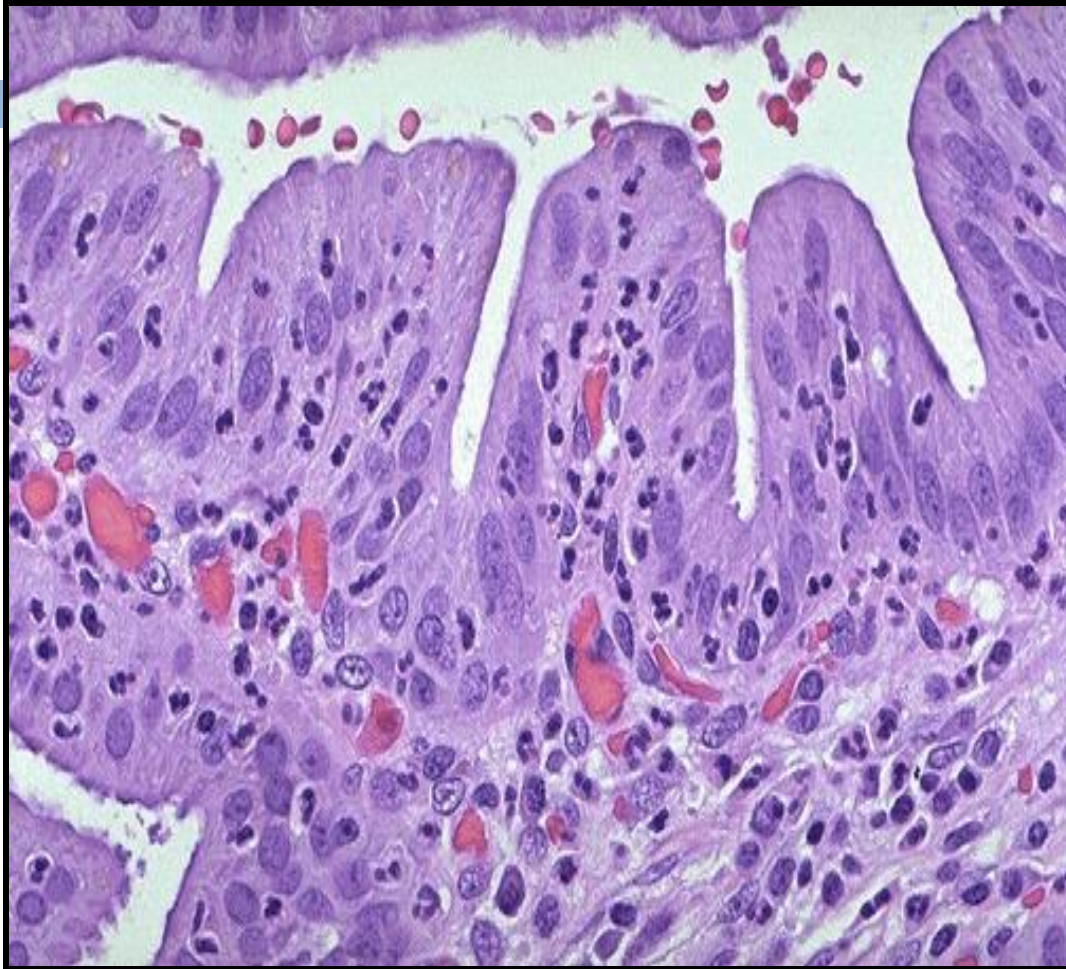
3- ACUTE CHOLECYSTITIS

Gall Bladder : Acute Cholecystitis – Gross



Impacted gall stone in cystic duct is the most common cause of acute cholecystitis

Acute Cholecystitis – Histopathology HPF



- *Infiltration of the mucosa and submucosa by many neutrophils*
- *Vascular congestion*

4- SKIN PILONIDAL SINUS

Foreign Body Reaction (Pilonidal Sinus)



Local signs of inflammation seen here are:

- **Swelling**
- **Sinus opening**
- **Redness**

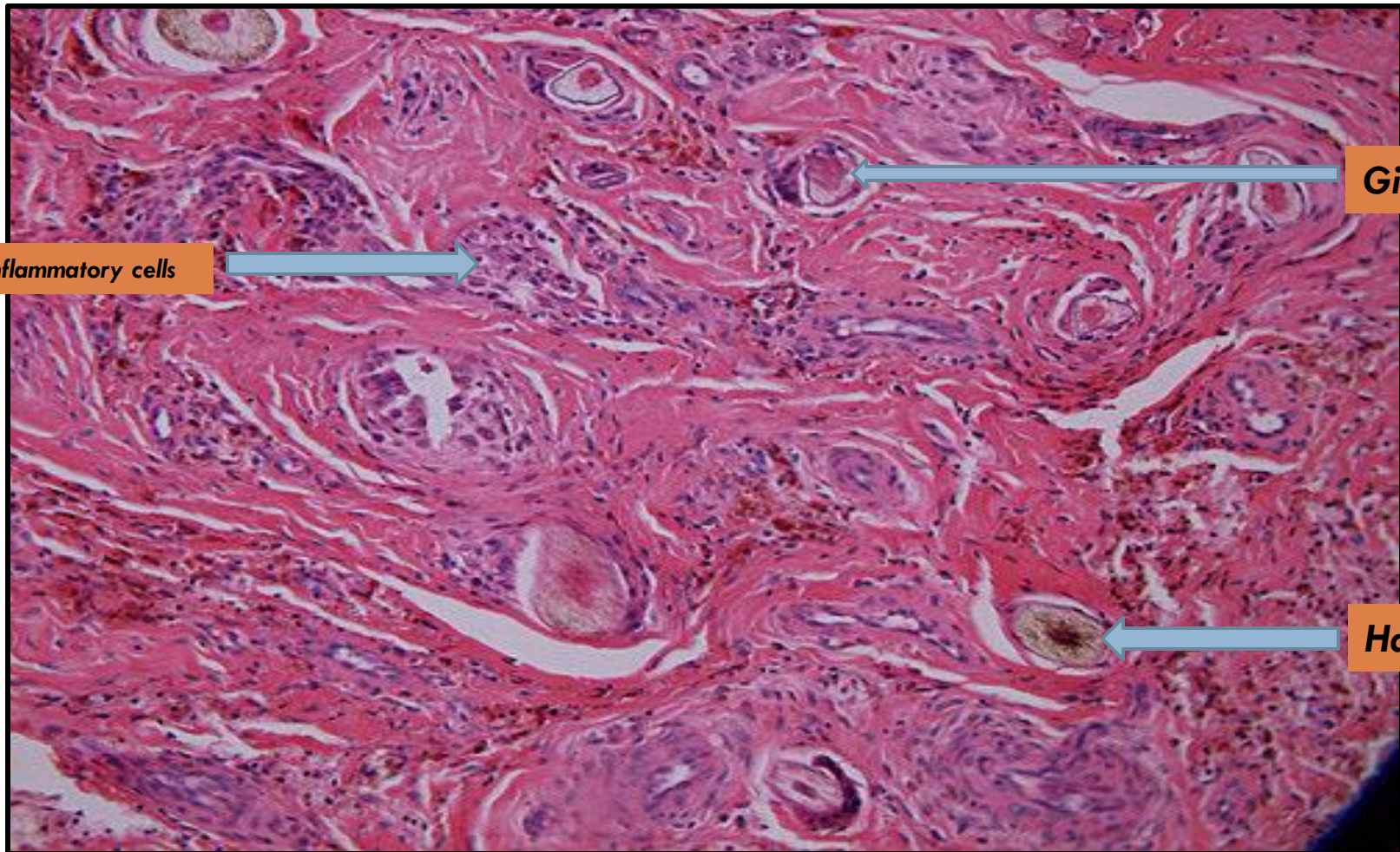
A pilonidal sinus is a sinus tract which commonly contains hairs. It occurs under the skin between the buttocks (the natal cleft) a short distance above the anus.

Foreign Body Reaction (Pilonidal Sinus)



Surgically excised pilonidal sinus tracts

Pilonidal Sinus – Histopathology LPF



Giant cells

Chronic inflammatory cells

Hair shafts

The lumen of the sinus and wall contain large number of hair shafts with foreign body giant cells, lymphocytes , macrophages & neutrophils

II - CHRONIC INFLAMMATION

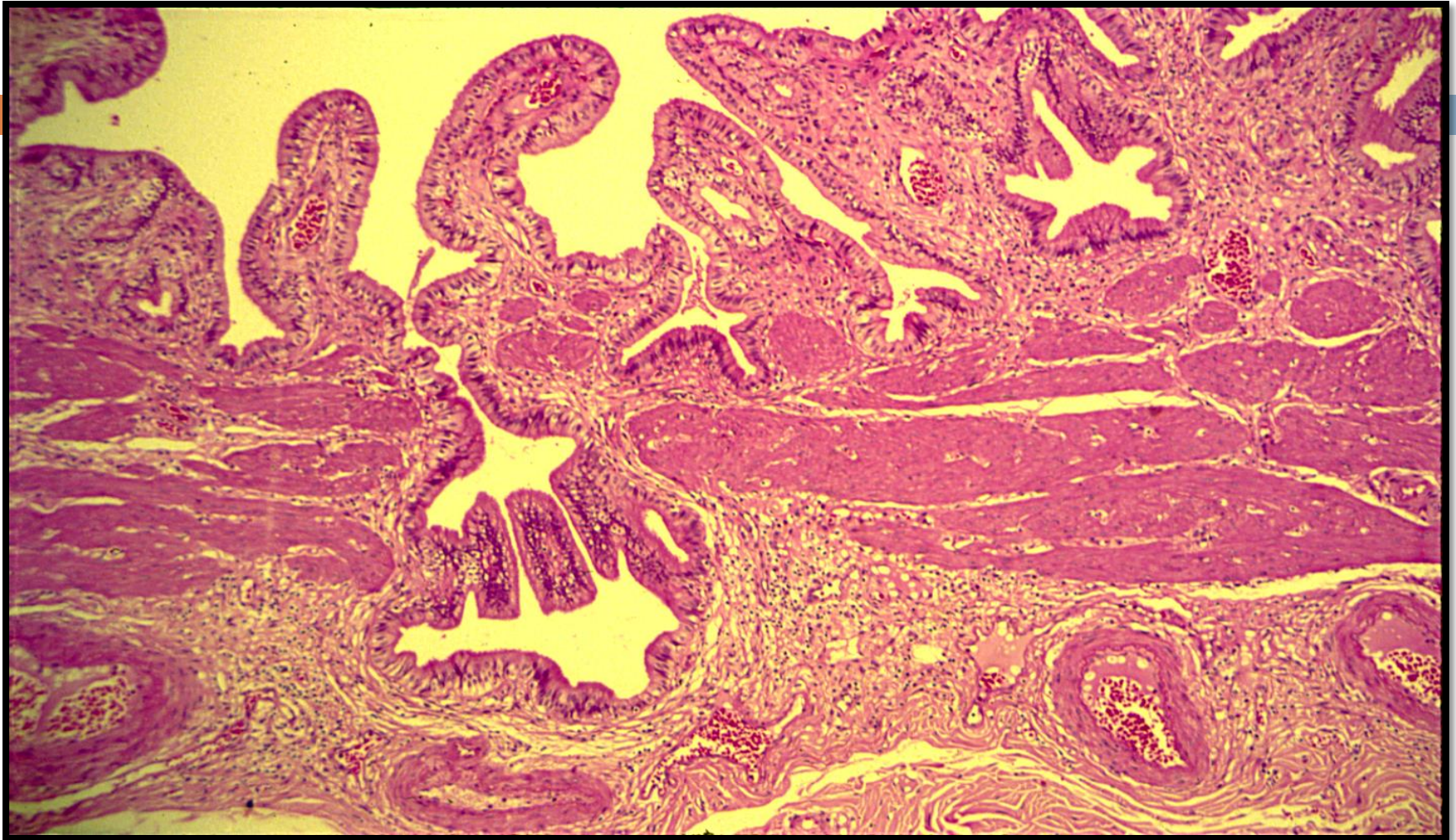
1- CHRONIC CHOLECYSTITIS WITH STONES

Chronic cholecystitis with Gall Stones



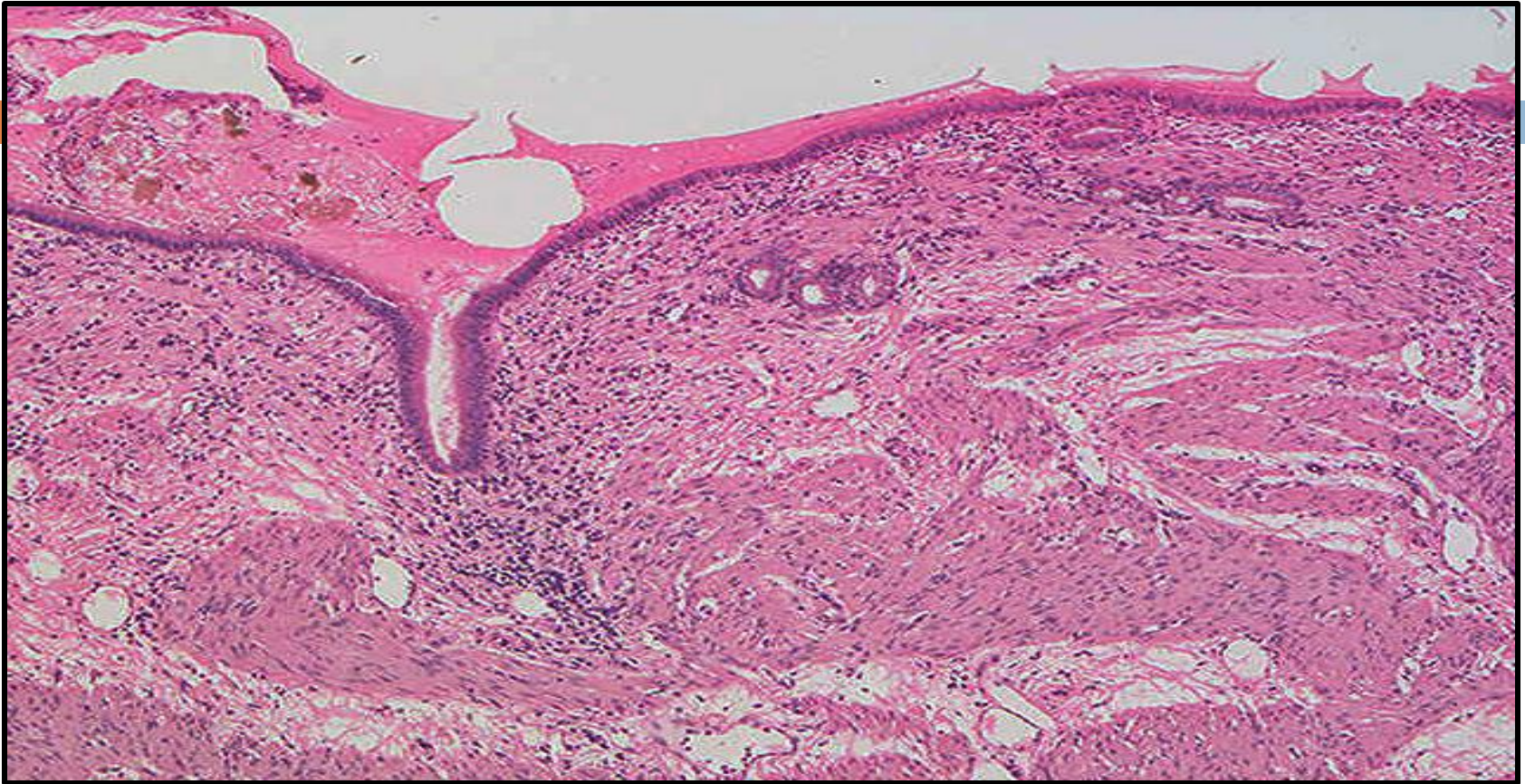
Gross appearance of gallbladder after sectioning longitudinally. Notice thickness of gall bladder wall, abundant polyhedric stones and small papillary tumor in the cystic duct.

Chronic cholecystitis - Histopathology



Irregular mucosal folds and foci of ulceration in mucosa. Wall is penetrated by mucosal glands which are present in muscle coat (Rokitansky- Aschoff sinuses). All layers show chronic inflammatory cells infiltration and fibrosis.

Chronic cholecystitis - Histopathology



The mucosa is atrophic, with a single layer of flattened epithelium. There is proteinaceous fluid adherent to the mucosal surface, with some bile stained orange-brown crystals toward the upper left in the lumen. The lamina propria shows fibrosis and contains a mononuclear cell infiltrate (small dark blue nuclei).

The muscle is hypertrophied compared to normal gallbladder.

2- BRAIN ABSCESS

Brain Abscess - CT

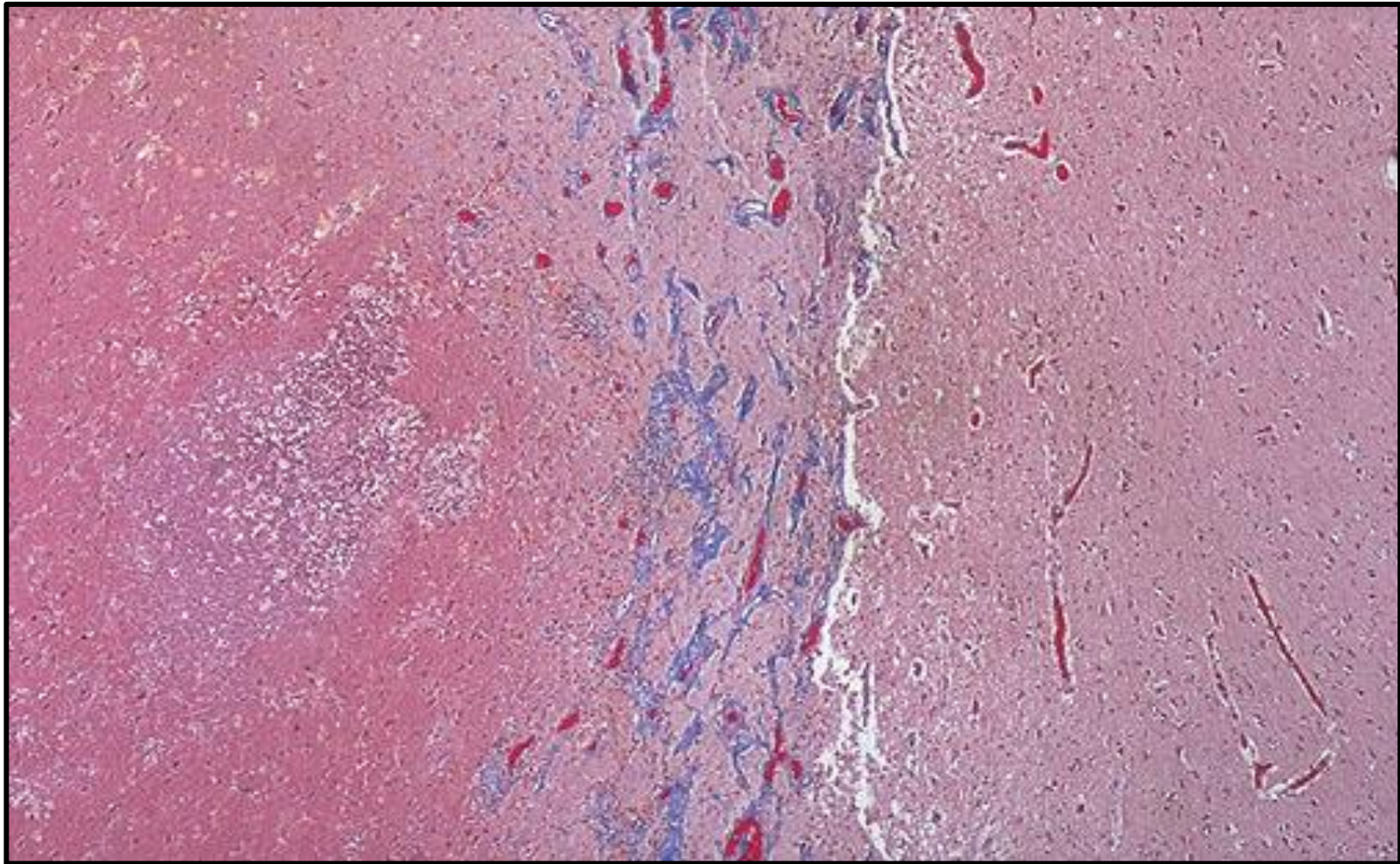


CT of a cerebral abscess. There is a liquefactive center with yellow pus surrounded by a thin wall. Abscesses usually result from hematogenous spread of bacterial infection, but may also occur from direct penetrating trauma or extension from adjacent infection in sinuses

Right

Brain Abscess - MRI

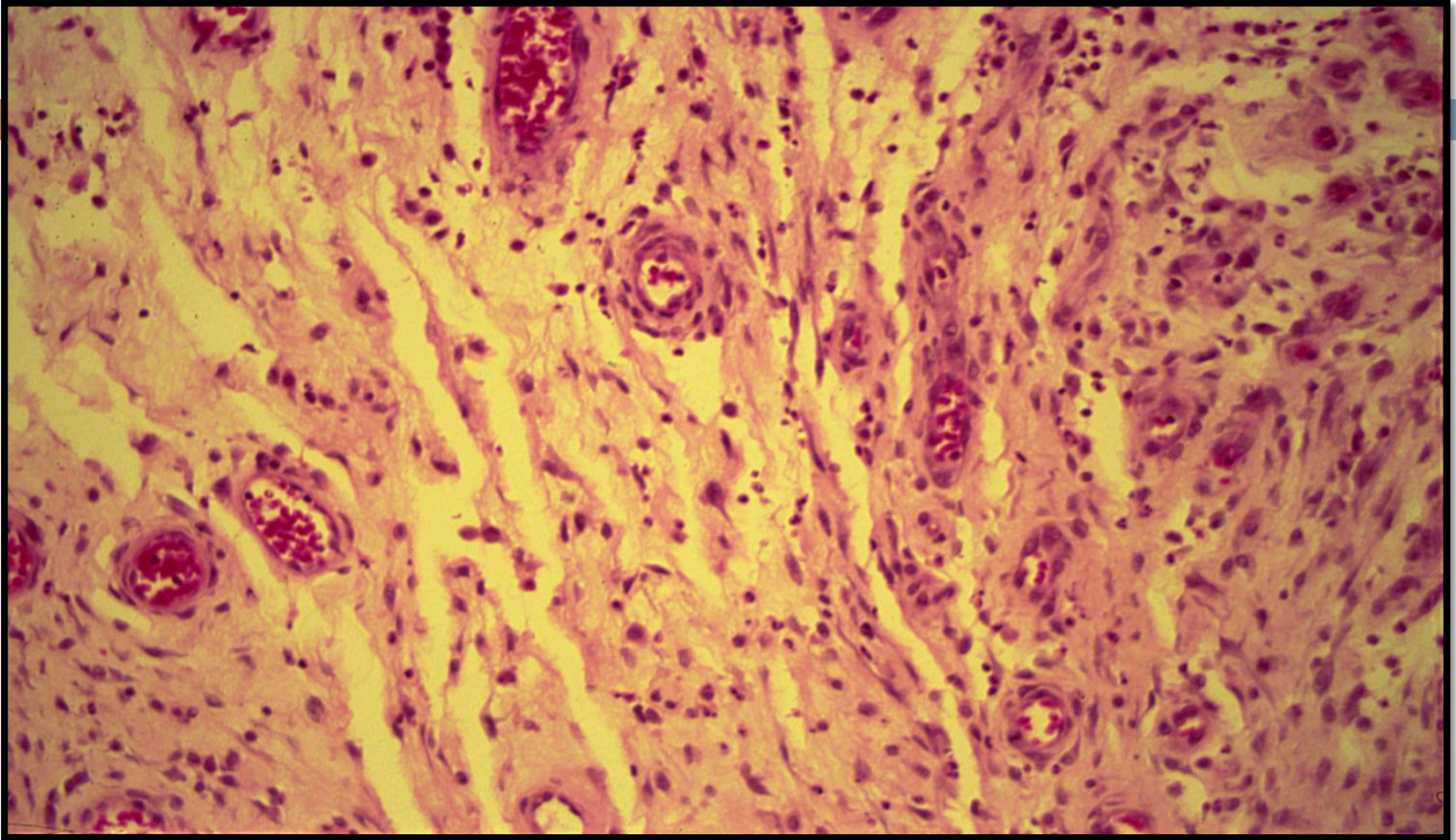
Left



This trichrome stain demonstrates the light blue connective tissue in the wall of an organizing cerebral abscess. Normal brain is at the left and the center of the abscess at the right.

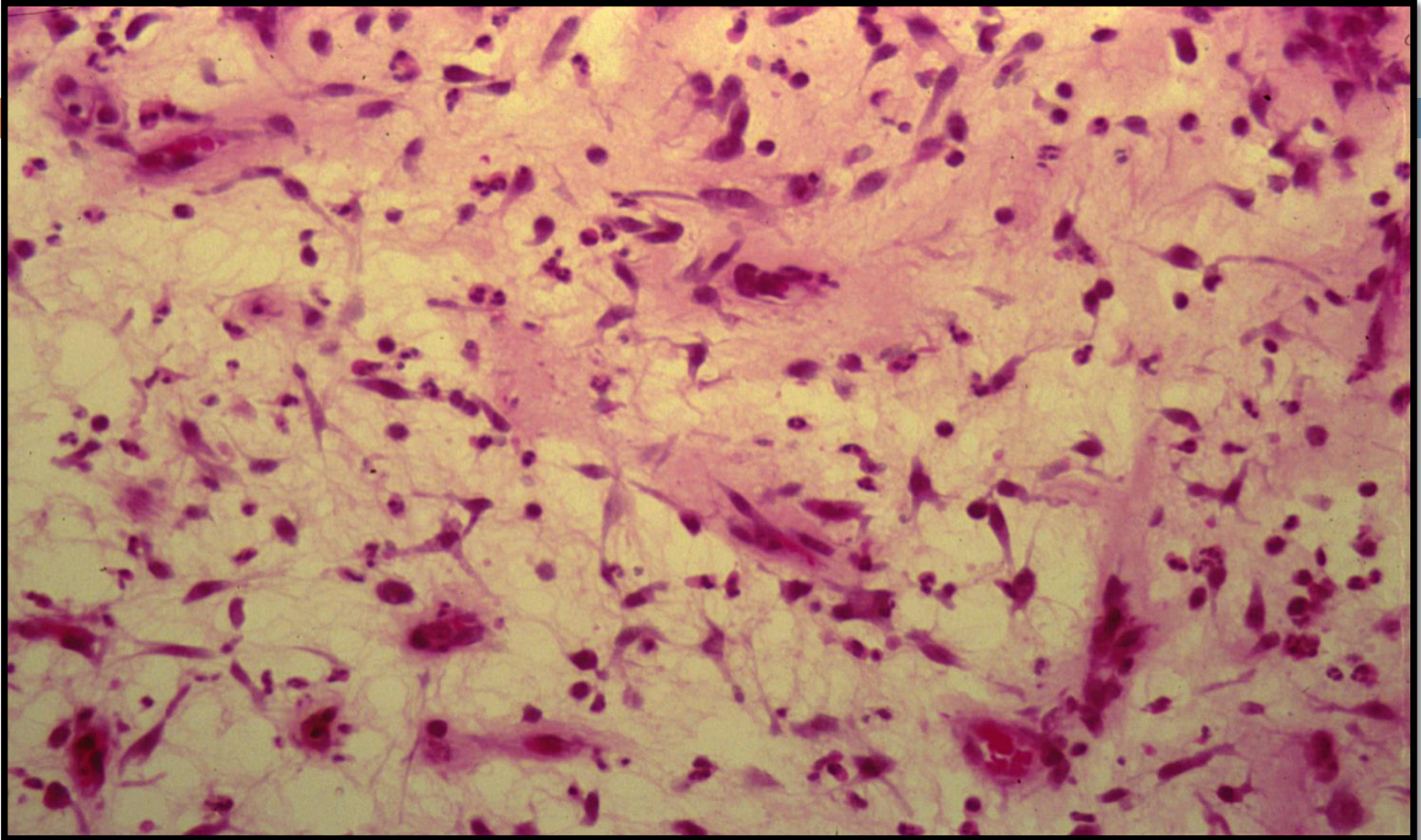
3 - GRANULATION TISSUE

Granulation Tissue - LPF



Section of fragments of edematous, loose connective tissue shows many small newly formed capillaries lined by plump endothelial cells. Proliferation of fibroblasts is seen

Granulation Tissue - HPF



***Inflammatory cells including macrophages, lymphocytes, plasma cells and neutrophils in the oedematous stroma.
Pink homogenous collagen fibers may be identified.***

GOOD *LUCK*