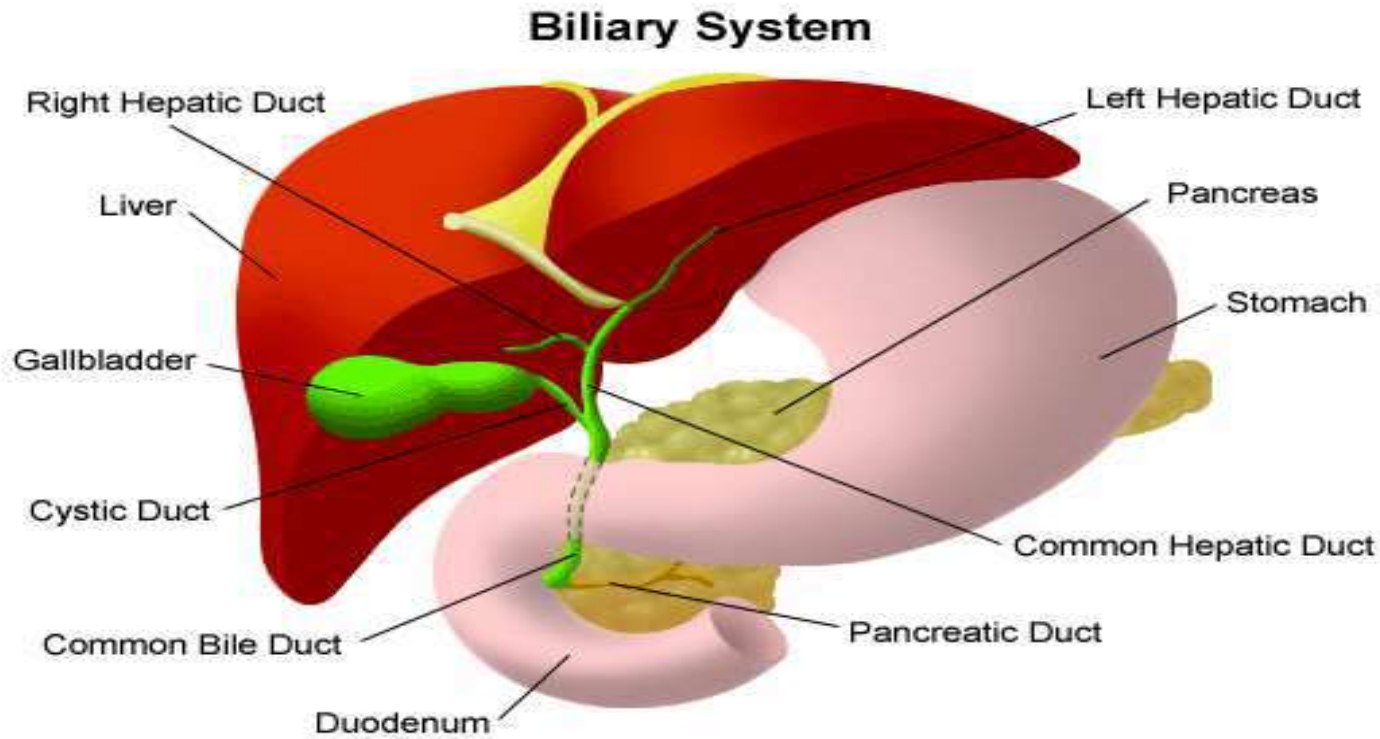
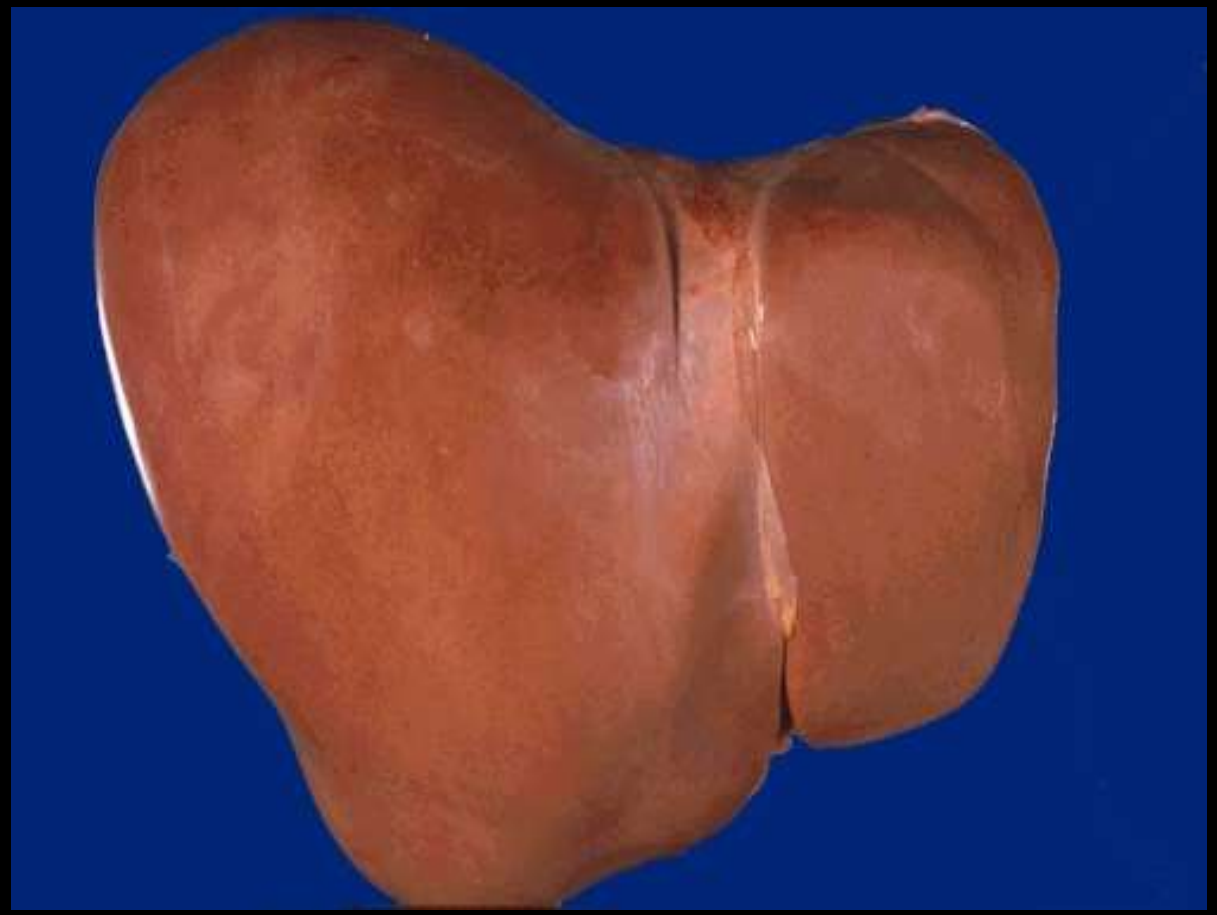
Hepatobiliary system

practical

Dr. Methaq Mueen

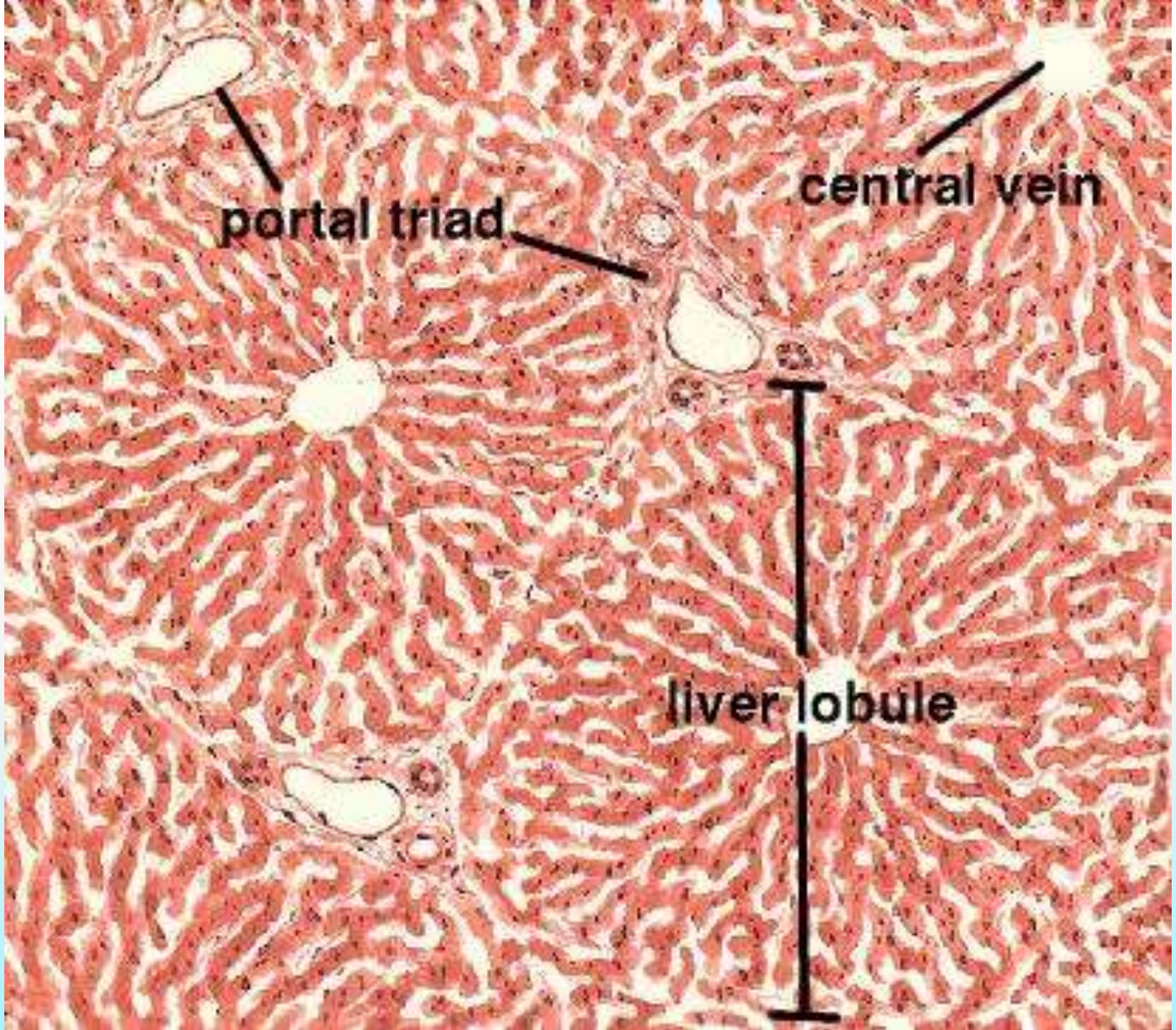


NORMAL ANATOMY



- External surface
- -red - brown
- - smooth
- - soft

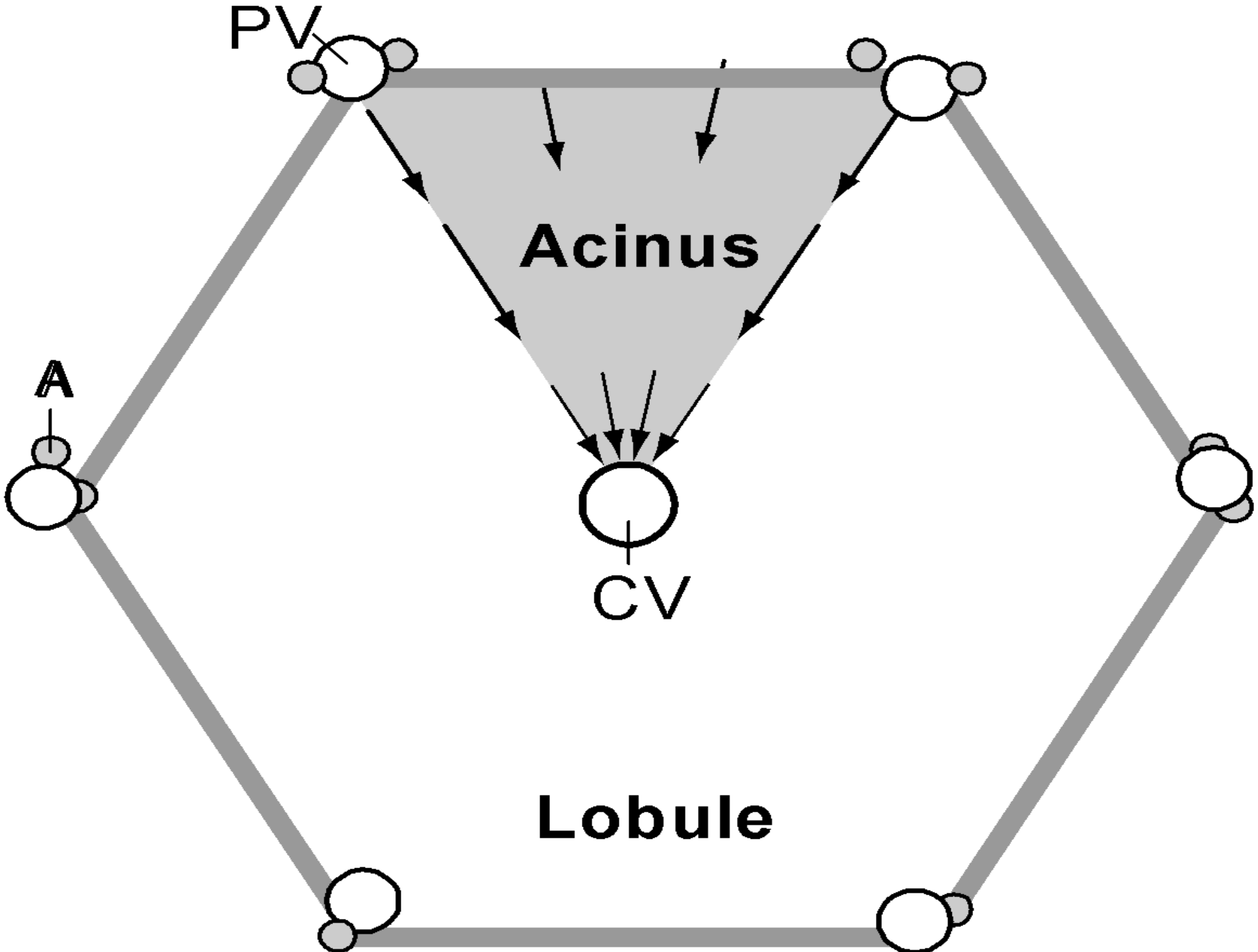
Normal liver: 1200 – 1600g

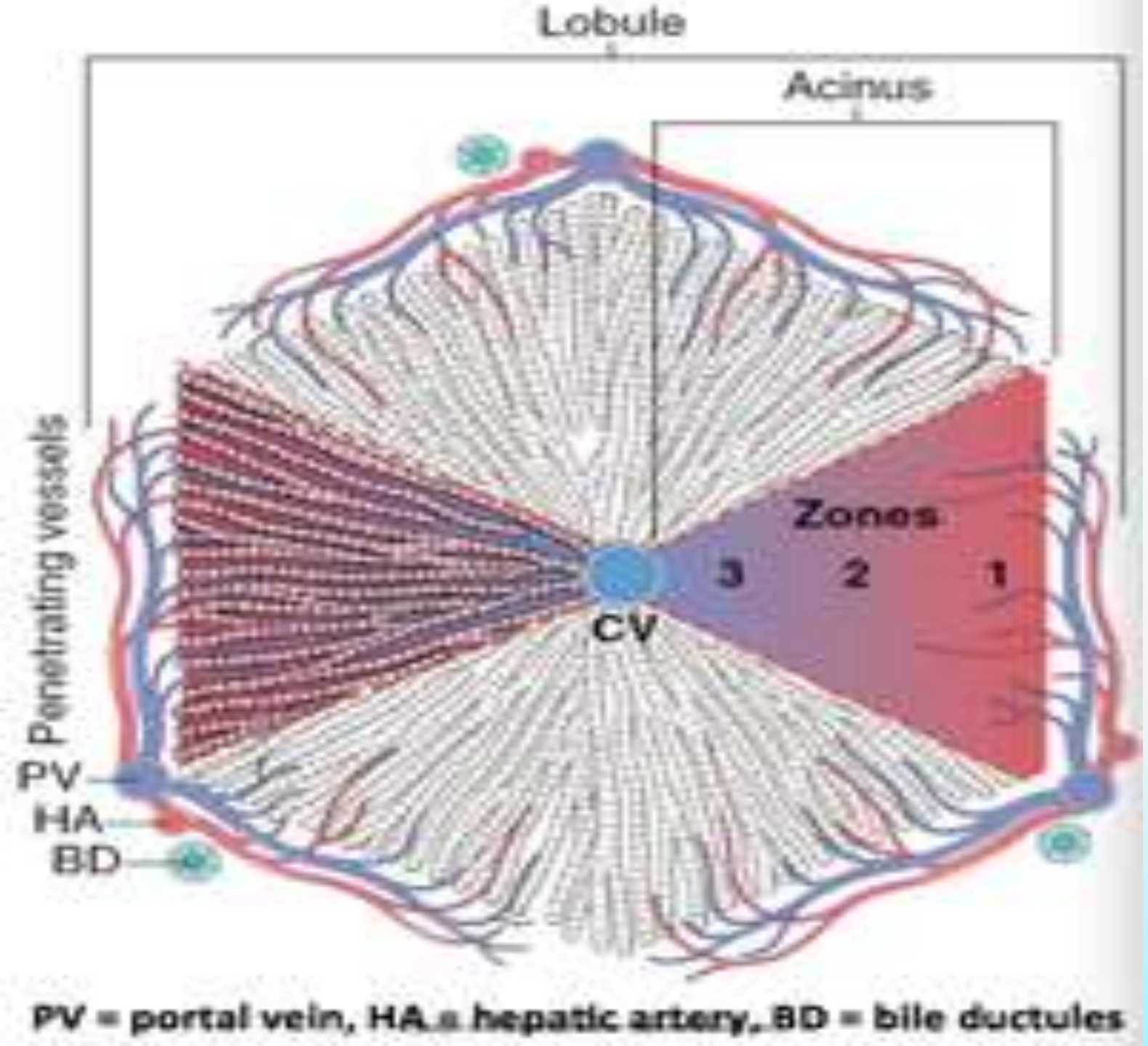


N

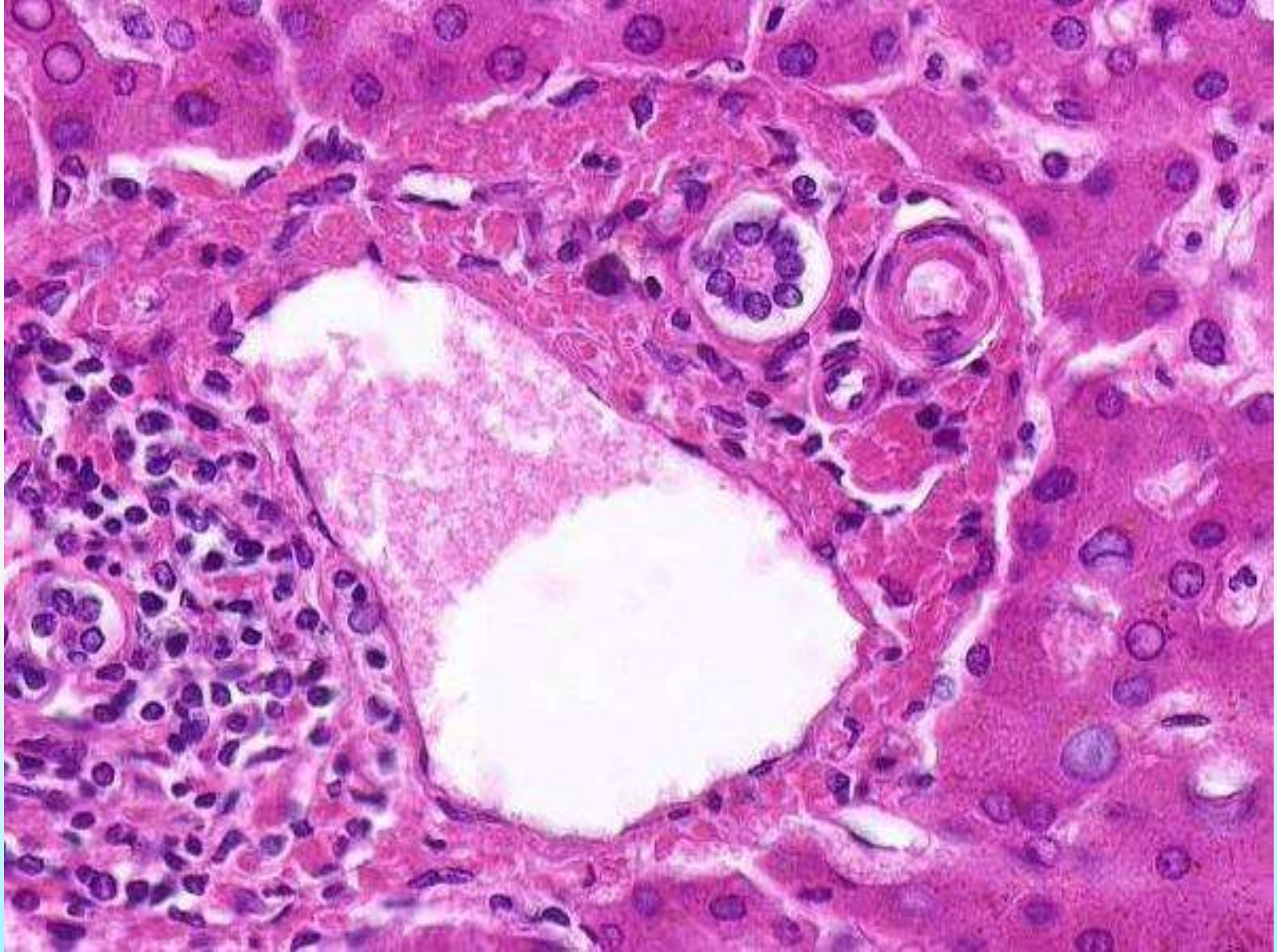
O

FIBROUS TISSUE


PV
Acinus
A
CV
Lobule



PV = portal vein, HA = hepatic artery, BD = bile ductules



LIVER PATHOLOGY

General paranchymatous hepatic responses to liver injury

1- Inflammation (acute &chronic).

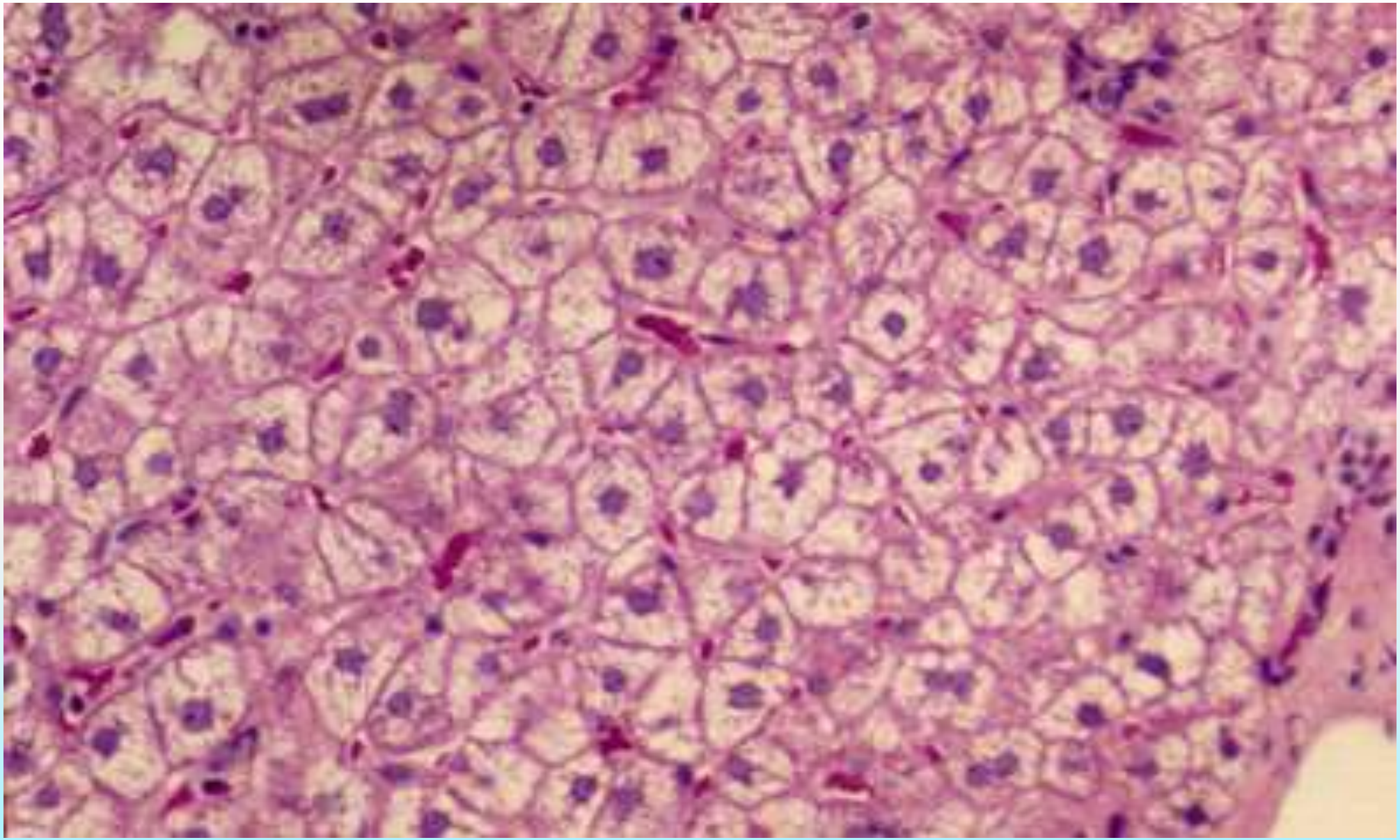
2- Degeneration & intracellular accumulation.

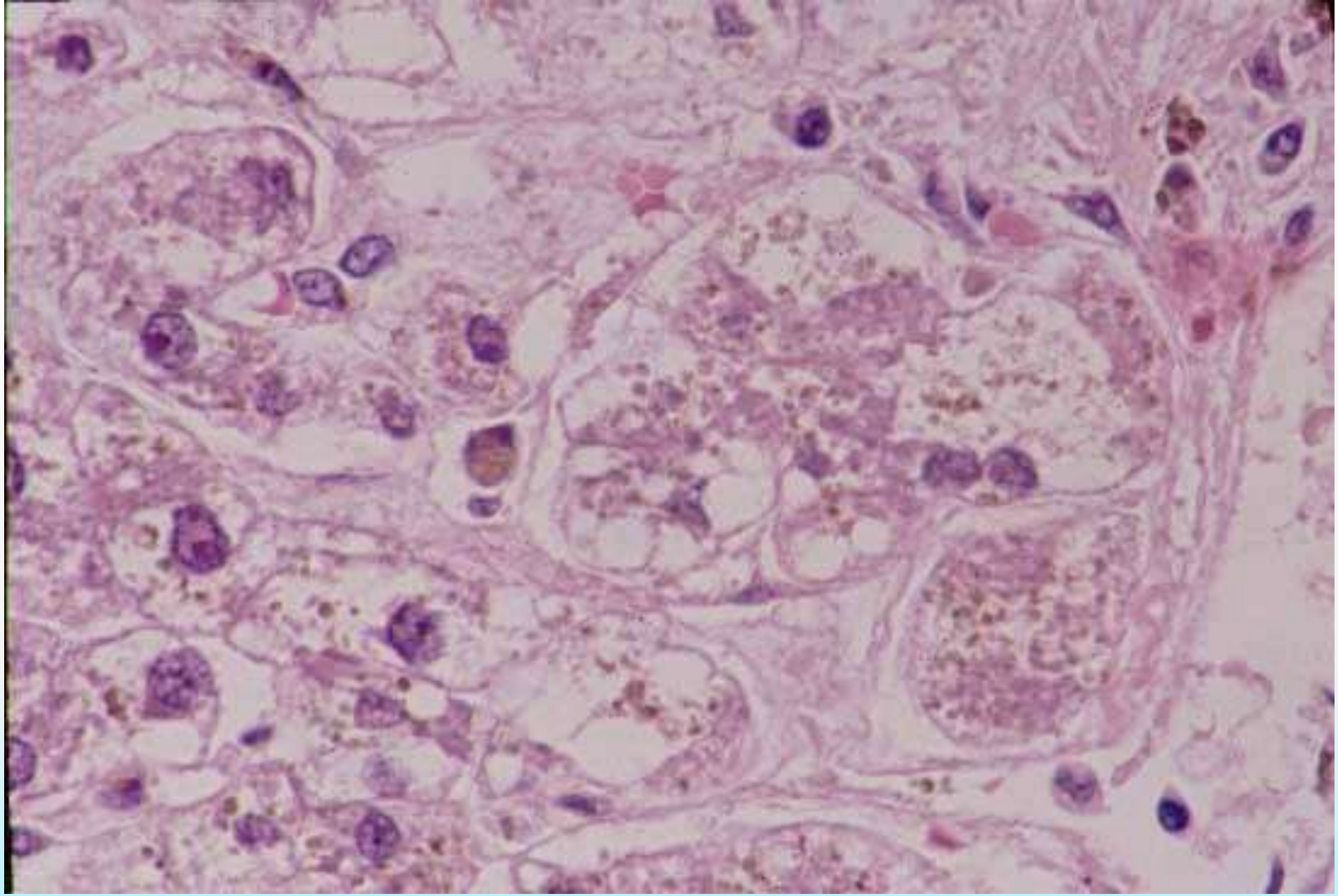
3- Necrosis and apoptosis.

4- Regeneration.

5- Fibrosis.

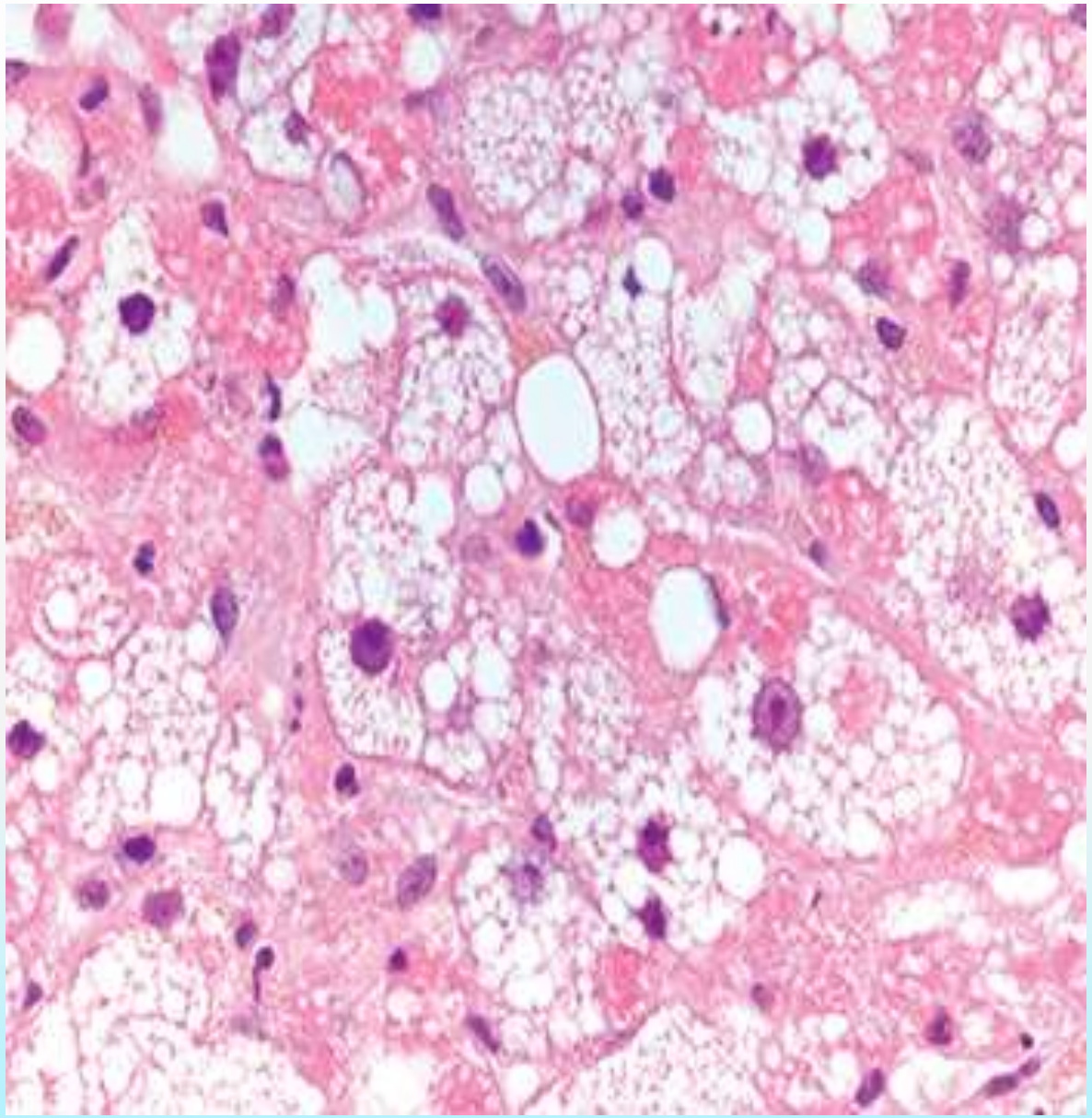
Ballooning degeneration



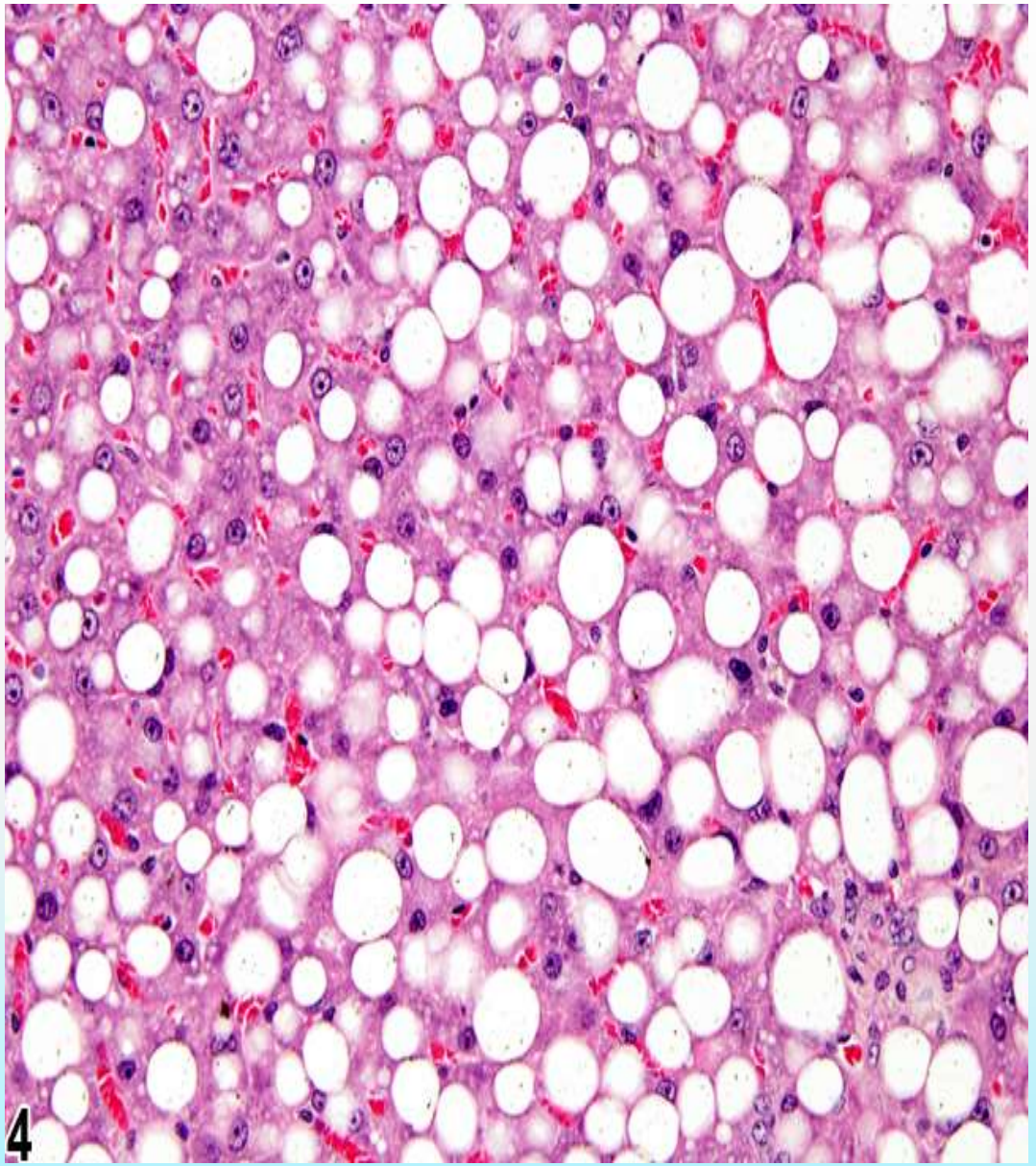


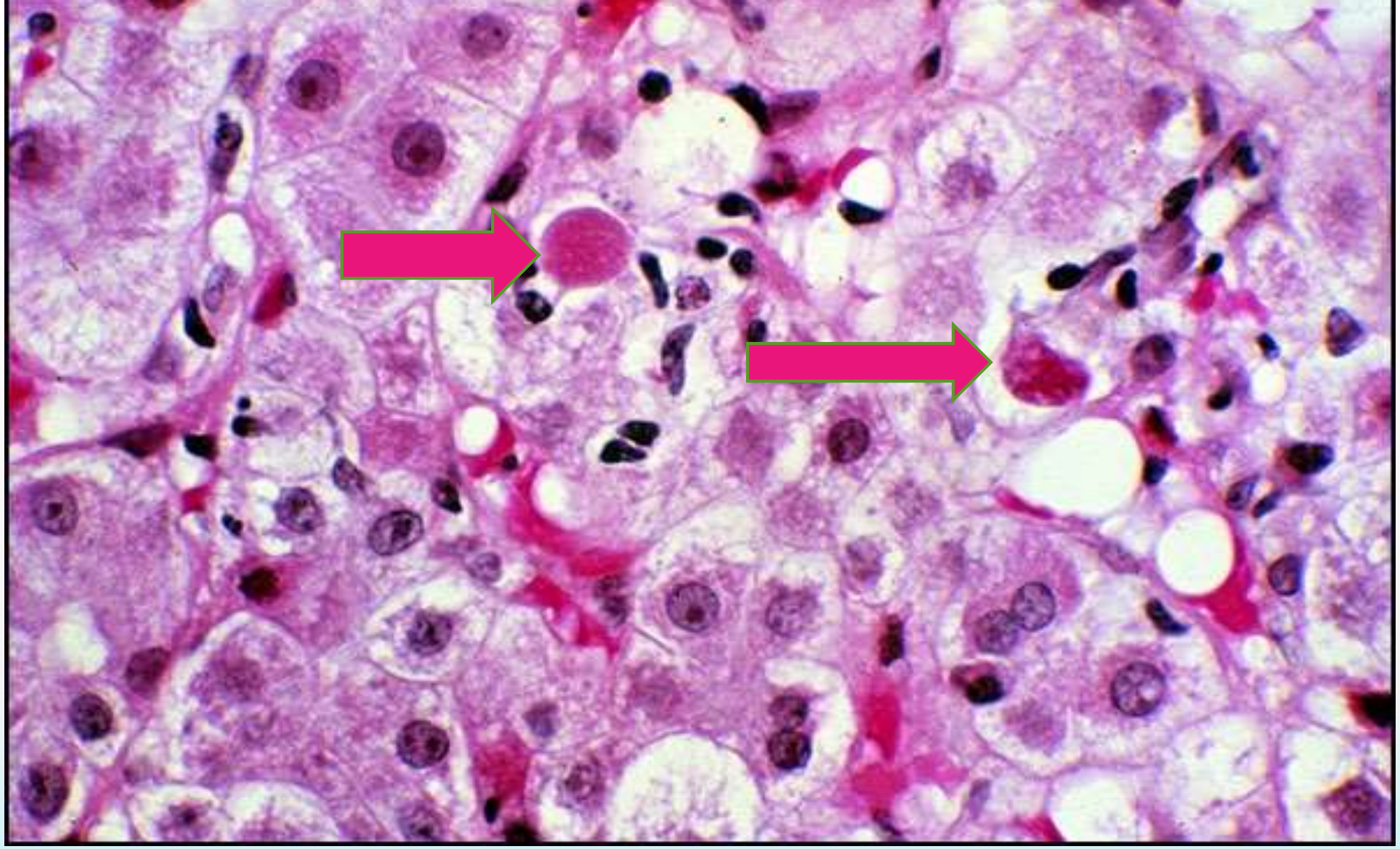
“FEATHERY” DEGENERATION

Microvesicular steatosis



Macrovesicular steatosis





Apoptosis COUNCILMAN body

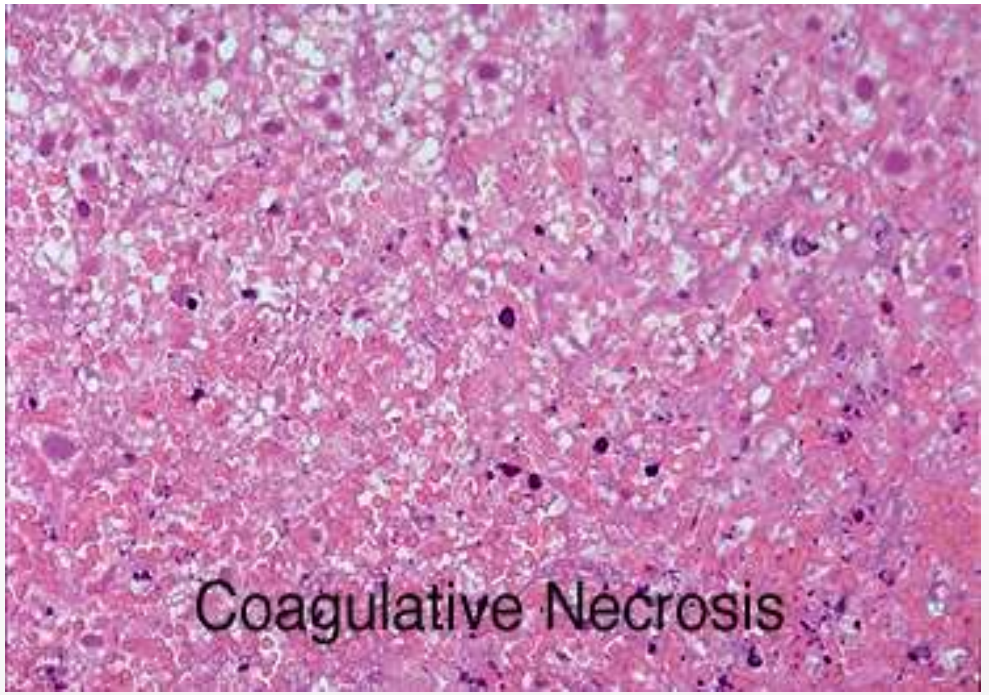
Histologic patterns of hepatic injury

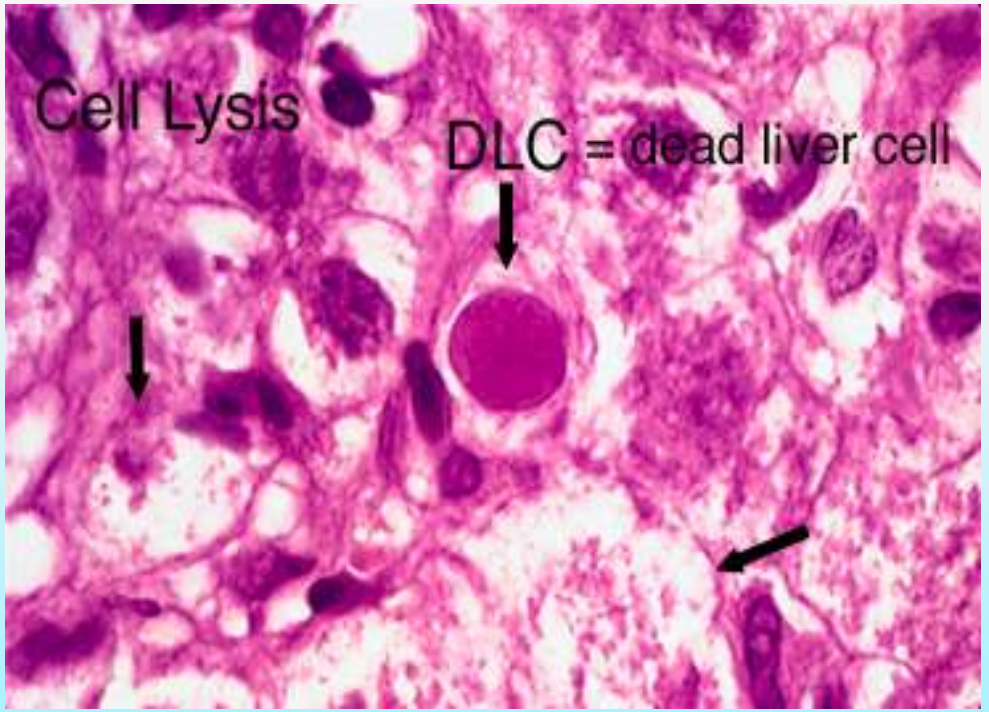
NECROSIS

Coagulative necrosis: preserved architecture loss of cellulr details

Councilman bodies: dead hepatocytes

Lytic necrosis: hepatocytes swell & rupture





CLINICAL SYNDROMES OF VIRAL HEPATITIS

ACUTE HEPATITIS

Histology of acute hepatitis:

Ballooning degeneration

Cholestasis (bile plugs)

Steatosis (HCV)

Hepatocyte spotty necrosis(dead cells surrounded by macrophages)

apoptotic cells (Councilman bodies)

Kuppfer cell hypertrophy & hyperplasia

Portal tracts infiltration by inflammatory cells with spill over to parenchyma (interface hepatitis)

Acute hepatitis

Lobular hepatitis is the predominate

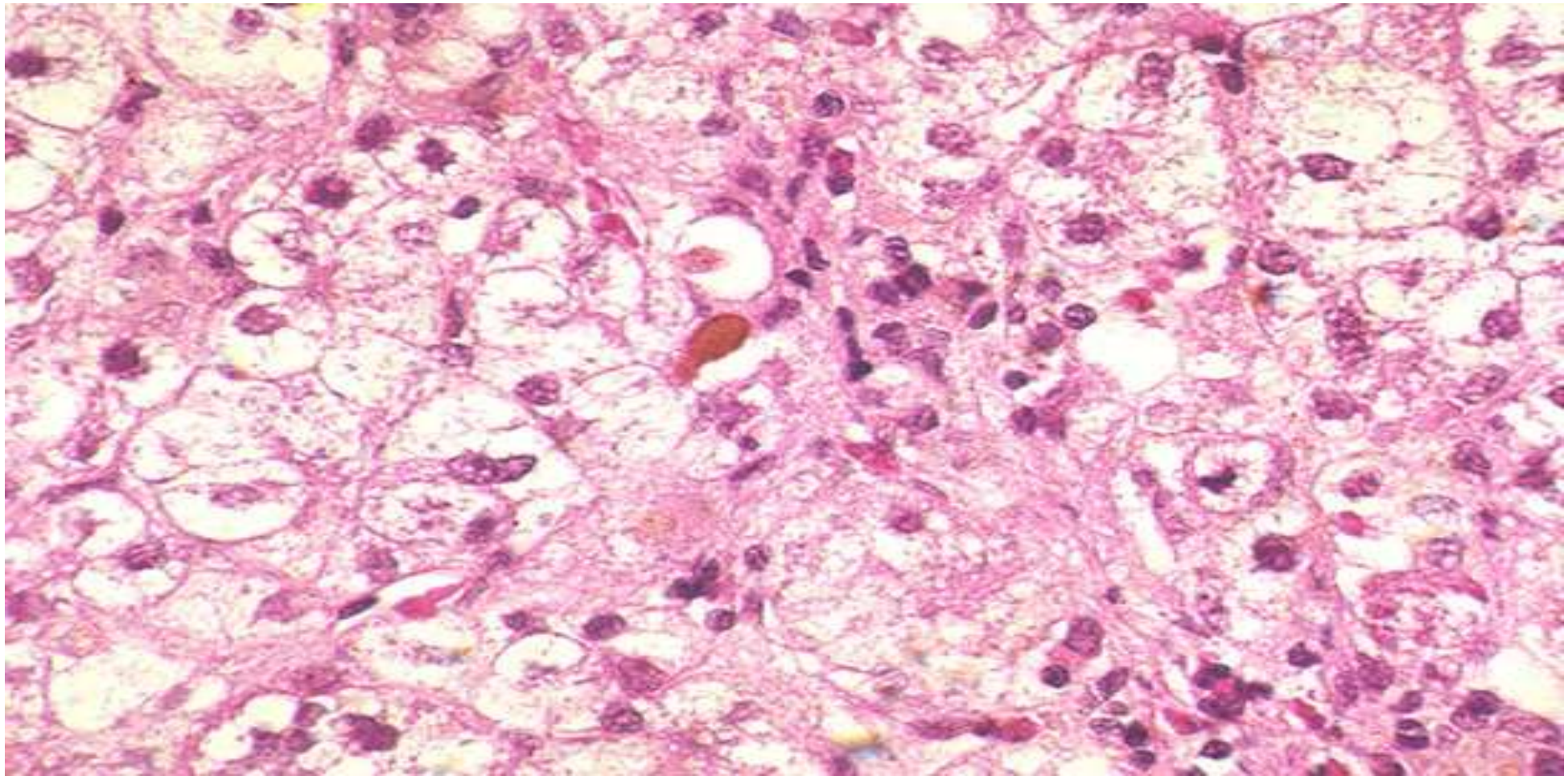
There is **lobular disarray** but no fibrosis

Chronic hepatitis

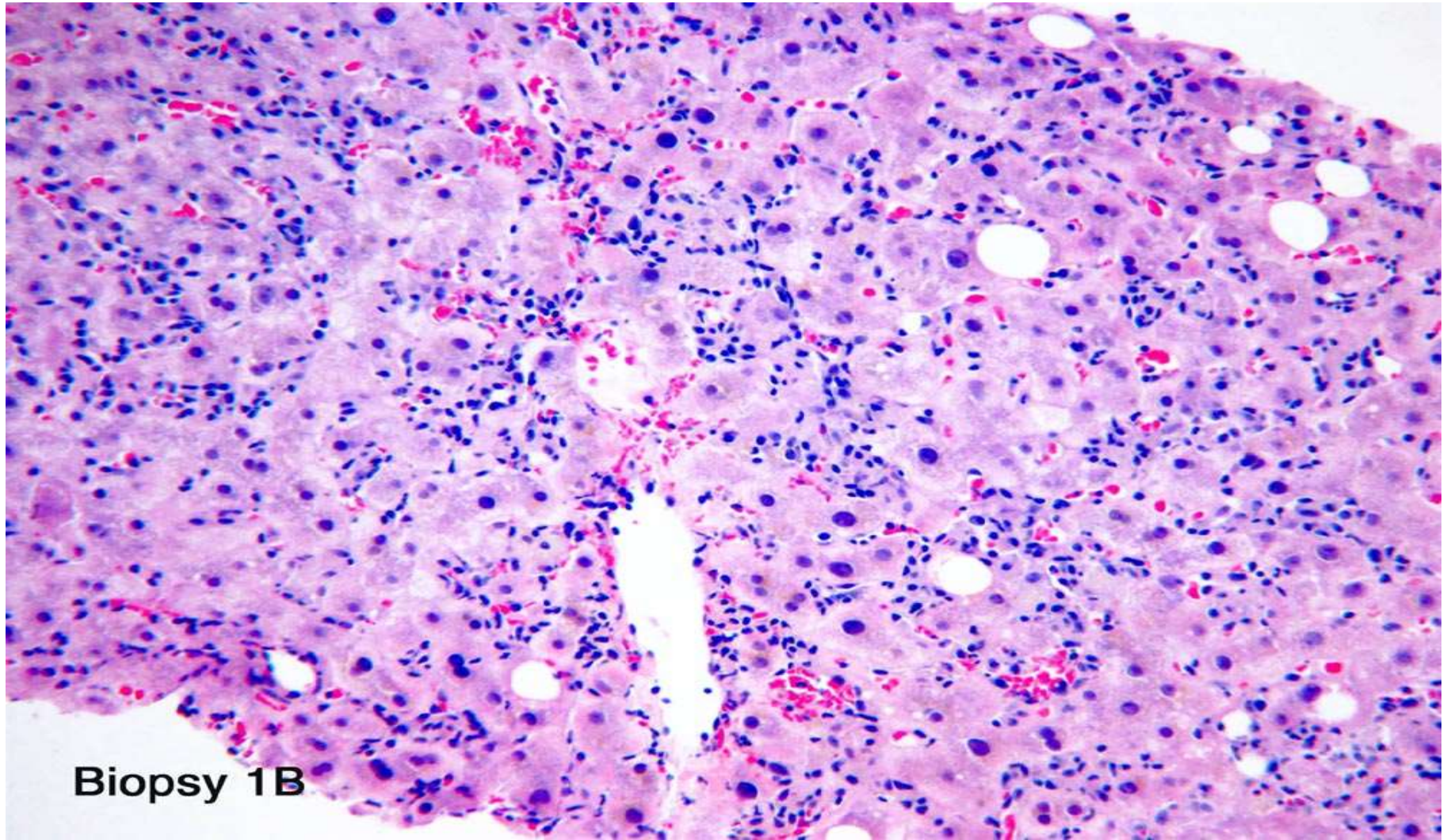
Portal inflammation is the Predominant(+/- interface hepatitis)

May proceed to fibrosis and then cirrhosis

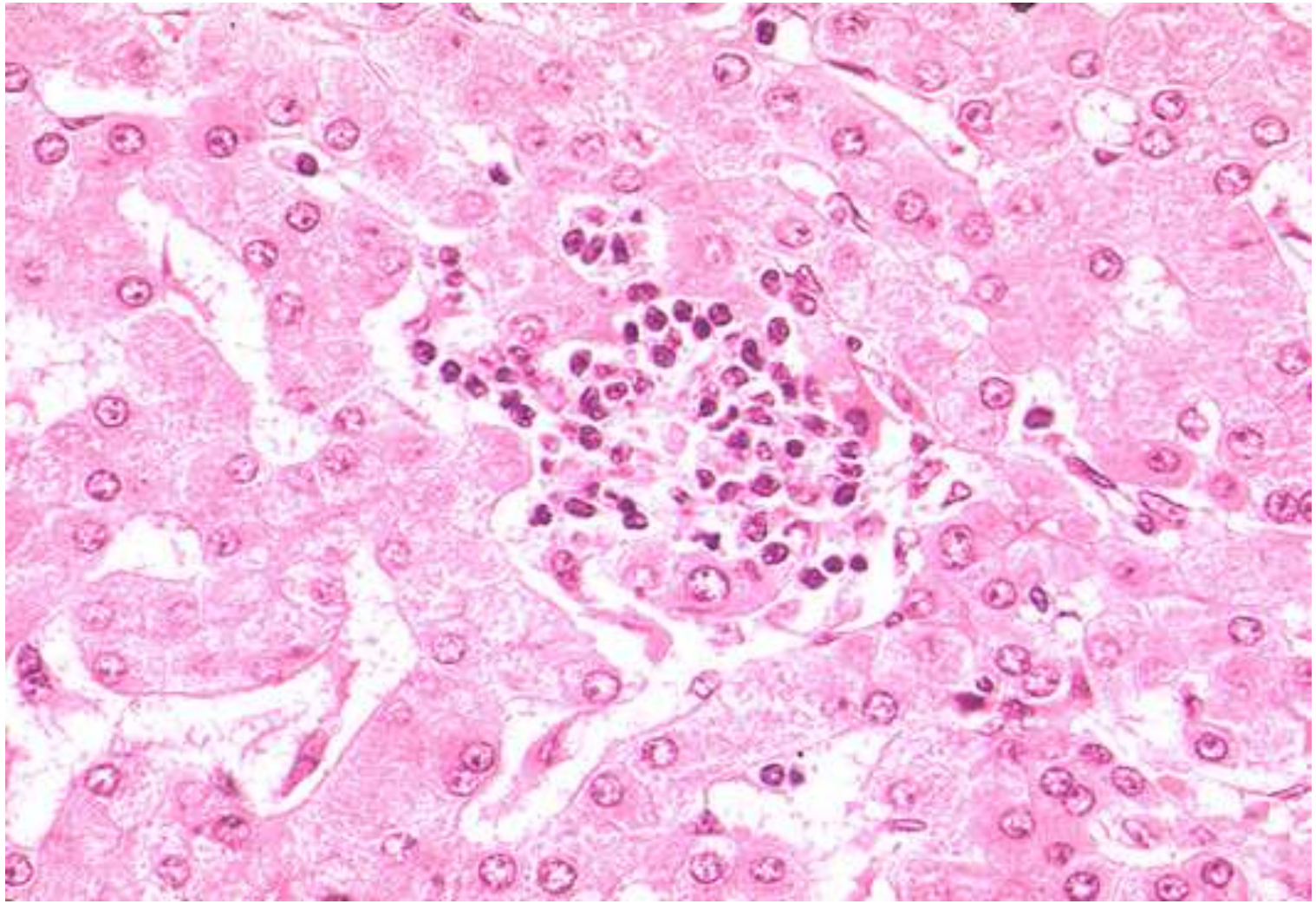
"Lobular disarray": Loss of hepatocyte, inflammatory reaction, hepatocellular swelling distort the pattern of the liver plates somewhat confusing the lobular architecture.(H&E stain).



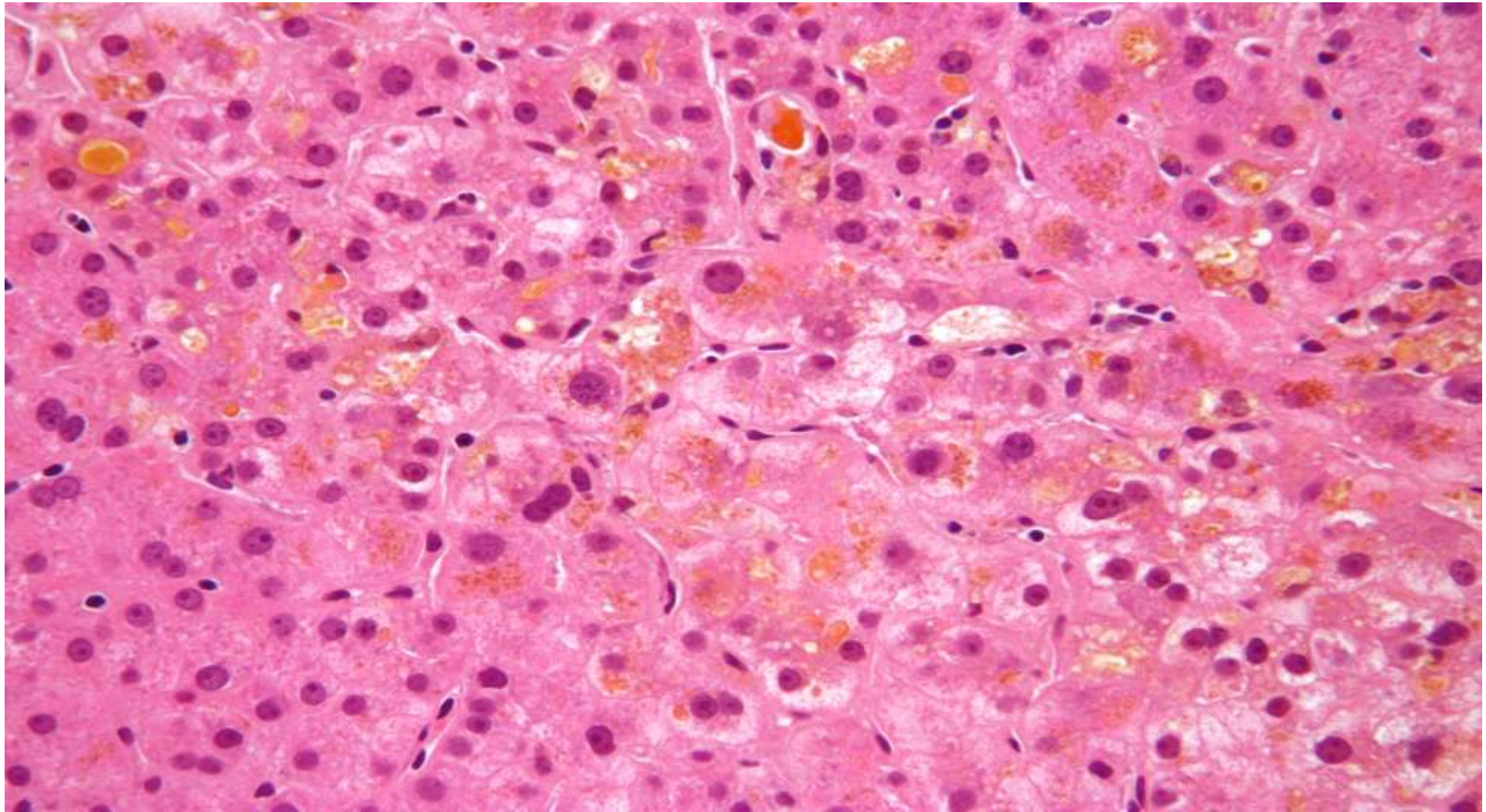
Marked lobular hepatitis with prominent sinusoidal lymphocytosis



Focal spotty necrosis: In the center of this slide there is a focus of cell dropout with inflammatory reaction



Cholestasis: deposition of bile in bile canaliculi appears as brownish deposits



Morphology of chronic hepatitis

Most of **morphologic changes** in chronic hepatitis are **shared** with acute hepatitis.
But the following changes are **only seen with chronic hepatitis**.

a. inflammation is **limited to the portal tracts** & consist of lymphocytes , macrophages, rare neutrophils & eosinophils.

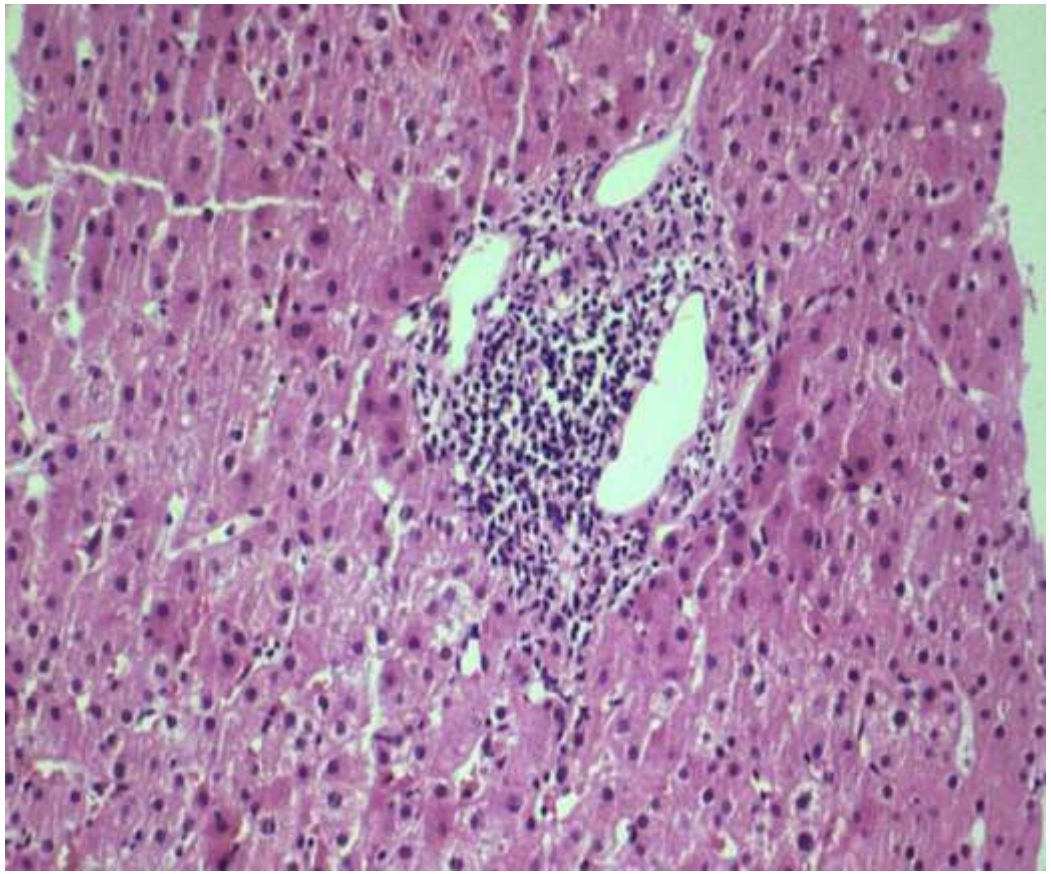
c. continuous **periportal necrosis** & **bridging necrosis**…….**progressive liver damage**

d. deposition of **fibrous tissue** (irreversible injury).

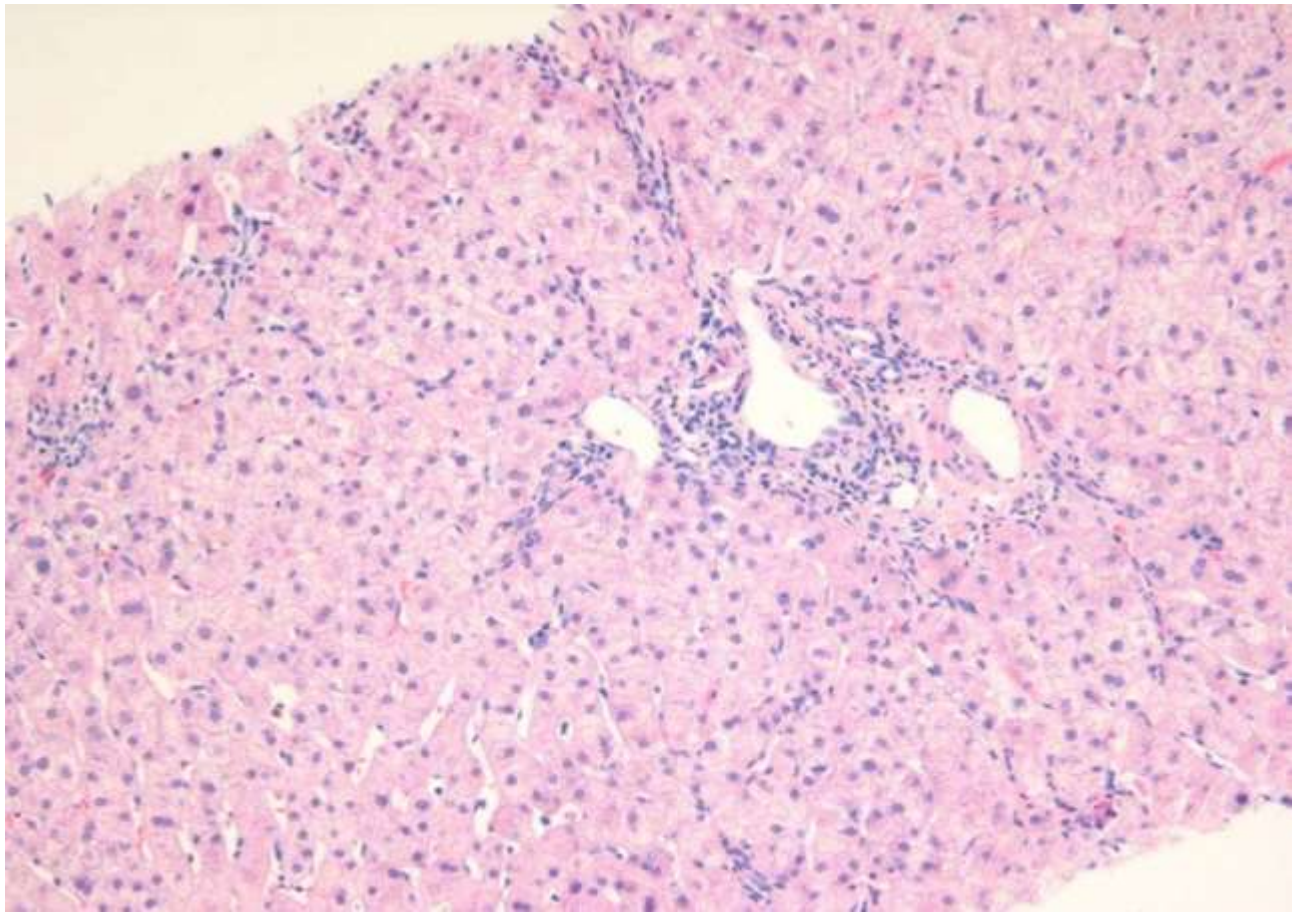
e. **cirrhosis** which is usually of macro nodular type.

Chronic hepatitis

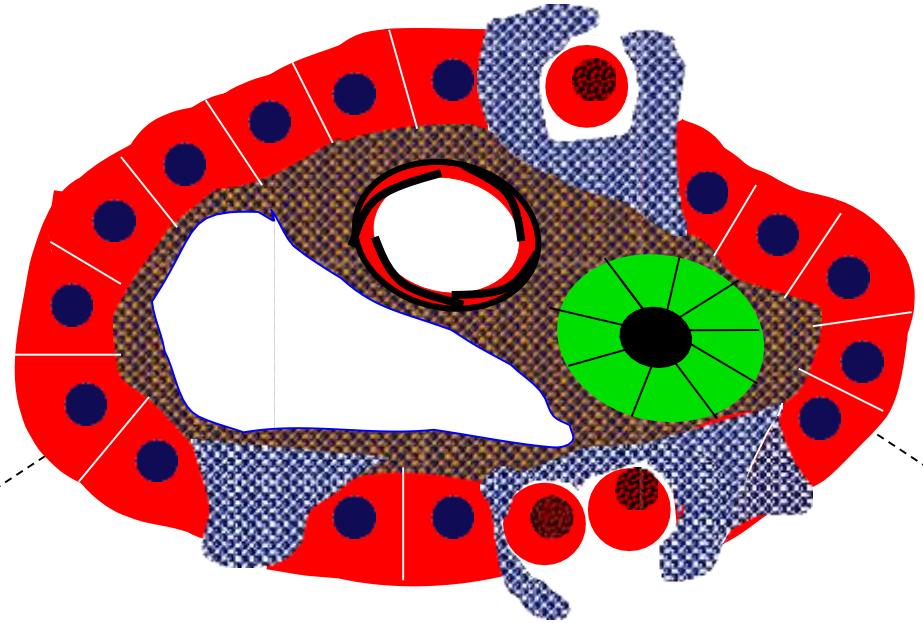
- Portal inflammation Without interface hepatitis



- Portal inflammation with interface hepatitis
- Some necroinflammatory foci in the lobule

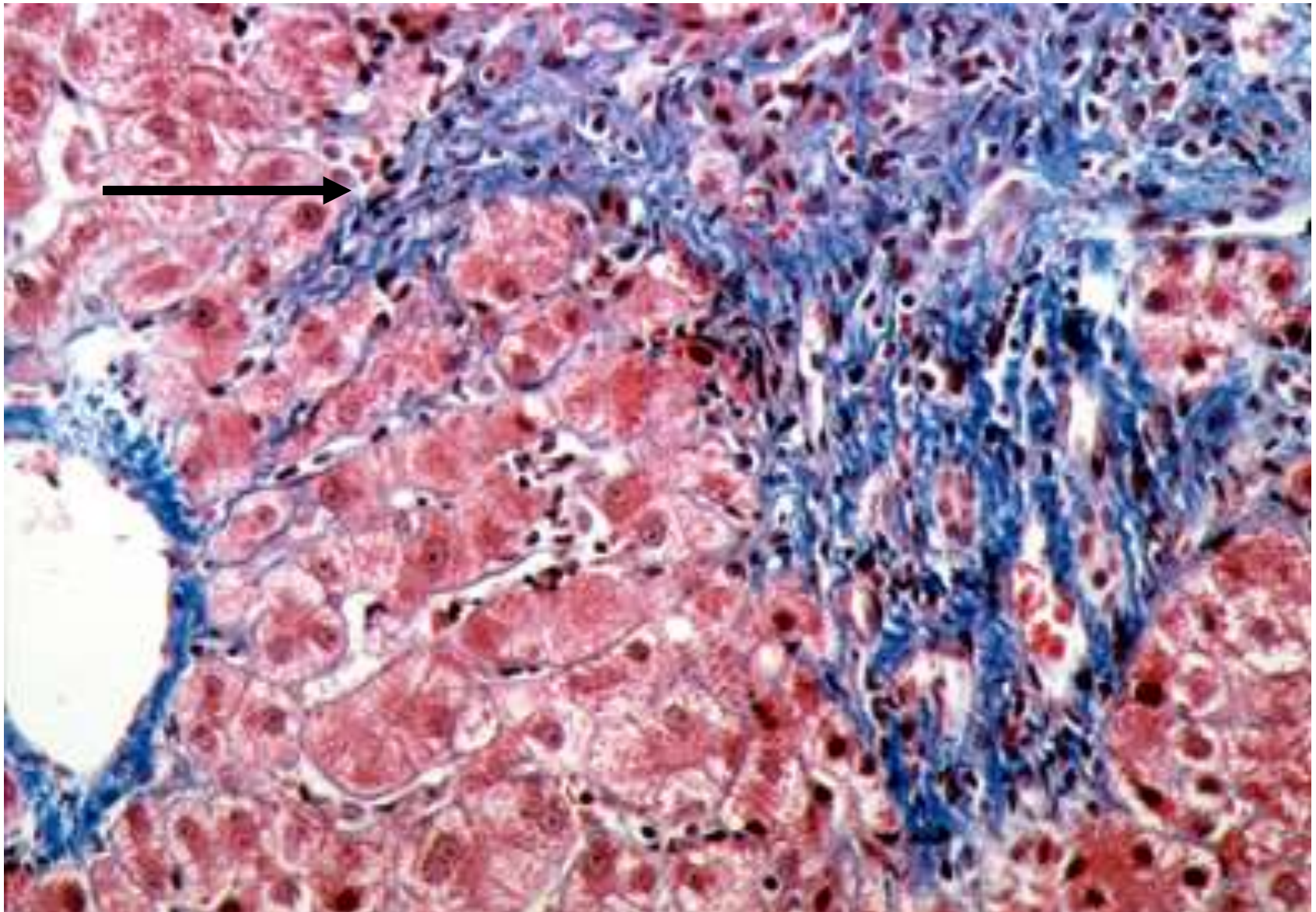


The disruption of the **“limiting plate”** is a classical concept in liver disease, especially chronic hepatitis. **The “limiting plate” is the fence of connective tissue which delineates a portal triad area from the surrounding hepatocytes. When this is breached, the disease process is regarded as more severe, and many say is the earliest step to cirrhosis**

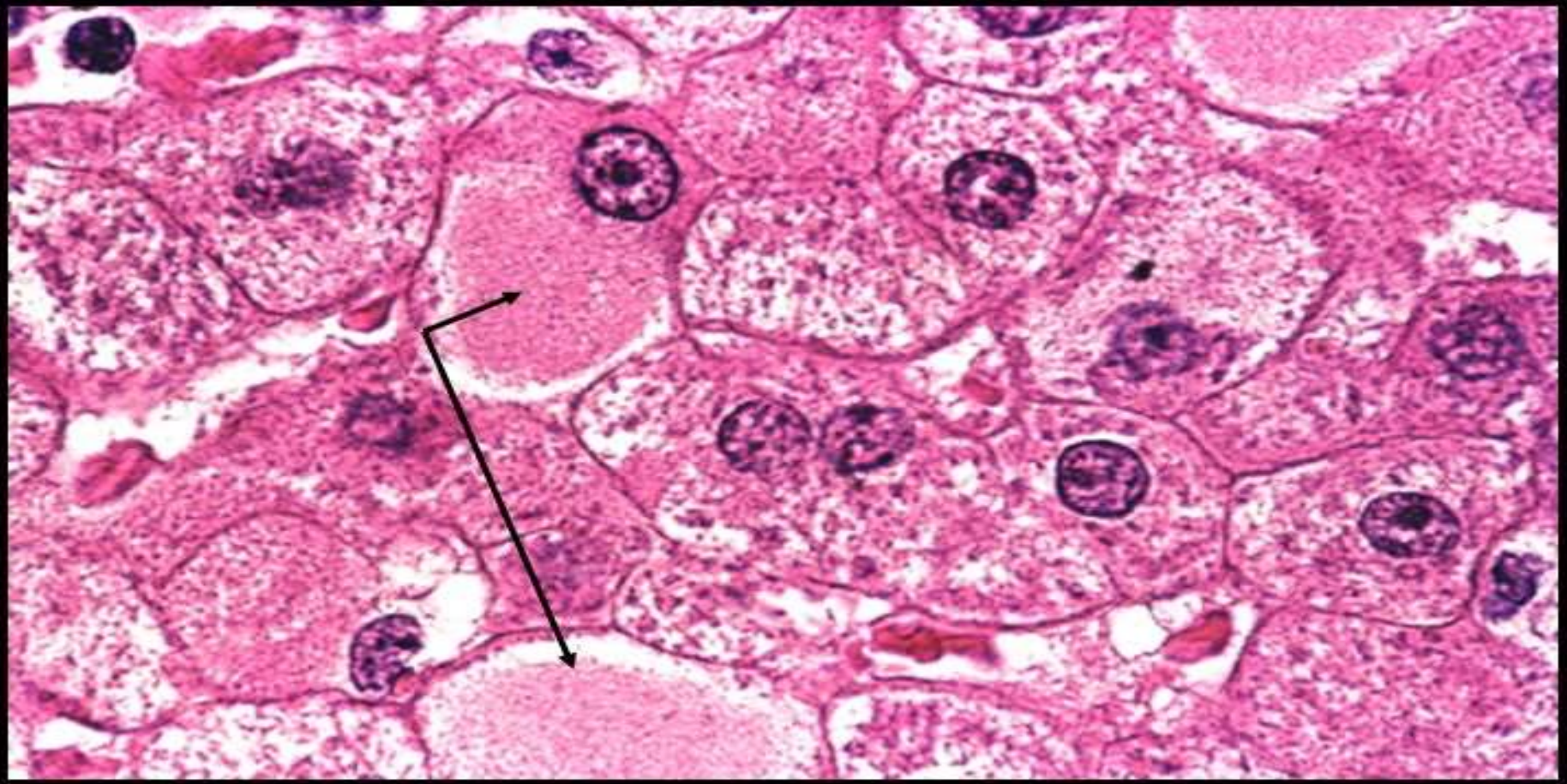


“Piecemeal Necrosis”
or, better,
“Interface Hepatitis”

Bridging Fibrosis

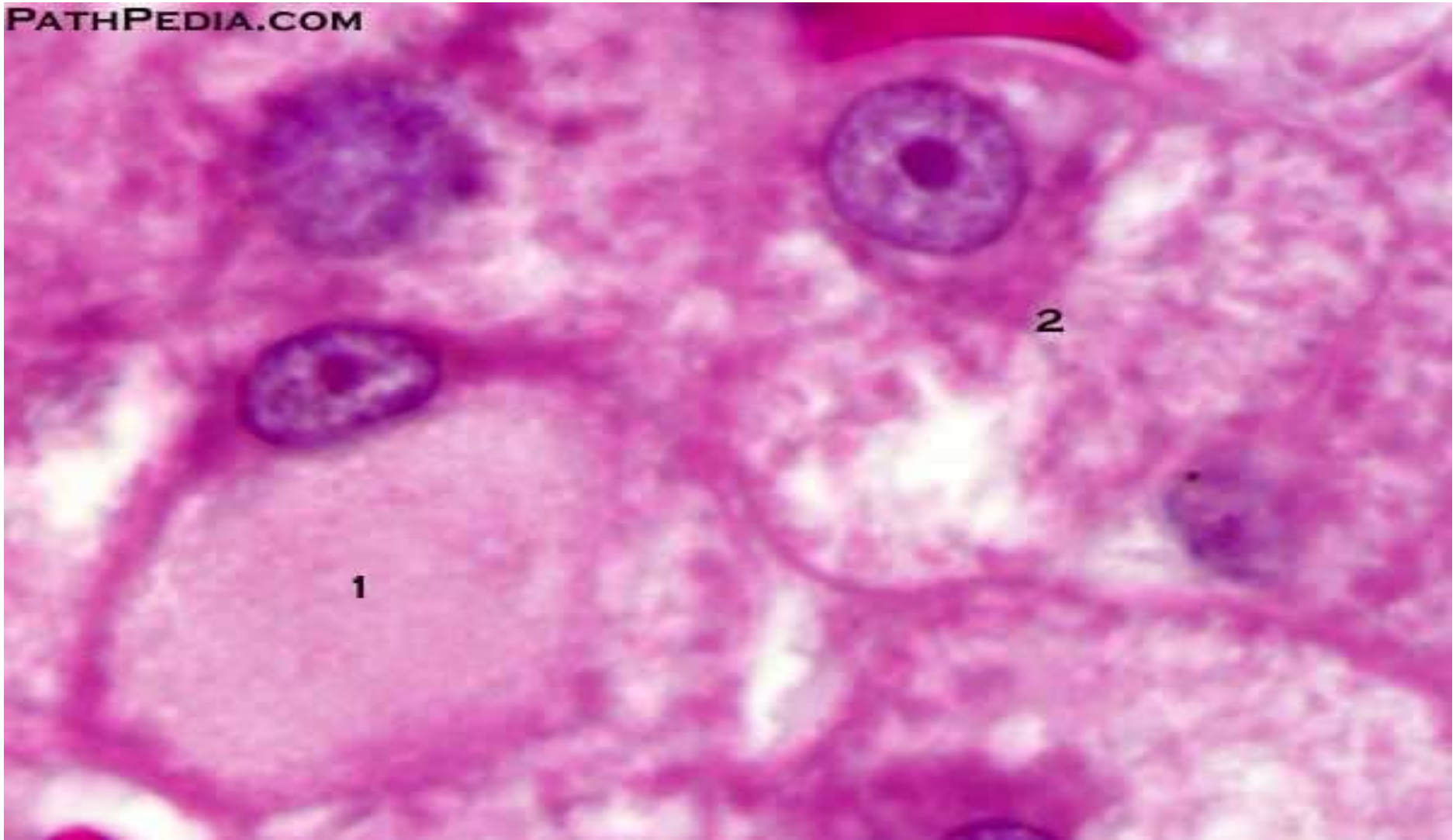


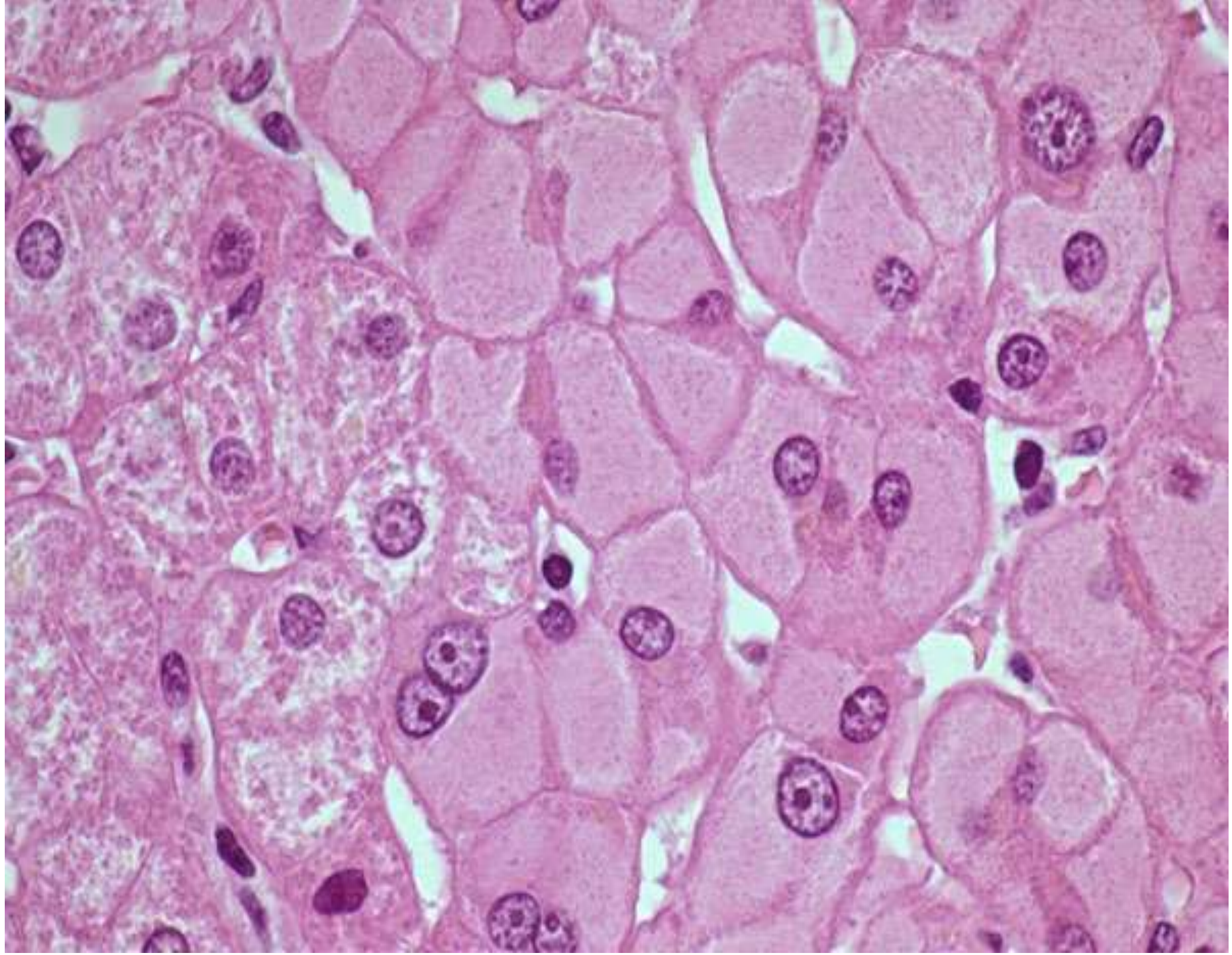
Chronic viral hepatitis B showing ground glass hepatocytes



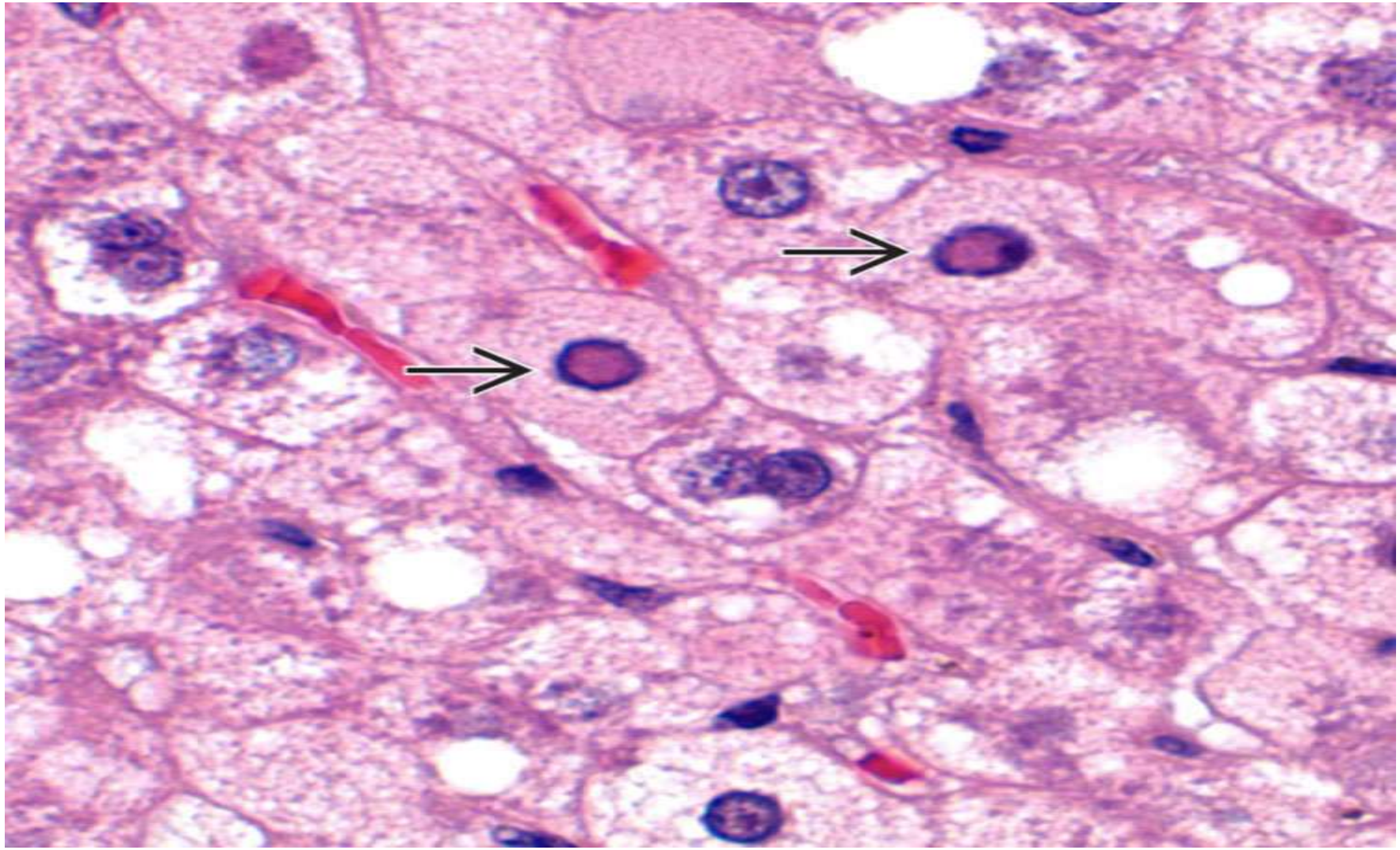
Ground glass hepatocytes, characterized by more pale, eosinophilic, and homogeneous cytoplasm than surrounding normal (more granular) hepatocytes. Note (artifactual) cleft between "ground glass" cytoplasm and hepatocellular cell membrane. The change corresponds to extensive endoplasmic reticulum hyperplasia and massive accumulation of HBsAg. (H&E)

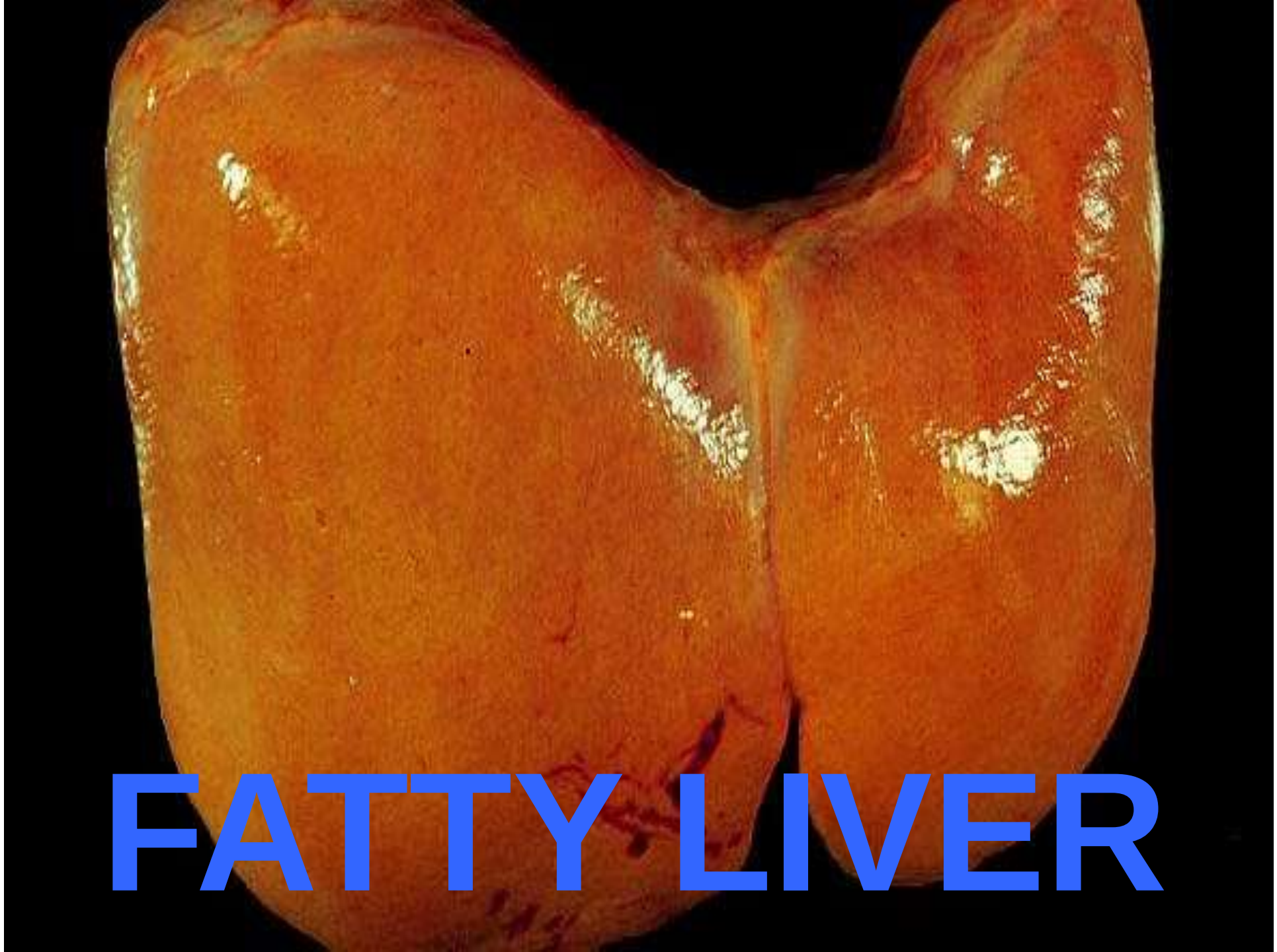
CHRONIC HEPATITIS B. ground-glass hepatitis B inclusion





Sanded NucleiHepatitis B-infected hepatocytes may have pale pink, finely granular intranuclear inclusions (sanded nuclei image)




FATTY LIVER

ALCOHOLIC LIVER DISEASE

(fatty changes)Steatosis

Lipid droplets accumulate in hepatocytes

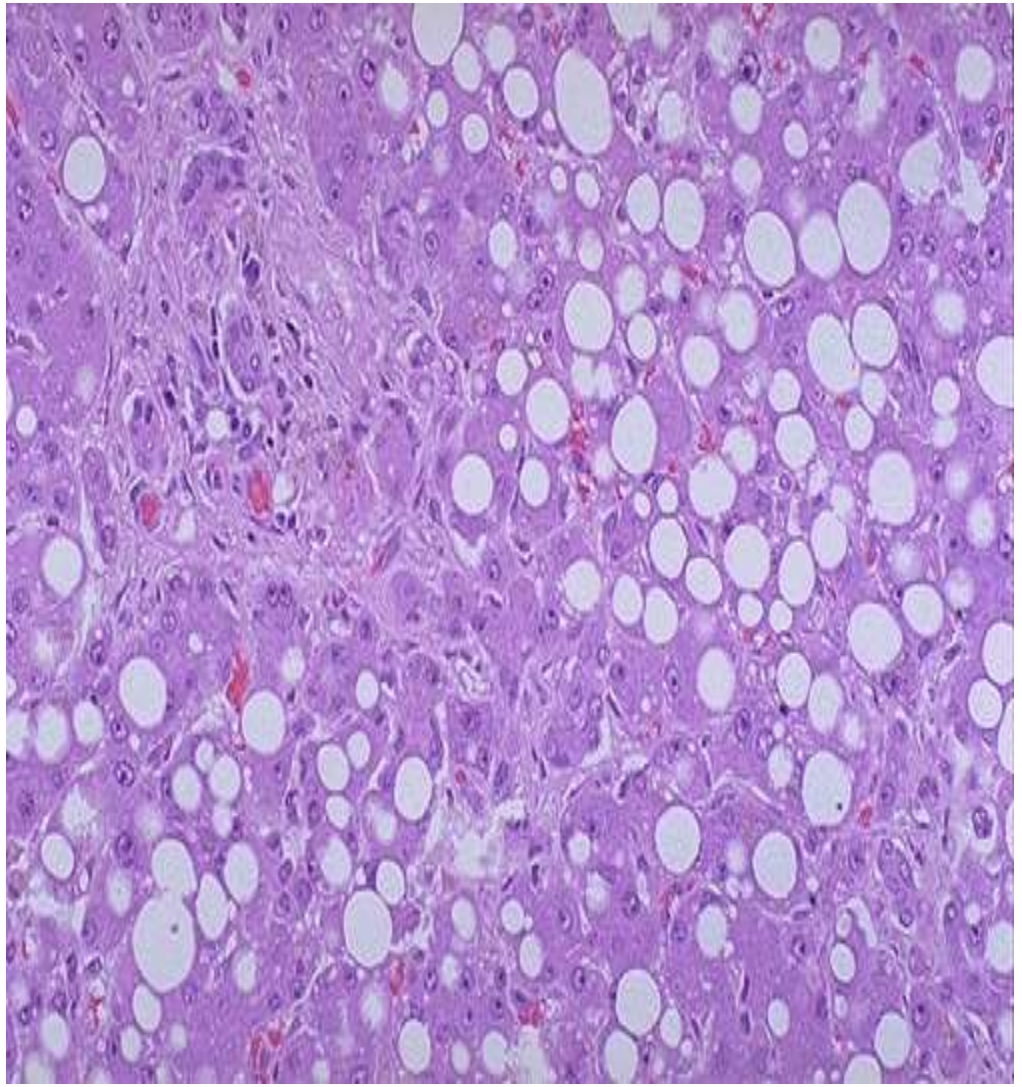
2 histologic types:

- **Microvesicular**
- **Macrovesicular**

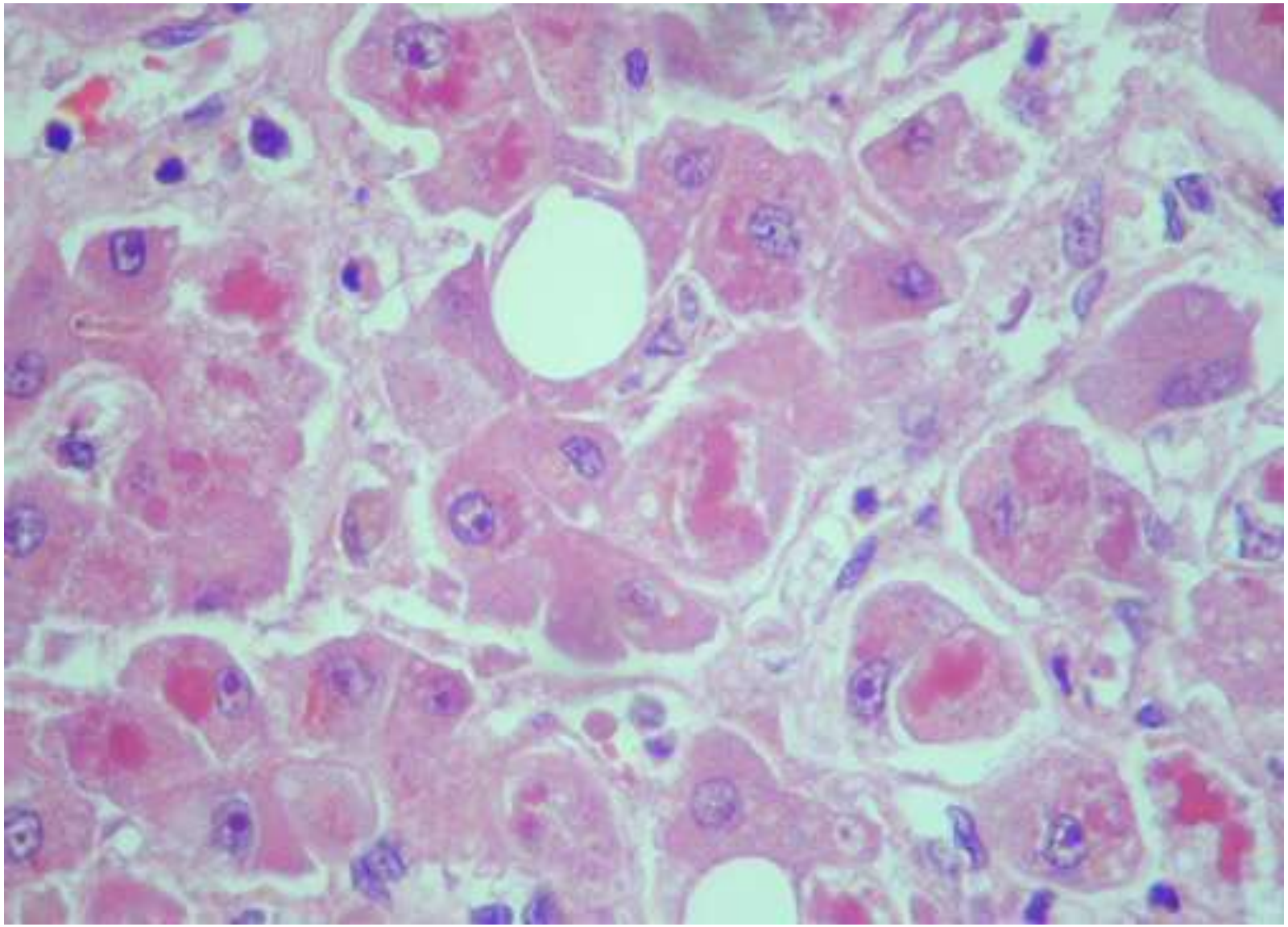
Initially centrilobular

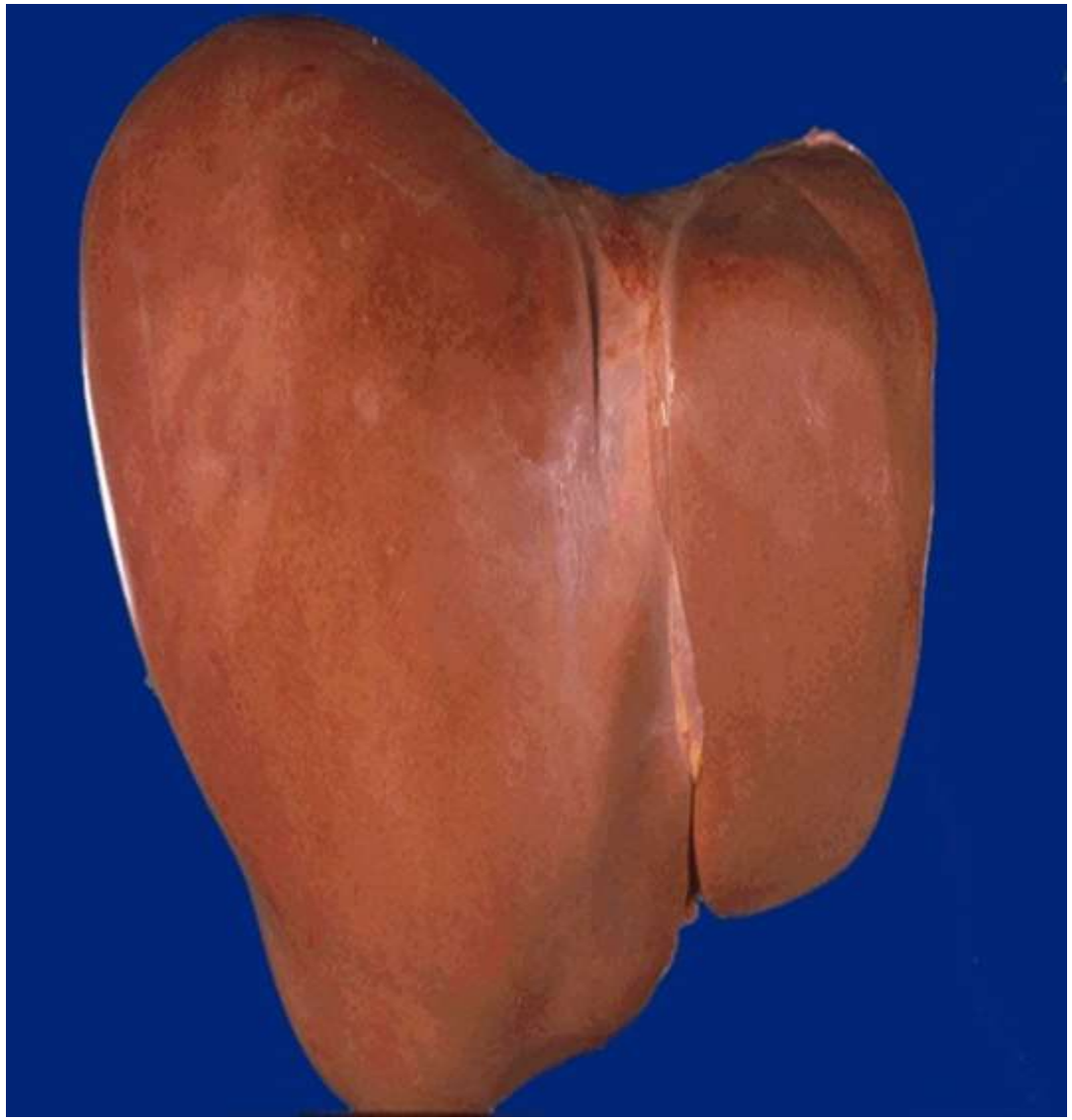
Later panlobular

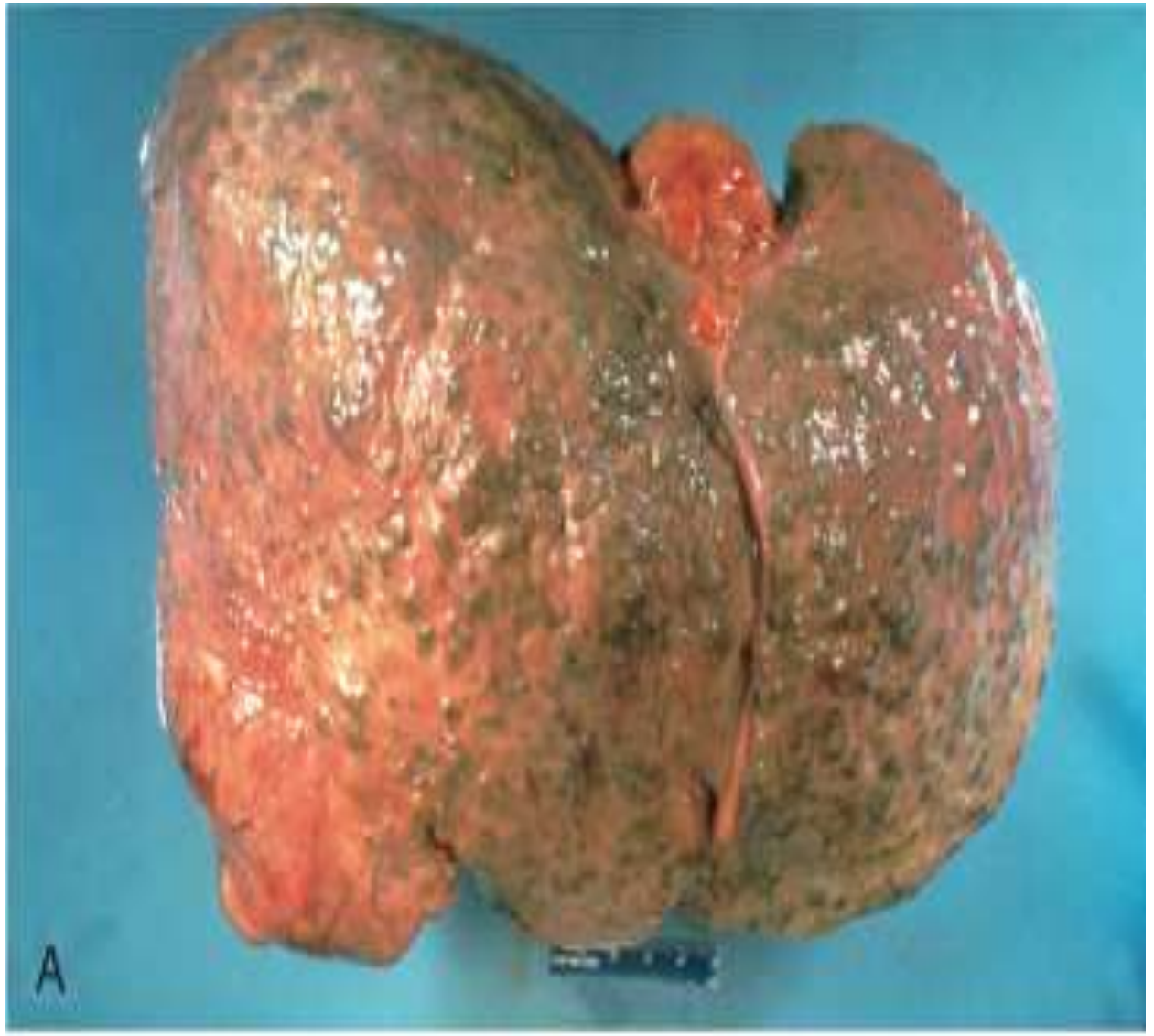
Completely reversible if there is abstention

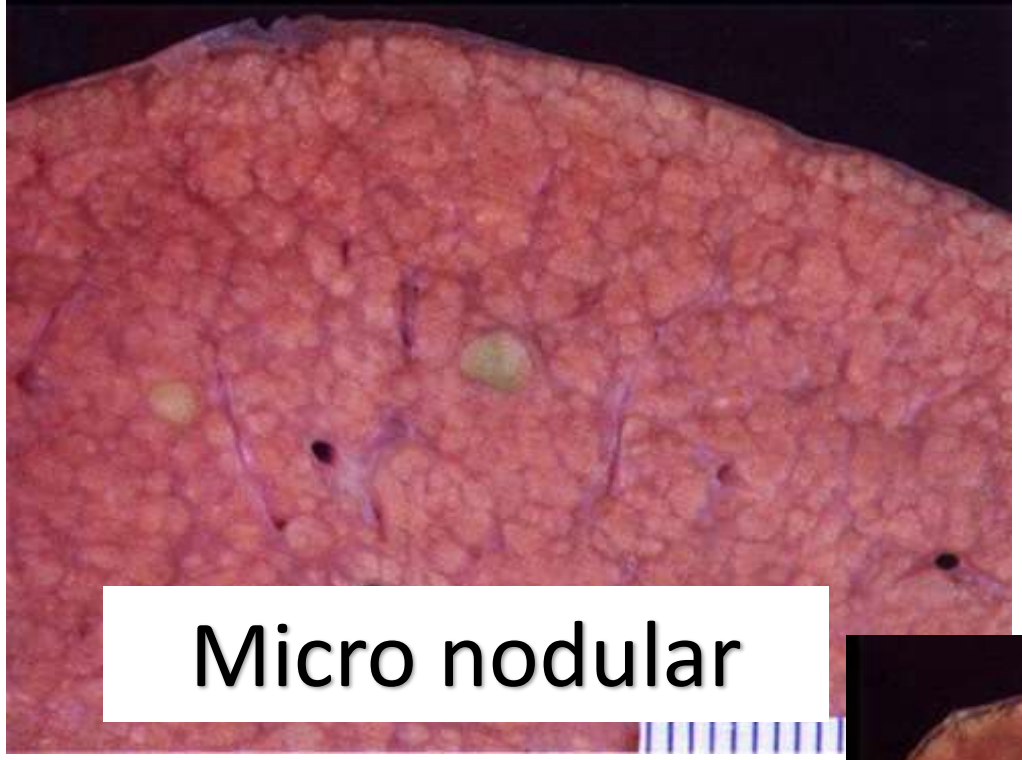


MALLORY'S bodies:eosinophilic cytoplasmic inclusions (cytokeratin intermediate filaments)



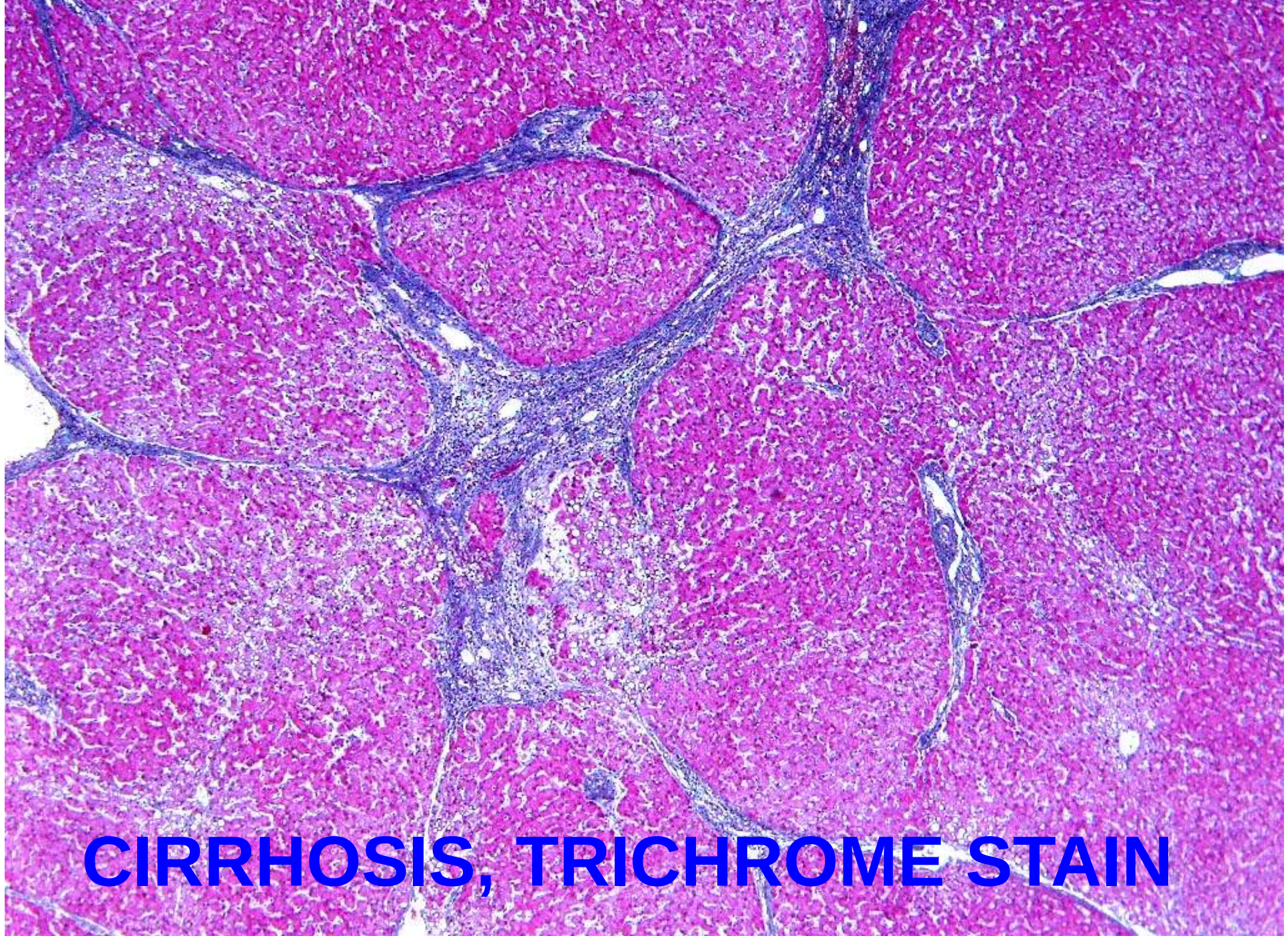






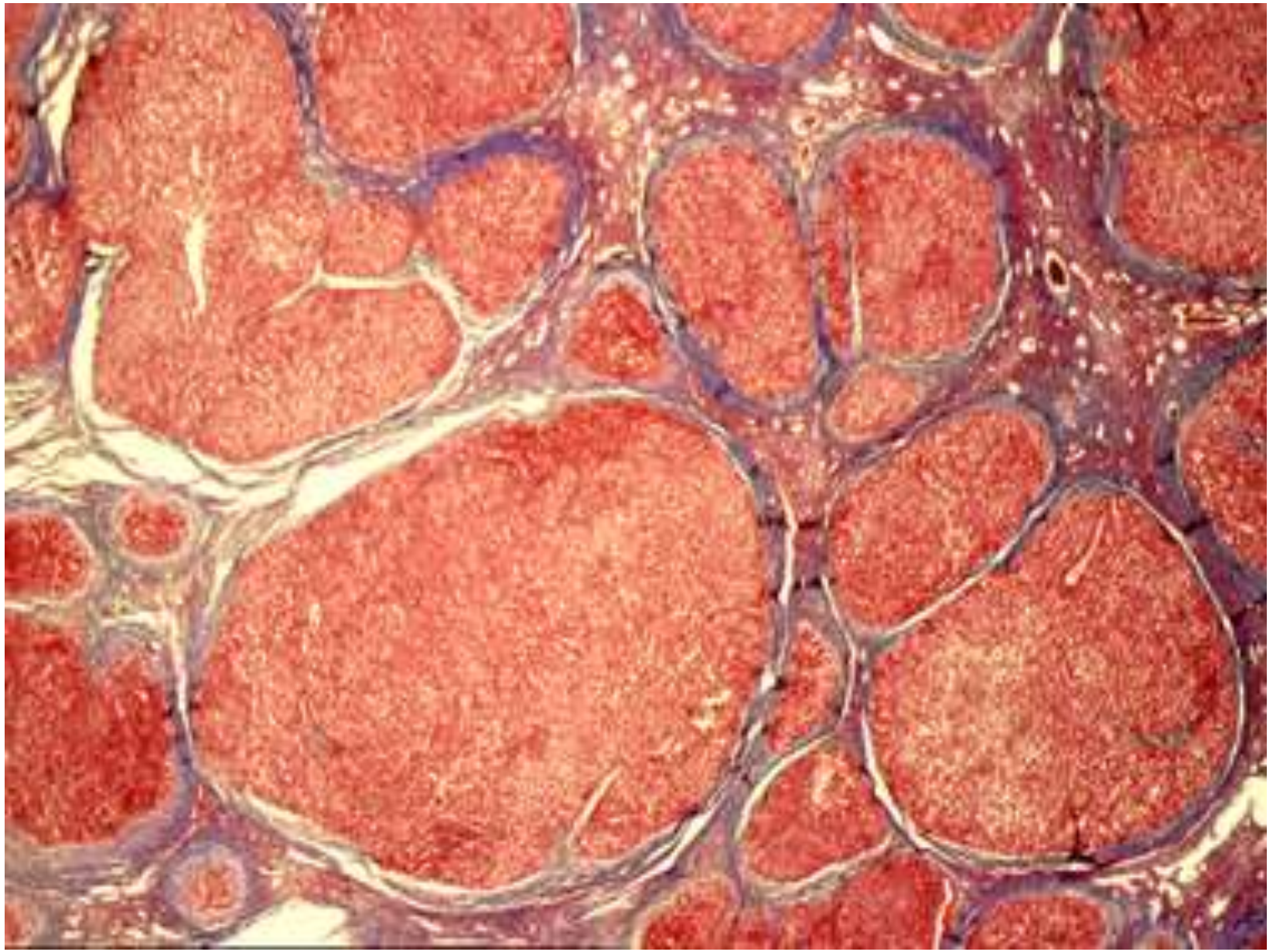
Micro nodular

Macro nodular



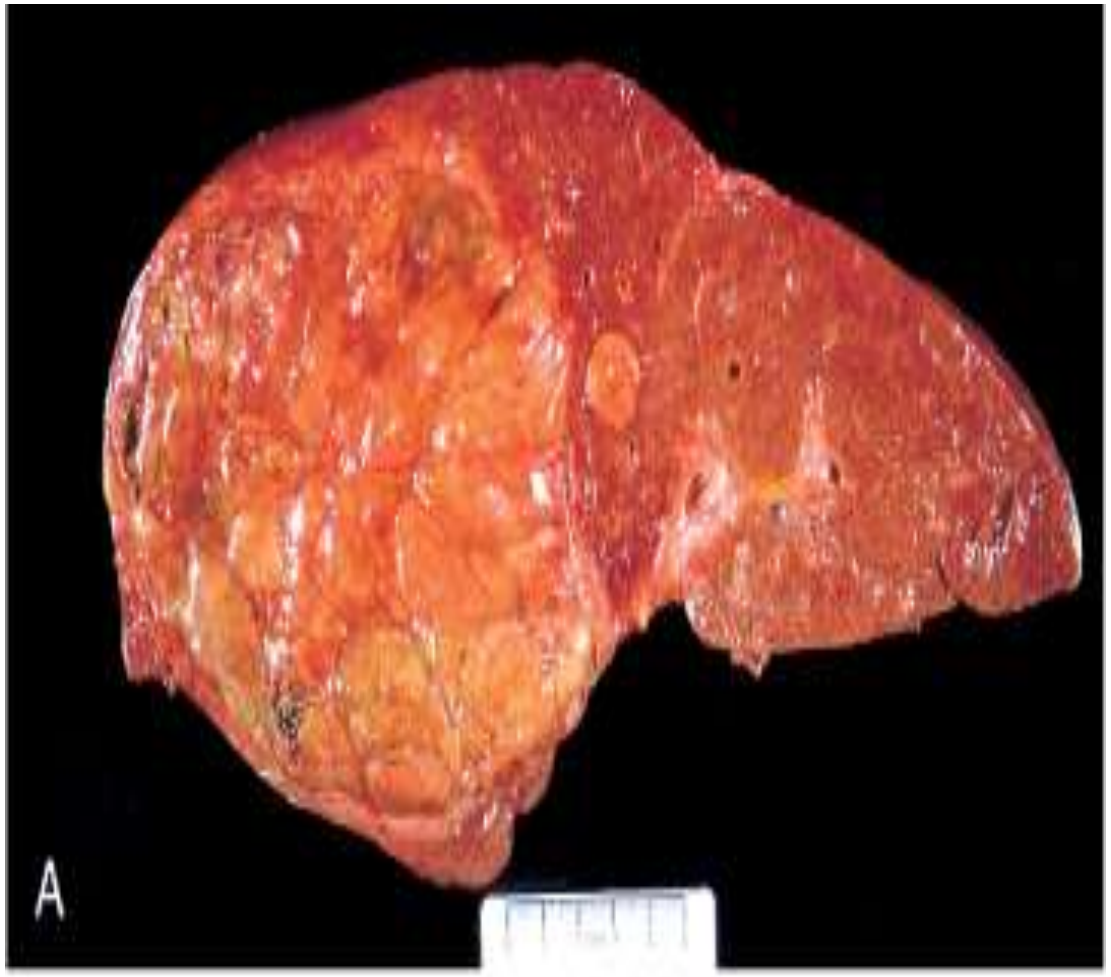
CIRRHOSIS, TRICHROME STAIN

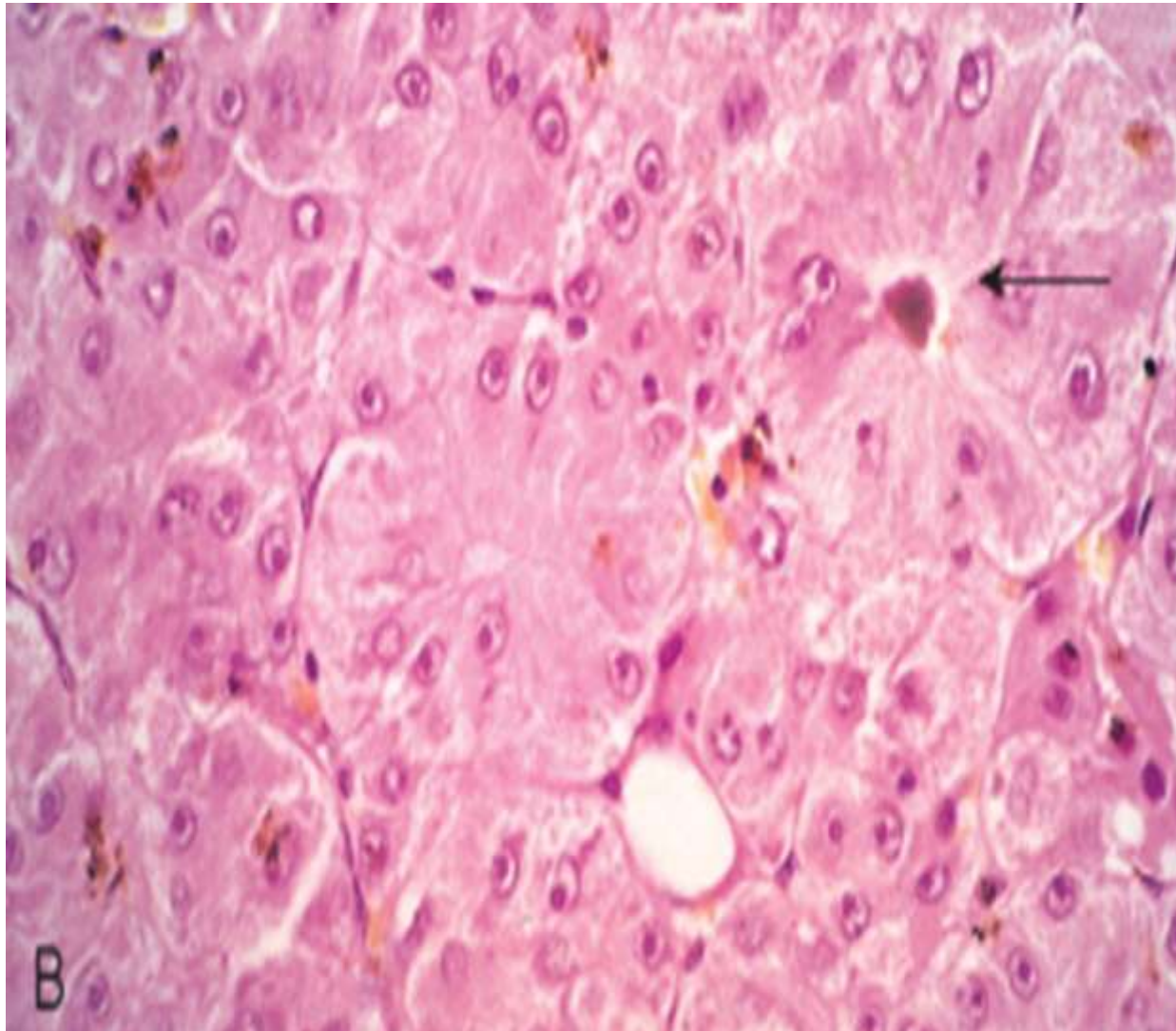
CIRRHOTIC LIVER--
regenerative nodules usually don’t contain portal tracts



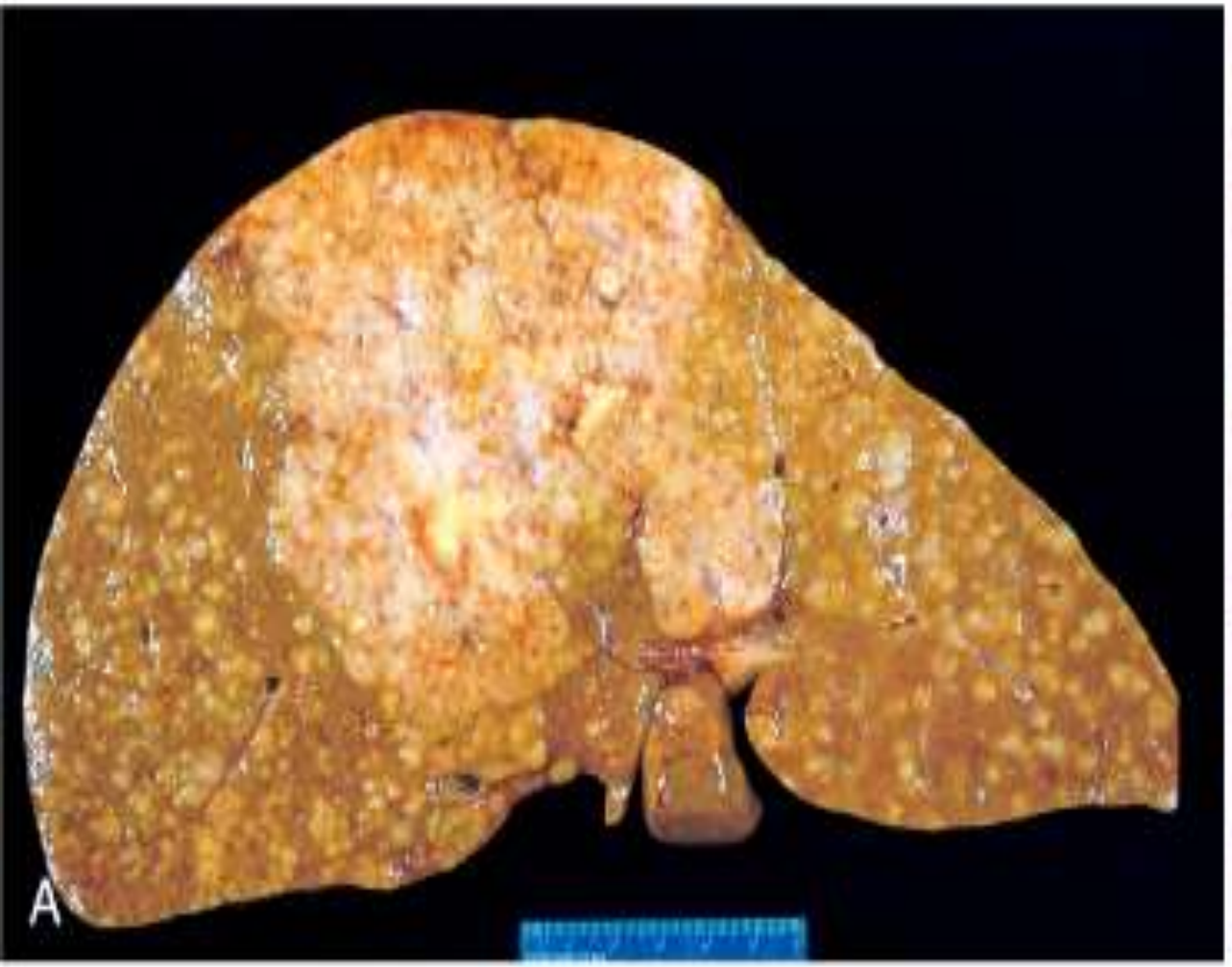
LIVER CELL ADENOMA

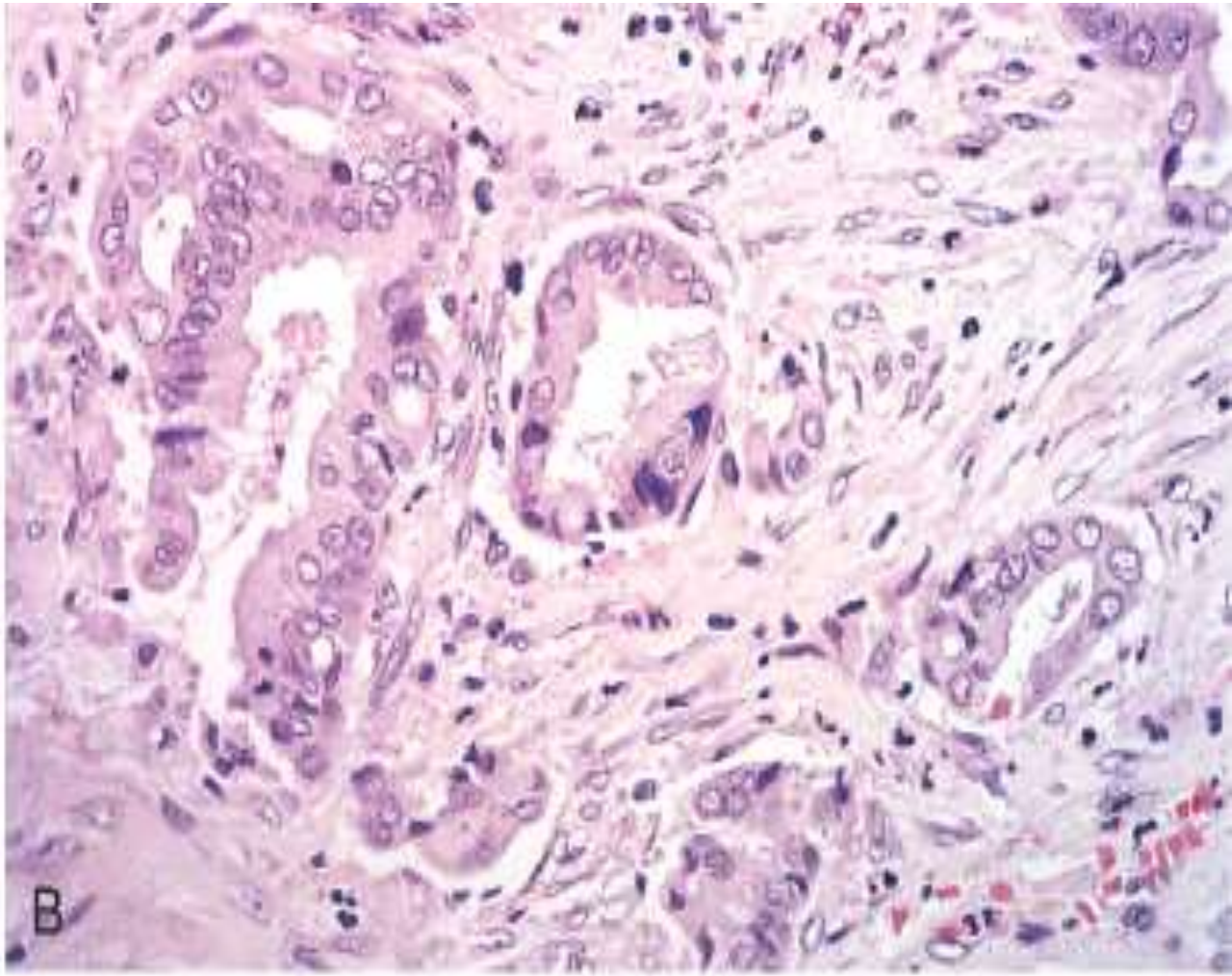
Hepatocellular ca gross and mic





Cholangiocarcinoma gross and mic.

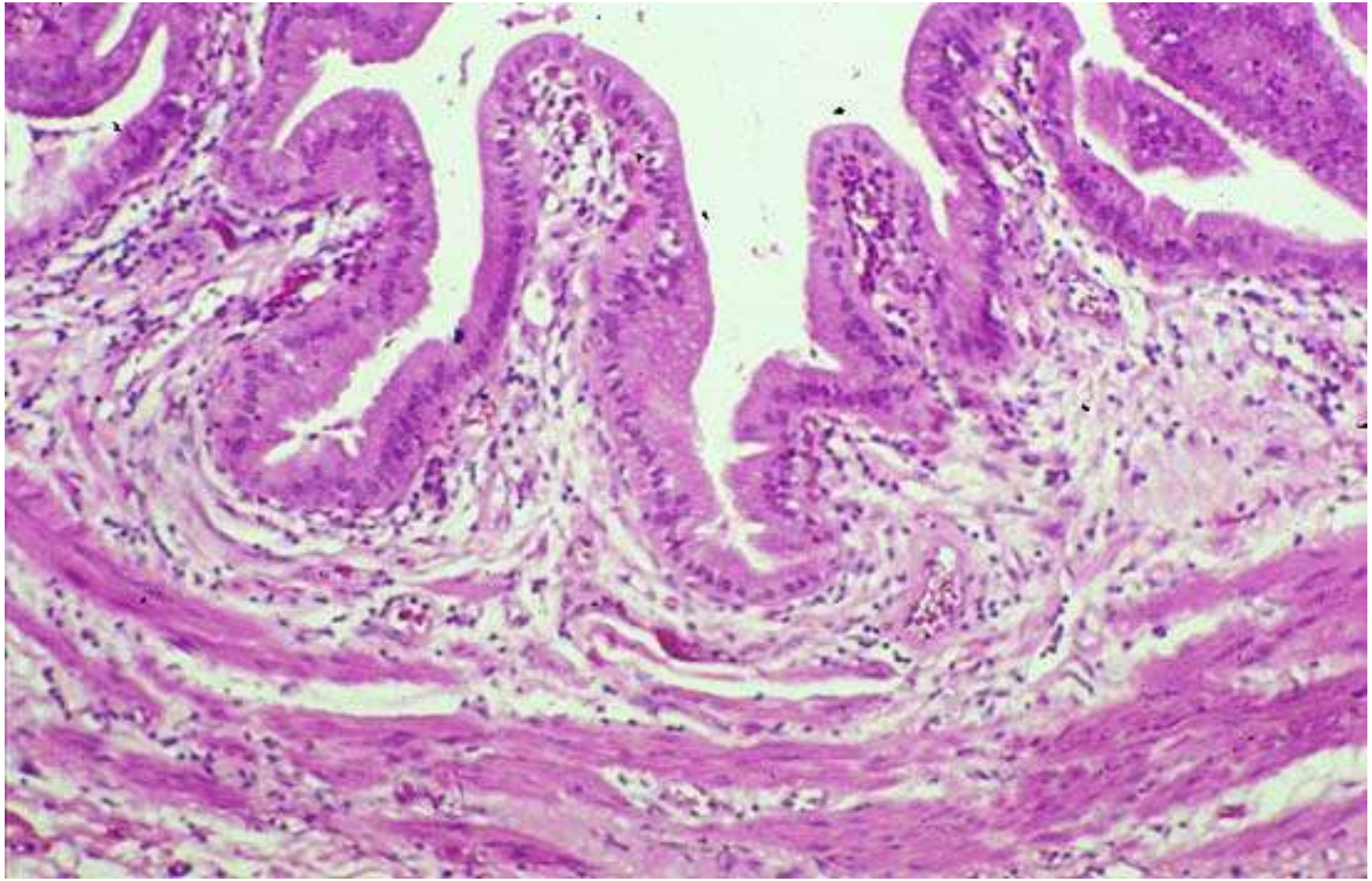




PATHOLOGY OF THE BILIARY TRACT

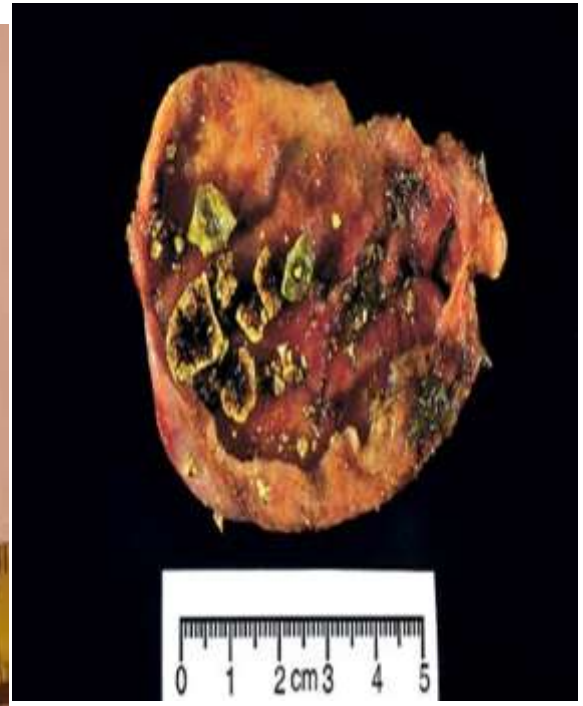
- **Disorders of the gallbladder**
  - Cholelithiasis
  - Cholecystitis(acute and chronic)
  - Tumors
- **Disorders of extrahepatic bile ducts**
  - Choledocholithiasis
  - Ascending cholangitis
  - Tumors

NORMAL GALLBLADDER



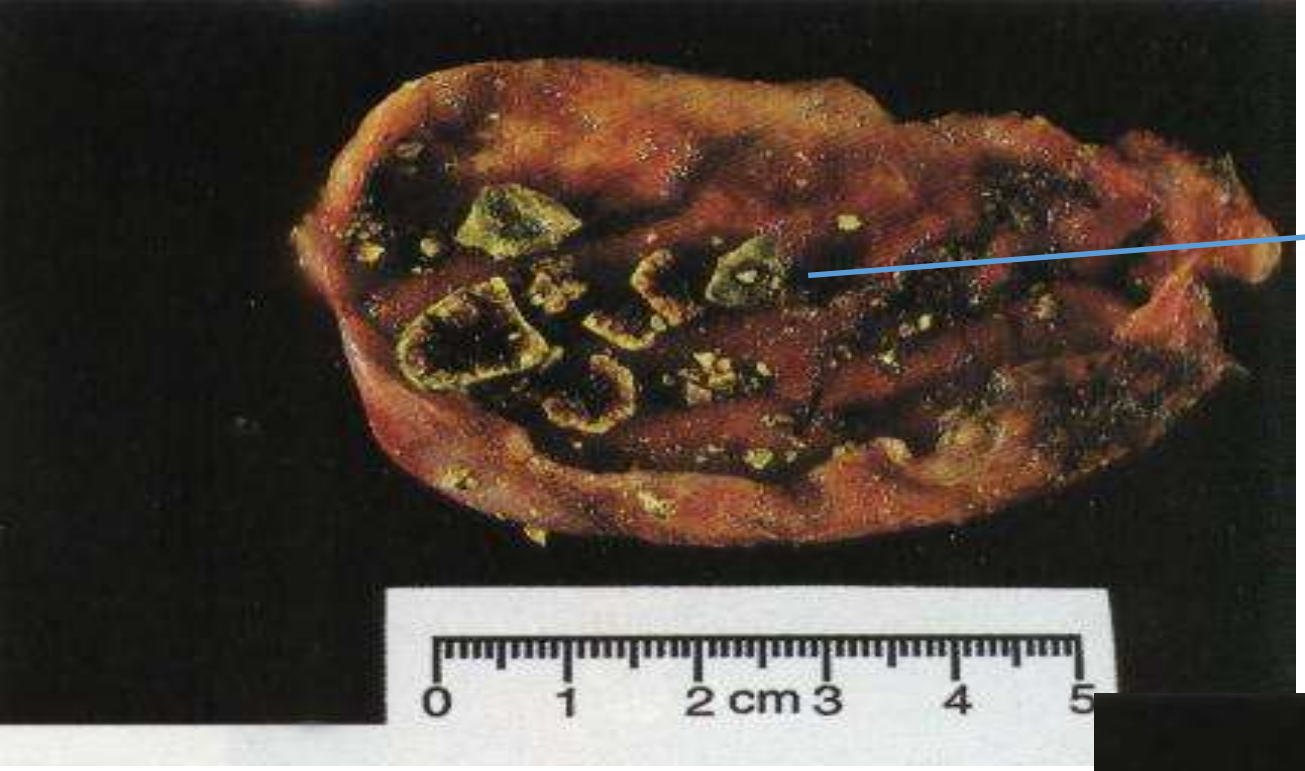
Cholesterol stones :

- Gross :
- Pure pale yellow, ovoid, firm, single to multiple with faceted surfacesm mostly radiolucent,
- Mixed :20% is radio opaque due to the presence of calcium carbonate content.



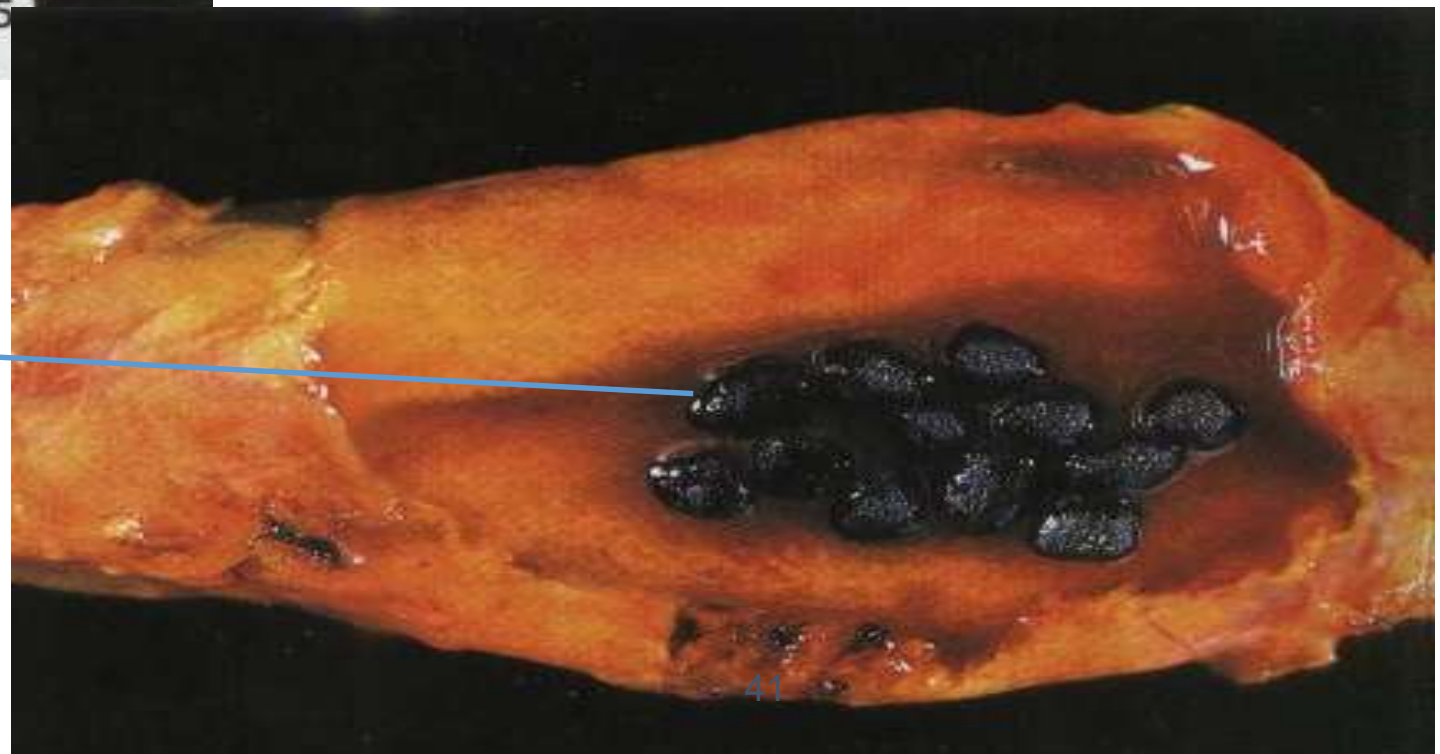
• Pigment stones

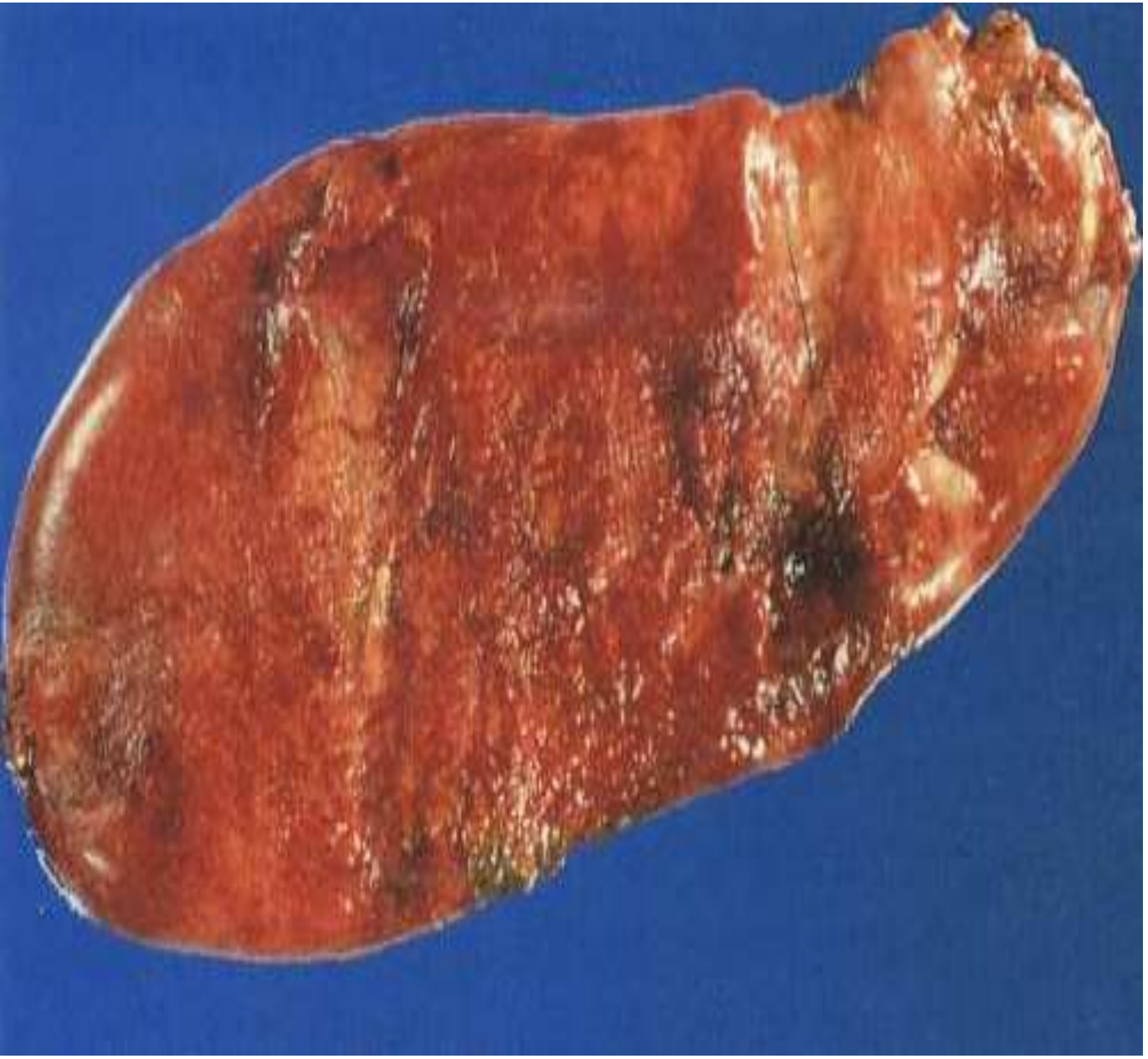
- Black stone (in sterile gall bladder bile)- small size, fragile to touch, numerous, 50-70% are radioopaque
- Brown stone (in infected intrahepatic or extrahepatic ducts)- single to a few, soft, greasy,.

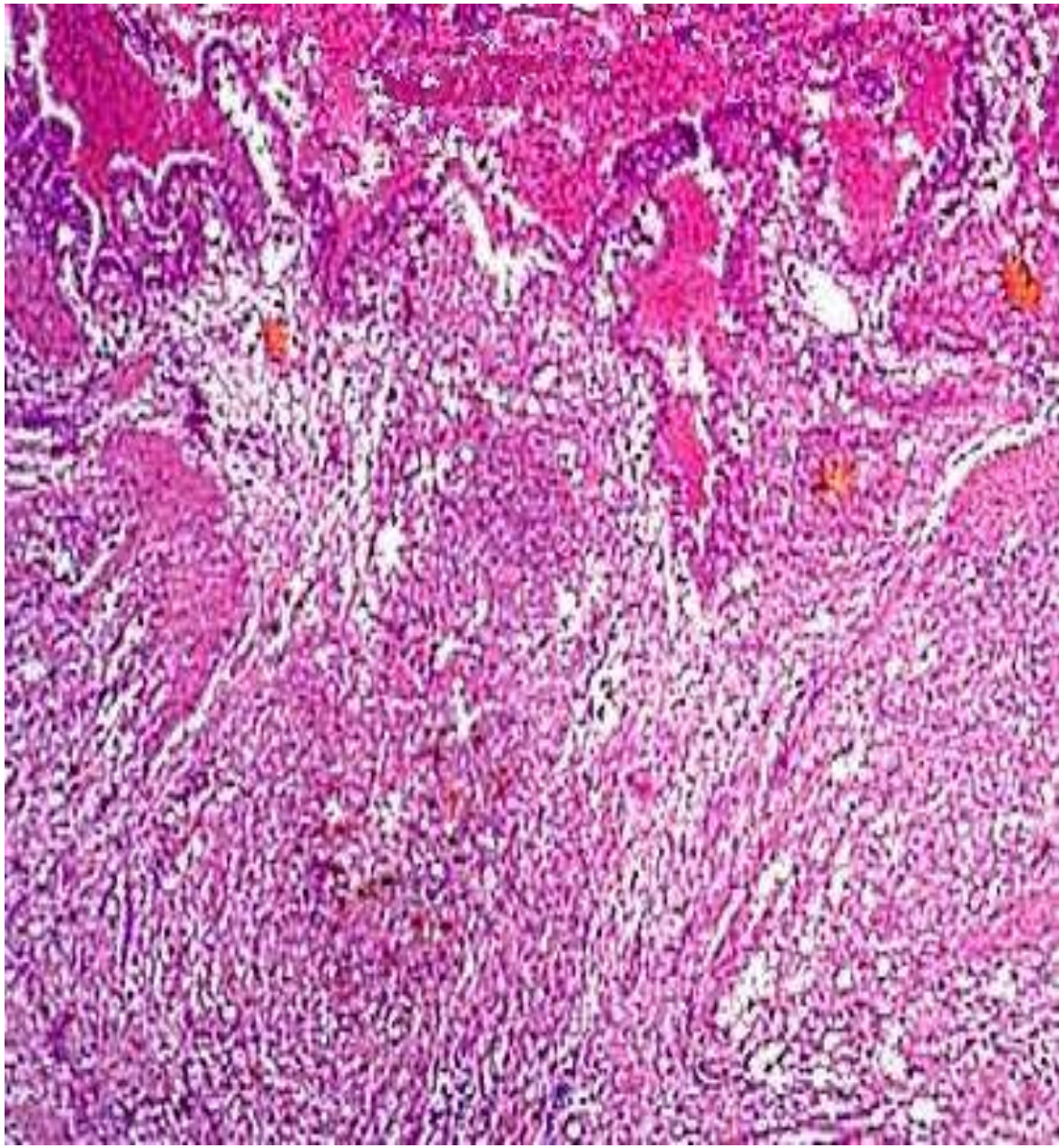


Cholesterol stones

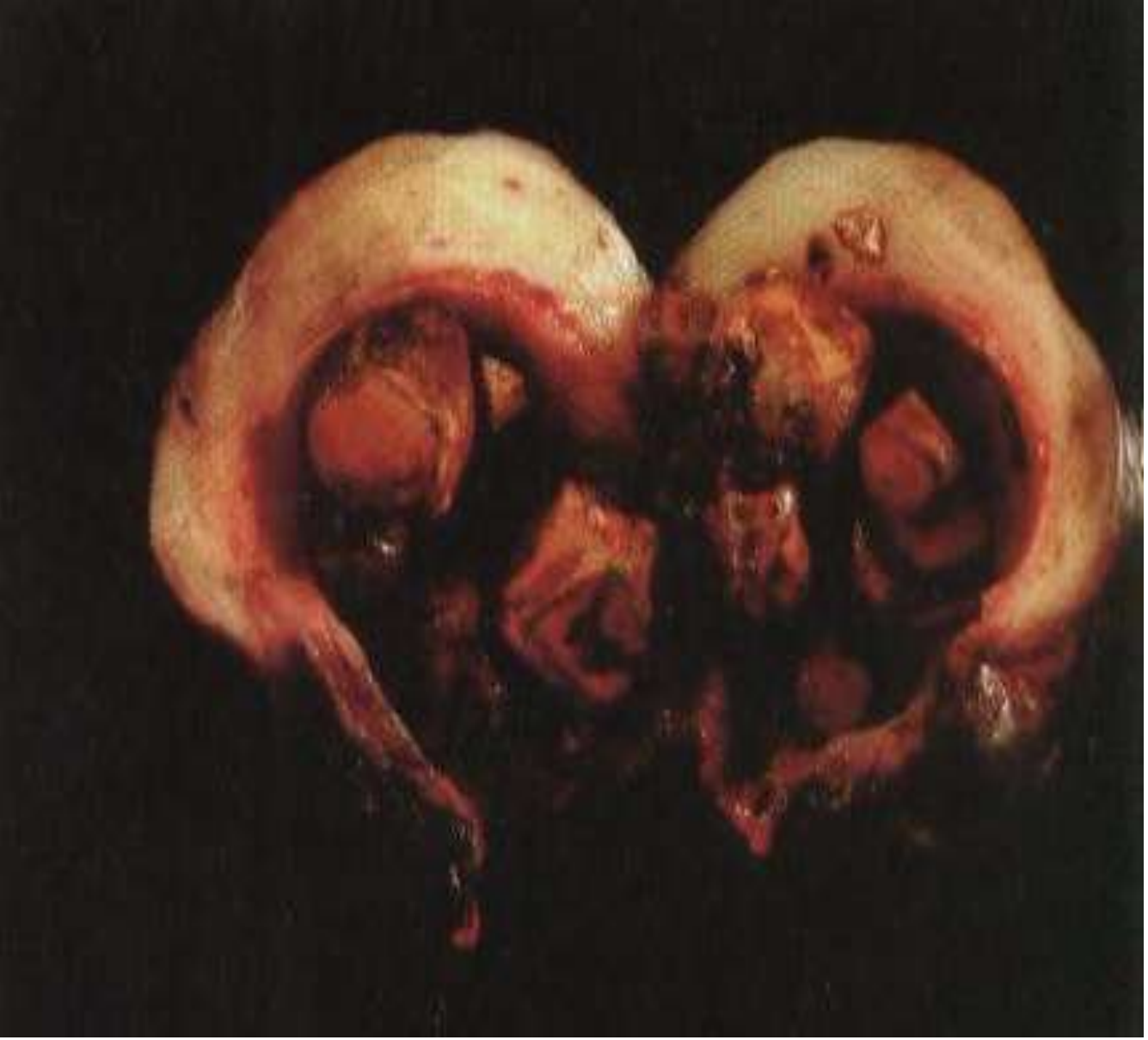
Pigmented gallstones

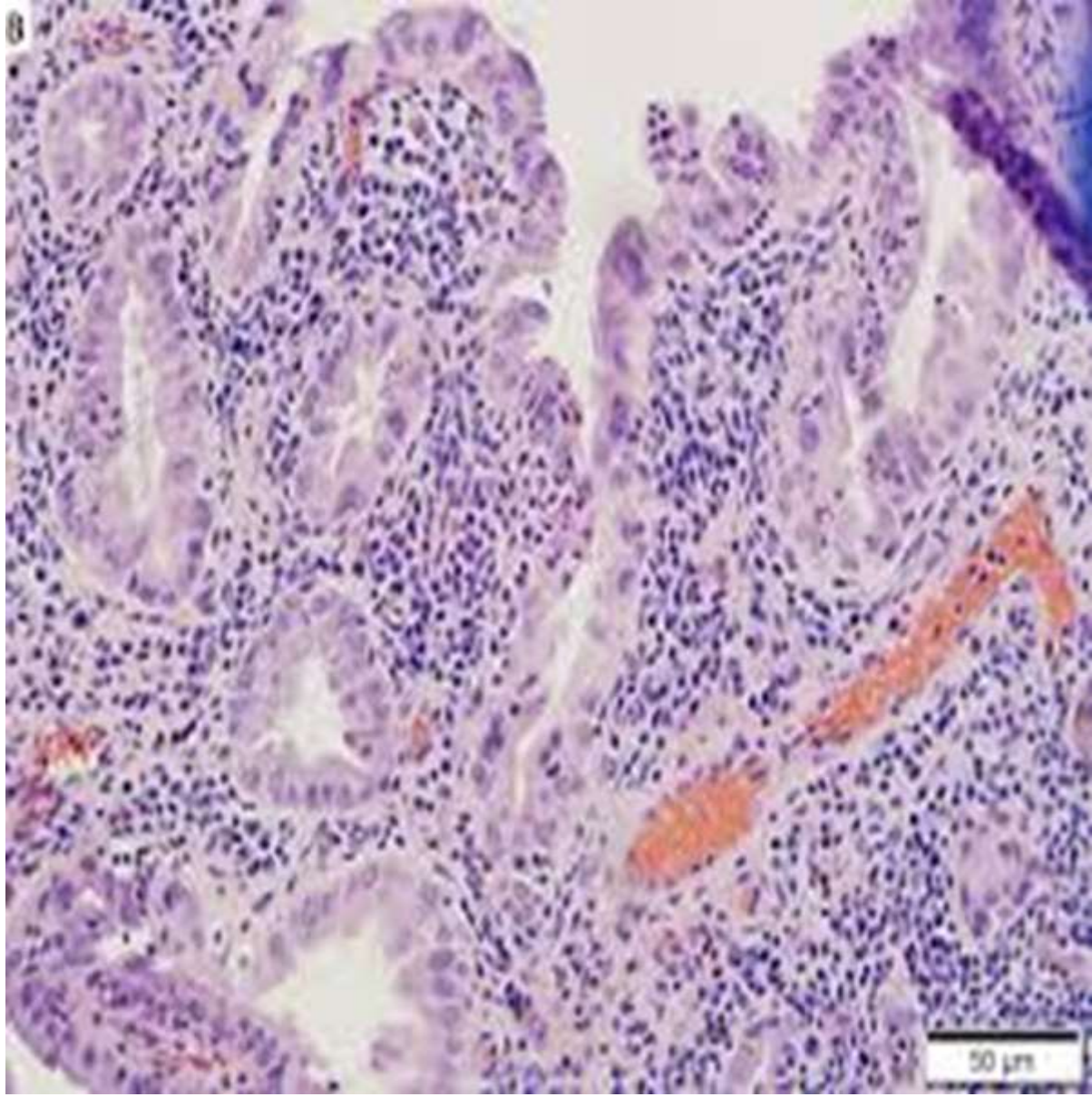




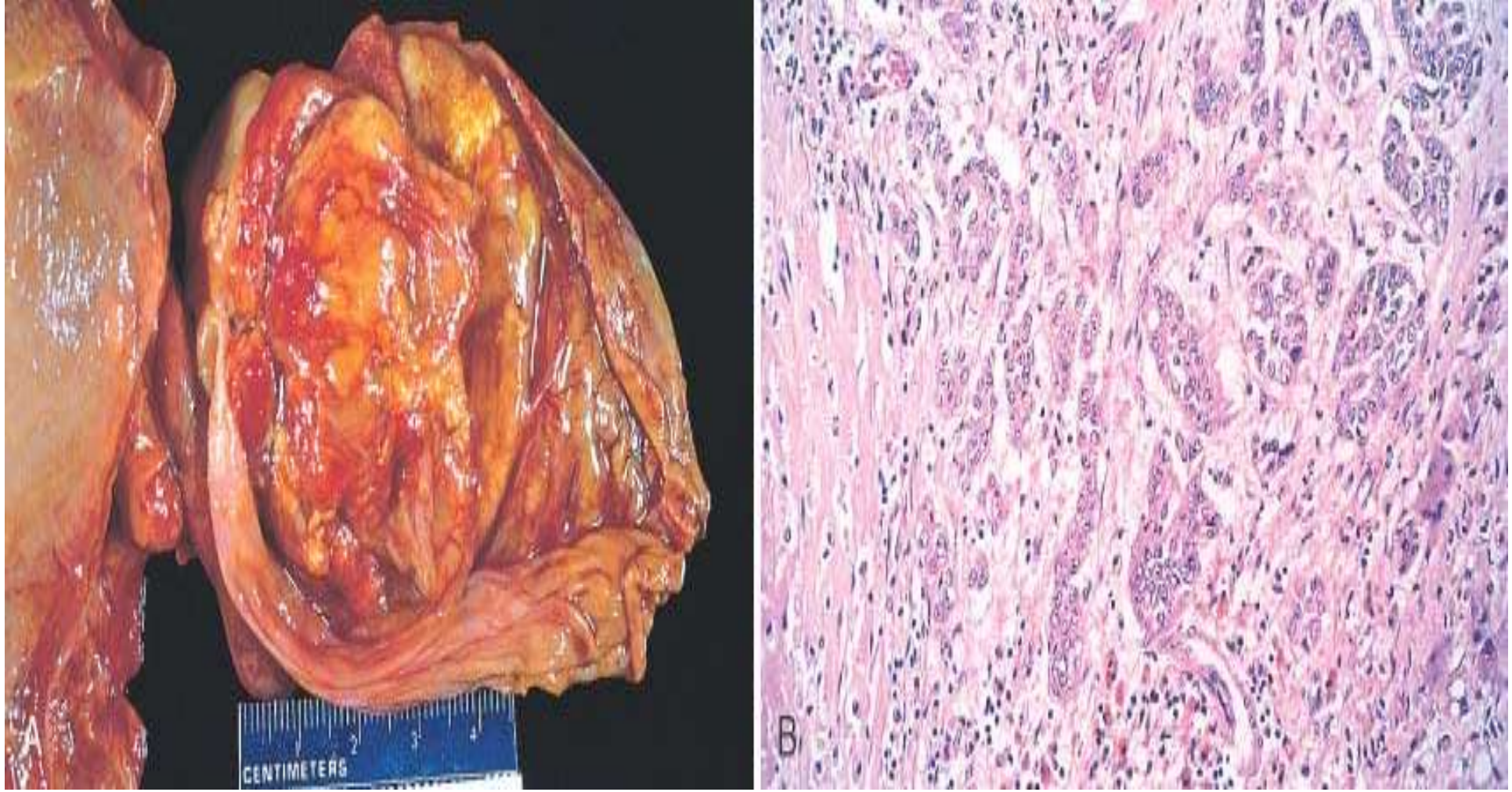


Acute cholecystitis:

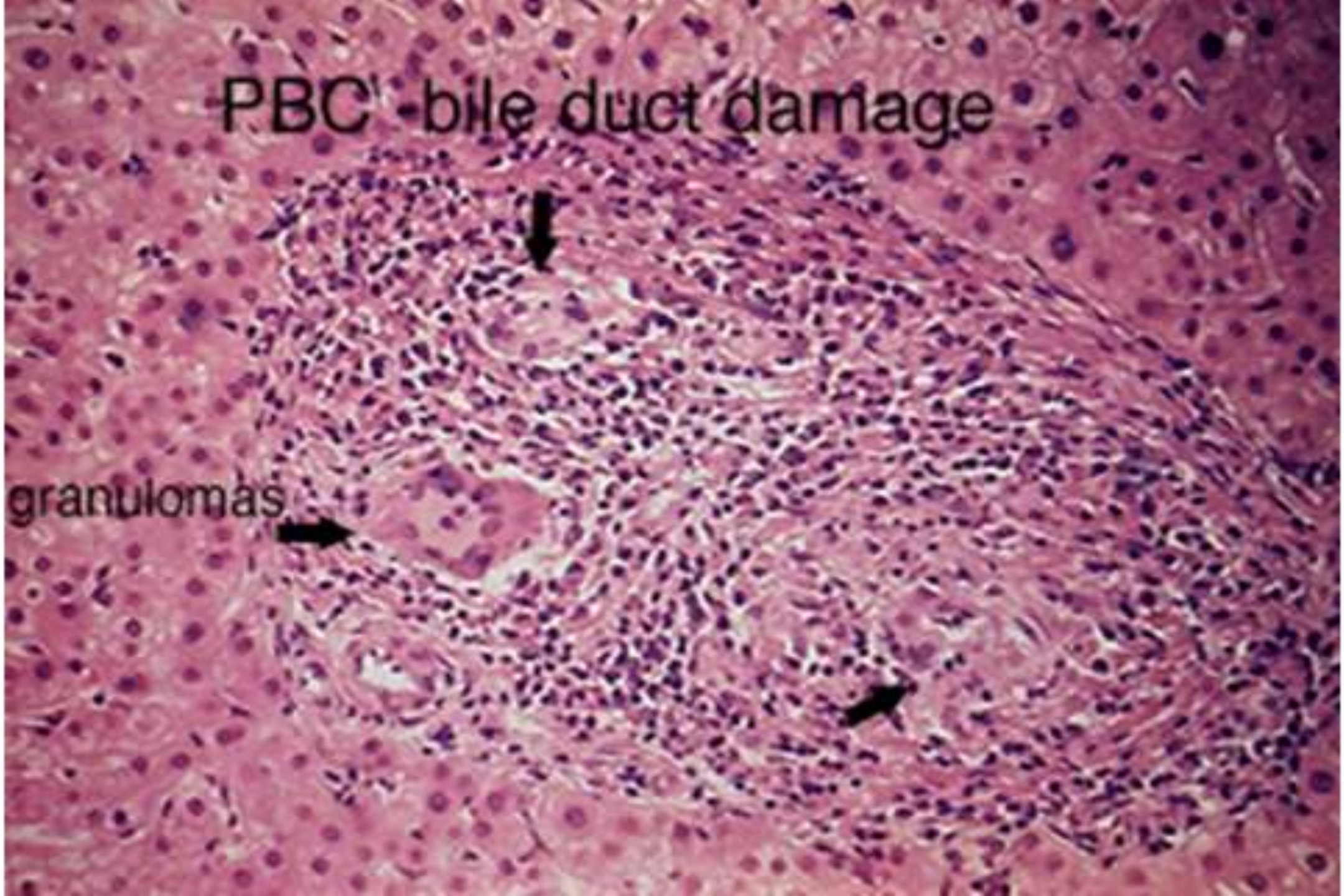




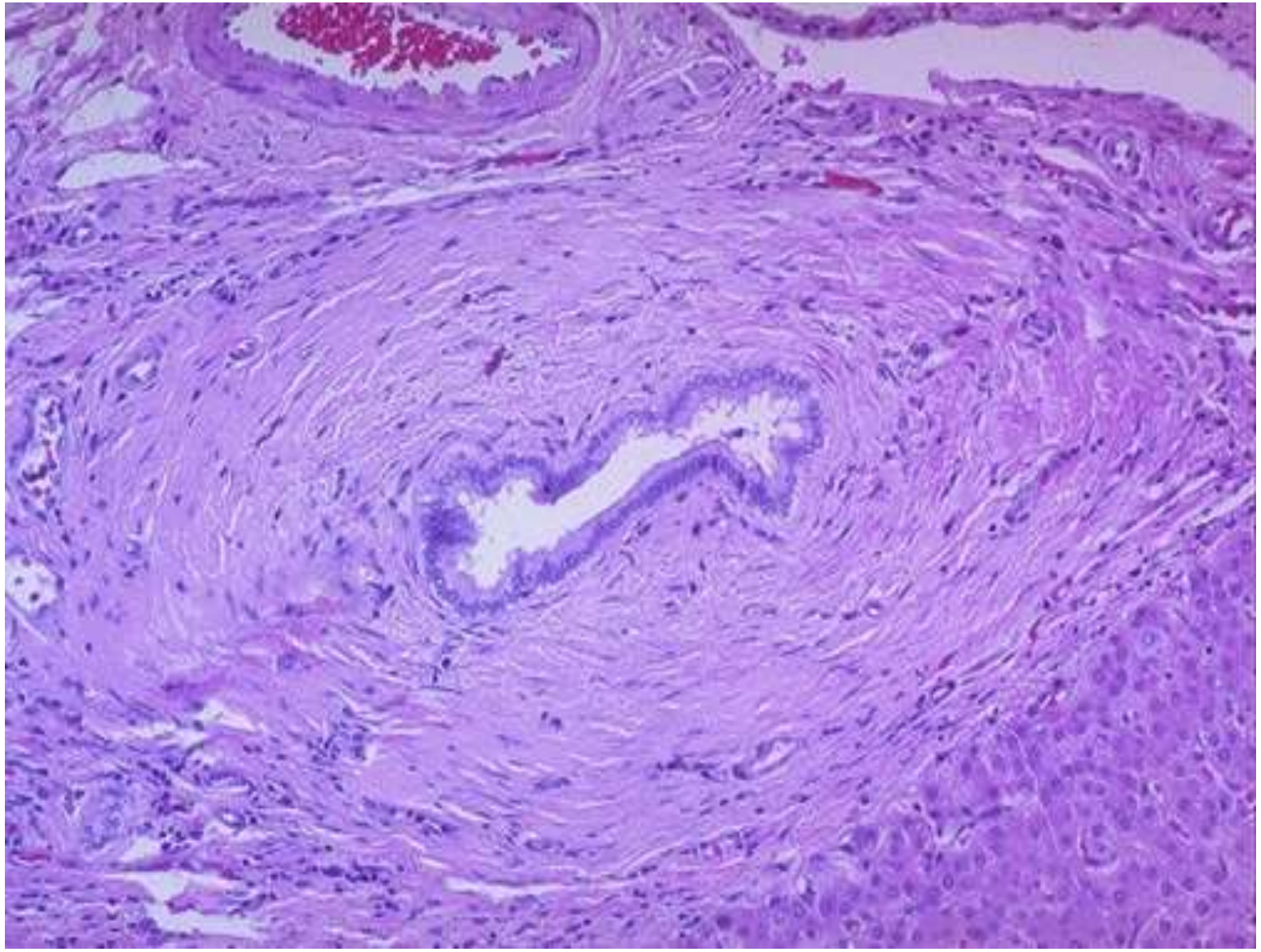
Chronic cholecystitis:

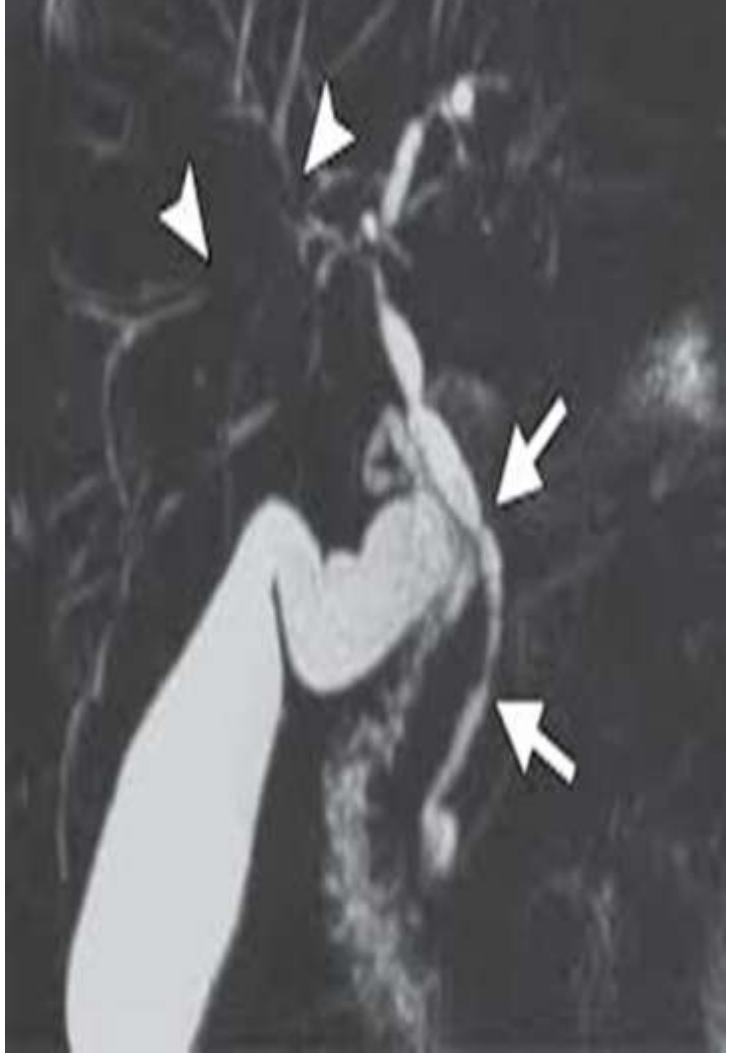


Adenocarcinoma of the gallbladder

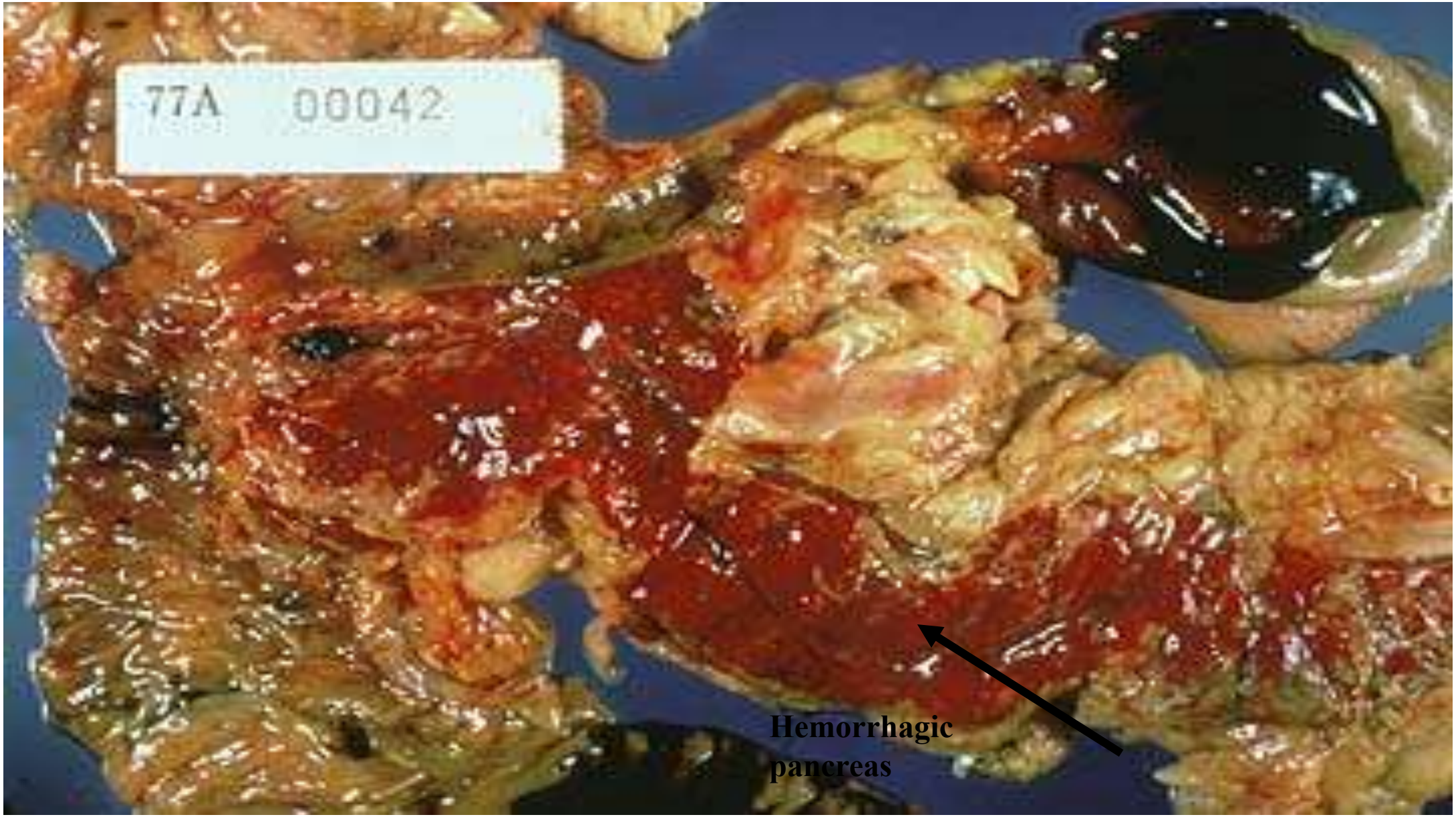

PBC -bile duct damage
granulomas

Primary sclerosing cholangitis

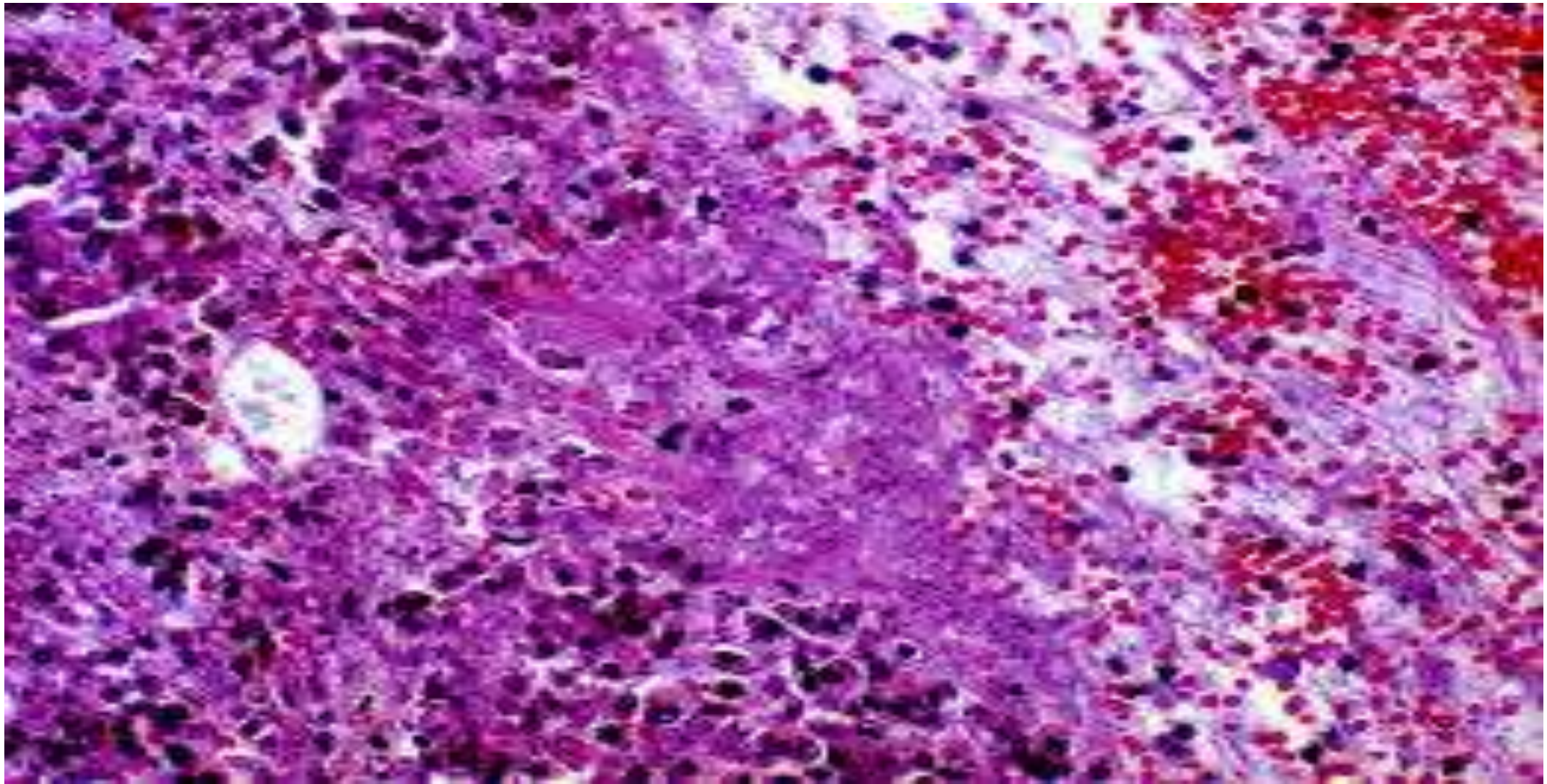


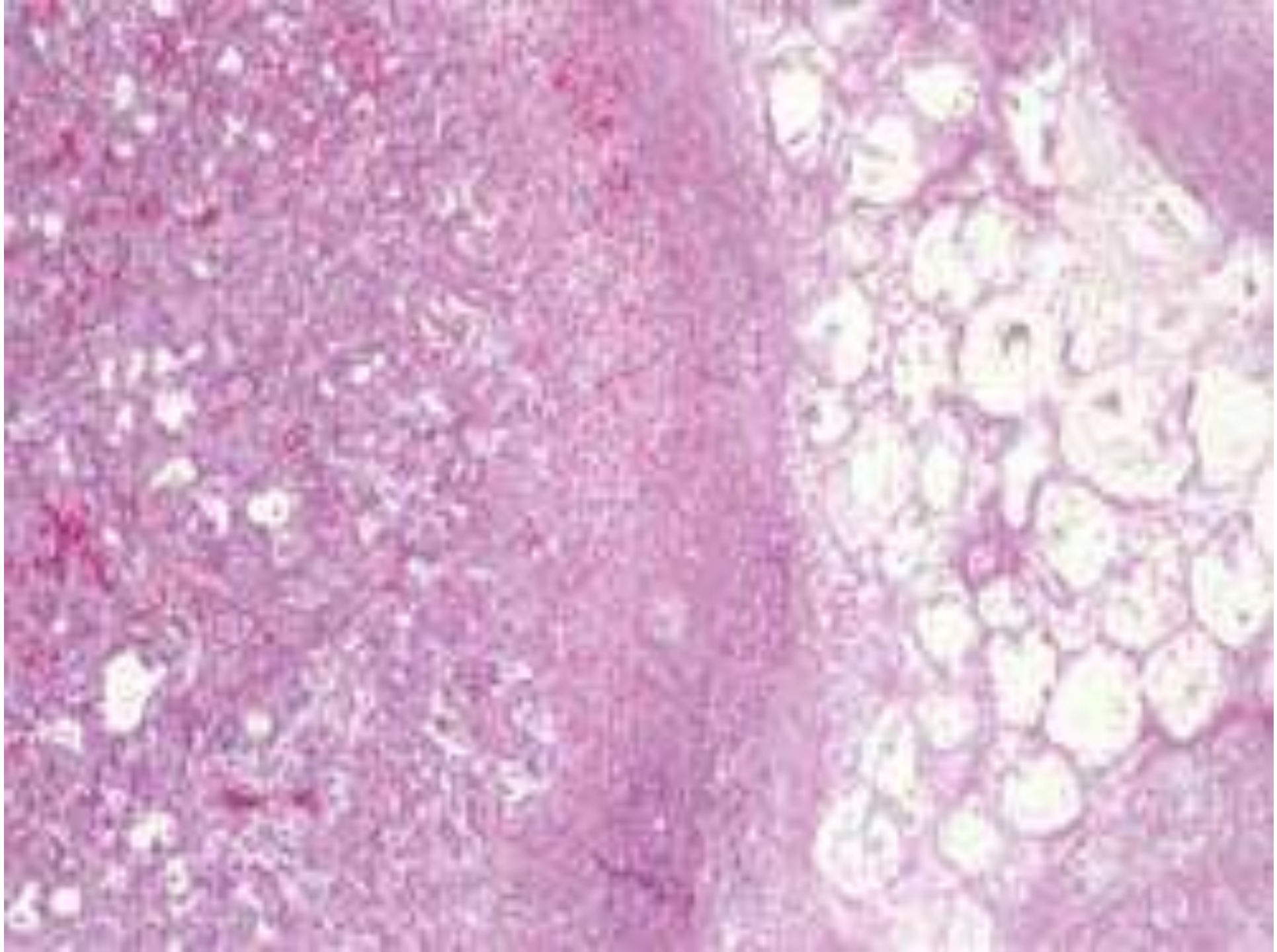


Acute hemorrhagic pancreatitis.

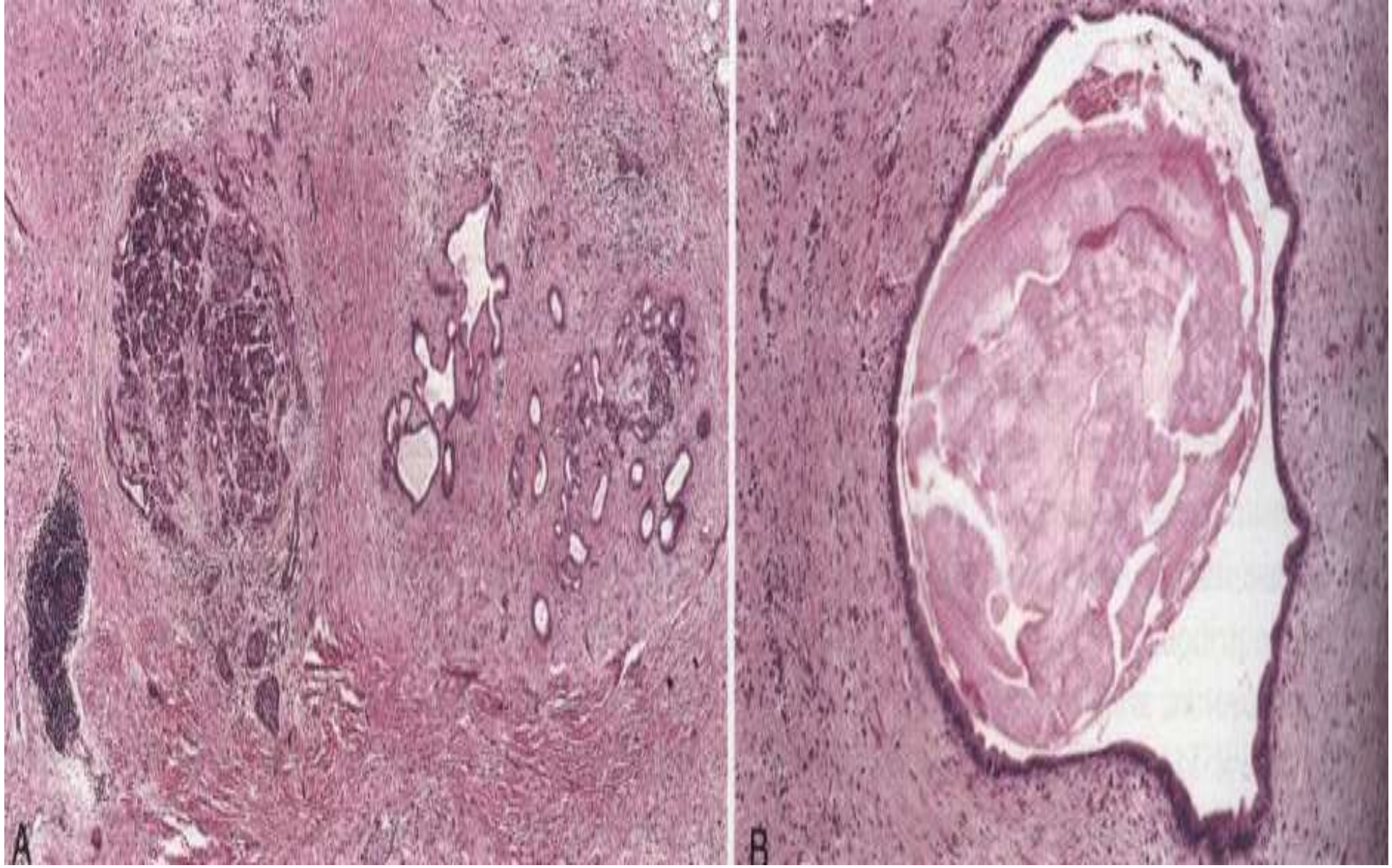


Acute hemorrhage with coagulation necrosis of acinar tissue.



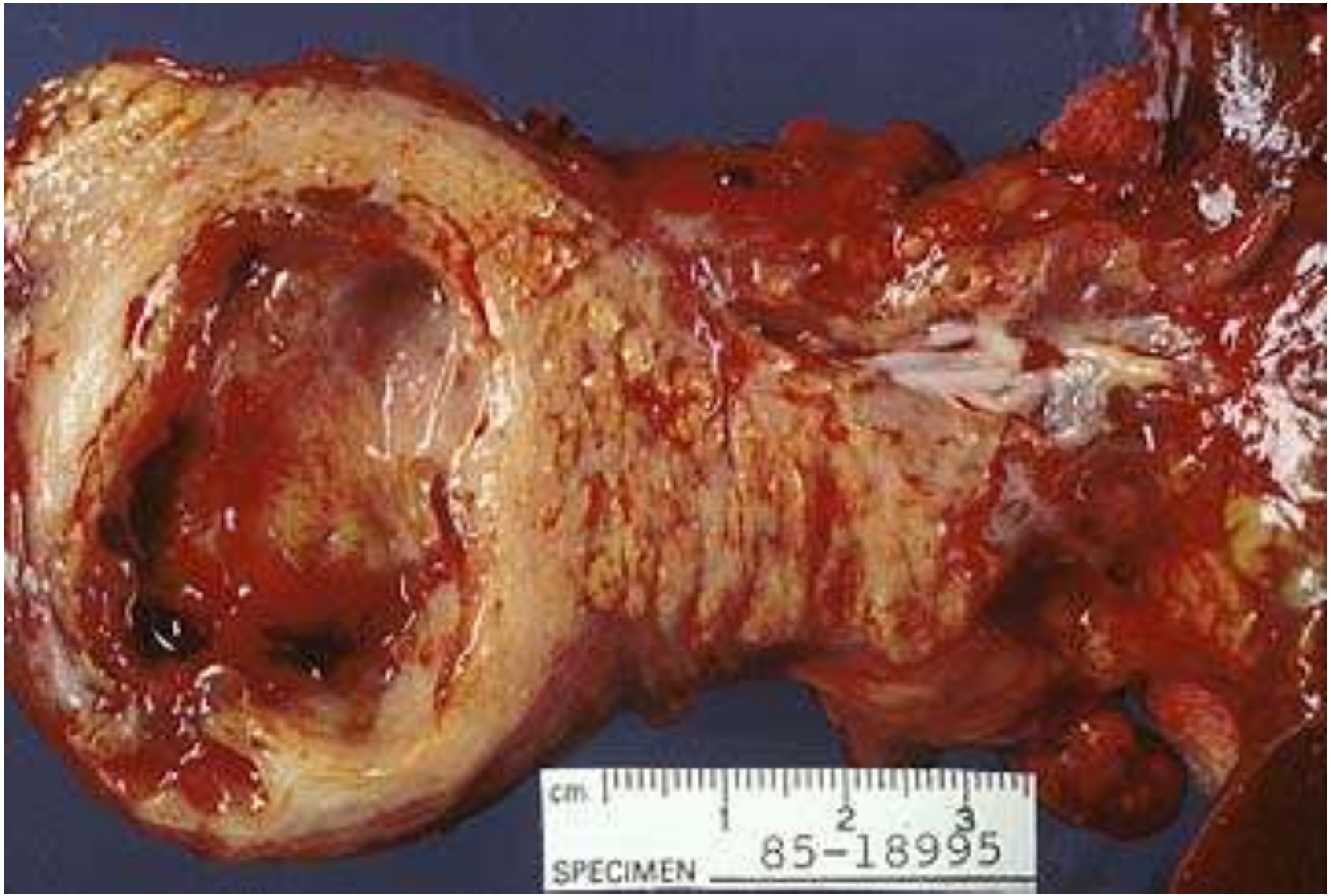


Enzymatic fat necrosis

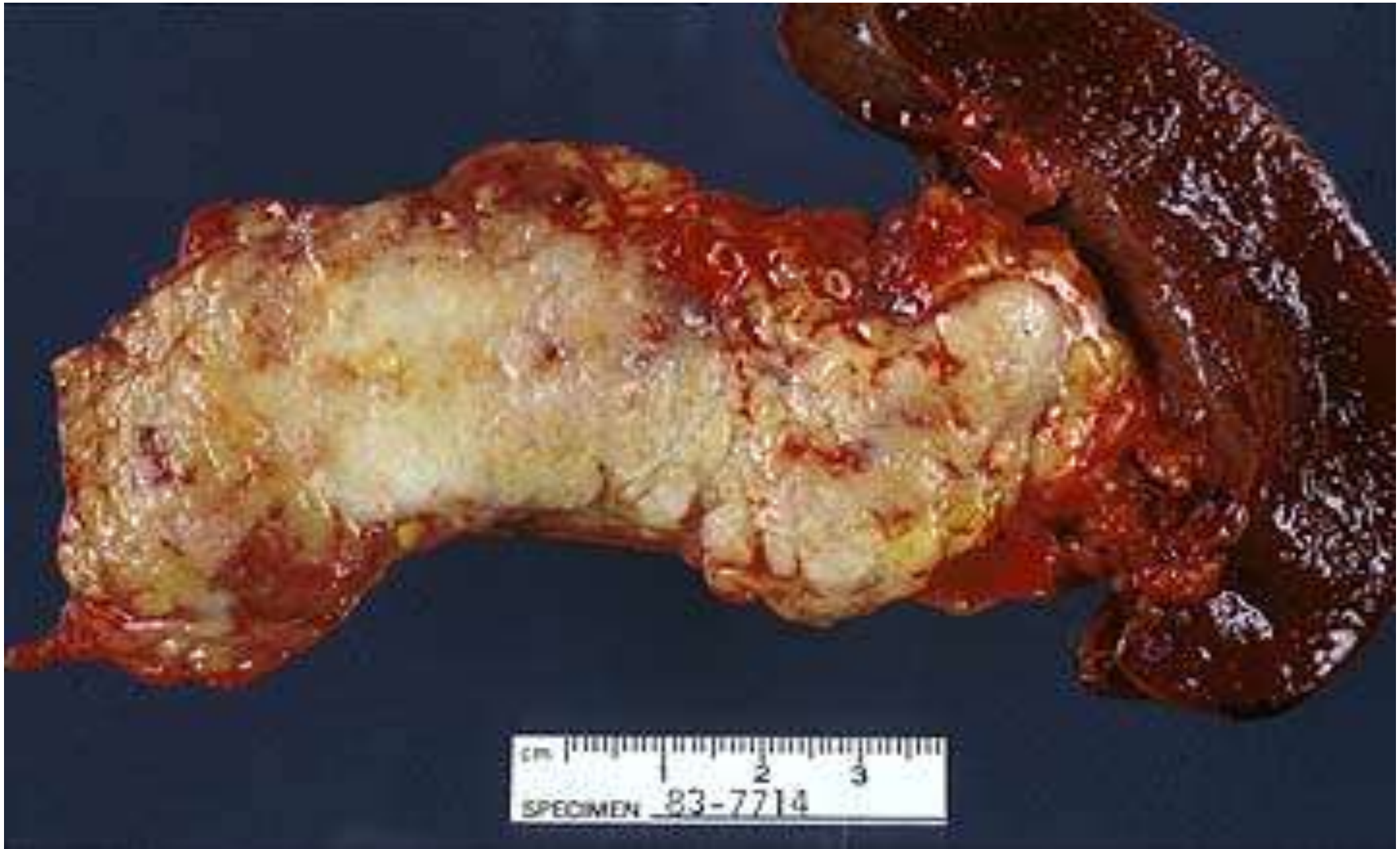


Chronic pancreatitis

Pancreatic Pseudocyst



Adenocarcinoma replacing tail and body of pancreas. **Whitish firm mass**



Malignant glands in pancreatic adenocarcinoma.