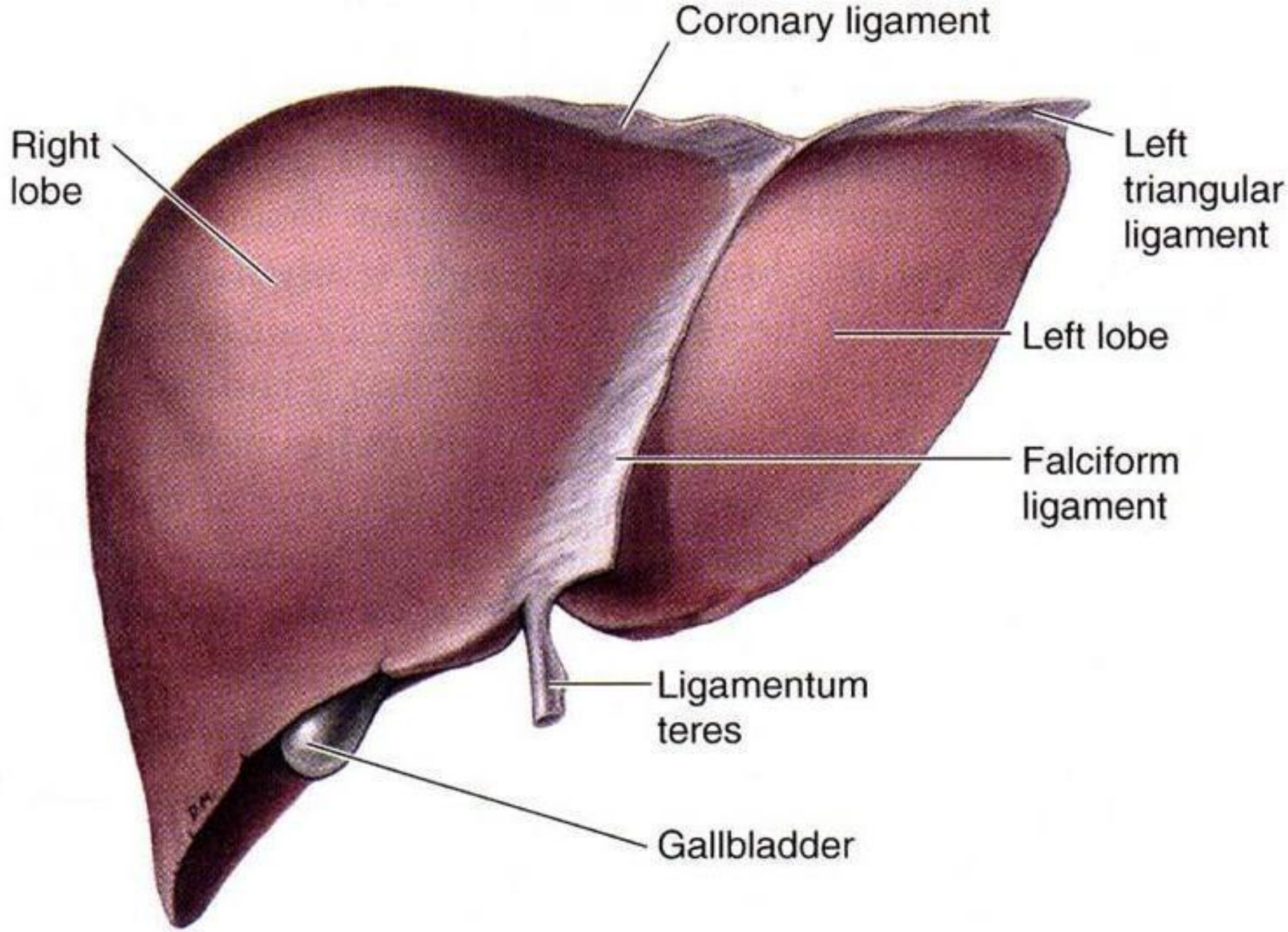
GNT Block
2018
Pathology Practical

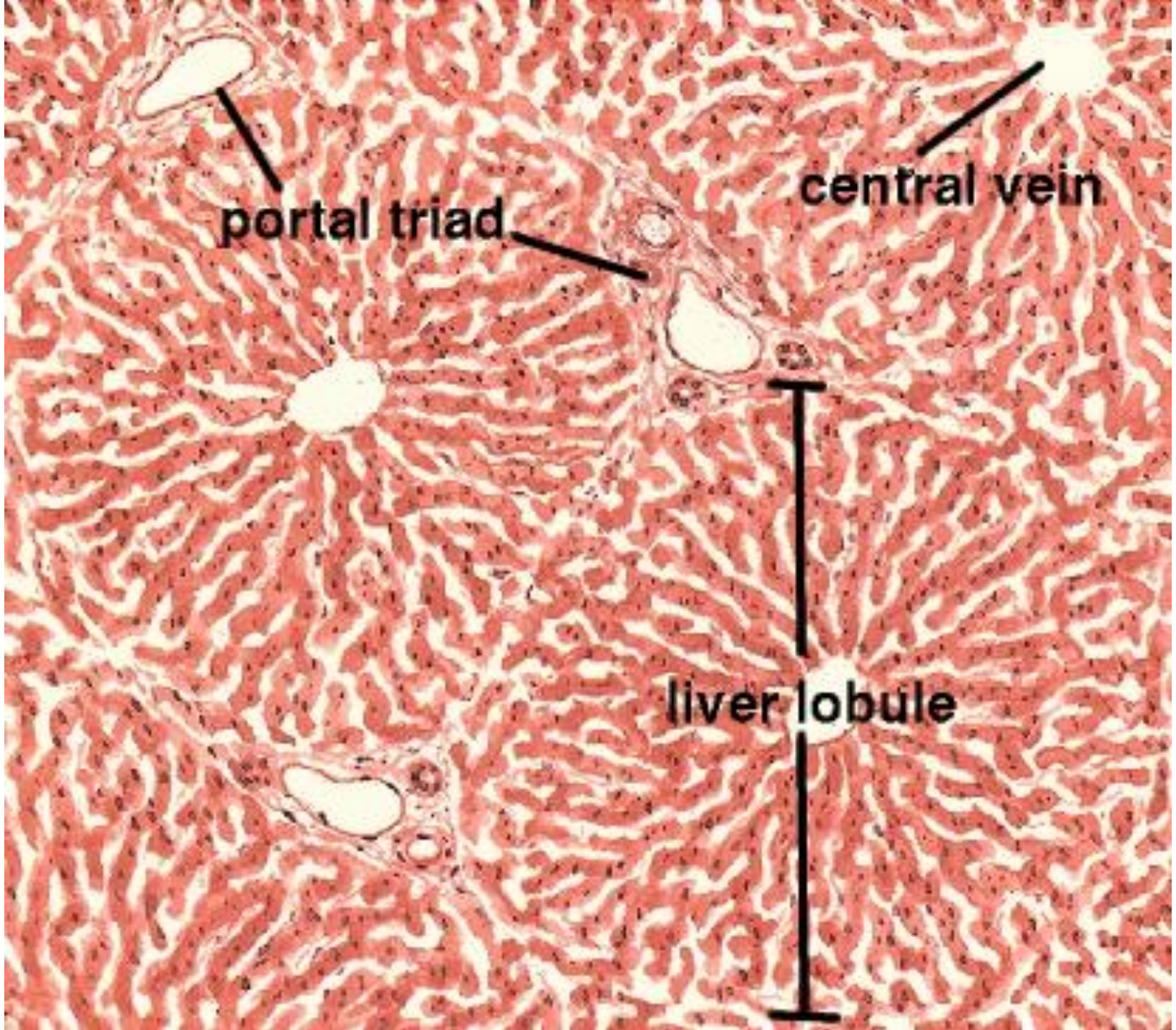
Hepatobiliary system

Liver, biliary system and pancreas practical

Liver

Normal anatomy and histology


Coronary ligament
Right lobe
Left triangular ligament
Left lobe
Falciform ligament
Ligamentum teres
Gallbladder



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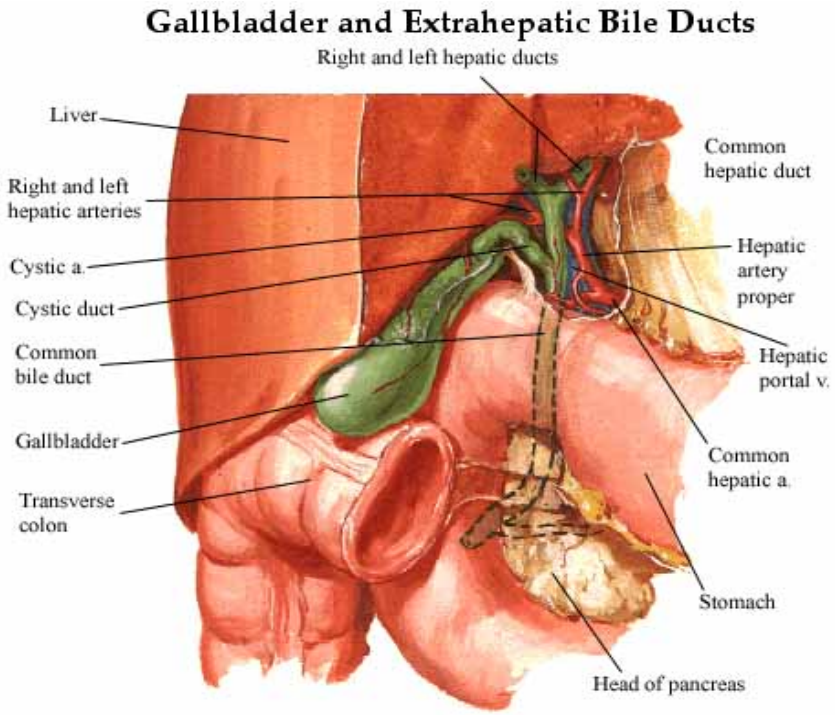
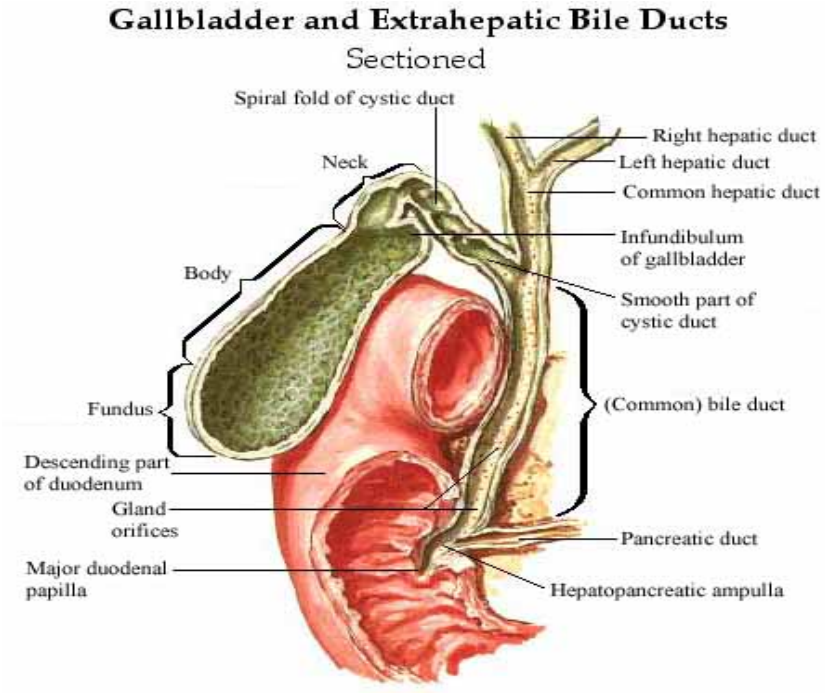
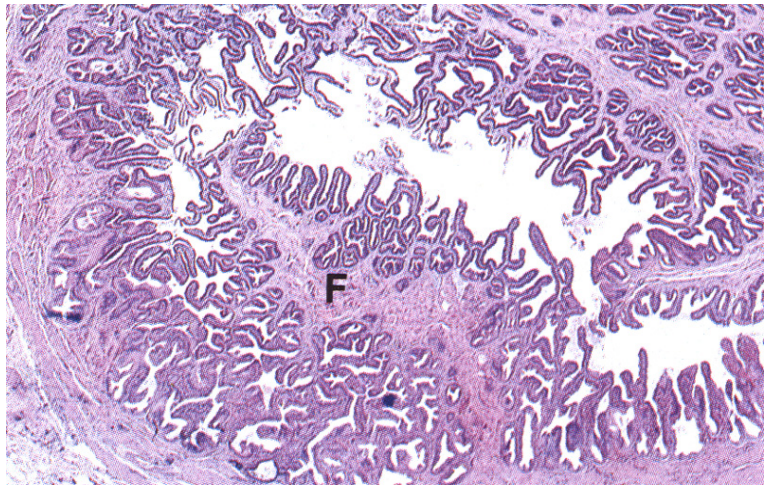

Gallbladder and Extrahepatic Bile Ducts
Right and left hepatic ducts
Liver
Common hepatic duct
Right and left hepatic arteries
Hepatic artery proper
Cystic a.
Cystic duct
Hepatic portal v.
Common bile duct
Gallbladder
Common hepatic a.
Transverse colon
Stomach
Head of pancreas


Gallbladder and Extrahepatic Bile Ducts
Sectioned
Spiral fold of cystic duct
Right hepatic duct
Neck
Left hepatic duct
Common hepatic duct
Infundibulum of gallbladder
Body
Smooth part of cystic duct
(Common) bile duct
Fundus
Descending part of duodenum
Gland orifices
Pancreatic duct
Major duodenal papilla
Hepatopancreatic ampulla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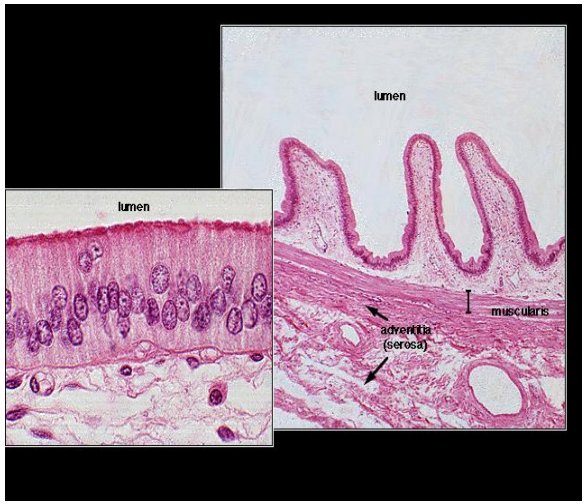

lumen
lumen
muscularis
adventitia (serosa)

Liver

Gross and histopathology

Fatty liver

Cholestasis

Drug toxicity

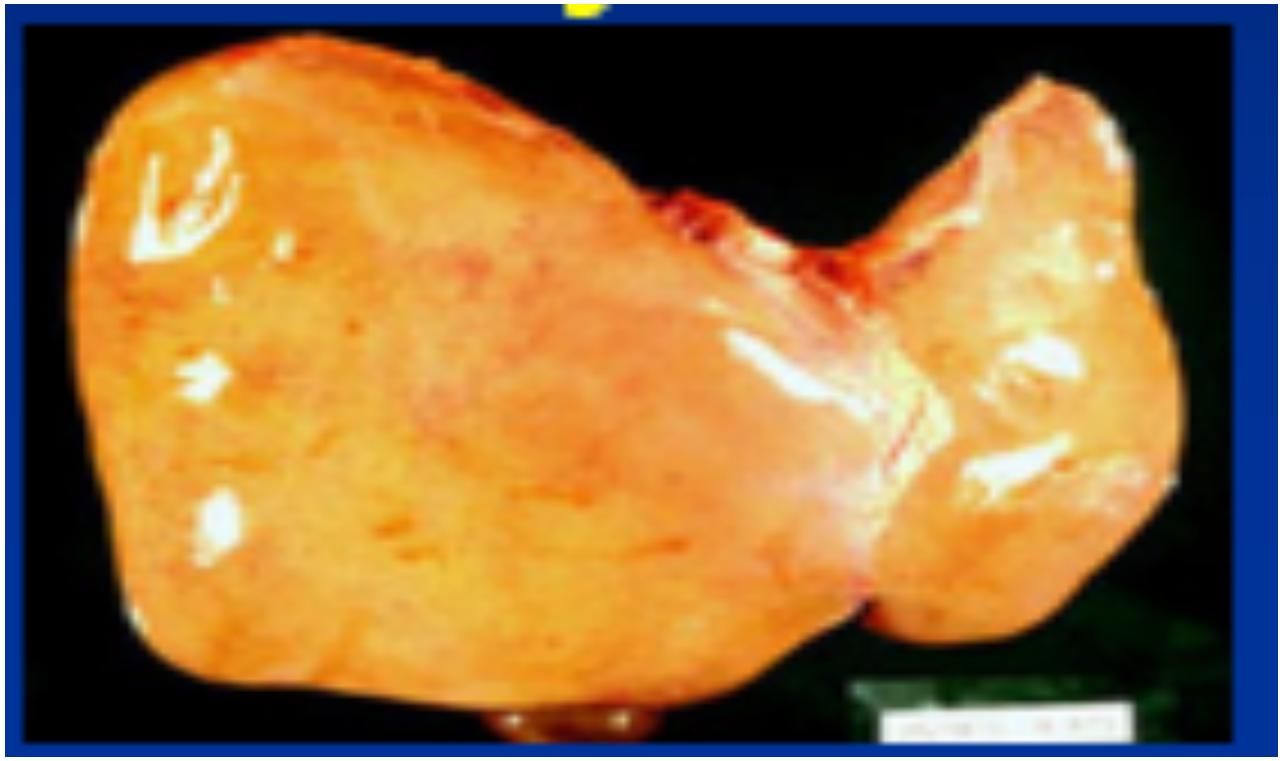
Acute Viral Hepatitis

Chronic hepatitis

Hepatic cirrhosis

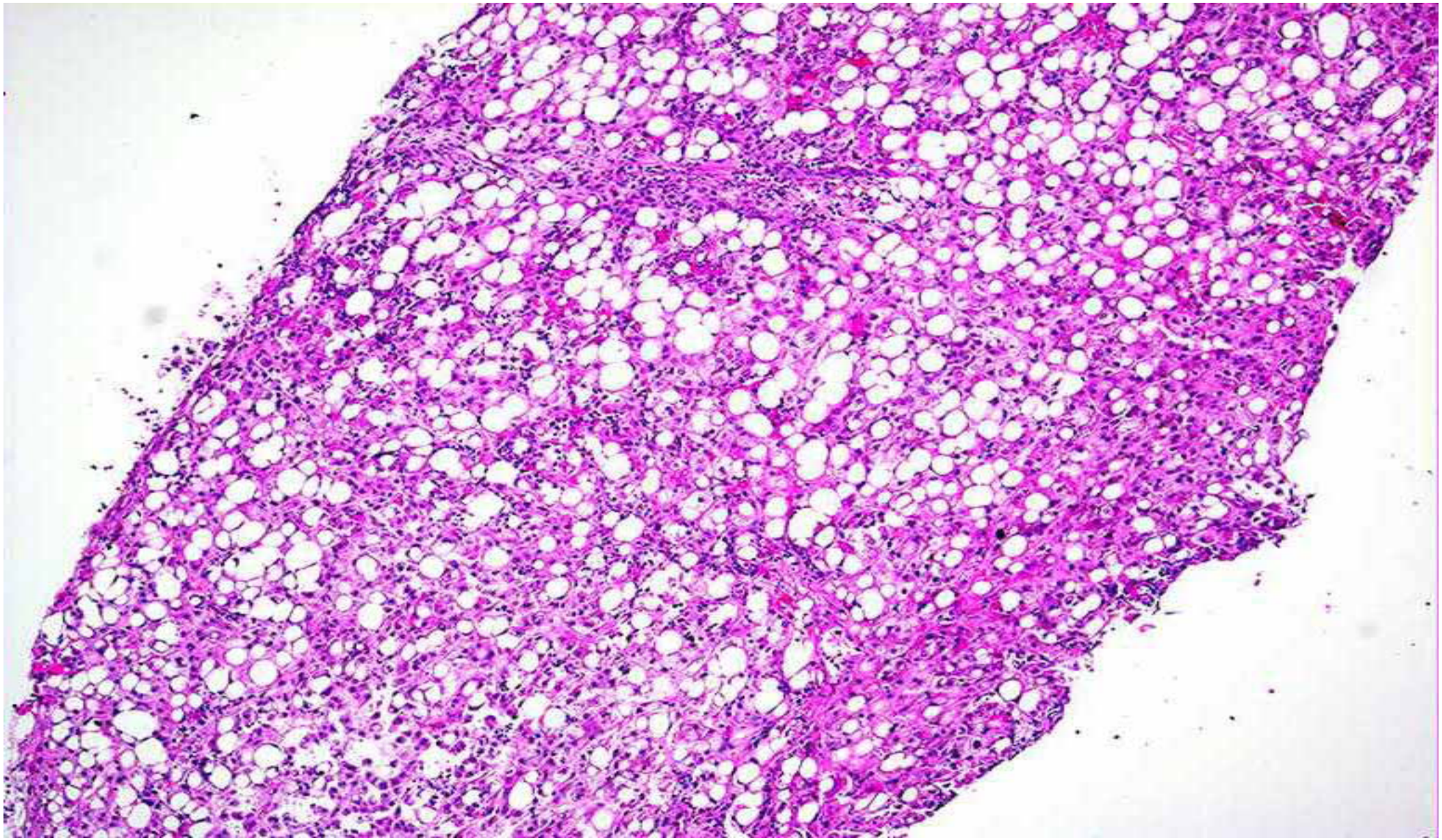
Hepatocellular carcinoma

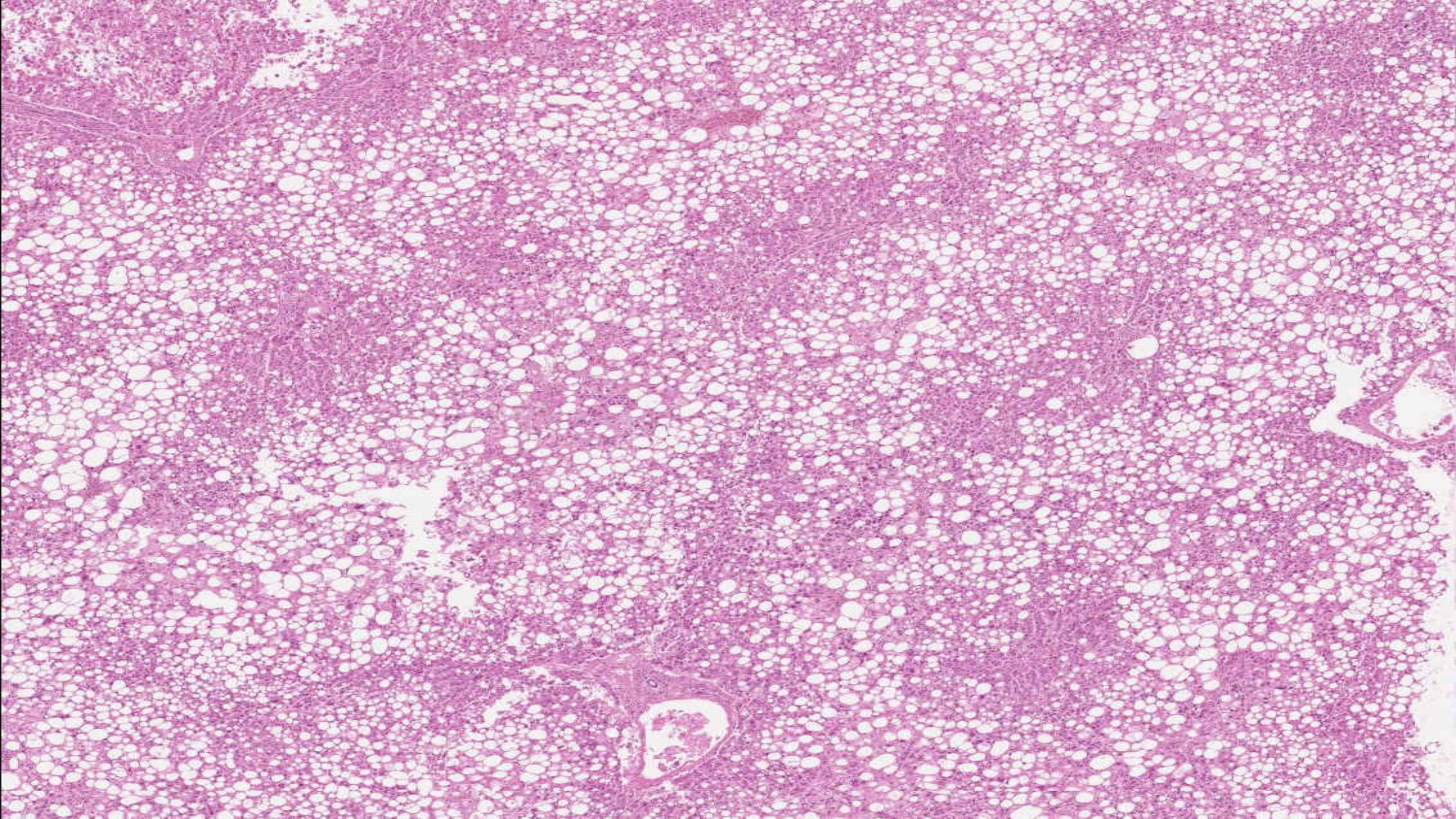
Fatty liver

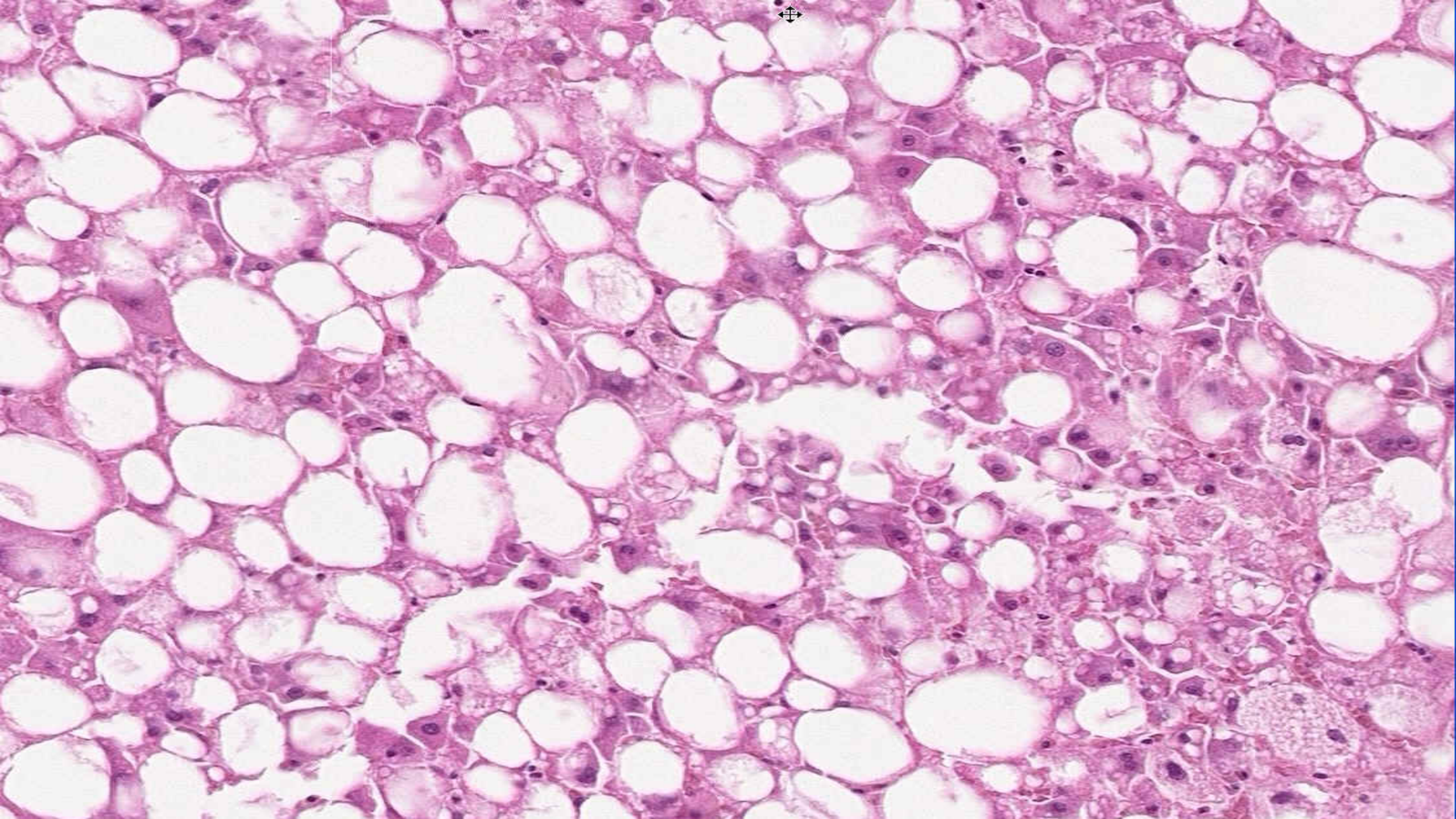


Organ: Liver

Dx: Steatosis (Fatty Liver)





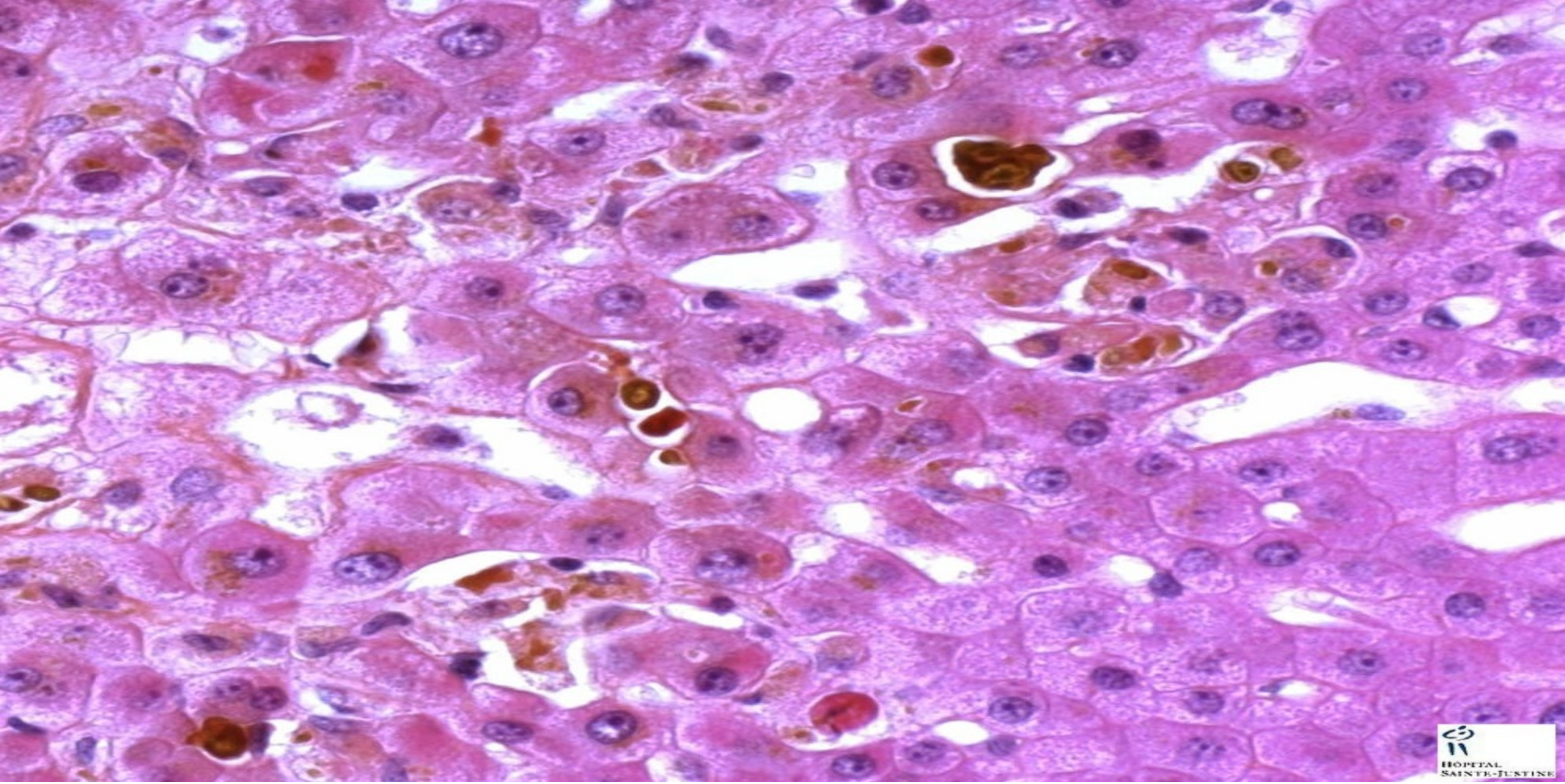


Fatty change of the liver:

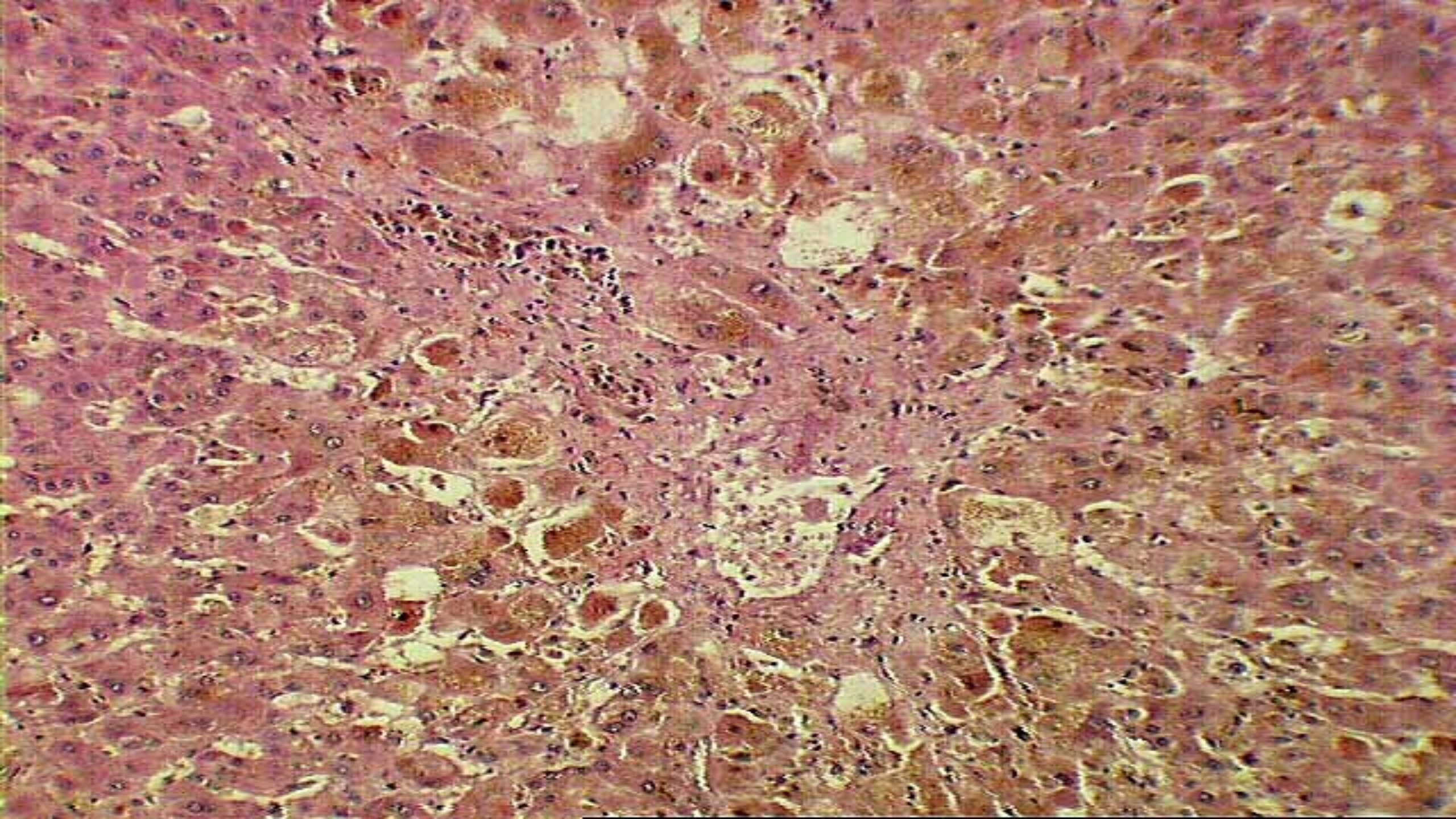
Section of liver shows:

- **Normal lobular architecture.**
- **The liver cells are distended by clear vacuoles of dissolved fat with displacement of the nuclei to the periphery.**
- **Fatty cysts may be seen.**
- **No inflammation and no fibrosis.**

Cholestasis



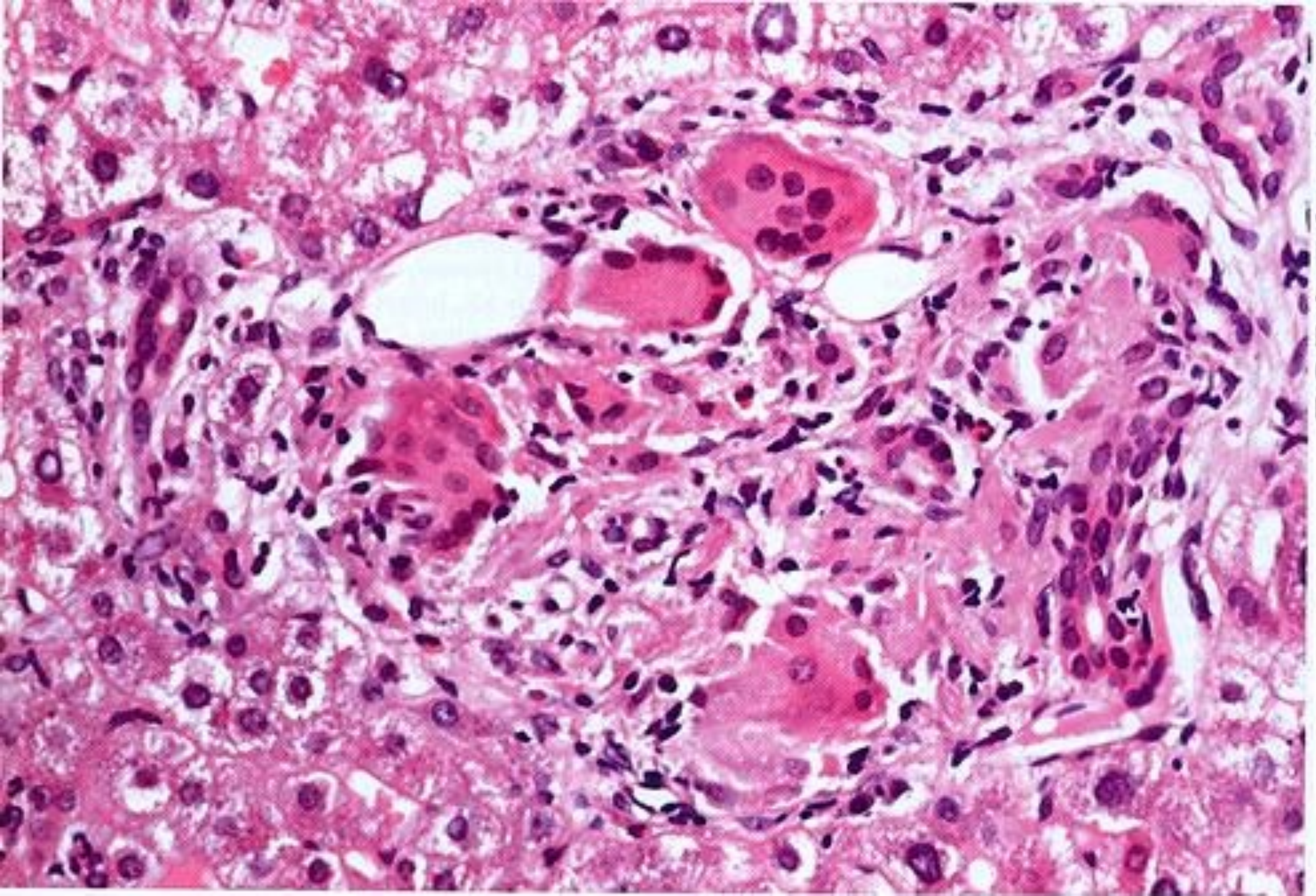
Bile “plugs”, Bile “lakes”



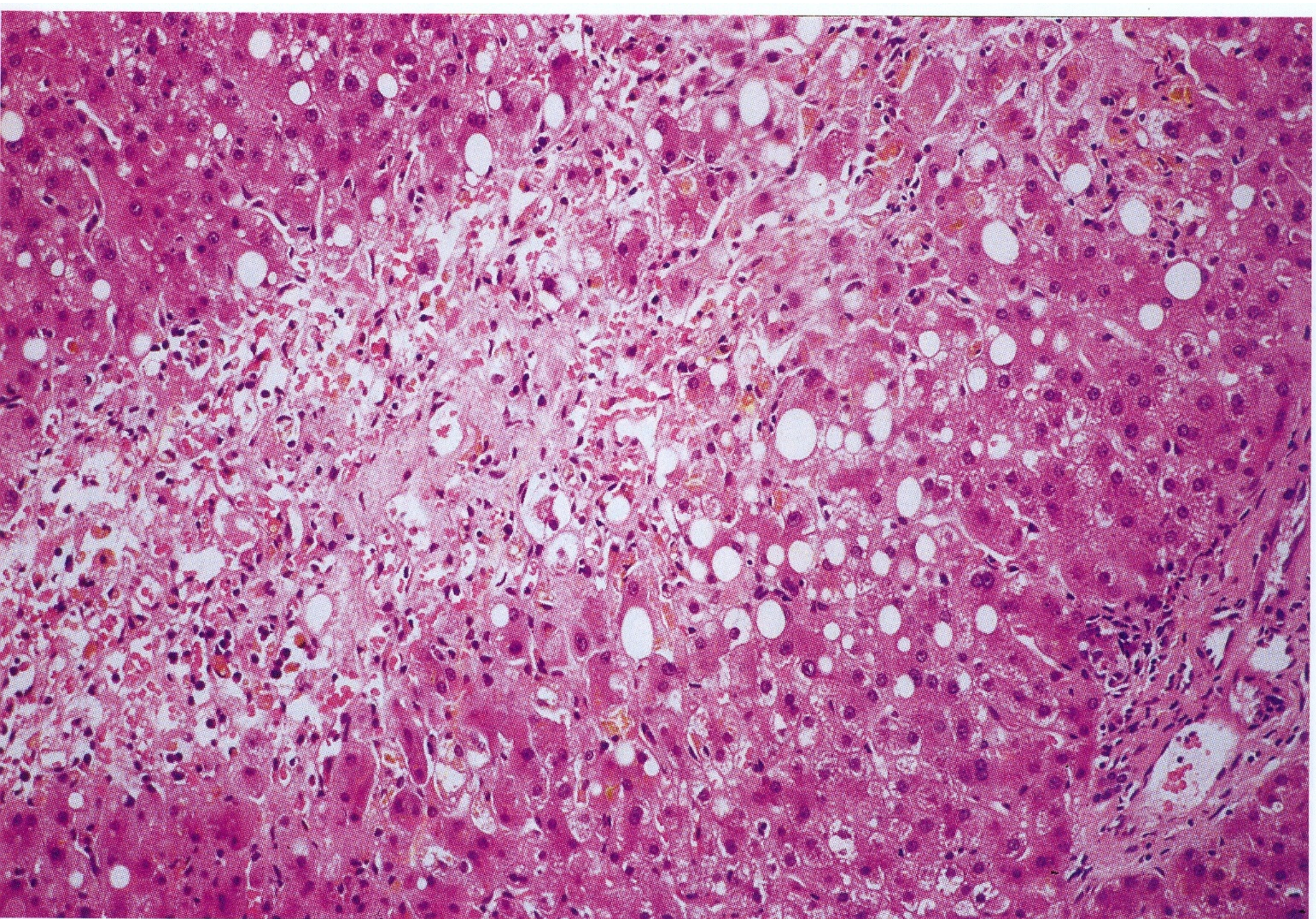
Cholestasis

- Could be mechanical or functional(obstructive and nonobstructive)
- Changes in:
  - lobular parenchyma
  - portal tracts
- Bilirubin accumulation in liver lobule
  - starts in centrilobular zone
  - pigment granules in parenchymal cells:
    - hepatocellular bilirubin stasis
  - inspissated bilirubin-stained bile plugs in dilated intercellular canaliculi:
    - canalicular bilirubin stasis
- Characteristic lab finding is elevated Alkaline phosphatase and GGT
- Bile accumulation in the liver.

Drug toxicity



A portal tract contains a granuloma with many multinucleated giant cells. The patient became jaundiced after taking phenylbutazone. (Needle biopsy, H&E.)



Drug-induced liver injury: hepatitic type.

In this acute hepatitis attributed to indometacin, necrosis in acinar zone 3 is well demarcated from the remaining parenchyma. The latter shows steatosis. Note the very mild portal inflammation (below right). (Needle biopsy, H&E.)

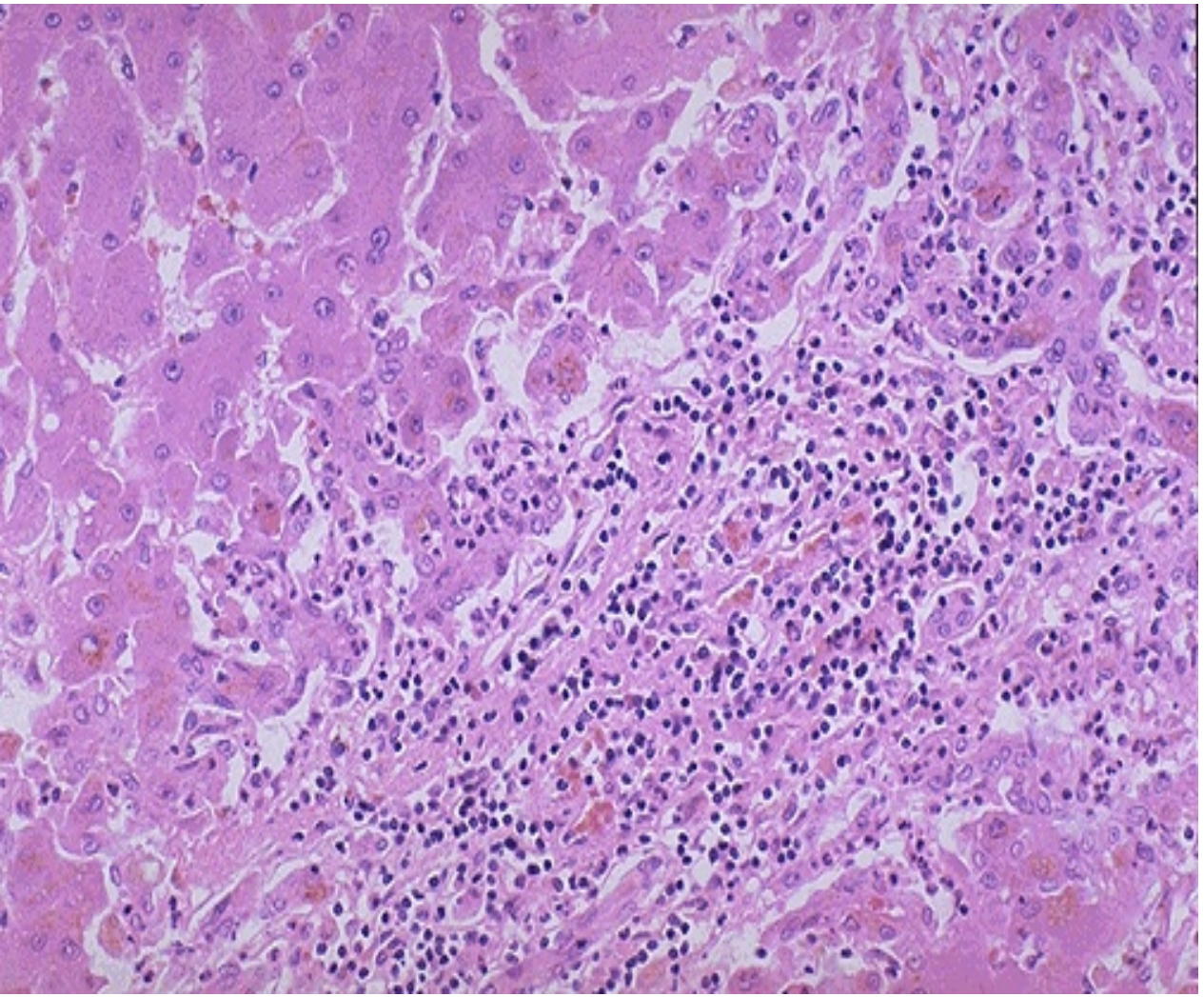
Drug Toxicity

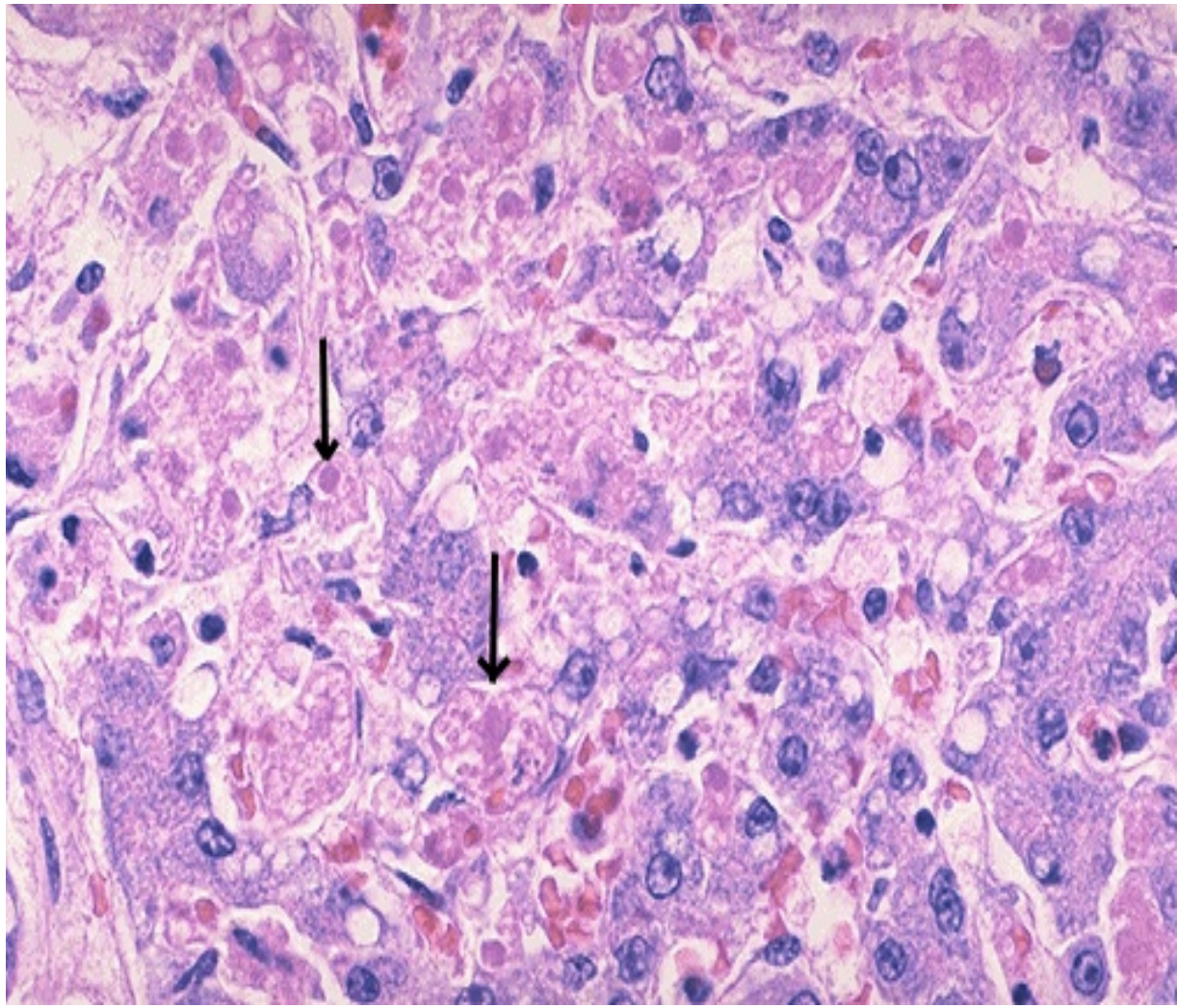
- Liver injury due to medications or other toxic agents.
- Can resemble any liver process; clinical correlation essential in diagnosis.
- Histopathology: Changes that can be seen are:
  - Cholestasis
  - Steatosis
  - Granulomas
  - Hepatocellular Necrosis
  - Predictable(intrinsic) or unpredictable(idiosyncratic)

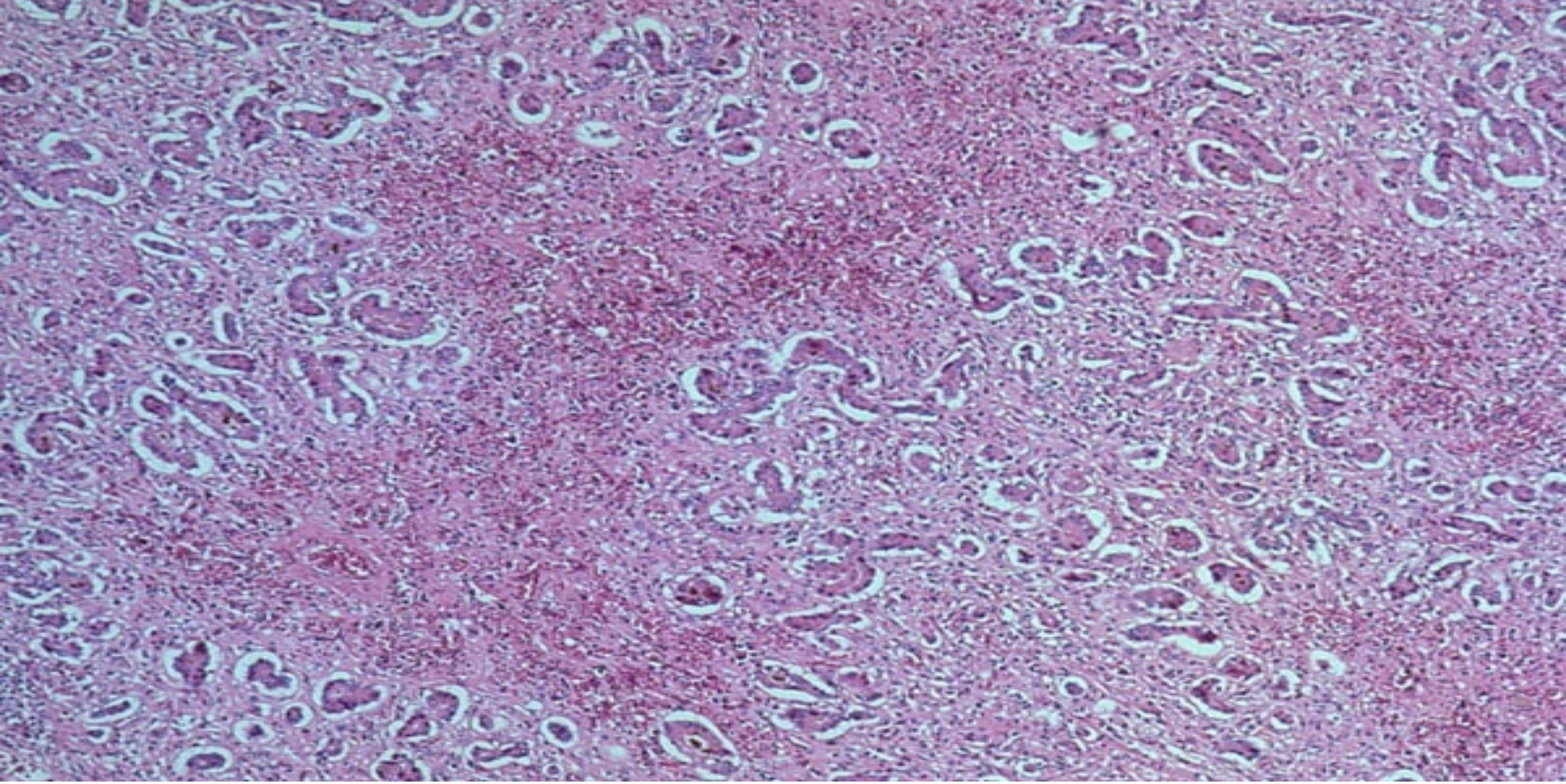
Acute Viral Hepatitis

FULMINANT HEPATITIS

Viral Hepatitis

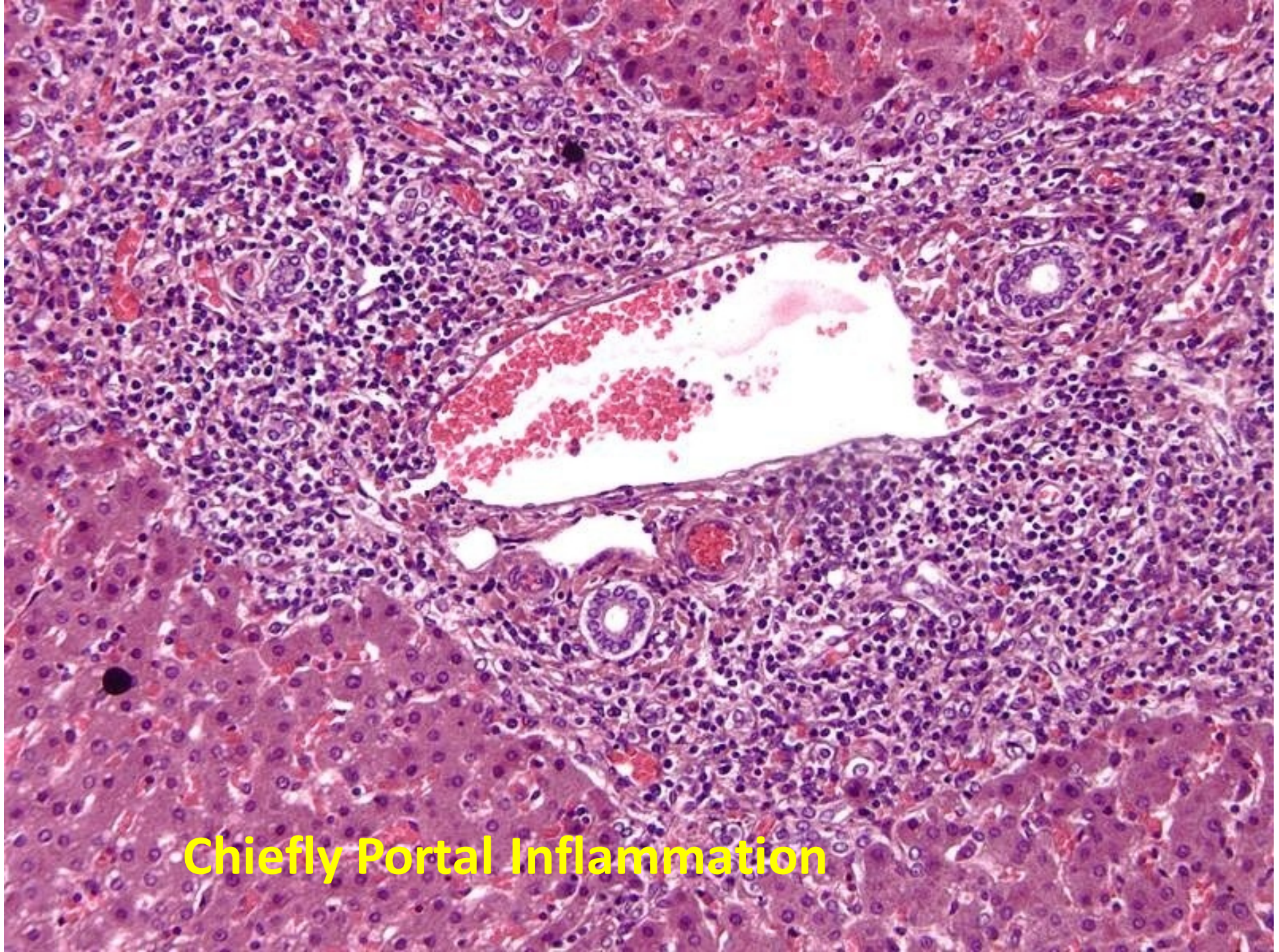


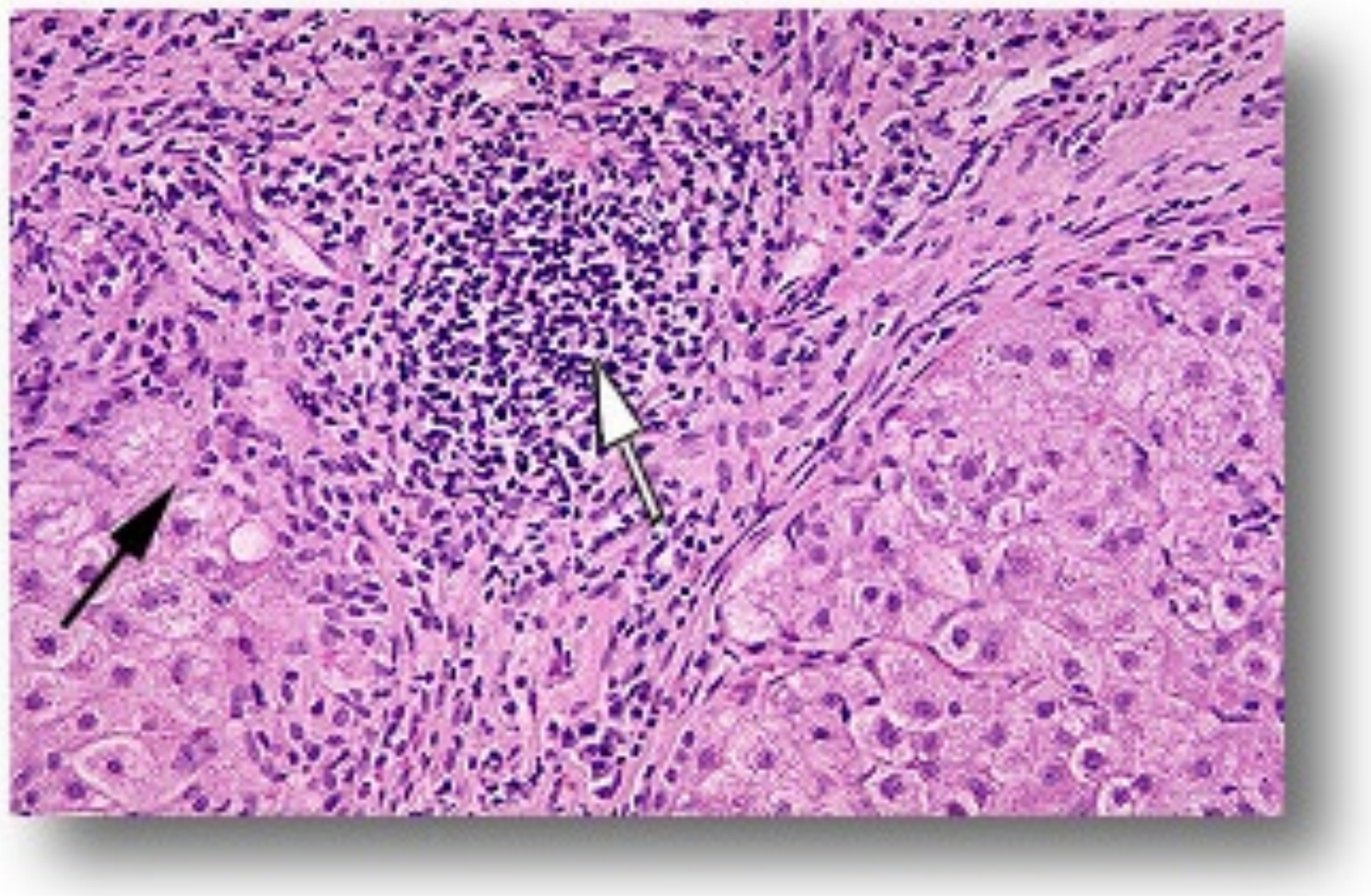




“FULMINANT” Acute Viral Hepatitis

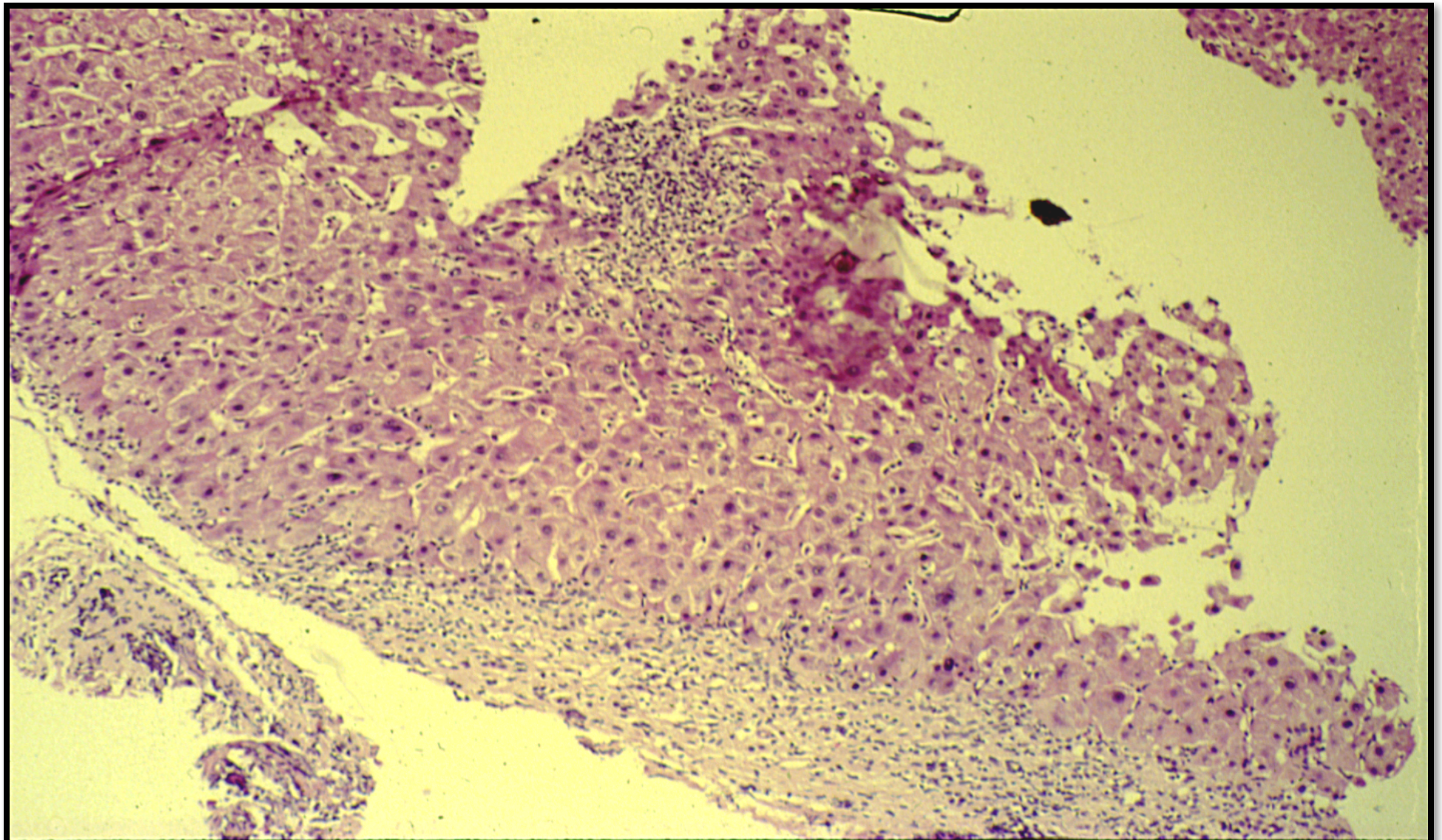
Chronic hepatitis


Chiefly Portal Inflammation

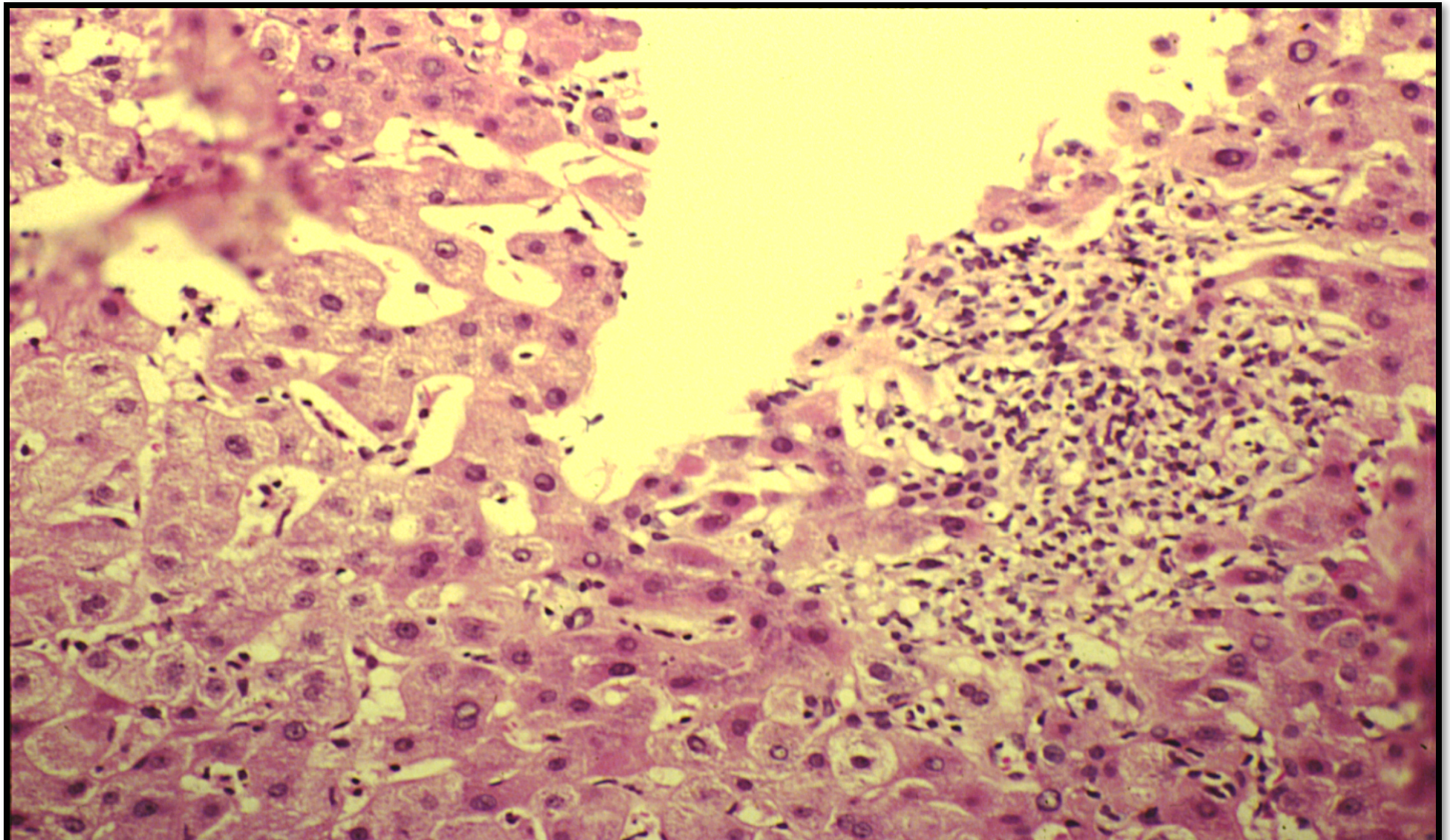


More severe portal infiltrates with sinusoidal infiltrates also

CHRONIC HEPATITIS



CHRONIC HEPATITIS



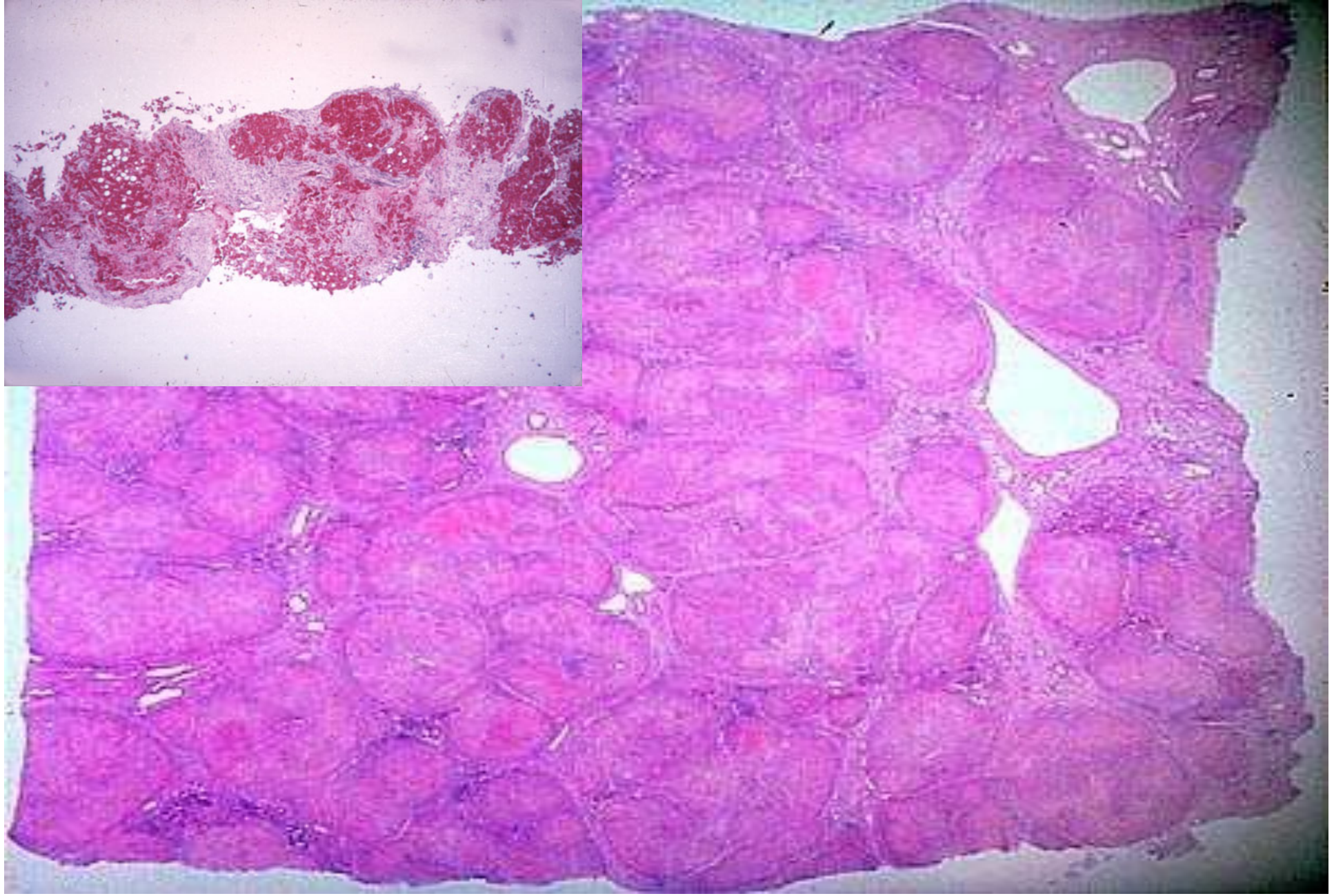
Chronic hepatitis:

Section from this liver biopsy show:

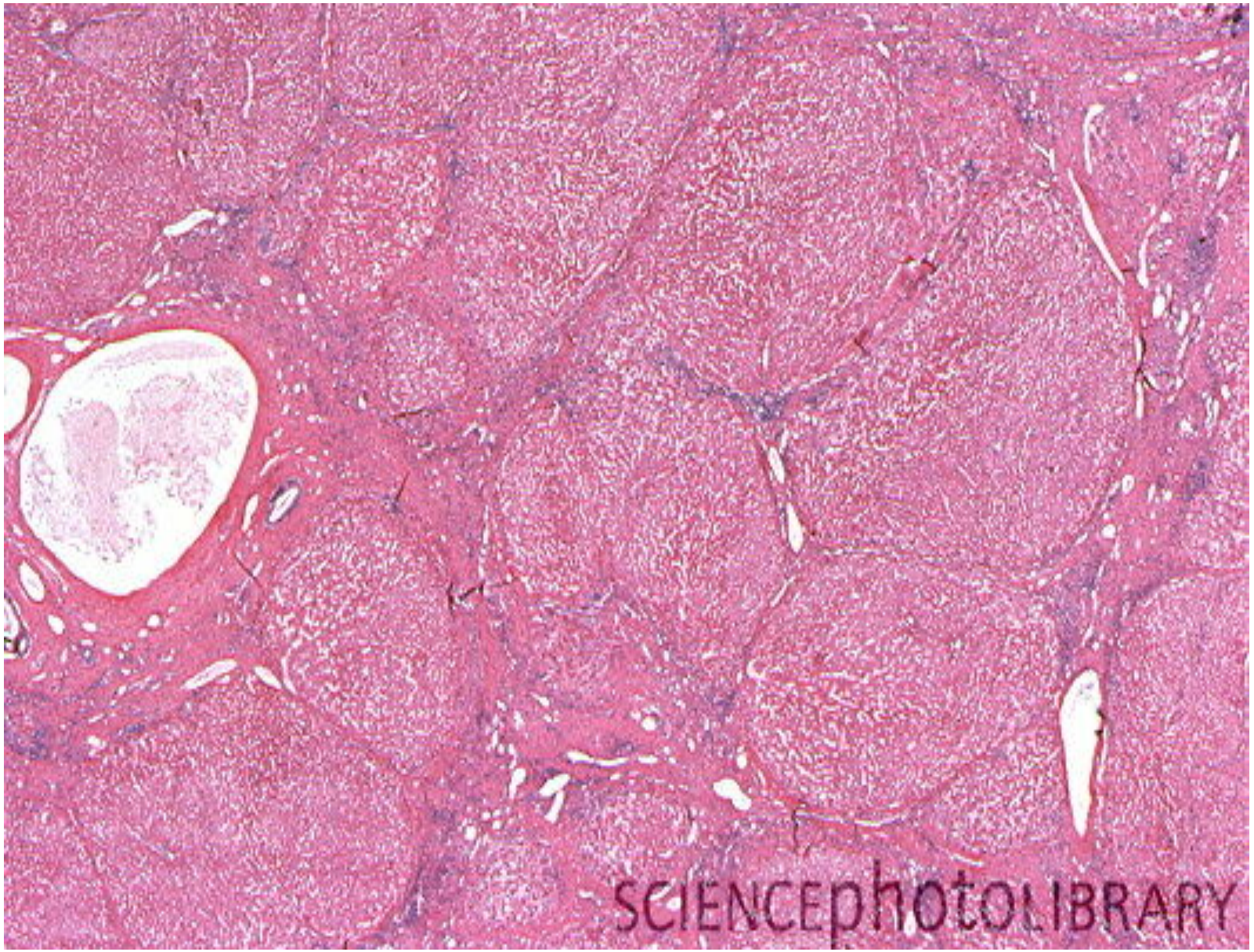
- **Moderate chronic inflammatory cells infiltration consisting of lymphocytes and histiocytes in both portal tracts and liver parenchyma. Piecemeal necrosis, hepatocytes swelling and "spotty" hepatocytes necrosis are also noticed. No evidence of cirrhosis or malignancy noted.**

Hepatic cirrhosis

Organ: Liver Dx: macronudular cirrhosis (HBV)



IRREGULAR NODULES SEPARATED BY PORTAL-to-PORTAL FIBROUS BANDS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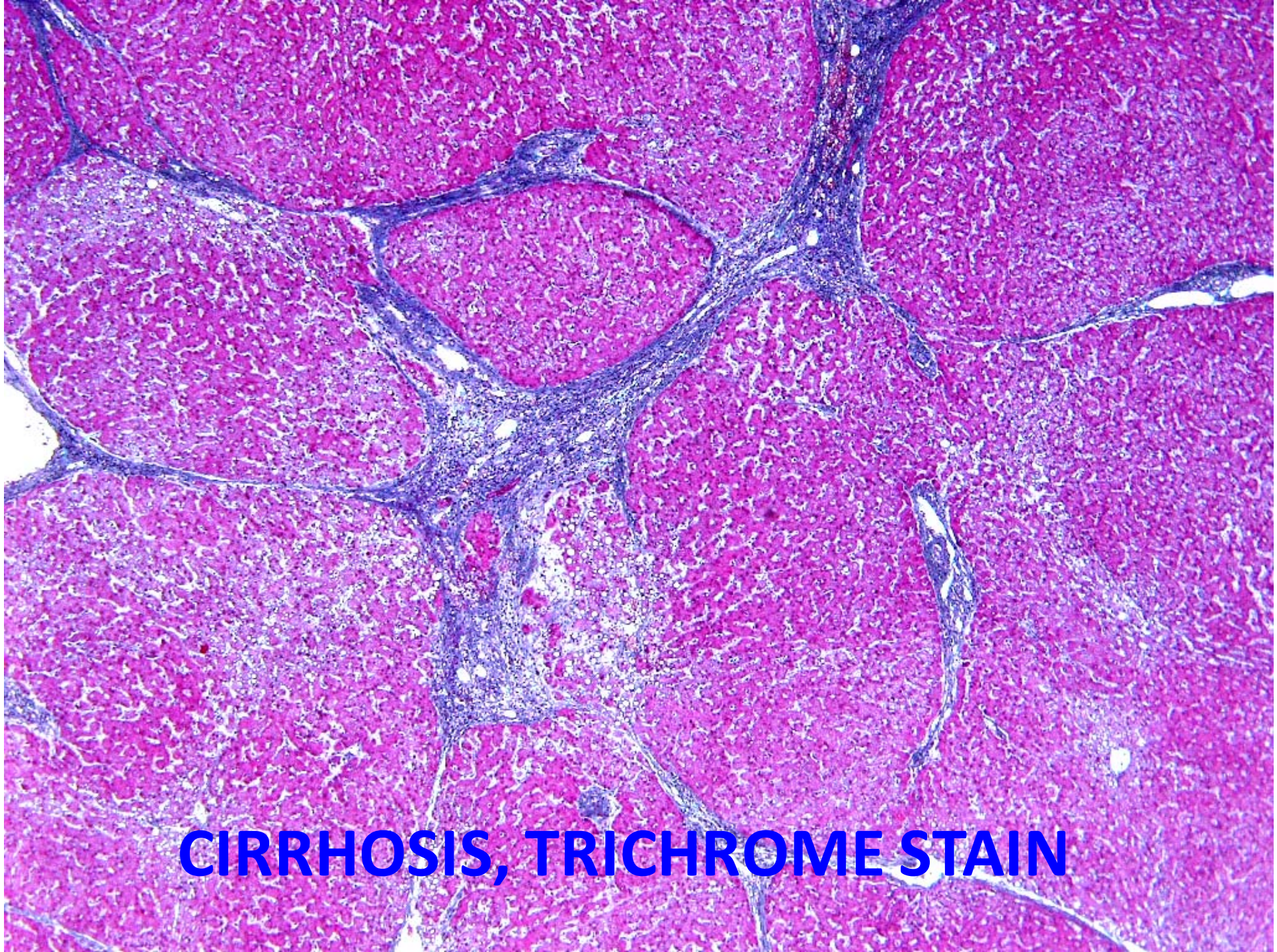

CIRRHOSIS, TRICHROME STAIN

Cirrhosis of the liver:

Section of liver show:

- **Loss of lobular architecture and formation of regenerative nodules of variable size and shape, surrounded by fibrous tissue.**
- **Each nodules consists of liver cells without any arrangement and with no central vein.**
- **Large number of proliferated bile ducts and chronic inflammatory cells are present in fibrous tissue.**

Hepatocellular carcinoma


Dartmouth-Hitchcock Medical Center
S-06-36081
1 2 3 4 5 6 7


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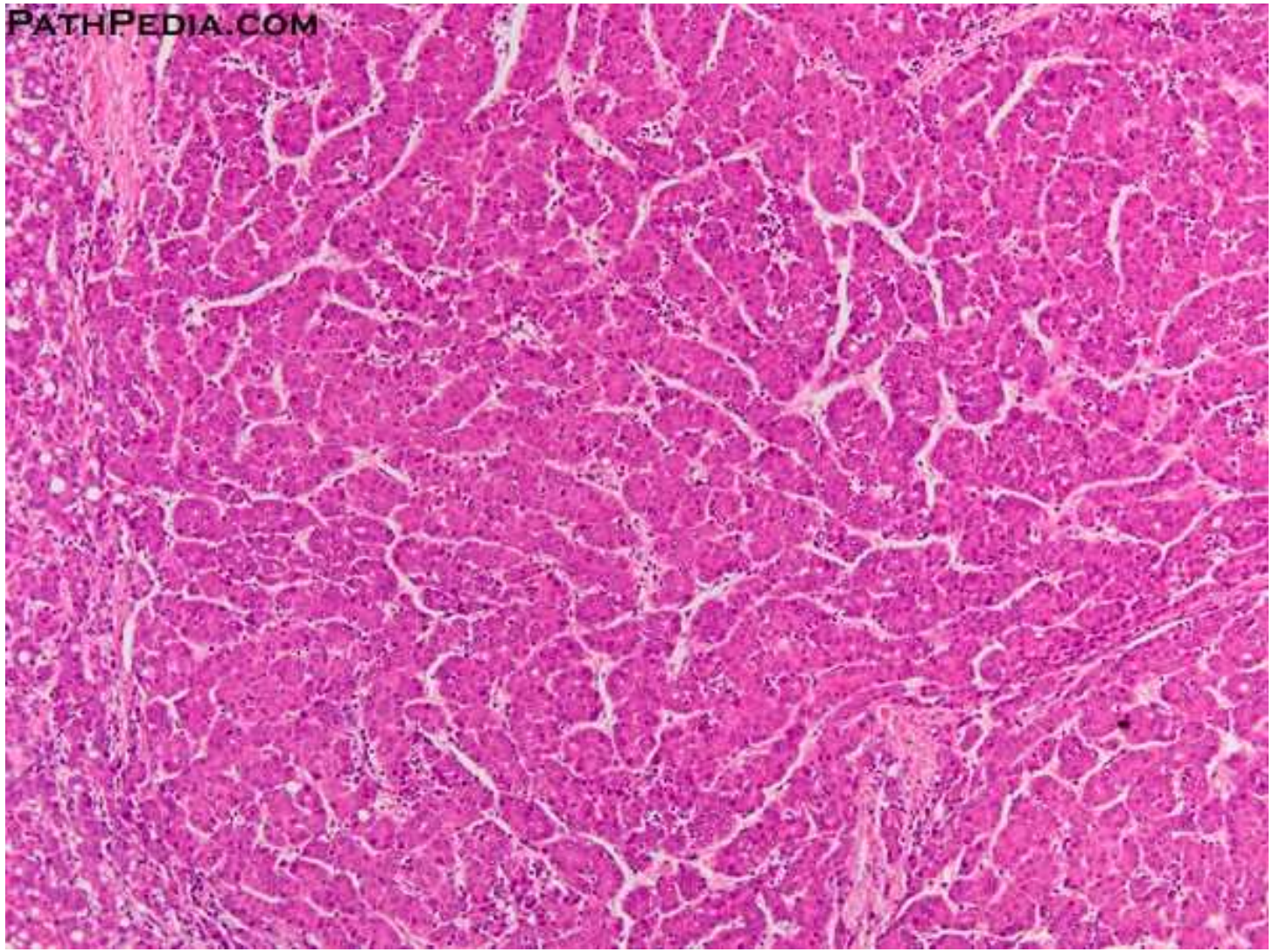
5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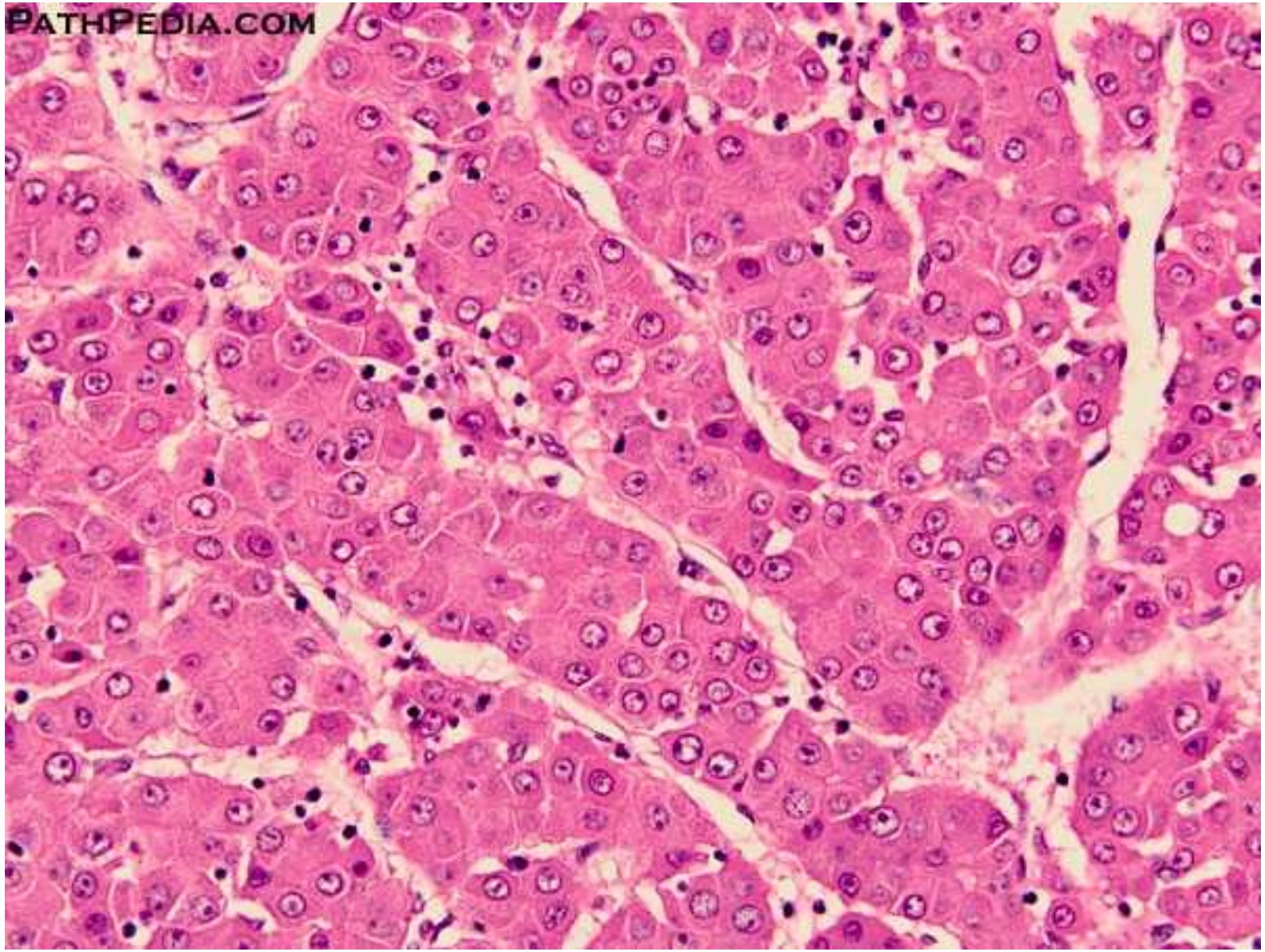
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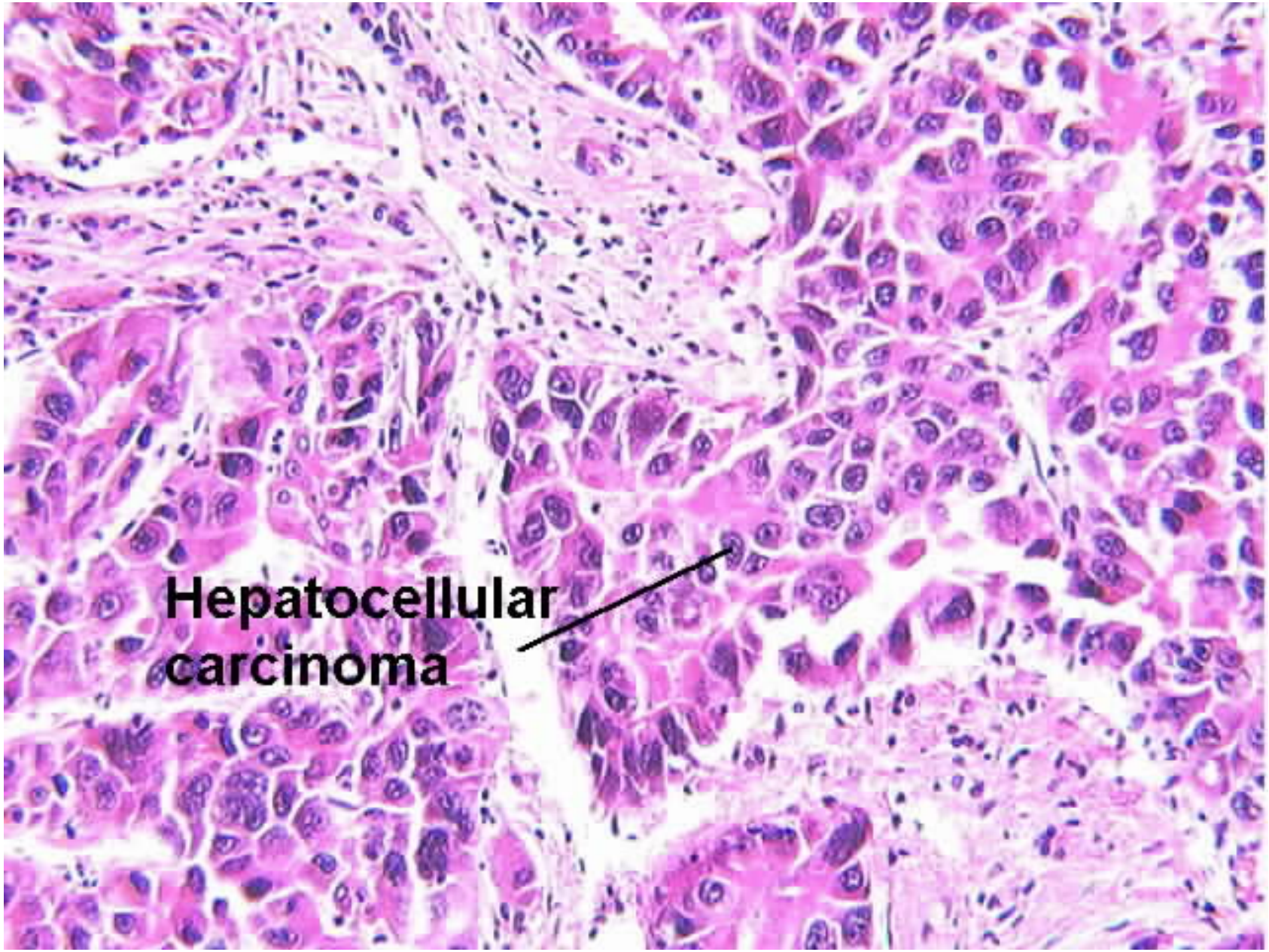
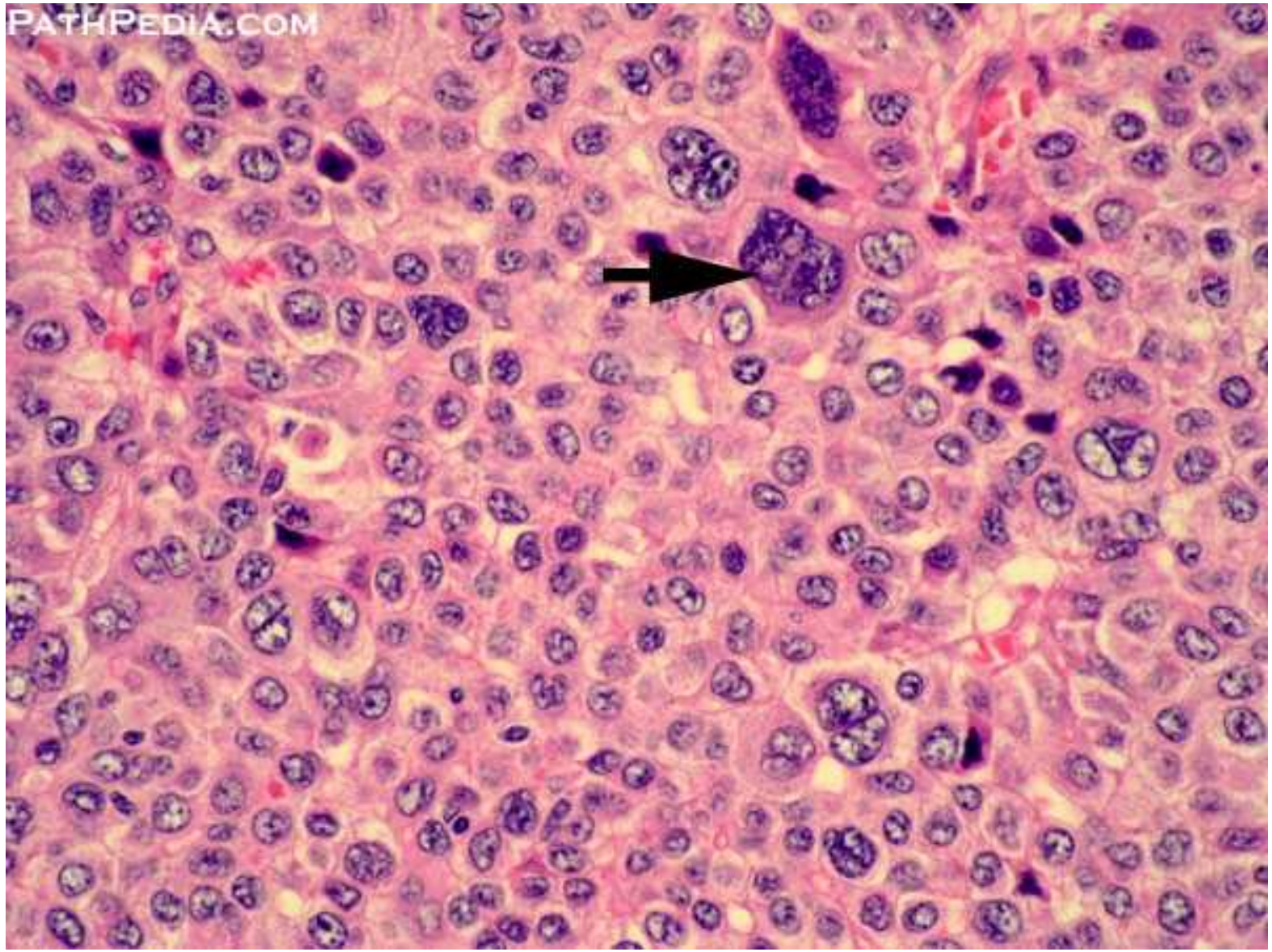

Hepatocellular
carcinoma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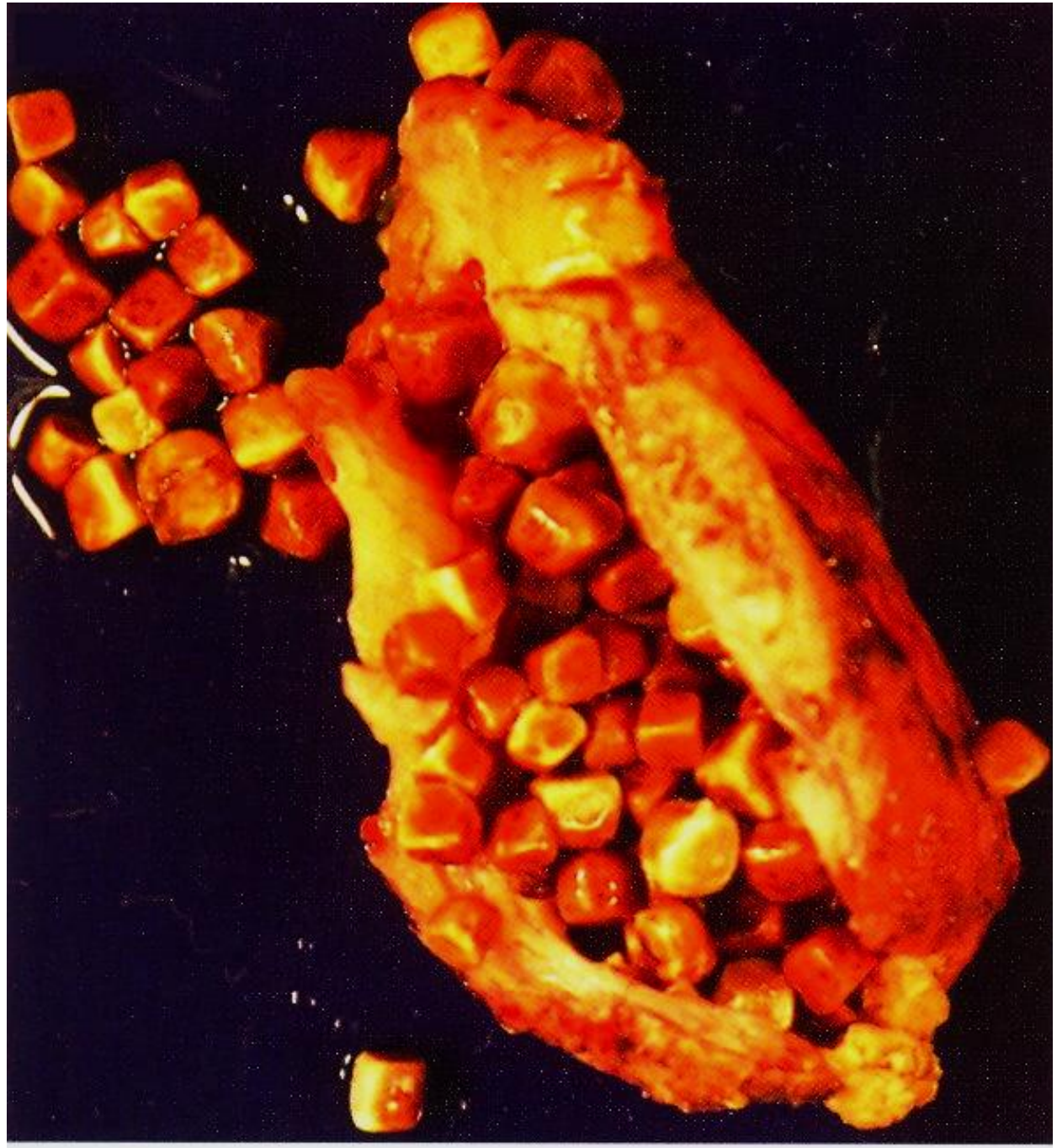
Hepatocellular carcinoma:

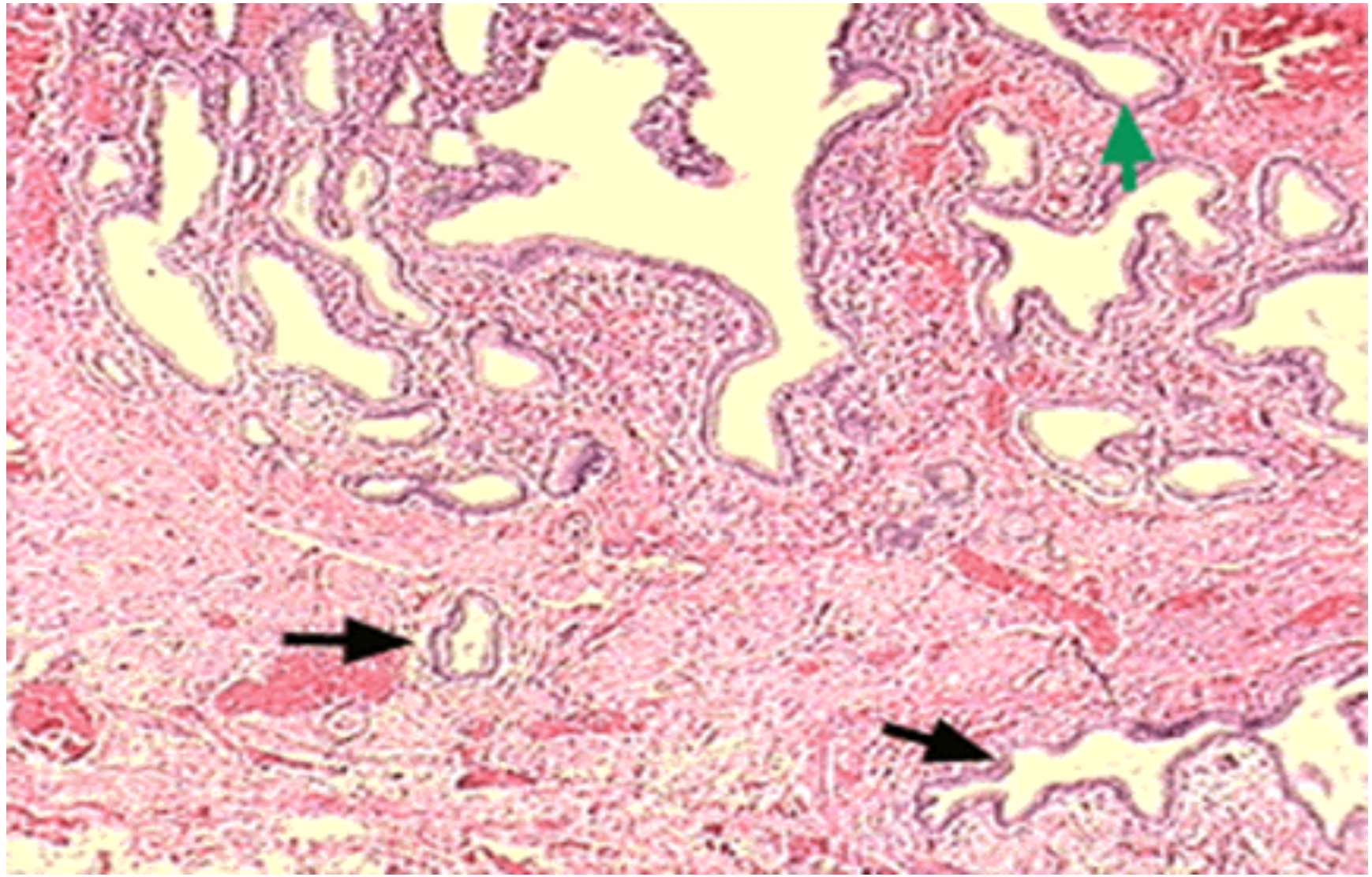
Section show tumour consisting of:

- **Thick cords, trabeculate and nests of malignant liver cells separated by sinusoidal spaces.**
- **Malignant liver cells are pleomorphic, binucleated or forming giant cells with hyperchromatic nuclei.**
- **Mitoses are numerous.**
- **Areas of haemorrhage and necrosis are present.**

Diseases of Gall Bladder

Chronic cholecystitis with stones





Chronic cholecystitis:

Section of gallbladder wall shows:

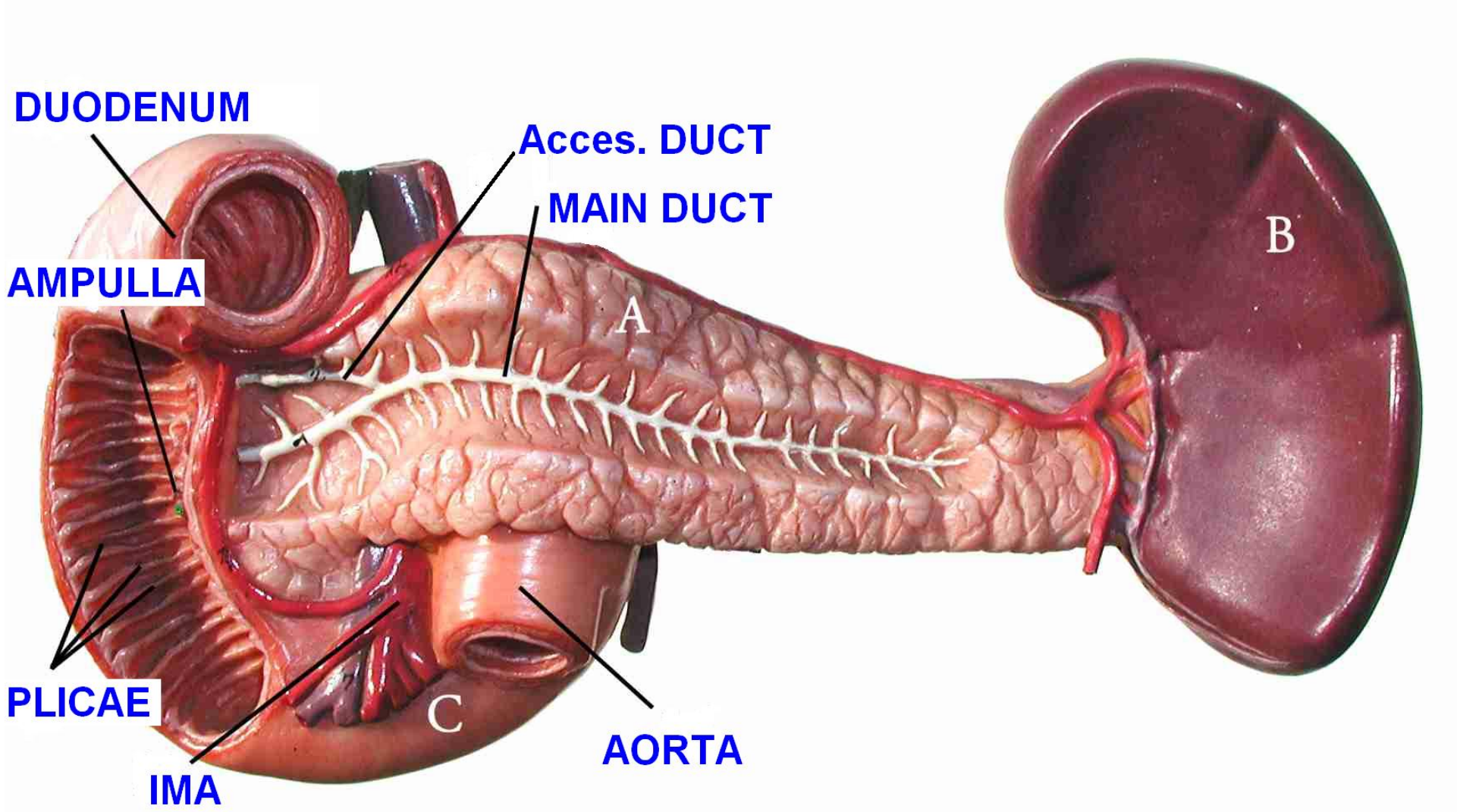
- **Irregular mucosal folds and foci of ulceration in mucosa.**
- **Wall is penetrated by mucosal glands which are present in muscle coat (Rokitansky- Aschoff sinuses).**
- **All layers show chronic inflammatory cells infiltration and fibrosis.**

Pancreas

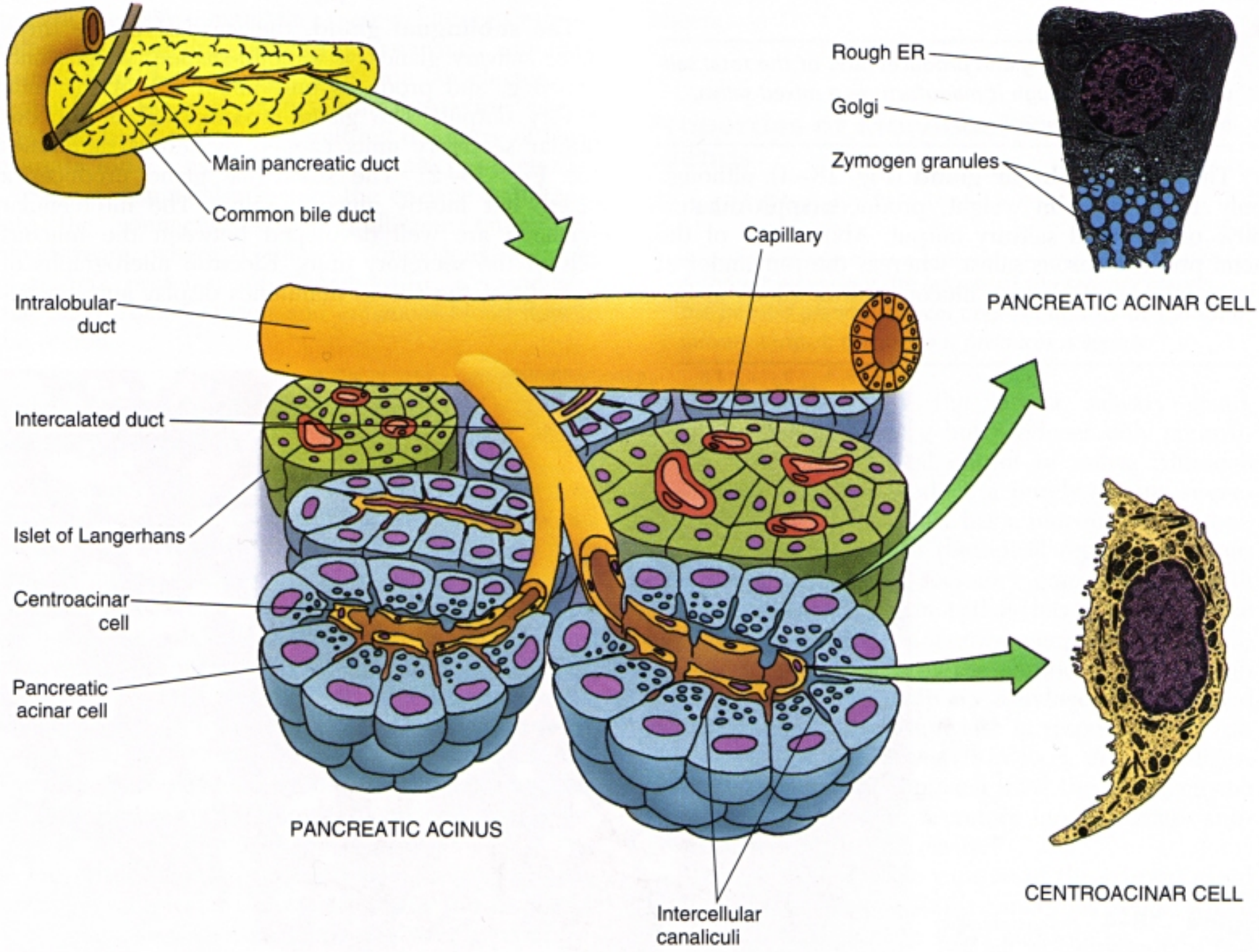
Chronic pancreatitis

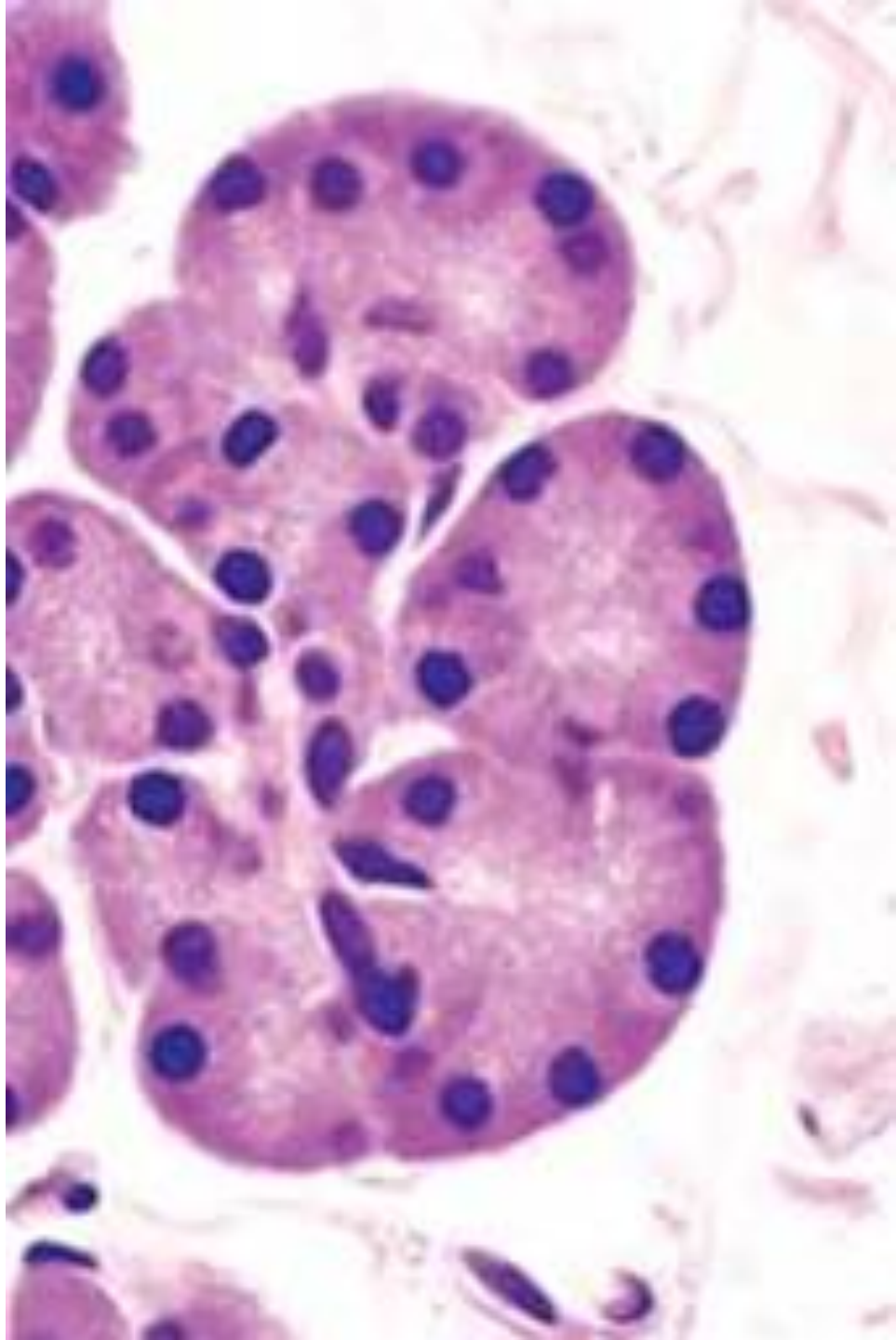
Pancreatic adenocarcinoma

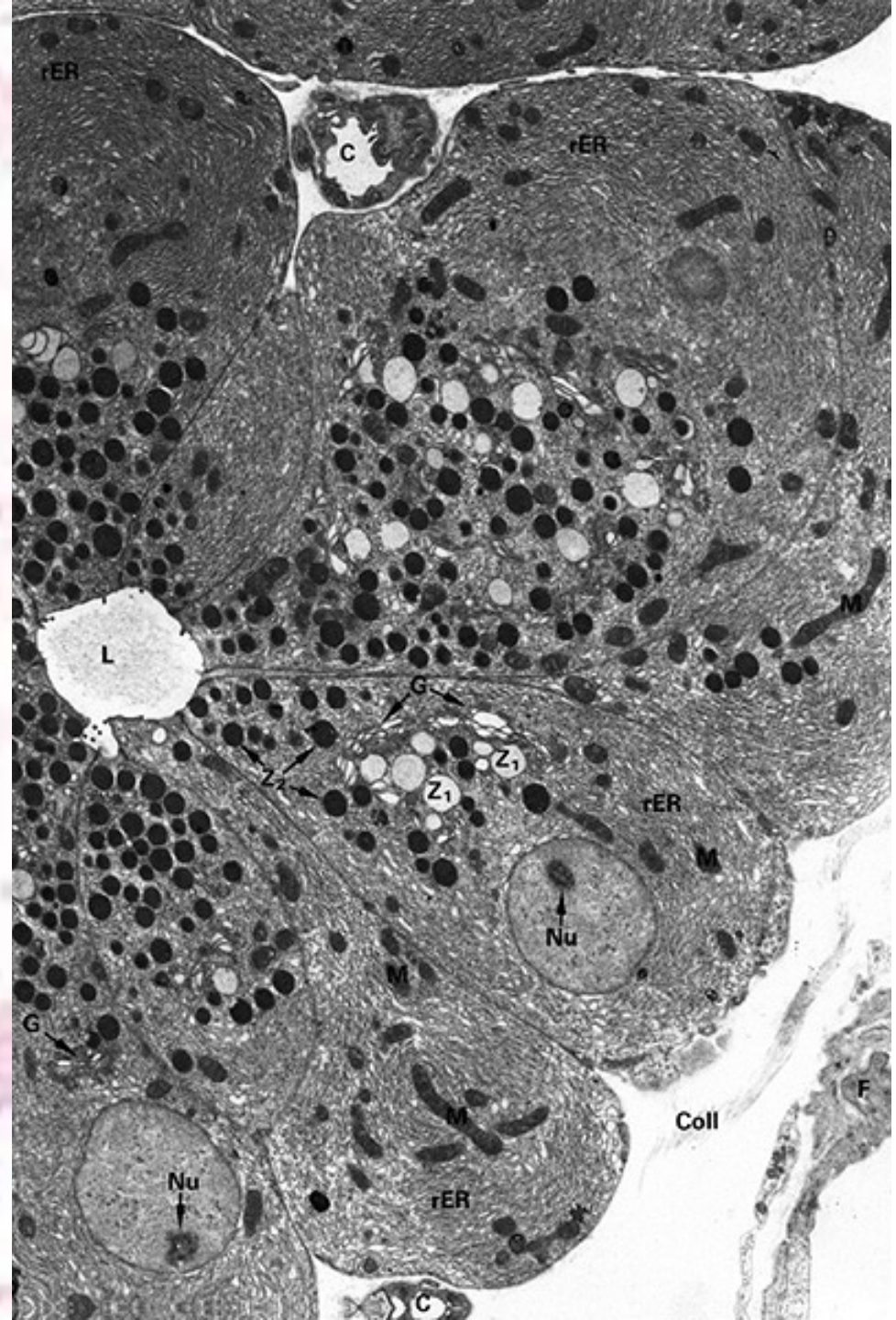
Normal anatomy and histology



PANCREAS


Main pancreatic duct
Common bile duct
Rough ER
Golgi
Zymogen granules
PANCREATIC ACINAR CELL
Capillary
Intralobular duct
Intercalated duct
Islet of Langerhans
Centroacinar cell
Pancreatic acinar cell
PANCREATIC ACINUS
Intercellular canaliculi
CENTROACINAR CELL

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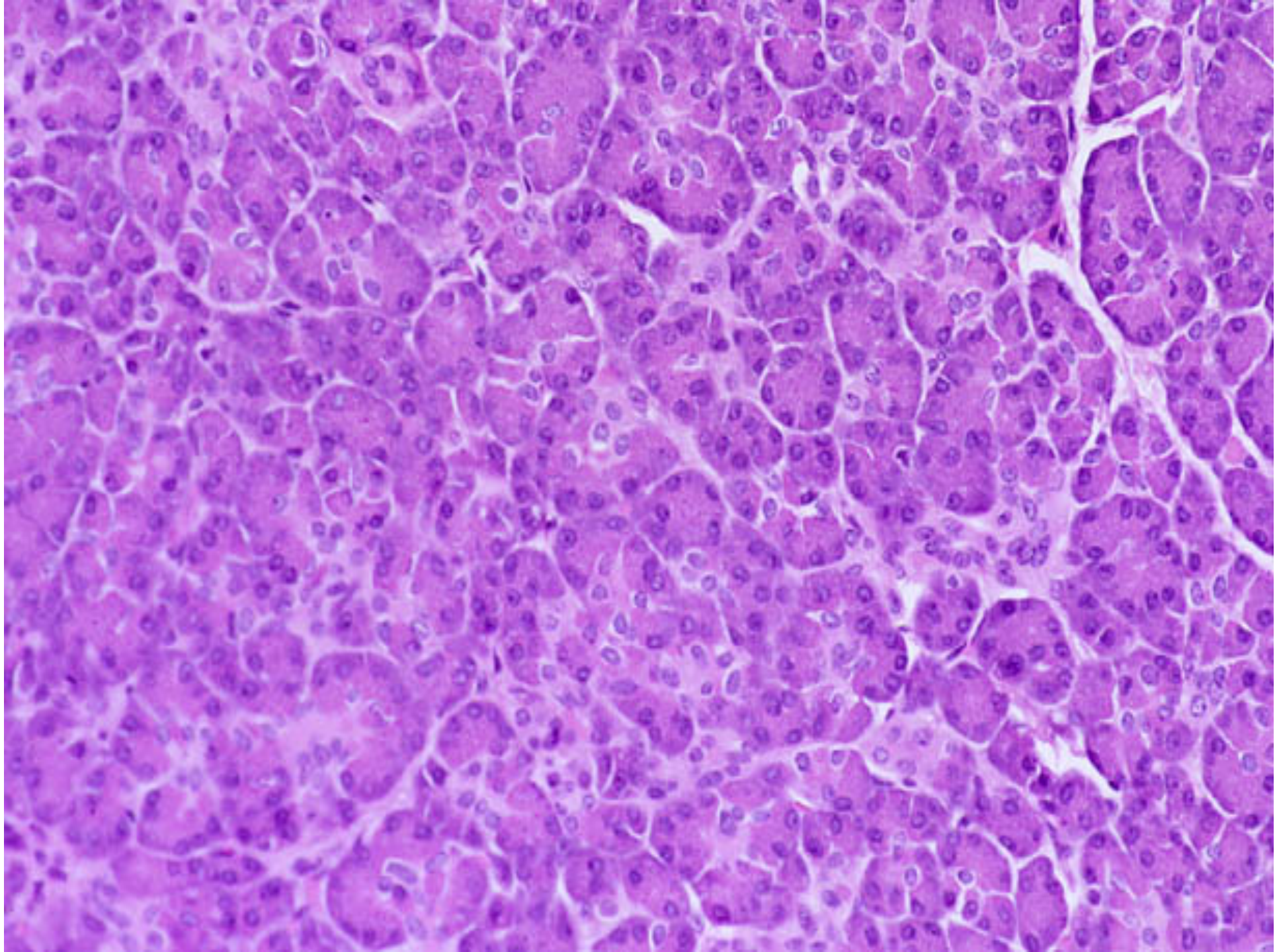
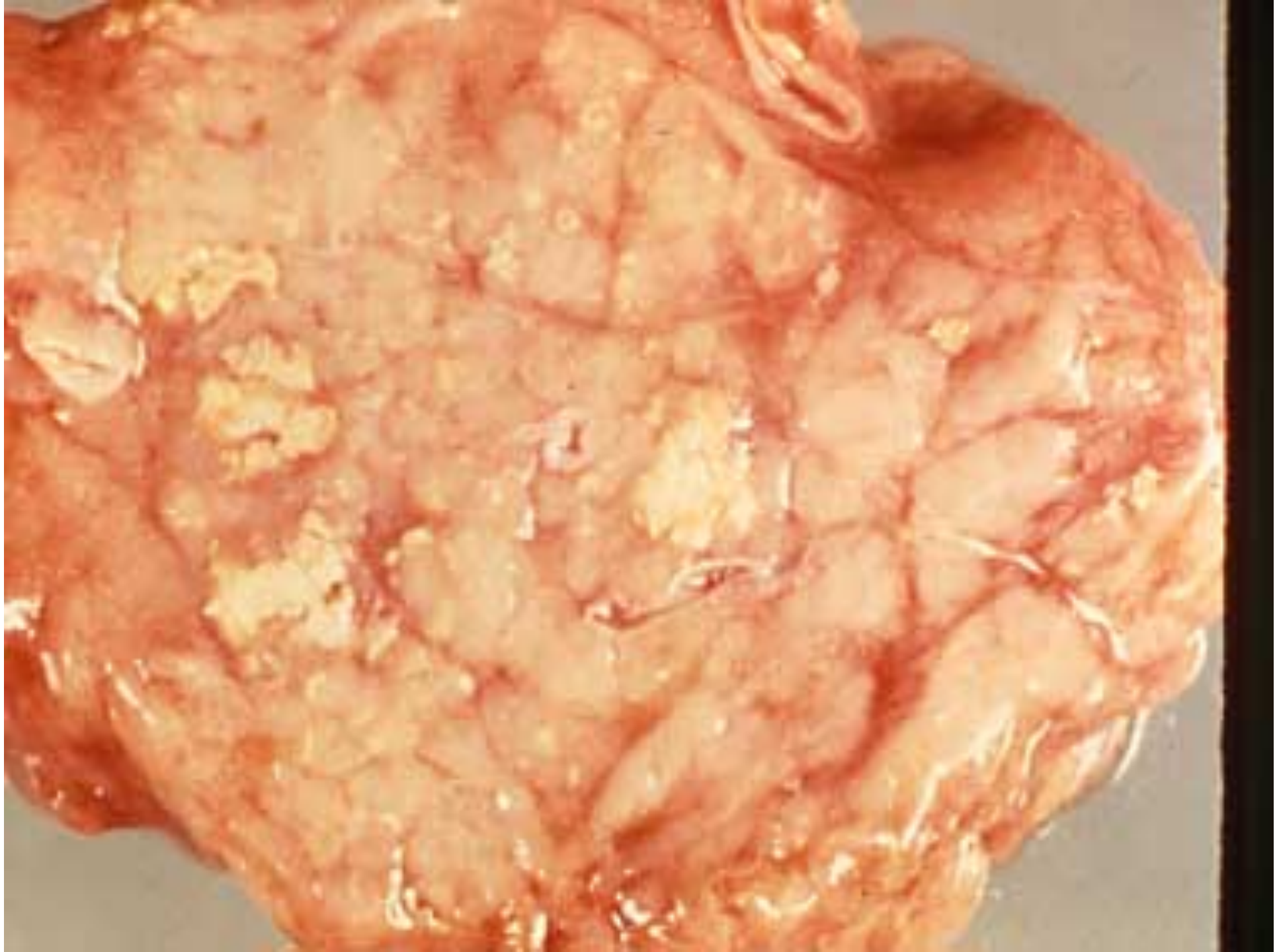
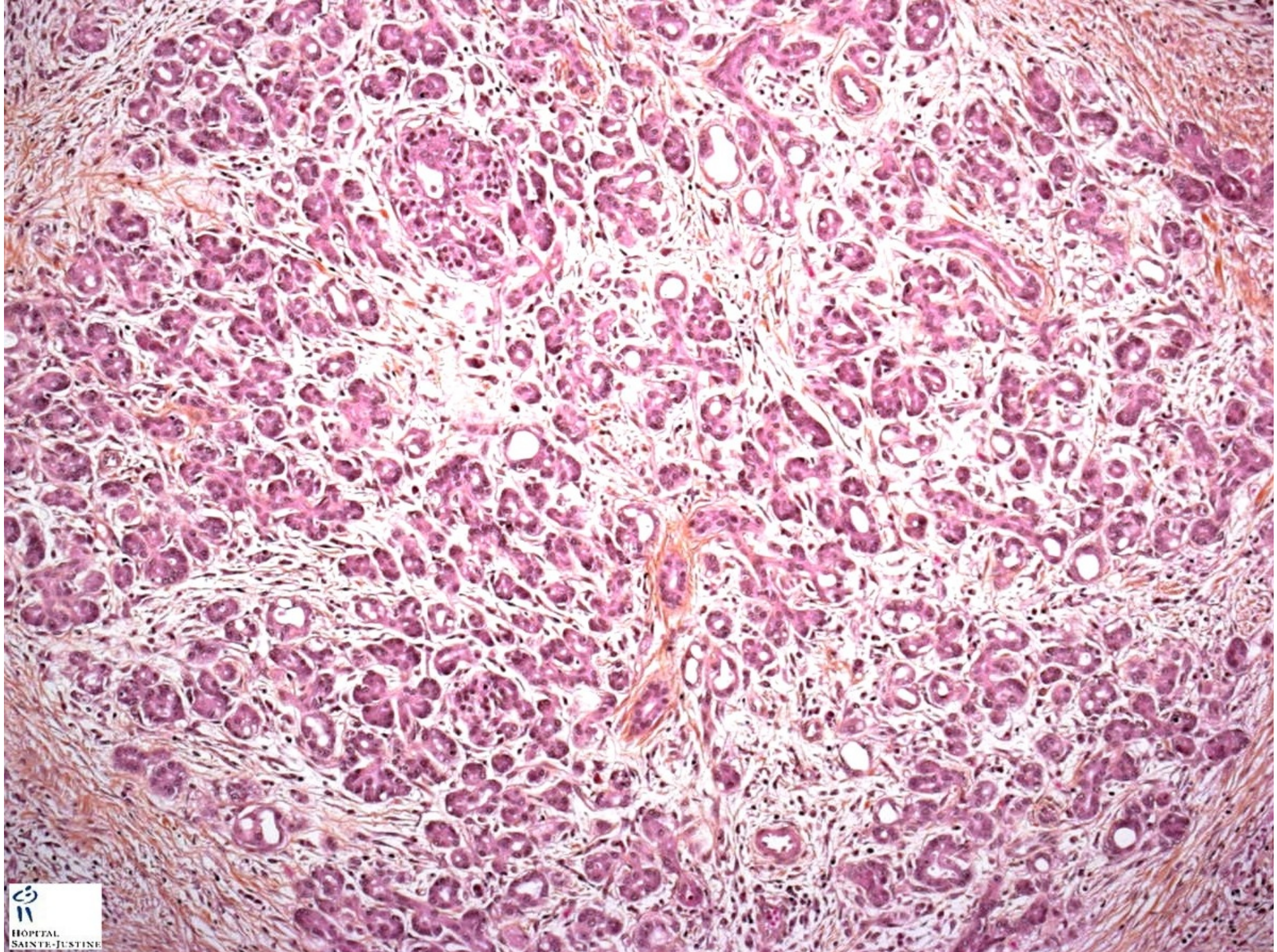
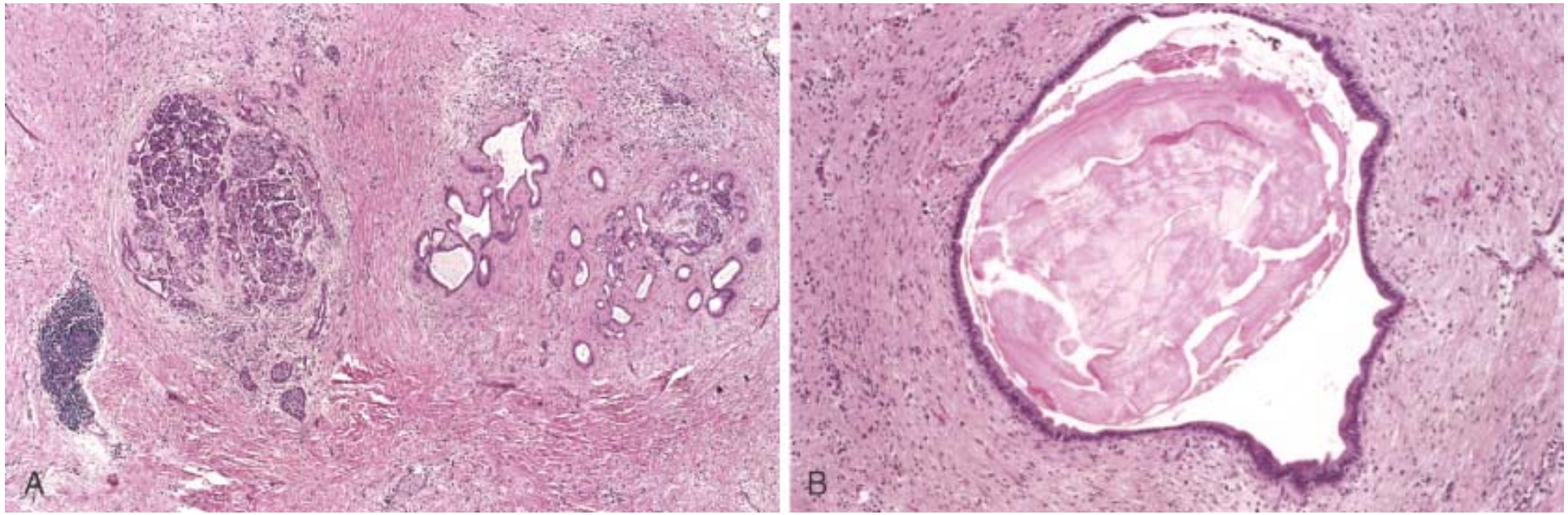


Gross and histopathology

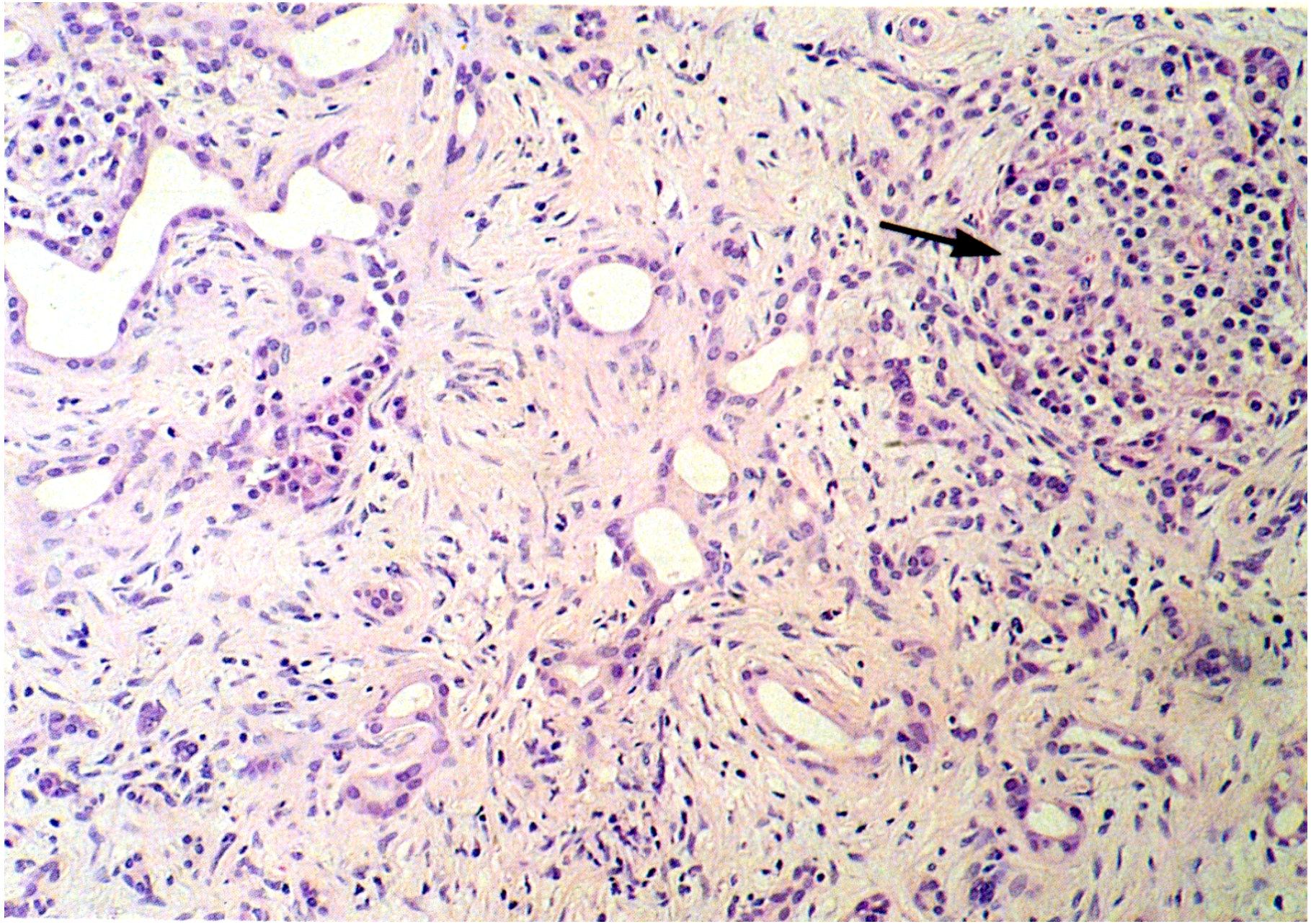
Chronic pancreatitis




HÔPITAL
SAINTE-JUSTINE

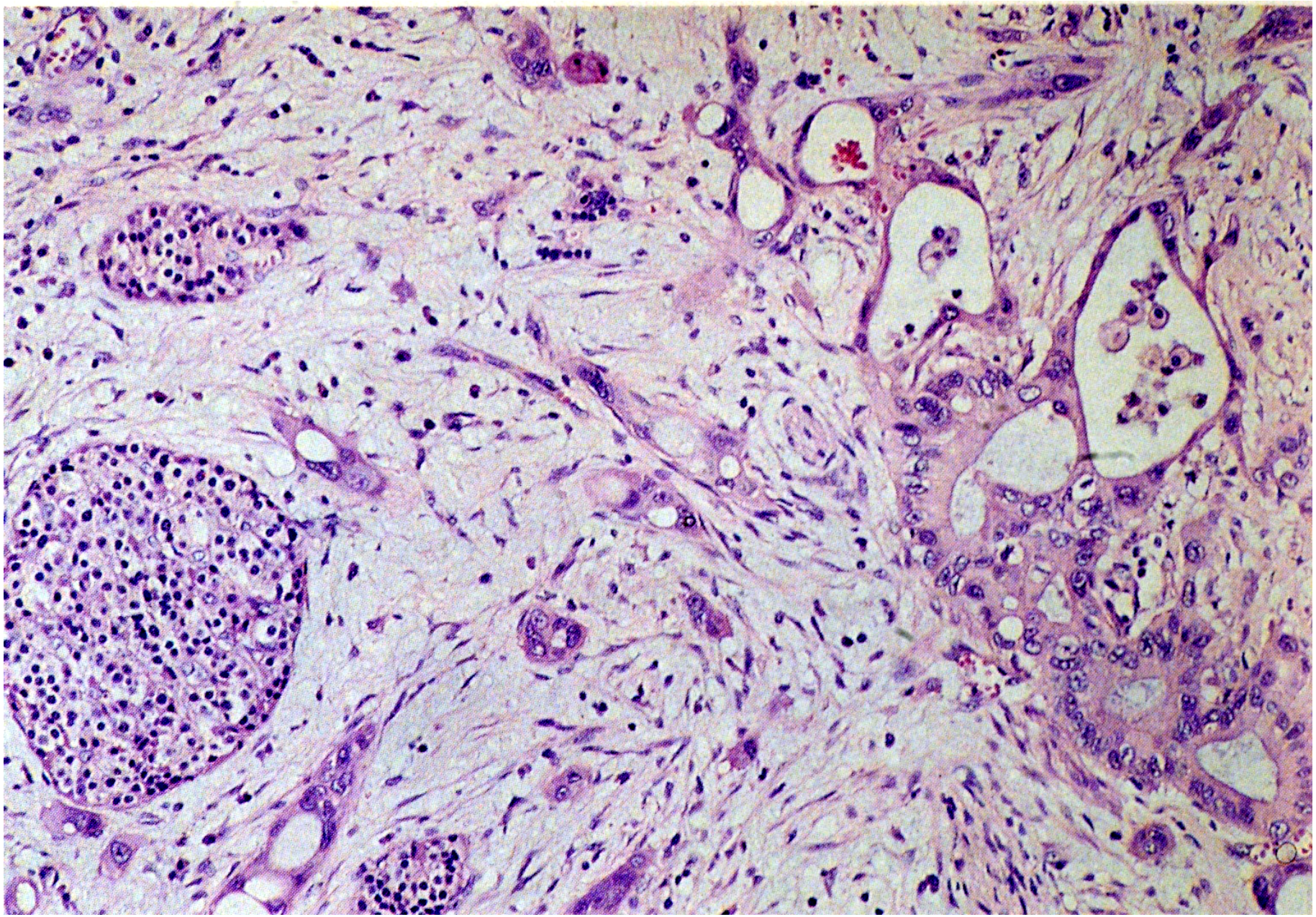


CHRONIC PANCREATITIS

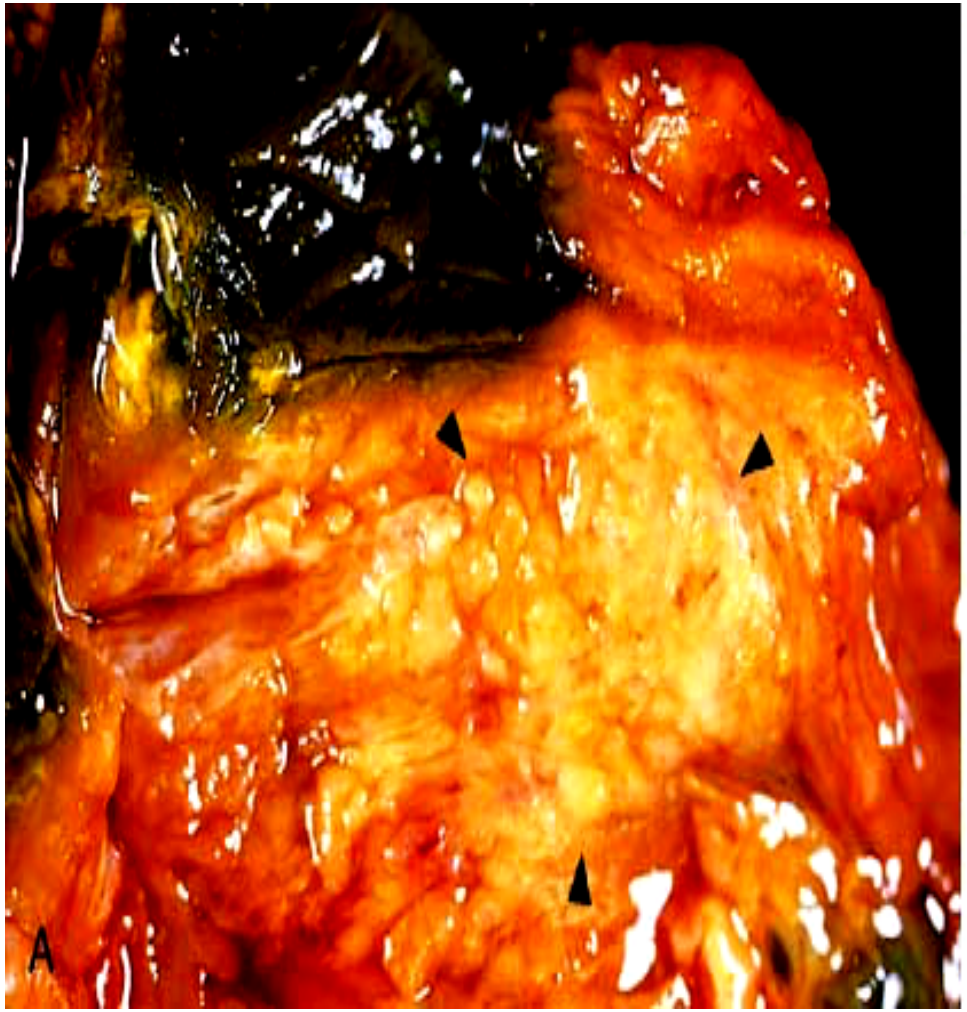


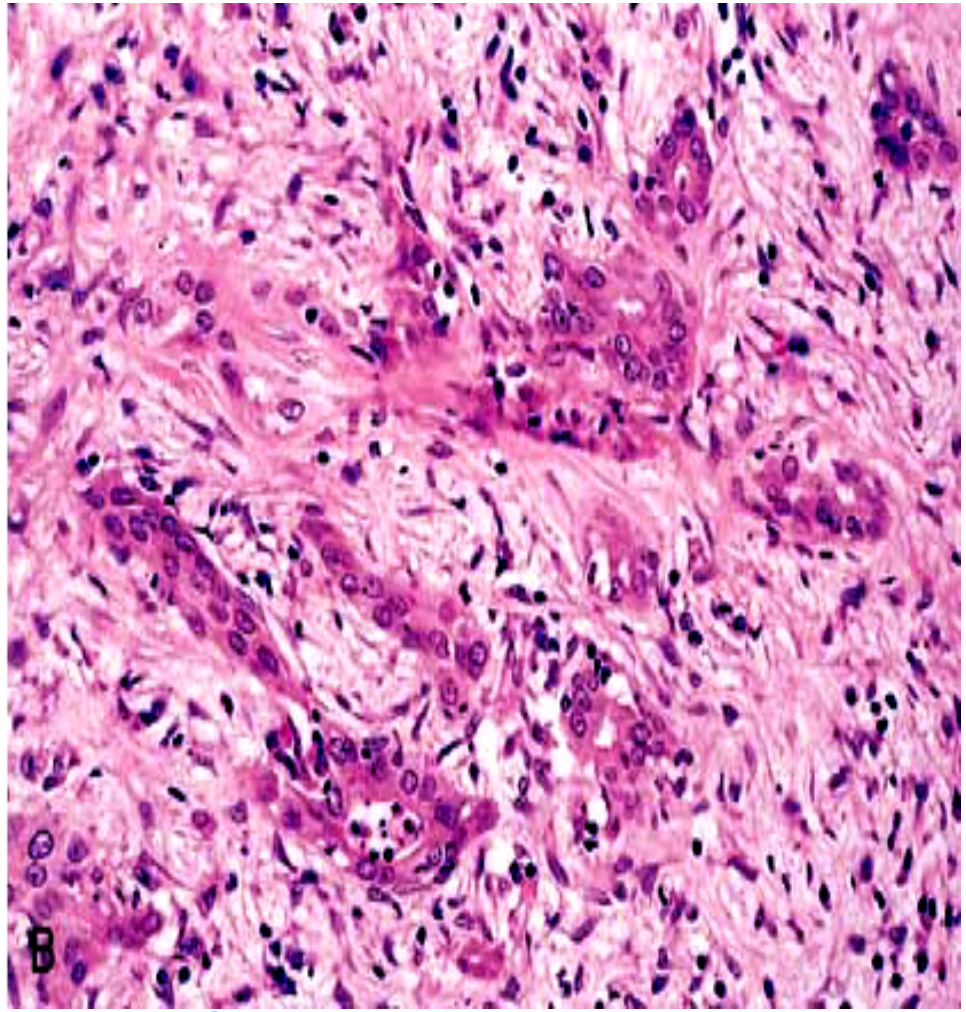
Chronic pancreatitis

Pancreatic adenocarcinoma



Pancreatic adenocarcinoma





Pancreatic

Adenocarcinoma