CLINICOPATHOLOGICAL SPECTRUM OF HEPATITIS

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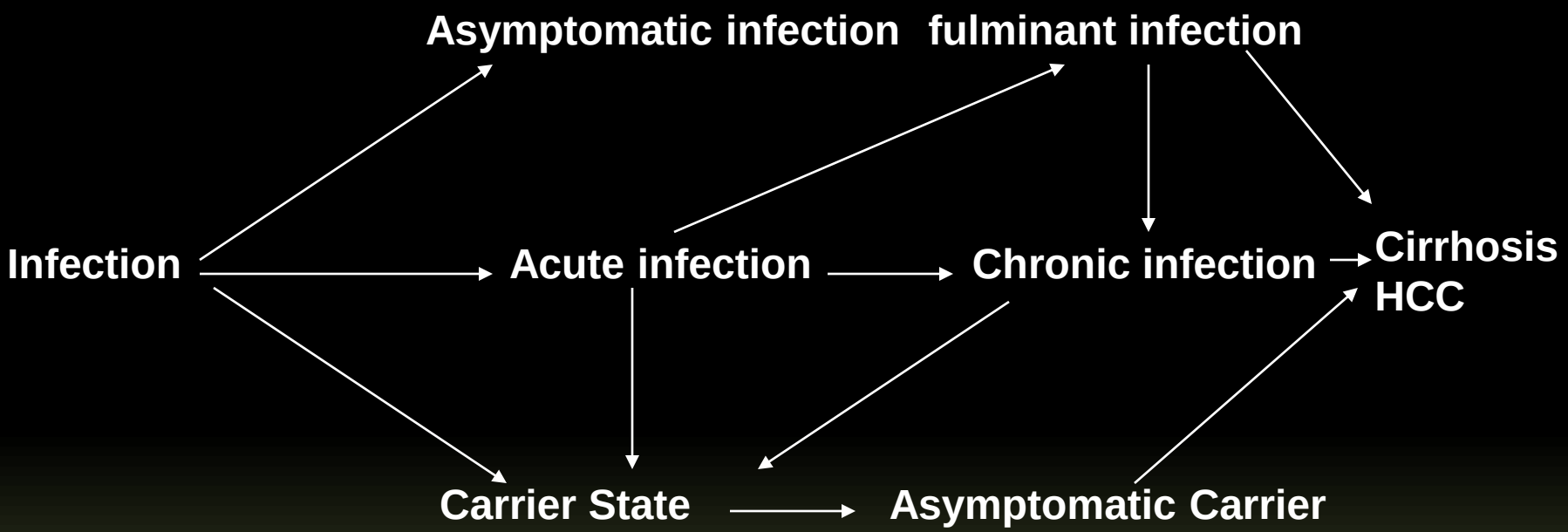
D/O Pathology

- Carrier State
- Asymptomatic infection
- Acute hepatitis
- Chronic hepatitis
- Fulminant hepatitis (submassive to massive necrosis)

Progressive disease to cirrhosis and Carcinoma

Clinicopathological Spectrum of Hepatitis



CARRIER STATE

Carrier State

- Fail to clear the HBsAg within 6 months
- Asymptomatic without active disease
- Capable of transmitting hepatotropic virus
  1. **Asymptomatic healthy carrier**
  2. **carrier with chronic disease**

Epidemiology

- A & E - no carrier state or chronic hepatitis.
- HBV – maximum carrier worldwide
- With concomitant HDV infection – progressive disease
- Adult 10% neonates 90%
- 2 – 3% of asymptomatic carrier of HCV

Contd.

- Early age of infection and low immunity
- Commonly HBsAg screened for screening of HBV infection
- For HCV - antibody for HCV detected (anti HCV)
- No method except PCR is fool proof for detection of virus

Morphology

- Healthy – No change of fine granularity, ground glass appearance eosinophilic cytoplasm
- With chronic disease – shows changes of chronic hepatitis or cirrhosis

ASYMPTOMATIC INFECTION

Asymptomatic infection

- No problem to the patient

- Harbor the infection
- Capable of transmitting the infection

- detected by presence of increased transaminases

- Antibody detected

ACUTE HEPATITIS

Acute Hepatitis

- All type of hepatitis run similar course and show same pathological changes

- **Clinically four phase**

✓ incubation period

✓ Pre - icteric phase

✓ Icteric phase

✓ Post - icteric phase (convalescence)

Incubation period

- Hepatitis A – 15 – 45 days (4 weeks)
- Hepatitis B – 30 – 180 days (10 weeks)
- Hepatitis C – 42 – 56 days (7 weeks)
- Hepatitis D – 30 – 50 days (6 weeks)
- Hepatitis E – 15 – 60 days (2 – 8 weeks)
- Patient is asymptomatic but infectivity is high specially last days

Pre - icteric phase

- Prodromal constitutional symptoms – anorexia, nausea, vomiting, fatigue malaise, distaste, arthralgia & headache
- Low grade fever
- Elevation of transaminases is the earliest finding

Icteric phase

- Onset of clinical jaundice
- Constitutional symptoms diminish.
- Dark color urine due to bilirubinuria
- clay colored stool due to cholestasis
- Purutitis due to bile acids
- Abdominal discomfort due to hepatomegaly
- Loss of weight
- Elevated S. Bil, transaminases, alkaline phosphatase, prolonged PT
- Hepatitis antigen or antibodies

Post - icteric phase (convalescence)

- Lasting for 1 – 4 weeks
- Recovery in 2 – 12 weeks
- More prolonged in B & C

- 1% develop severe form fulminant hepatitis
- 5 – 10% progress to chronic phase
- Or develop to carrier stage

Pathological changes

Gross – slightly enlarged, soft, tender

Morphology

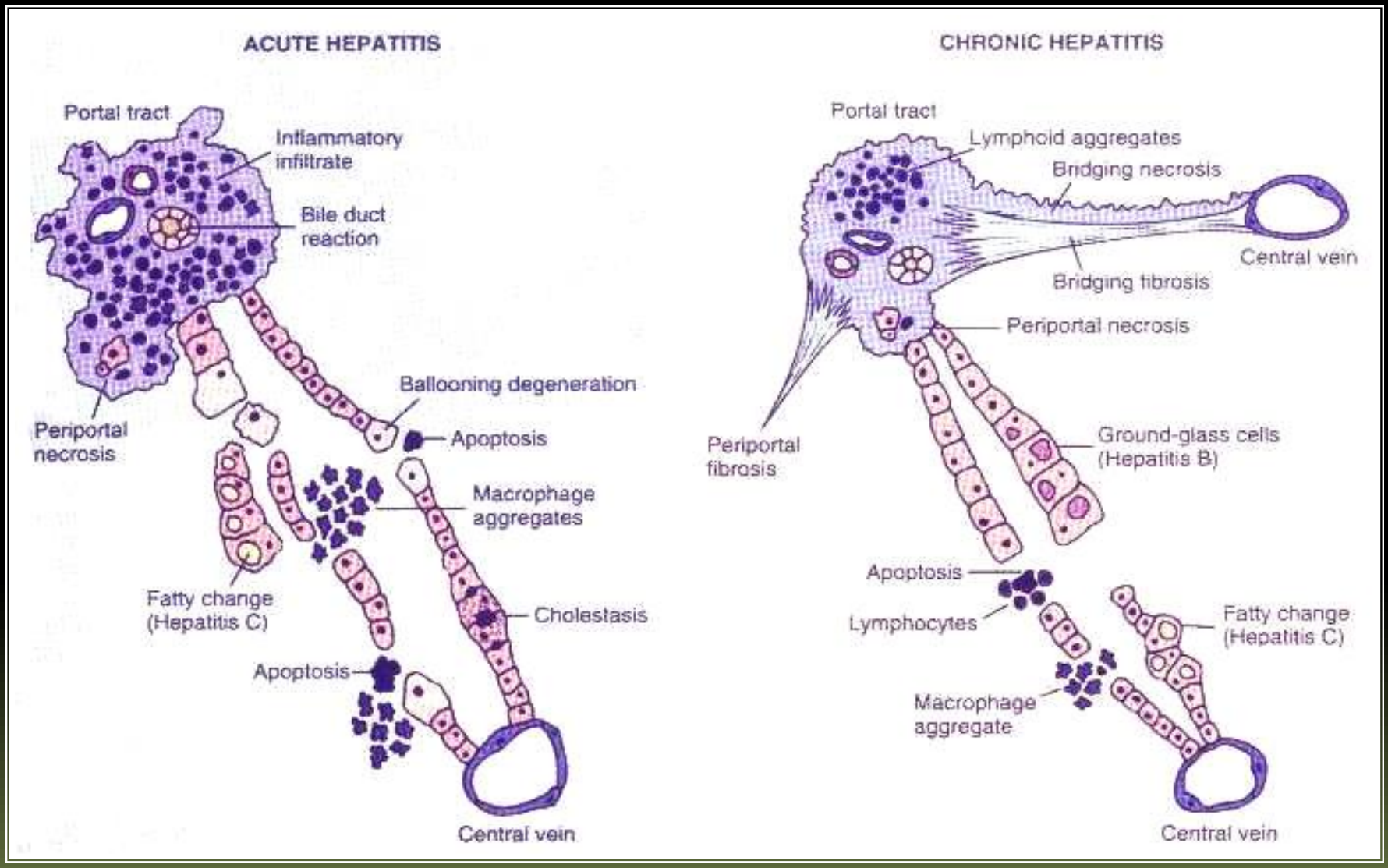
- Hepatocellular injury – marked in centrilobular zone
- Inflammatory infiltrate – in portal tract & lobules
- Kupffer cell hyperplasia – reactive
- Cholestasis – Biliary stasis
- Regeneration

Hepatocellular injury

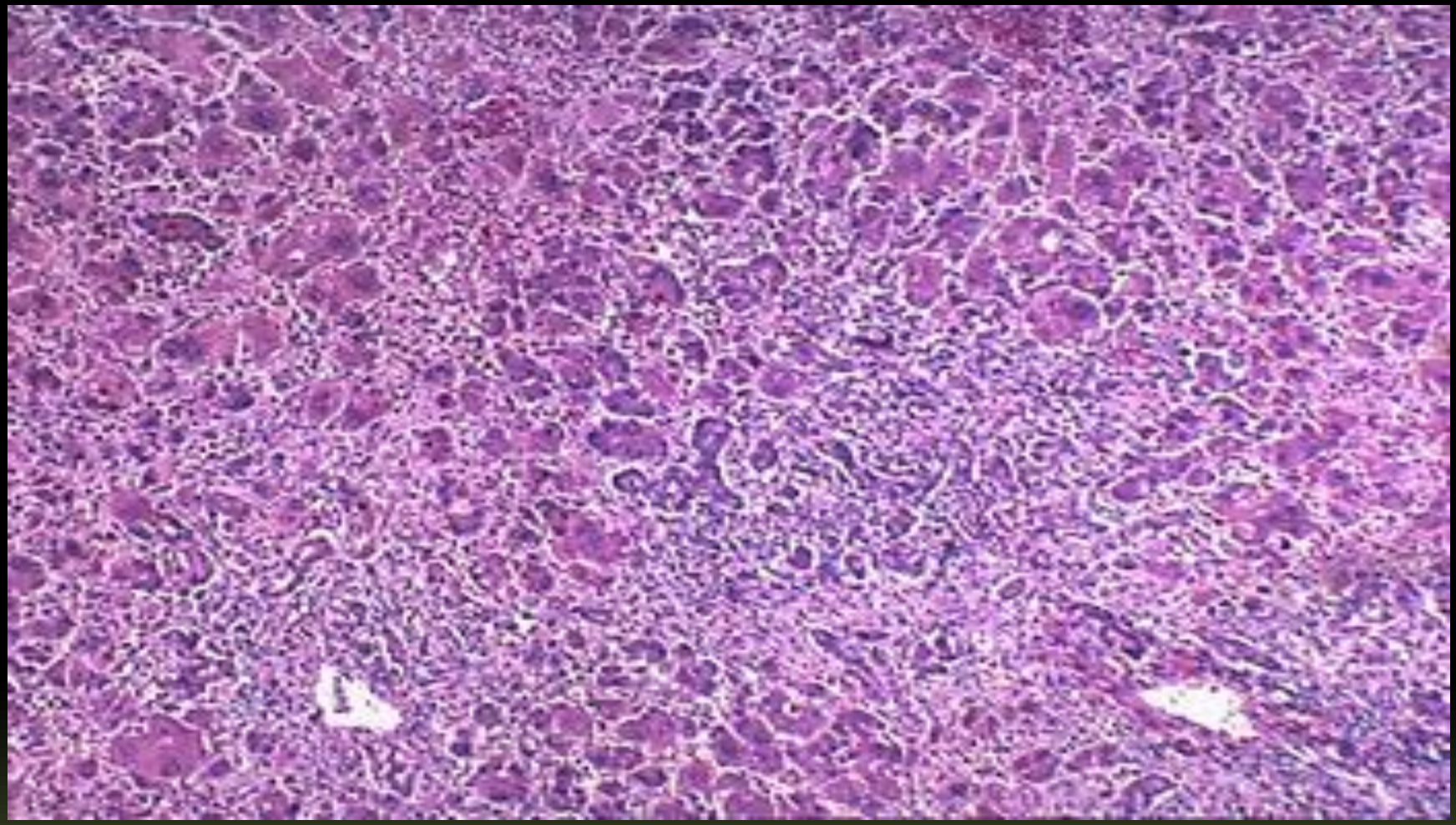
Of varying degree -

- Ballooning degeneration- Mild injury, swollen with granular cytoplasm
- Councilman body – acidophilic degeneration – (acidophilic body) – nucleus pyknotic and eventually extruded
- Dropout necrosis – hepatocytes undergo lysis
- Bridging necrosis – severe form of injury, may progress to fulminant or chronic hepatitis – band of necrosis joining PT to CV, CV to CV or PT to PT

Acute Hepatitis

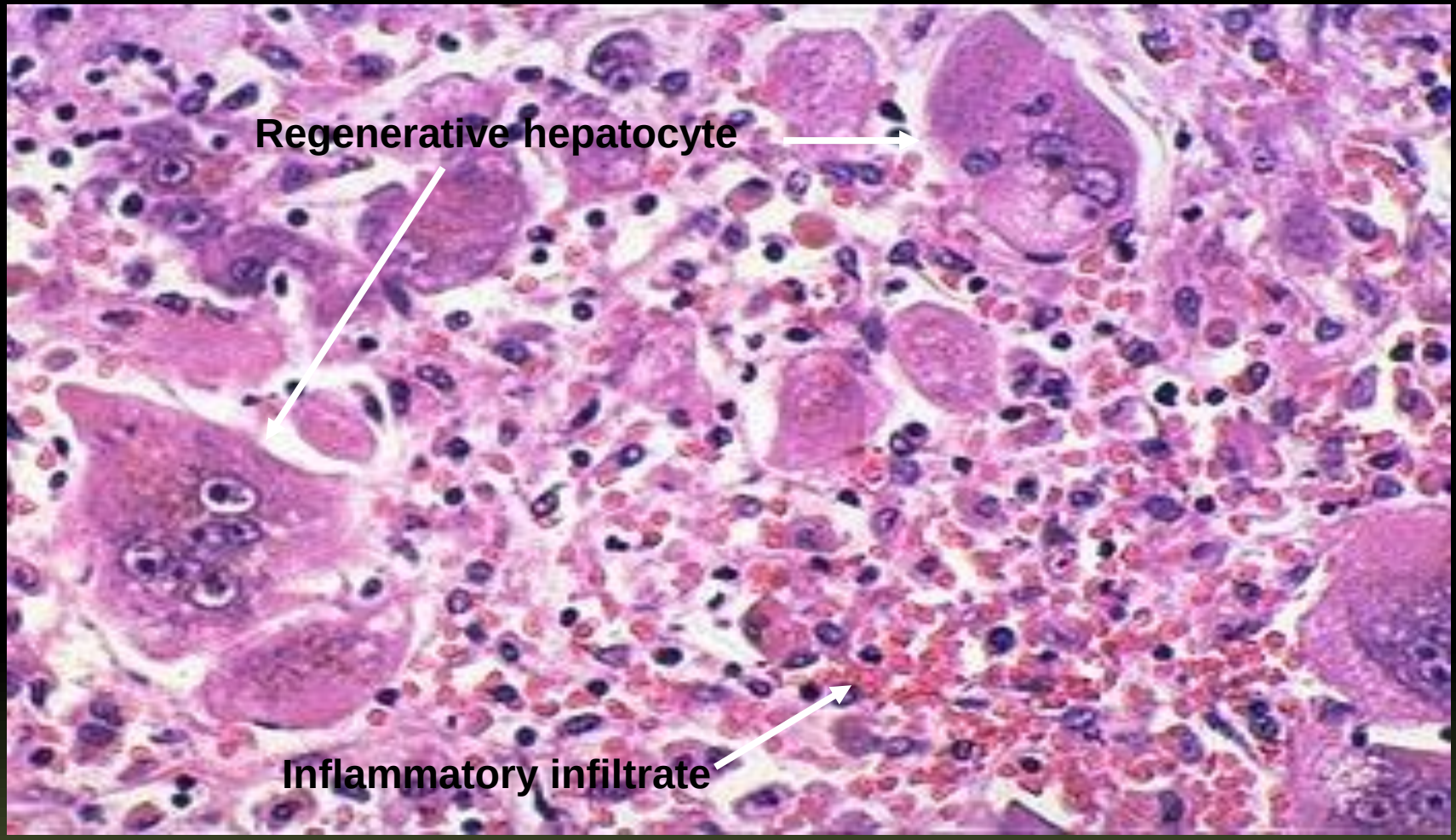


Acute Viral Hepatitis



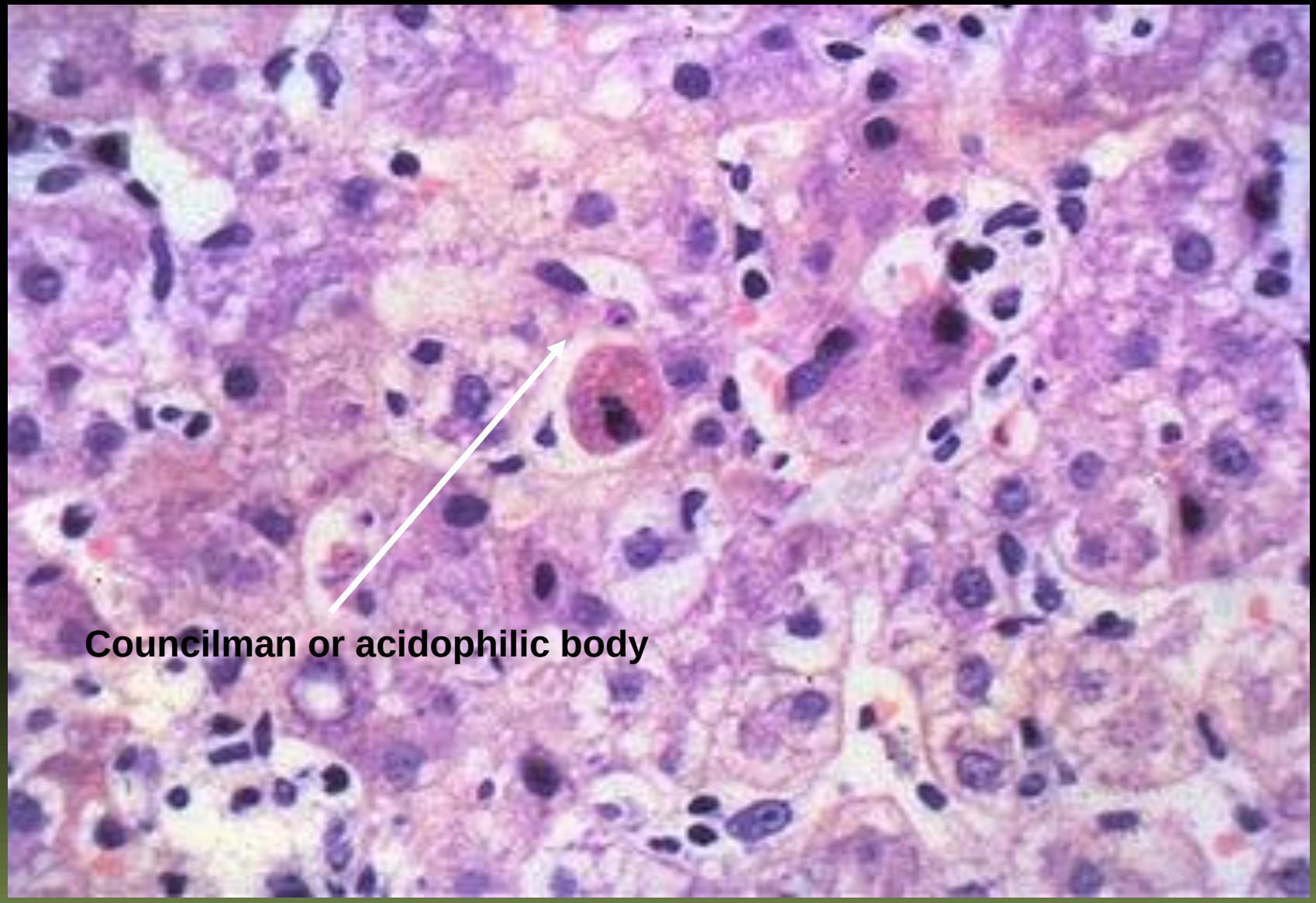
Low Magnification, A cellular infiltrate throughout the hepatic lobule obscures the normal-appearing hepatic architecture.

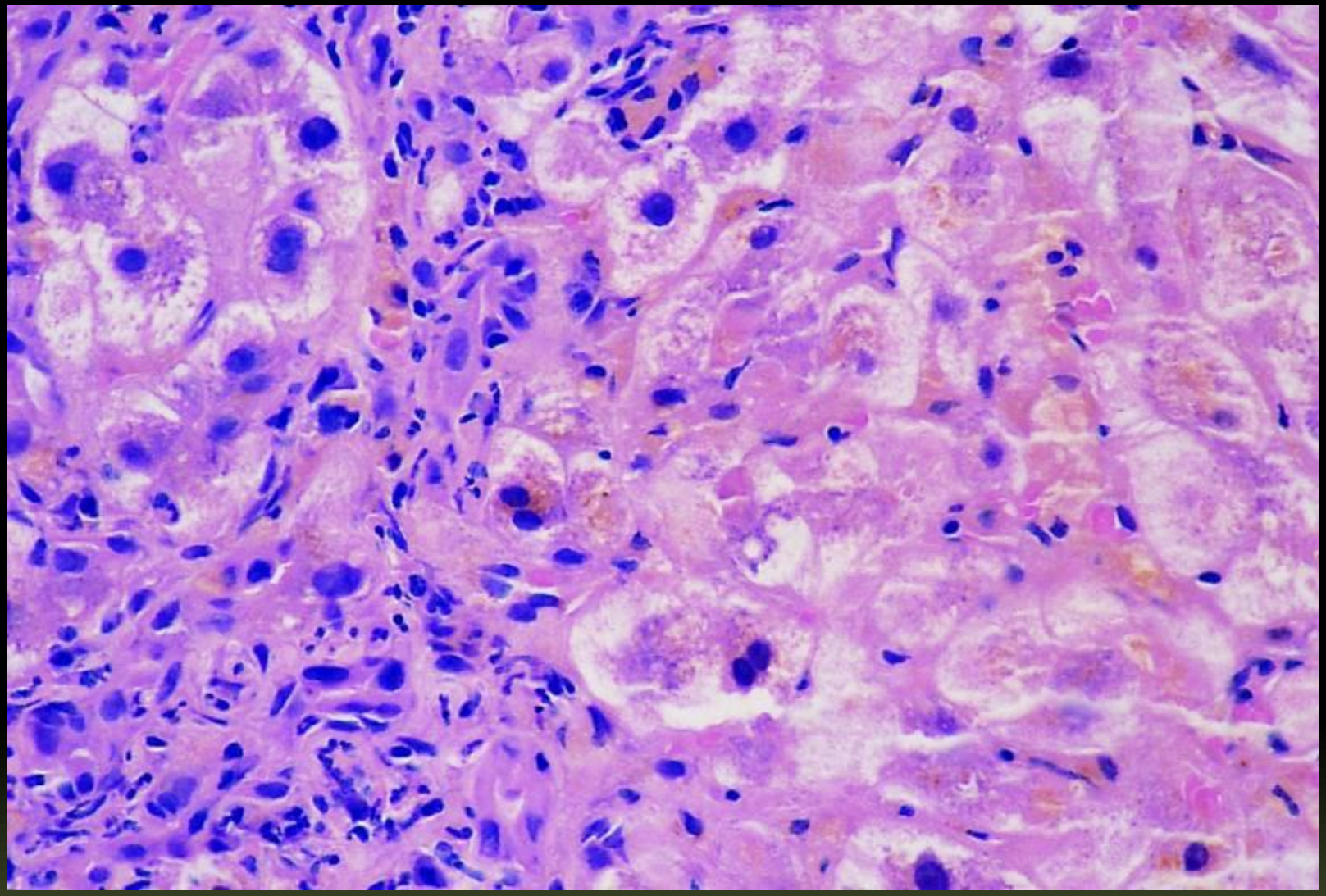
Acute Viral Hepatitis (Hepatitis B virus) - High Power



Infiltration of the Hepatic Sinusoids by an Acute, as well as Chronic, inflammatory cellular infiltrate and Kupffer cell hypertrophy and hyperplasia

Acute viral hepatitis (hepatitis B virus) - High power





Ballooning degeneration characterized by enlargement of hepatocytes with rarefaction of cytoplasm in a case of acute hepatitis A

CHRONIC HEPATITIS

Chronic hepatitis

- Def. – continuing or relapsing episode with symptoms, serological, biochemical & Histopathological changes for > 6 M
- Commonly with HBV & HCV
- Other causes - Wilson ds, α 1 antitrypsin def., chronic alcoholism, drug induced & autoimmune
- Impaired immunity & old age favorable for chronicity

- On the basis of morphology

1. CAH
2. CPH

But morphology does not account for prognosis

Dis is not static but varying from mild to severe

Pathological changes (same for HBV & HCV)

- Piece meal necrosis
- Portal tract lesion
- Intralobular lesion
- Bridging fibrosis

- **Piece meal necrosis** :- periportal necrosis at limiting plate

1. Necrosed hepatocyte

2. Interface hepatitis due to infiltrate of lymphocyte

3. Expanded portal tract with proliferating bile duct as a response to liver cell injury

- **Portal tract lesion:-**

1. Infiltration of lymphocytes & plasma cell
2. Bile duct proliferation
3. In HCV lymphoid aggregate and follicle with germinal centre, inflammatory cell in damaged bile duct epithelial cell

- **Intralobular lesion**:- architecture retain in mild to moderate cases

1. Focal area of necrosis & inflammation in hepatic parencyma; Bridging necrosis
2. Acidophilic bodies
3. Kupffer cell hyperplasia
4. Regenerative changes
5. HCV – fatty changes

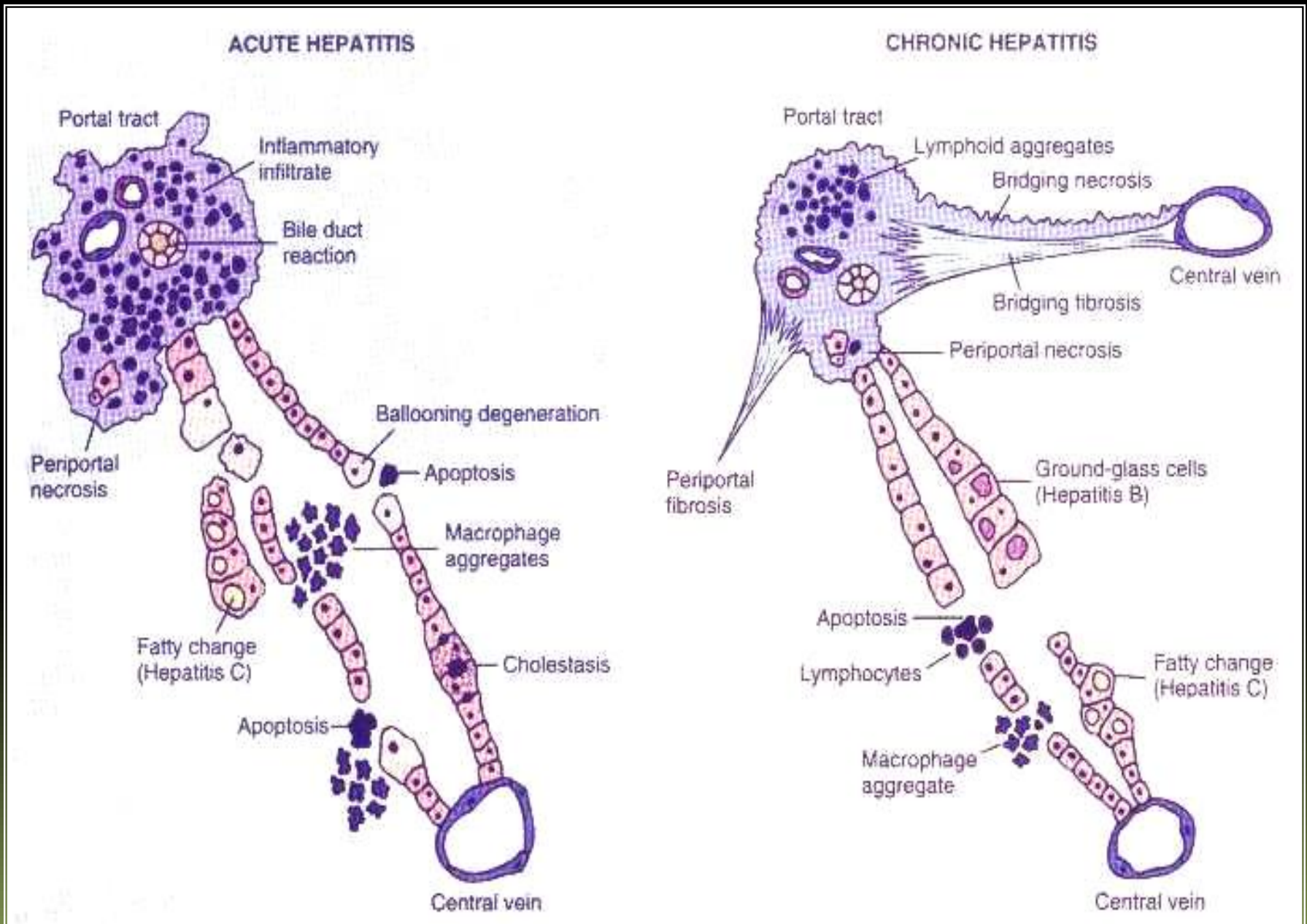
- **Bridging fibrosis:-** fibrosis from area of interface hepatitis and bridging necrosis – feature of irreversible changes

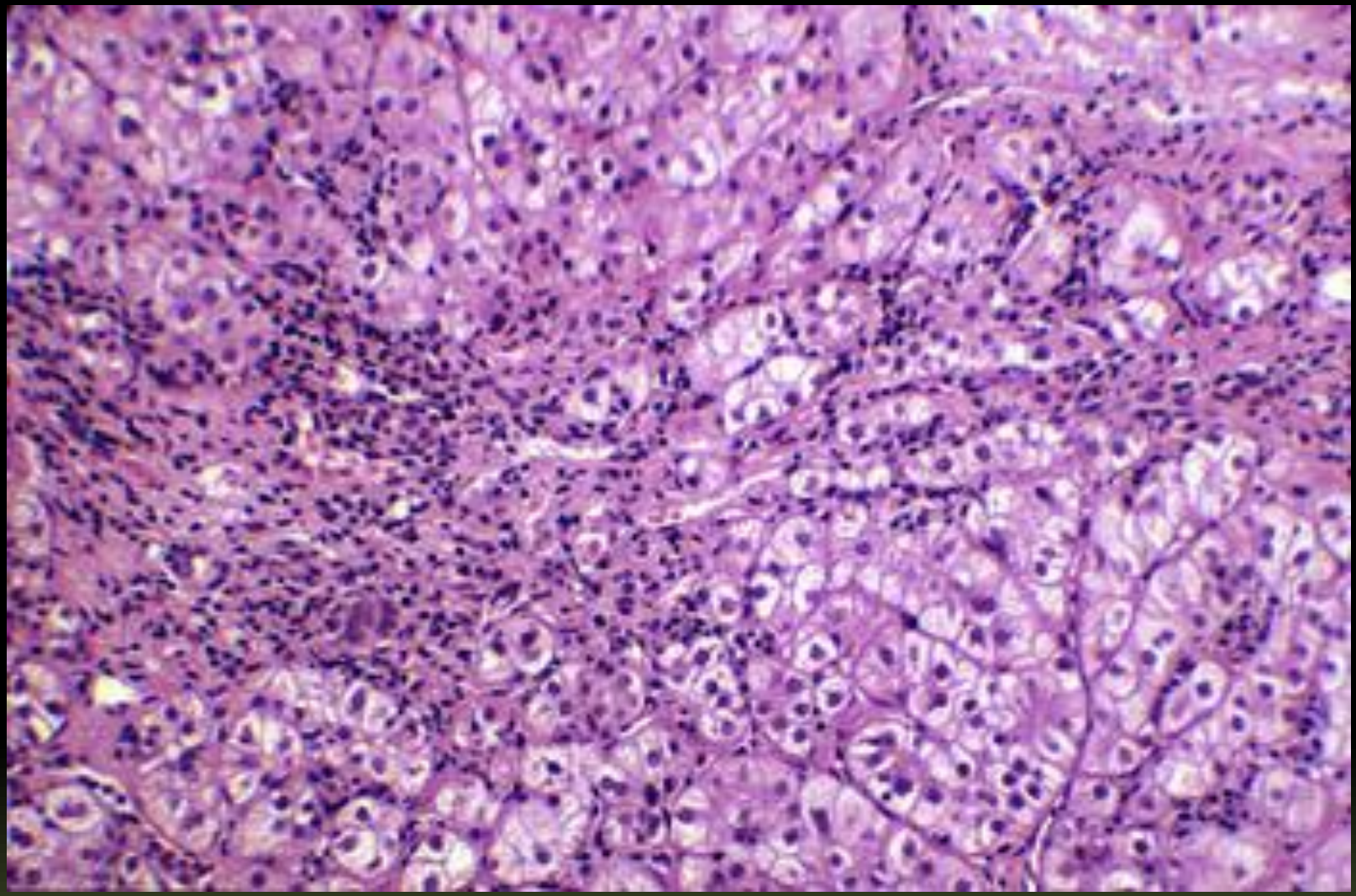
I. Fibrosis at interface hepatitis – portal tract stellate shape

II. Progressive – fibrosis between PT to PT or PT to CV

III. End stage – dense collagenous septa destroying lobular architecture – nodule formation same as post necrotic cirrhosis

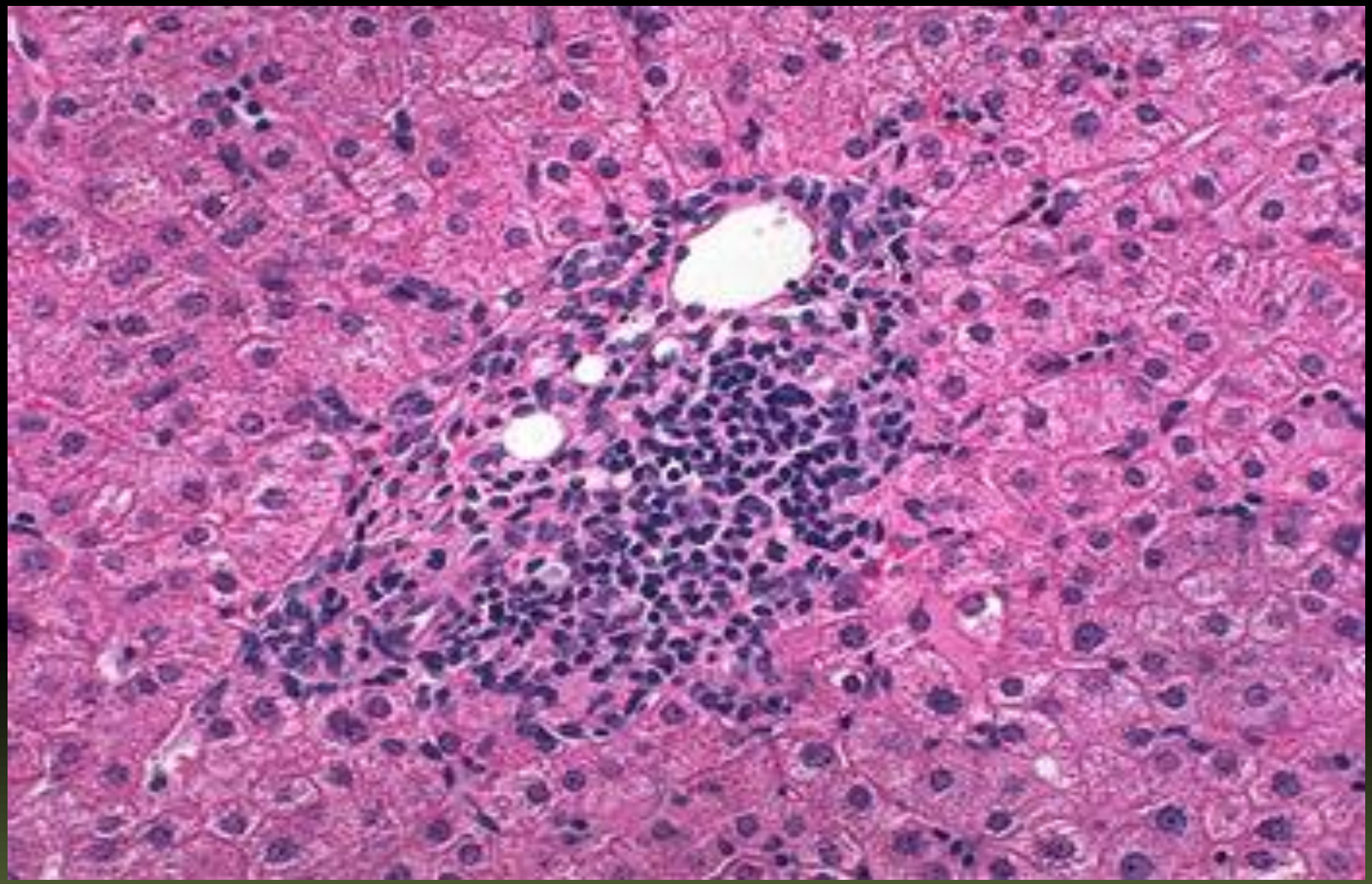
Chronic Hepatitis



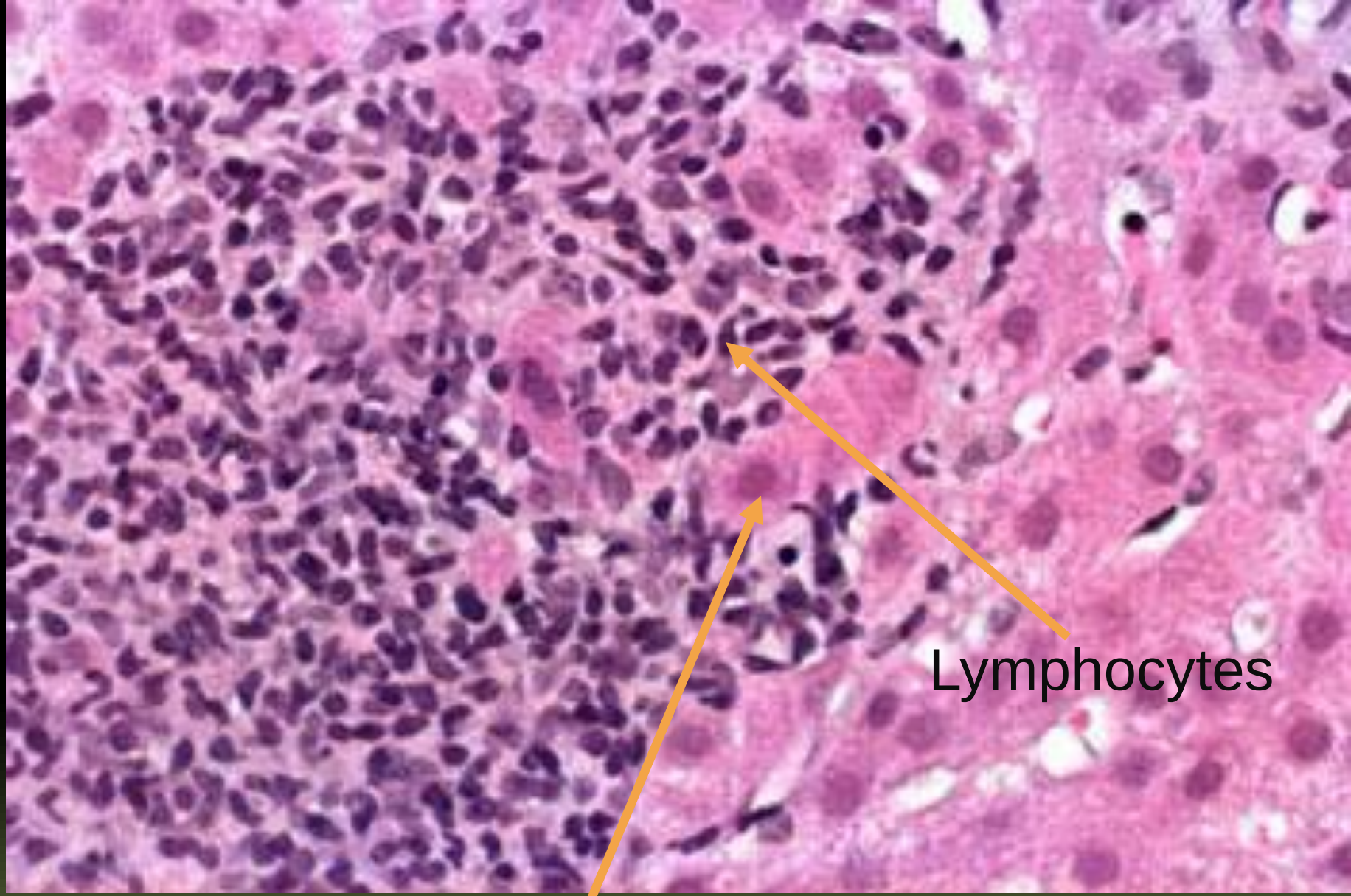


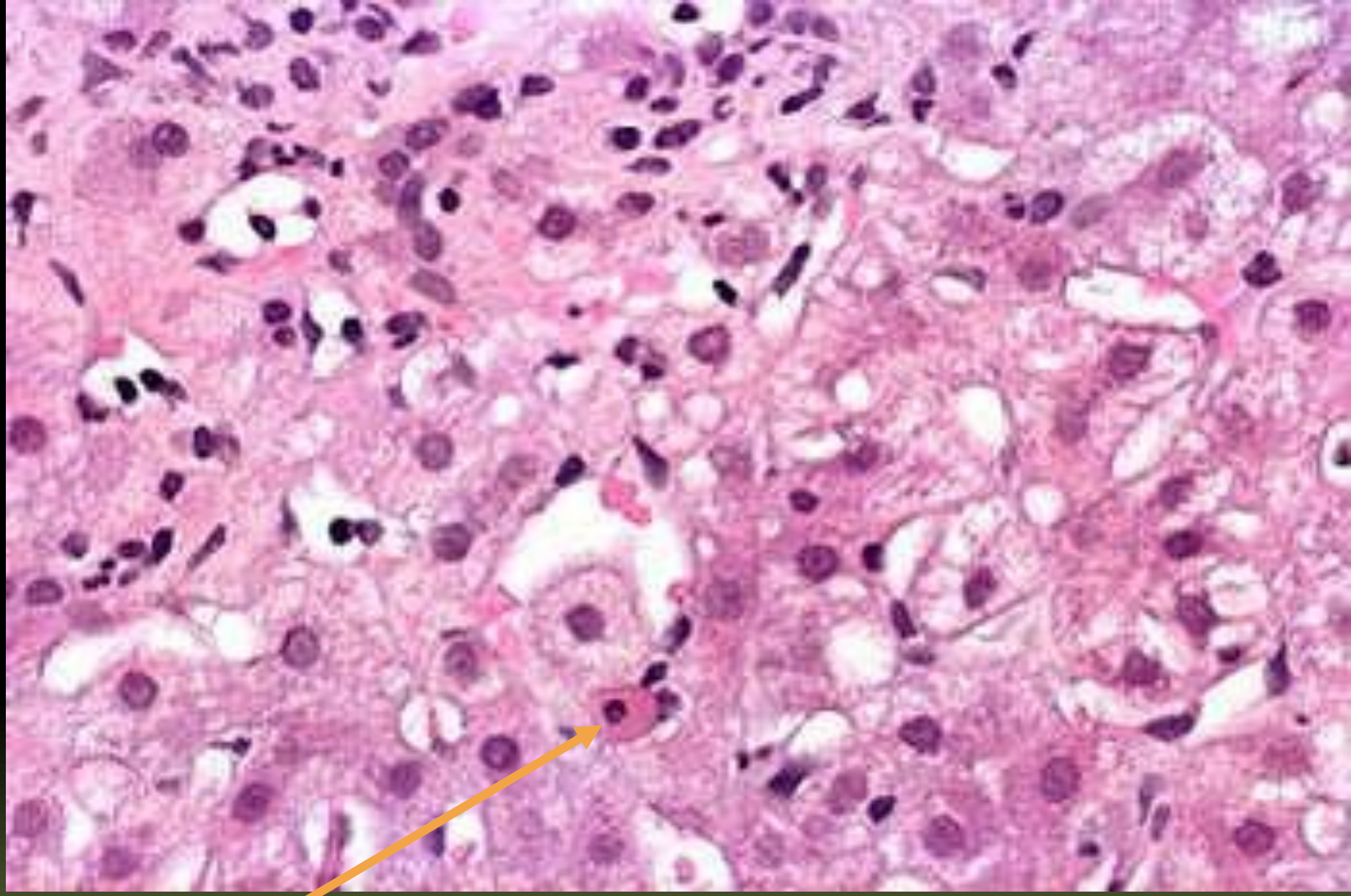
There is a chronic inflammatory infiltrate in the portal areas of the liver that extends beyond the portal area into the adjacent lobule, where it encircles hepatocytes, many of which are undergoing degeneration and necrosis.

chronic persistent hepatitis (hepatitis B virus) -

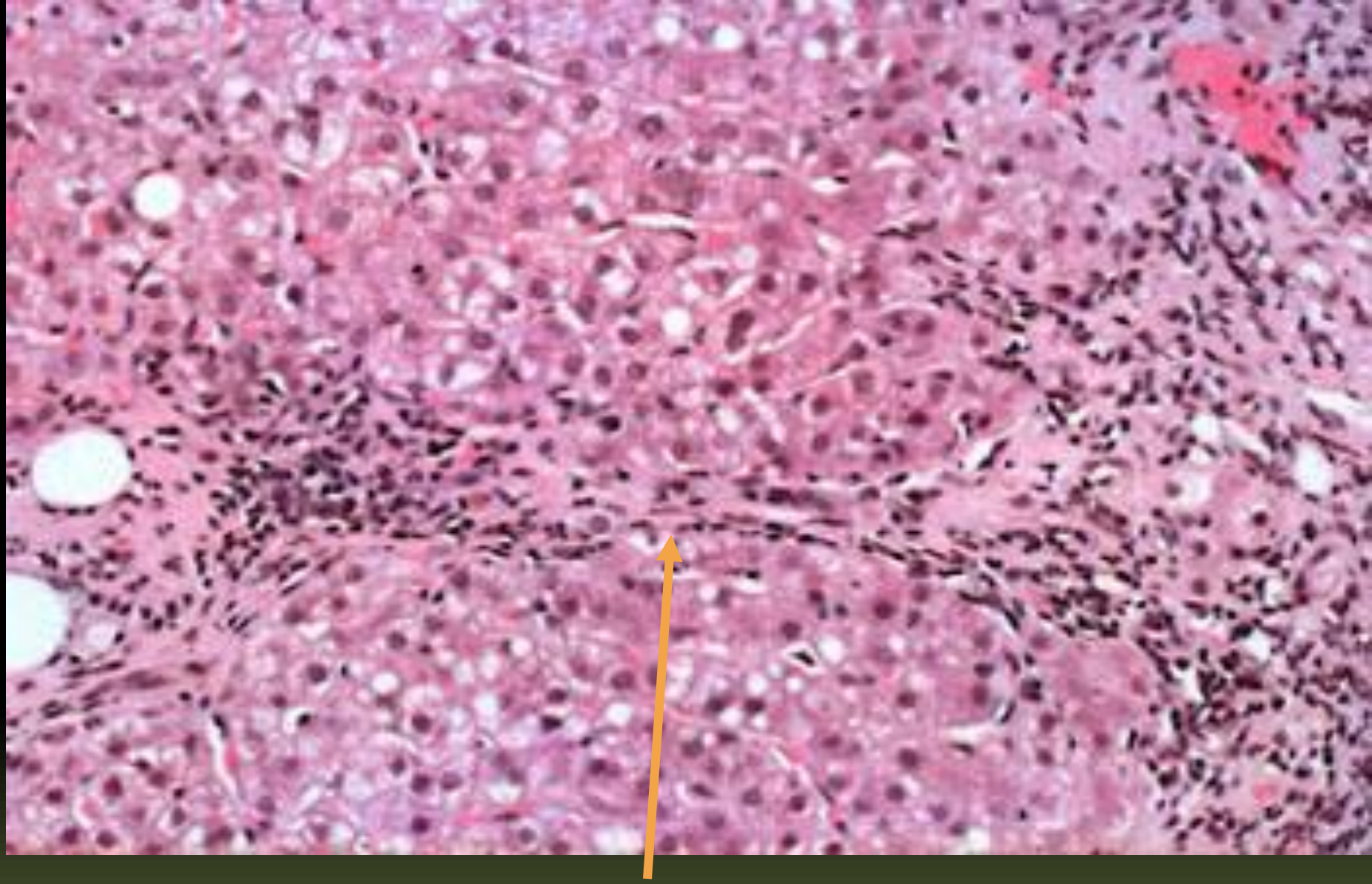


chronic inflammatory infiltrate is seen that is limited to the portal area

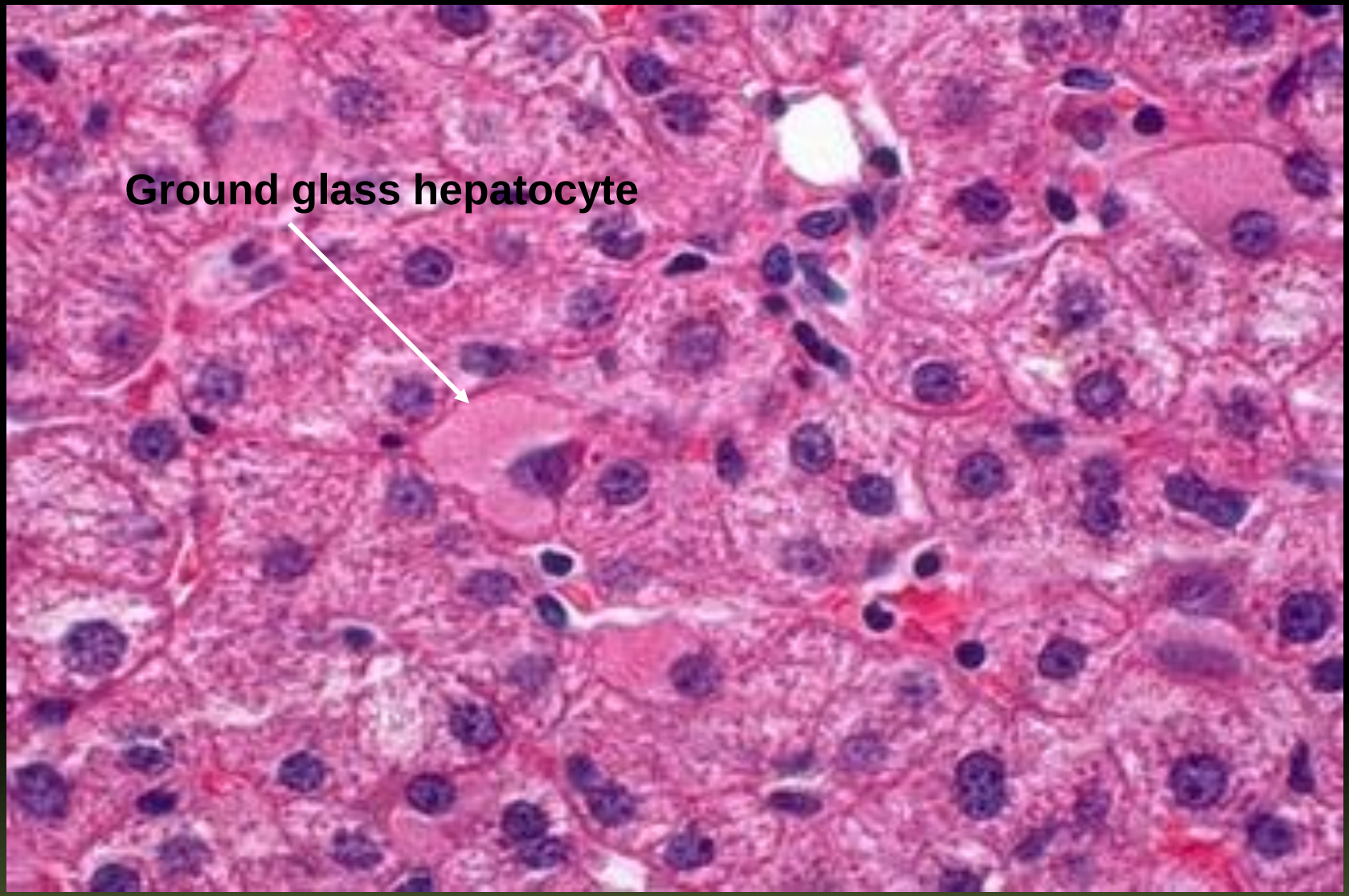

Lymphocytes
Piecemeal Necrosis



Councilman body.



bridging necrosis



Chronic Active hepatitis (hepatitis B virus) - High power

Clinical Features

- slight persistent elevation of transaminases
- Fatigue, Malaise & Loss of appetite
- Tender hepatomegaly with mild splenomegaly
- PT increased, increased bilirubin, hyperglobinemia
- Systemic features of circulating immune complex due to HBV & HCV (immune complex vasculitis, GN)
- Long standing HBV or HCV may progress to HCC

FULMINANT HEPATITIS

Fulminant Hepatitis

- Most sever type of ac hepatitis in which there is rapidly progressive hepatic failure

- Two pattern

1. Sub massive necrosis – less rapid course up to 3 m

2. Massive necrosis – rapid & fulminant liver failure with in 2 – 3 wk

- Fulminant hepatitis is of 2 varieties

1. Acute viral cause
2. Non viral cause

- **Acute viral hepatitis –**

-

commonly due to HBV or HCV

- less with HBV + HDV , very rare with HAV.

- In pregnant ladies common due to HEV.

- May also with herpes virus

- Non viral cause –

- drug

acetaminophen
NSAID
isoniazid
halothane
anti depressant

- poisoning

- hypoxic injury

- **Clinical Presentation**

- features of hepatic failures

- hepatic encephalopathies

Morphology (Gross)

- small shrunken liver, wt – 500 – 600 gm, capsule loss & wrinkles
- C/S – diffuse or random involvement of lobes, **muddy red** or **yellow necrosis**

Histology

- **Sub massive necrosis** – Hepatocytes in centrilobular & mid zone is wiped off – collapsed reticulin network

- Regeneration is orderly may result in restoration to normal size

- **Massive necrosis**

- entire liver lobe is necrotic

- loss of hepatic parenchyma

- condensed reticulin network & port tract

- proliferated bile ductules is plugged with biles

- scanty inflammatory infiltrate

- disordered regeneration – irregular masses of hepatocytes

Stay home stay safe

thankyou