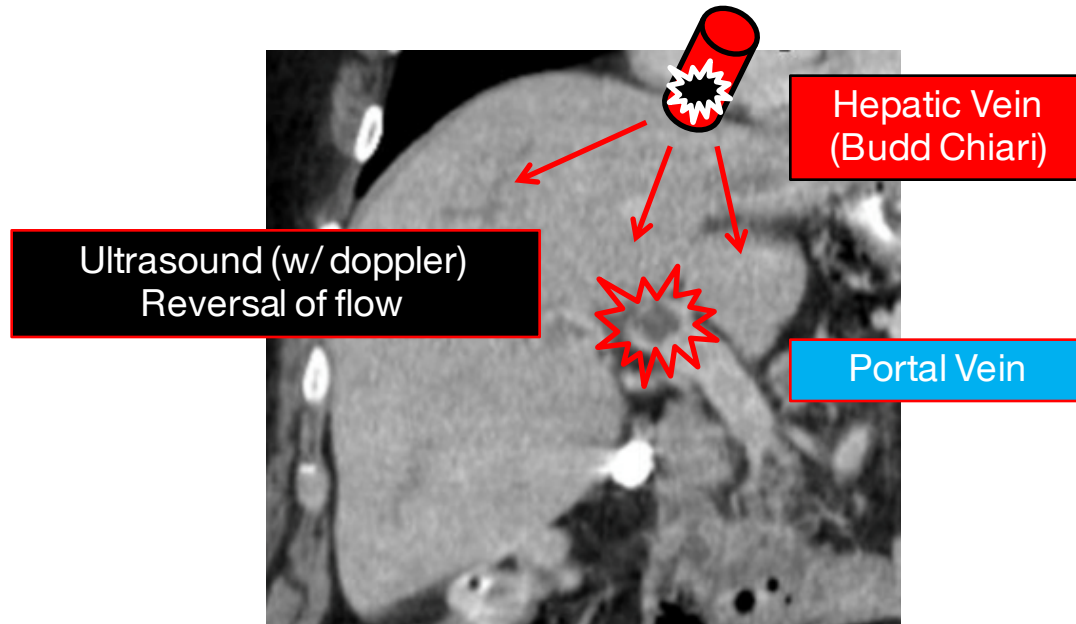
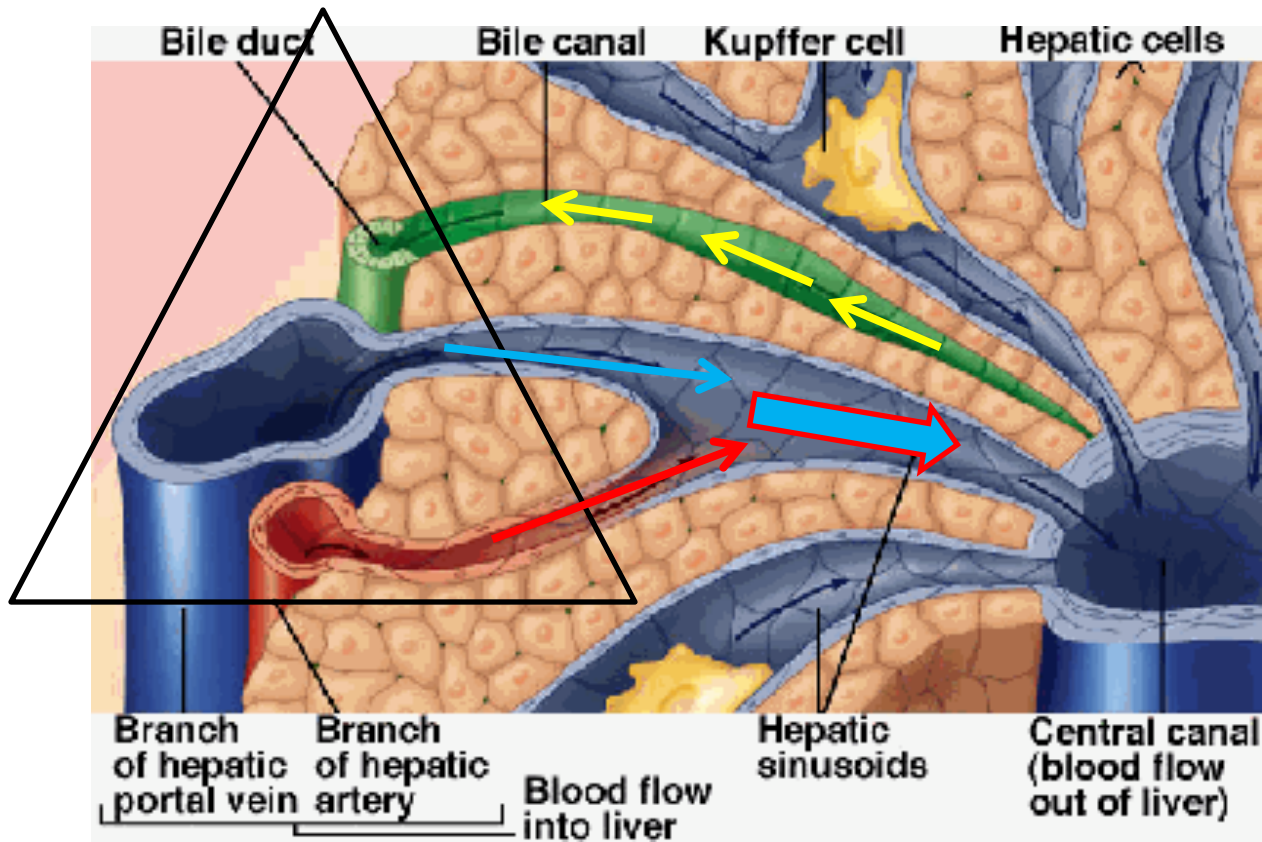


Podcast (Video Recorded Lecture Series):
Portal HTN and Derivatives for the USMLE Step One Exam



Howard J. Sachs, MD
www.12DaysinMarch.com
Email: Howard@12daysinmarch.com

Lobule w/ Portal Triad and Central Vein

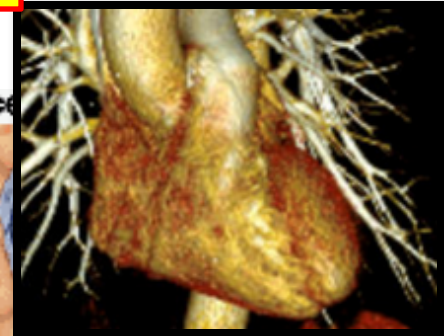
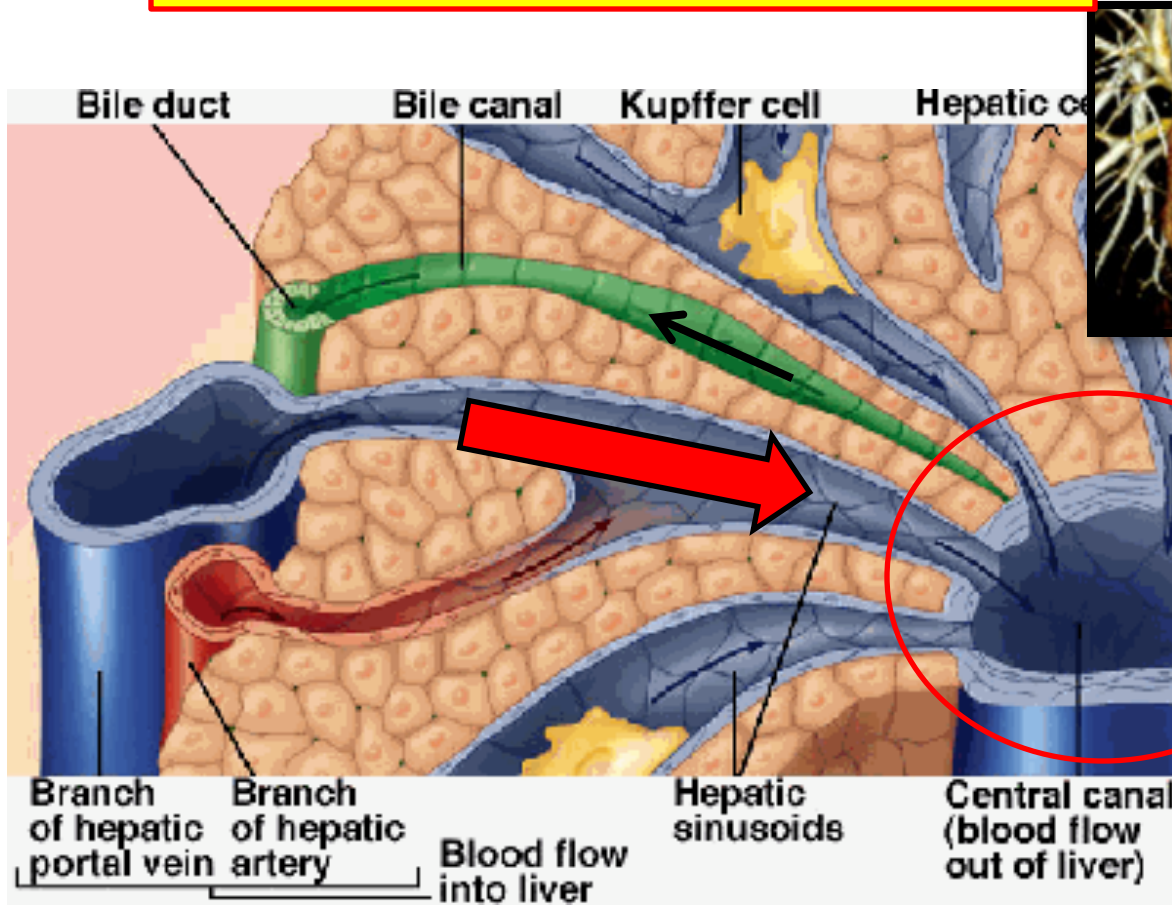


Portal Vein:
Splenic Vein
Superior Mesenteric

Celiac Artery:
Left Gastric
Common Hepatic
Splenic

Bile Duct (Bile):
Bile Salts
Cholesterol
Bilirubin

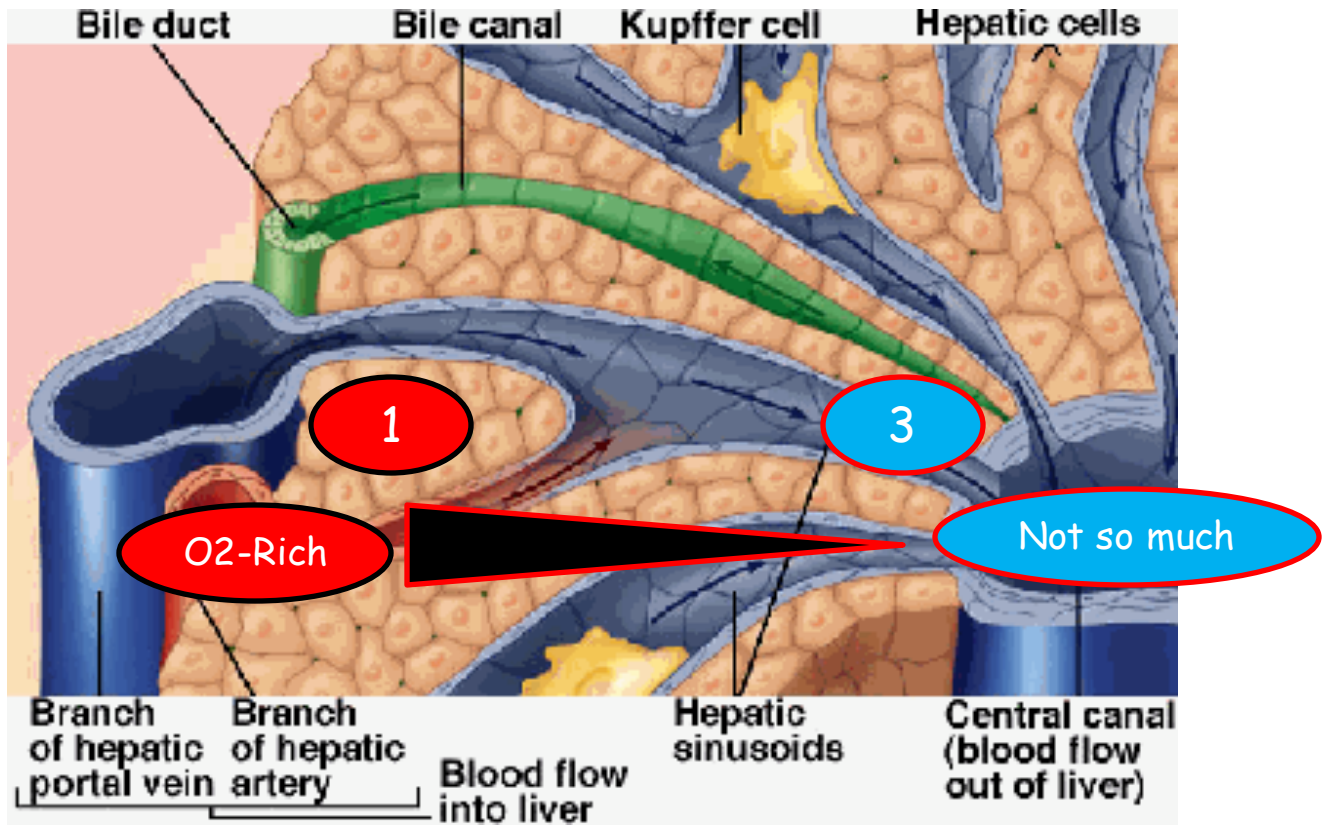
Lobule w/ Portal Triad and Central Vein



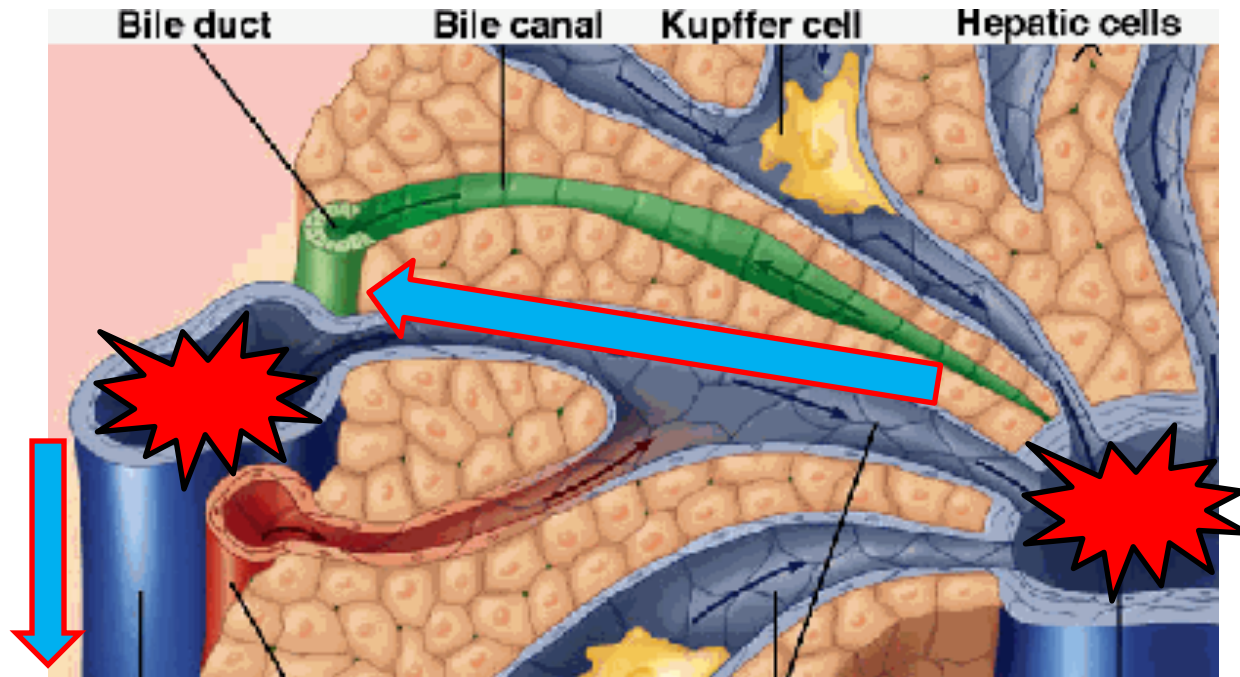
Portal Vein:
Splenic Vein
Superior Mesenteric

Central vein → hepatic vein → IVC → RA

Zone 1: HCV likes oxygen
Zone 3: APAP (toxins) feeds on hypoxia (and p 450)



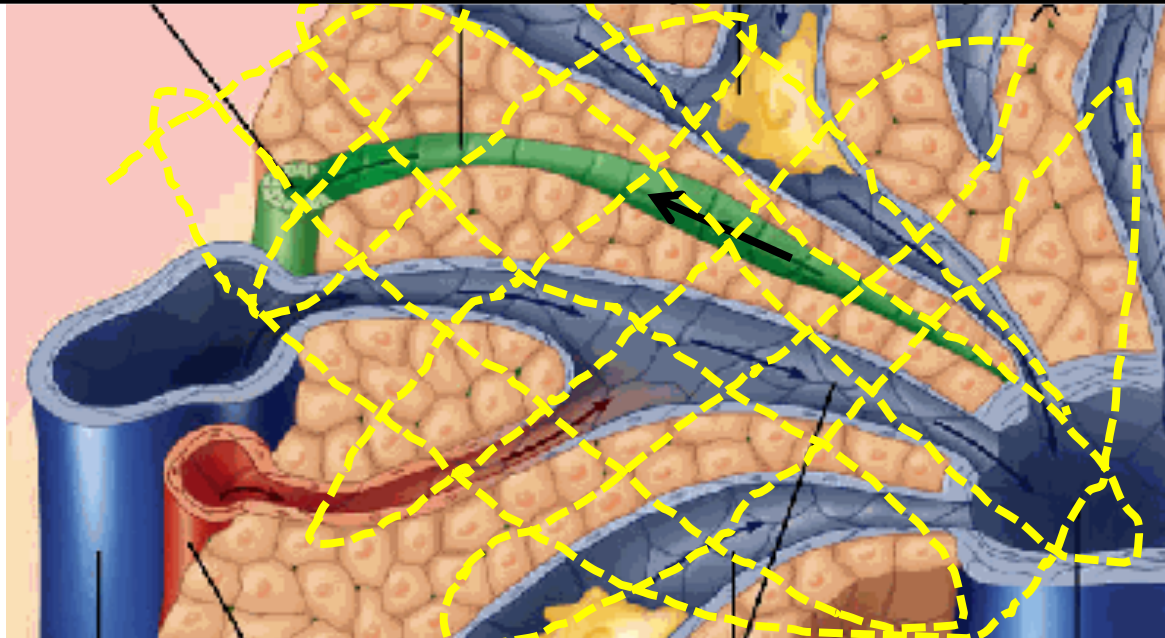
Diseases of Portal Circulation?



S/s Portal HTN:

- 3rd space fluid accumulation: Edema/ascites
[Other: no JVD, (+) renal hypoperfusion → RAA → hypoNa⁺]
- Splenic congestion: cytopenias (all cell lines)
- Varices (porto-caval circulation)

Portal vein thrombosis is fun
Hepatic vein thrombosis (Budd-Chiari) is thrilling
Cirrhosis is common



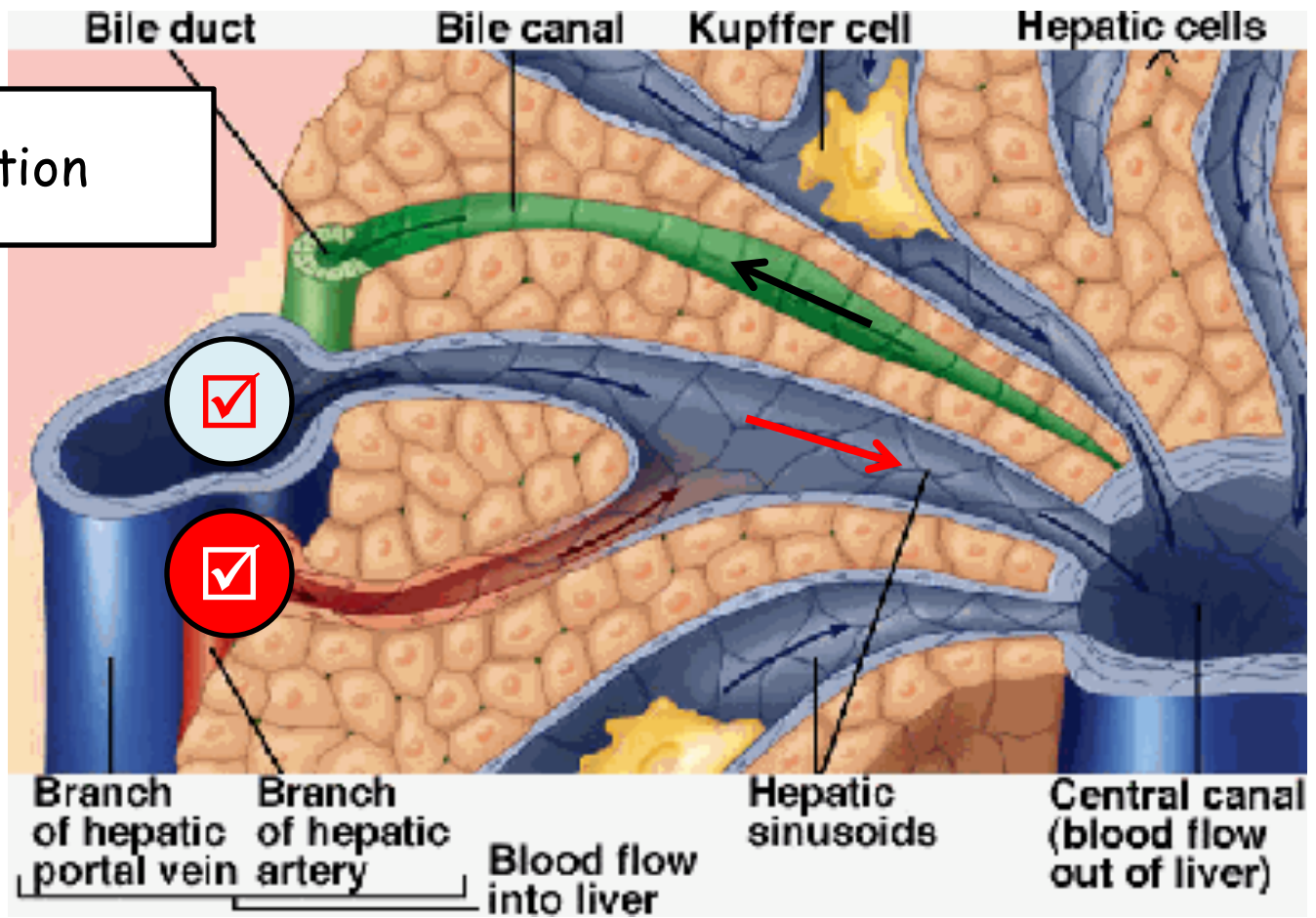
S/s Portal HTN:

- 3rd space fluid accumulation: Edema/ascites
[Other: no JVD, (+) renal hypoperfusion → RAA → hypoNa⁺]
- Splenic congestion: cytopenias (all cell lines)
- Varices (porto-caval circulation)

Portal Circulation: WYNTKFTB

- Circulation
- Manifestations of Portal HTN
- Recognizing the common conditions
- Portacaval anastomoses

WYNTKFTB: What You Need To Know For The Boards



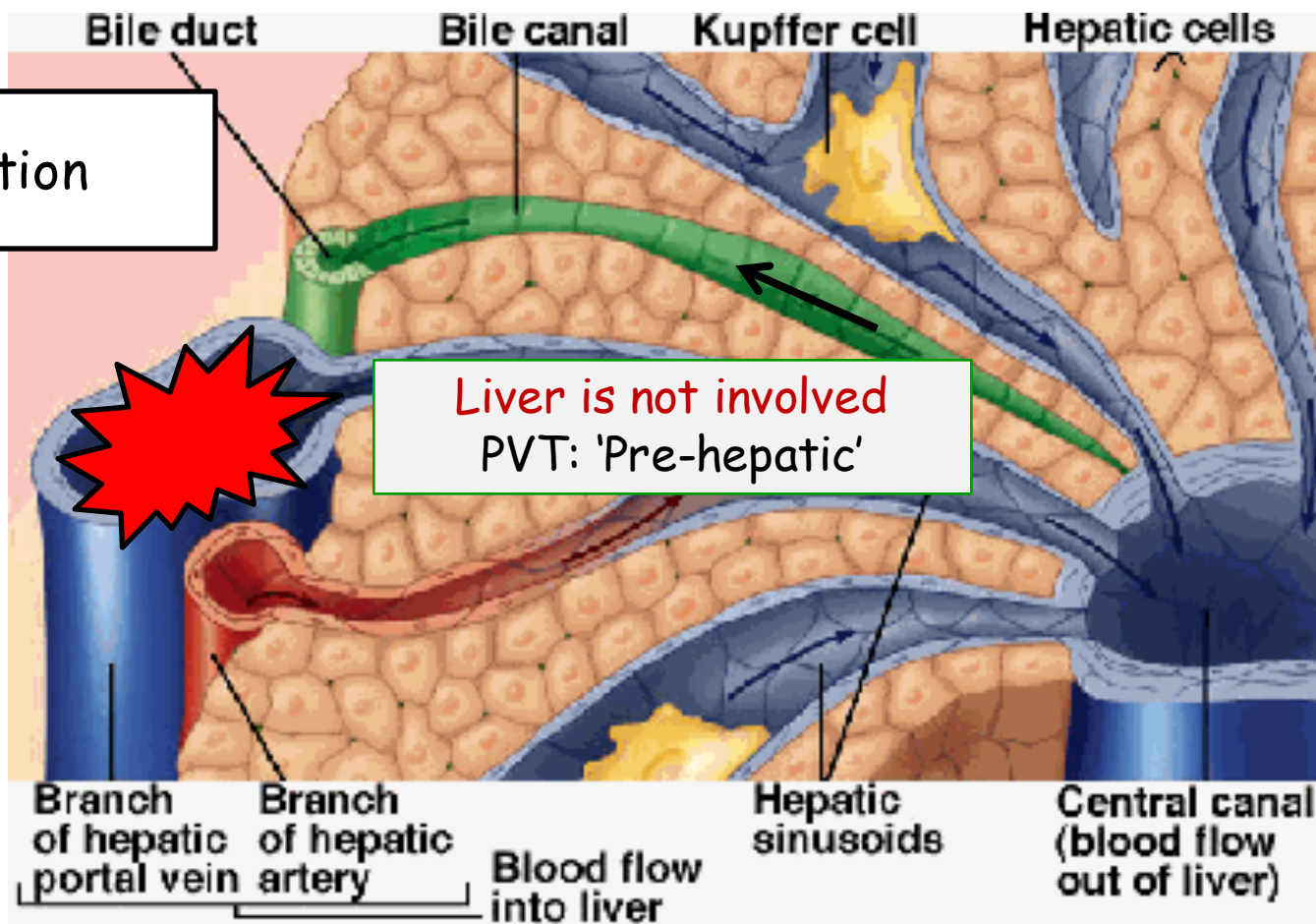
Key Points:

1. Dual circulation

Portal HTN:

Ascites, Hypersplenism, Varices

Portal HTN is only one of the manifestations of cirrhosis (and has other causes)



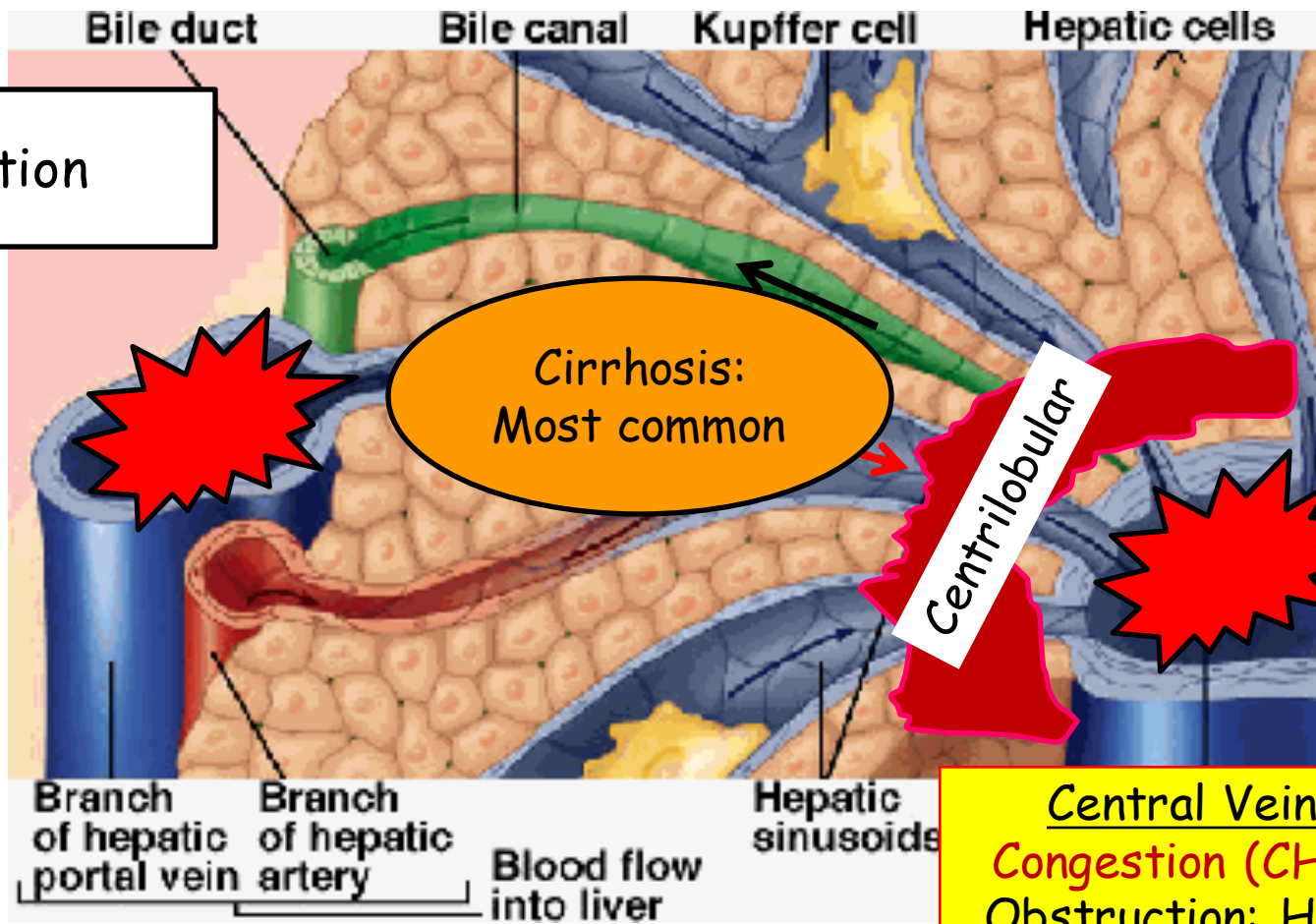
the Circulation

Liver is not involved
PVT: 'Pre-hepatic'

- Key Points:**
1. Dual circulation
 2. Portal VV thrombosis
 3. Portal HTN/cirrhosis
 4. Congestive hepatopathy

Portal HTN:
Ascites, Hypersplenism, Varices

Portal HTN is only one of the manifestations of cirrhosis (and has other causes)



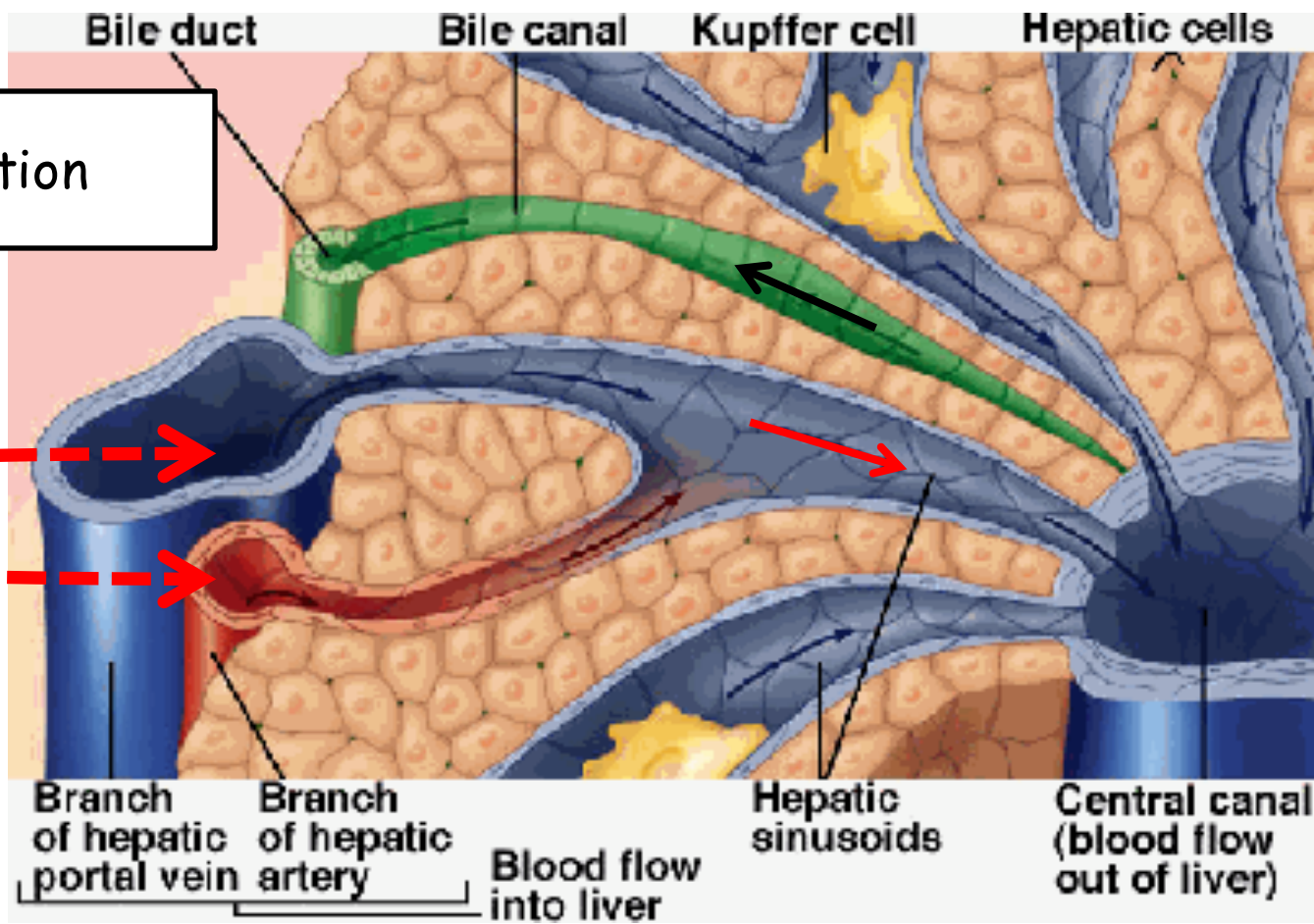
Key Points:

1. Dual circulation
2. Portal VV thrombosis
3. Portal HTN/cirrhosis
4. Congestive hepatopathy

Portal HTN

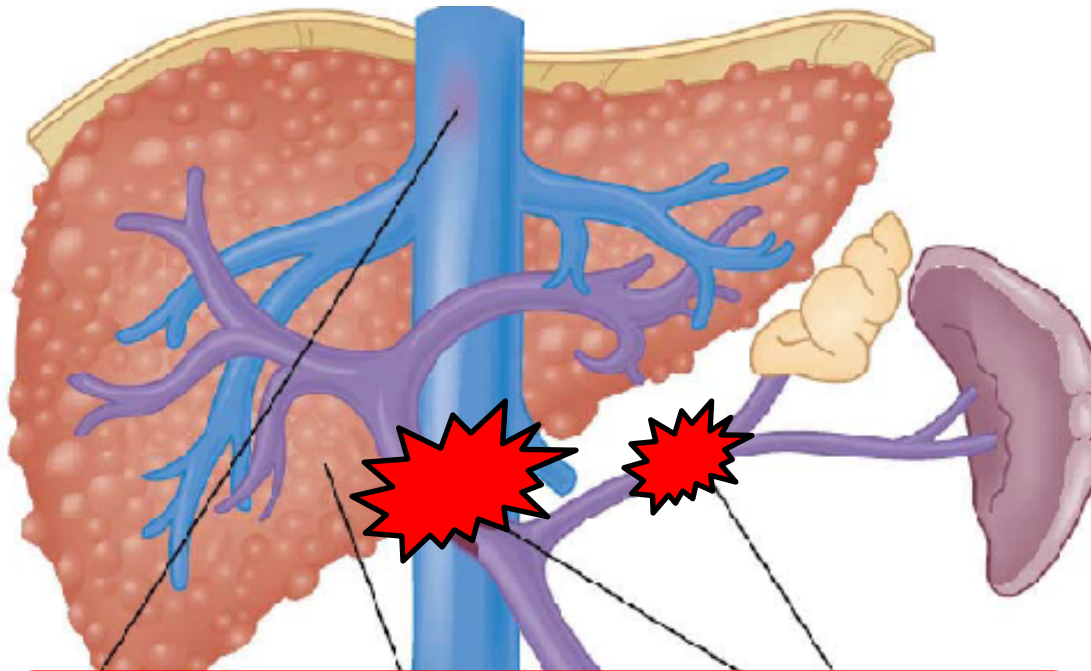
Ascites, Hypersplenism, Varices

Portal HTN is only one of the manifestations of cirrhosis (and has other causes)



the Circulation

Hypoperfusion
'Shock liver'
↑↑ Transaminase



Pre-Hepatic

Portal V thrombosis
Splenic V thrombosis

Manifestations:

Ascites/Edema; Hypersplenism

Pre-hepatic means before the liver **so the liver is spared.**

They will describe s/s with a predisposing (**thrombophilic**) cause
BUT normal liver chems/exam

Hepatic
manifestation of
heart disease

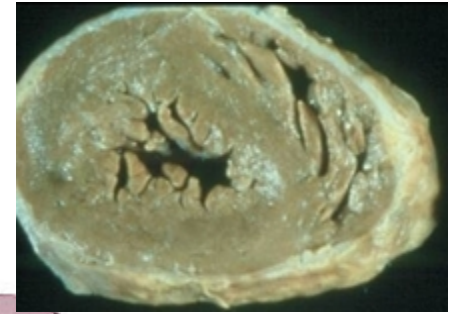
Post-Hepatic (congestive hepatopathy)
Right CHF
Constrictive Pericarditis [TB, radiation; (+) JVD]
Budd-Chiari (hepatic vein thrombosis)

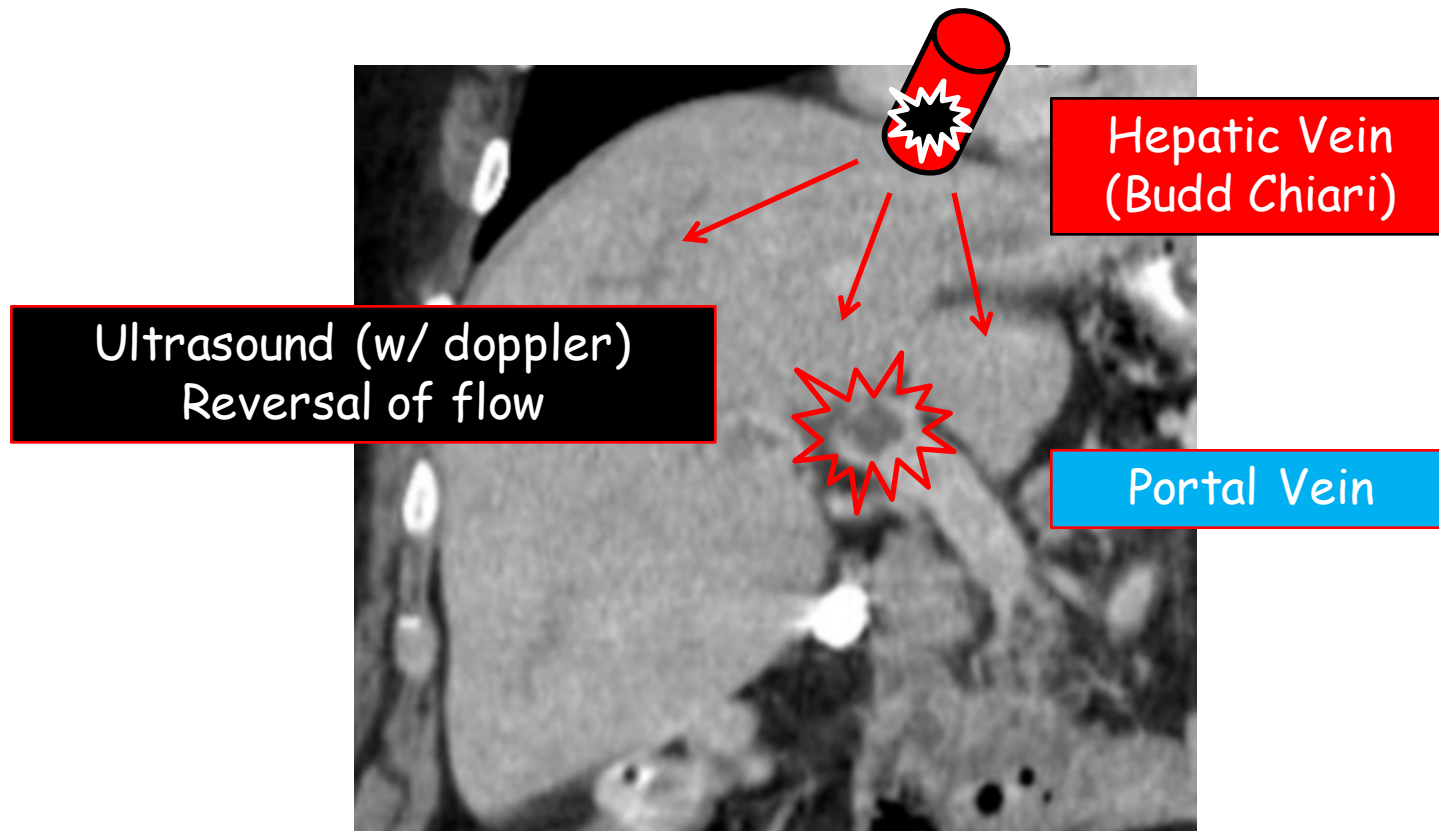
Budd-Chiari:
Ascites, Large, **Tender** Liver

Thrombophilic state (including):

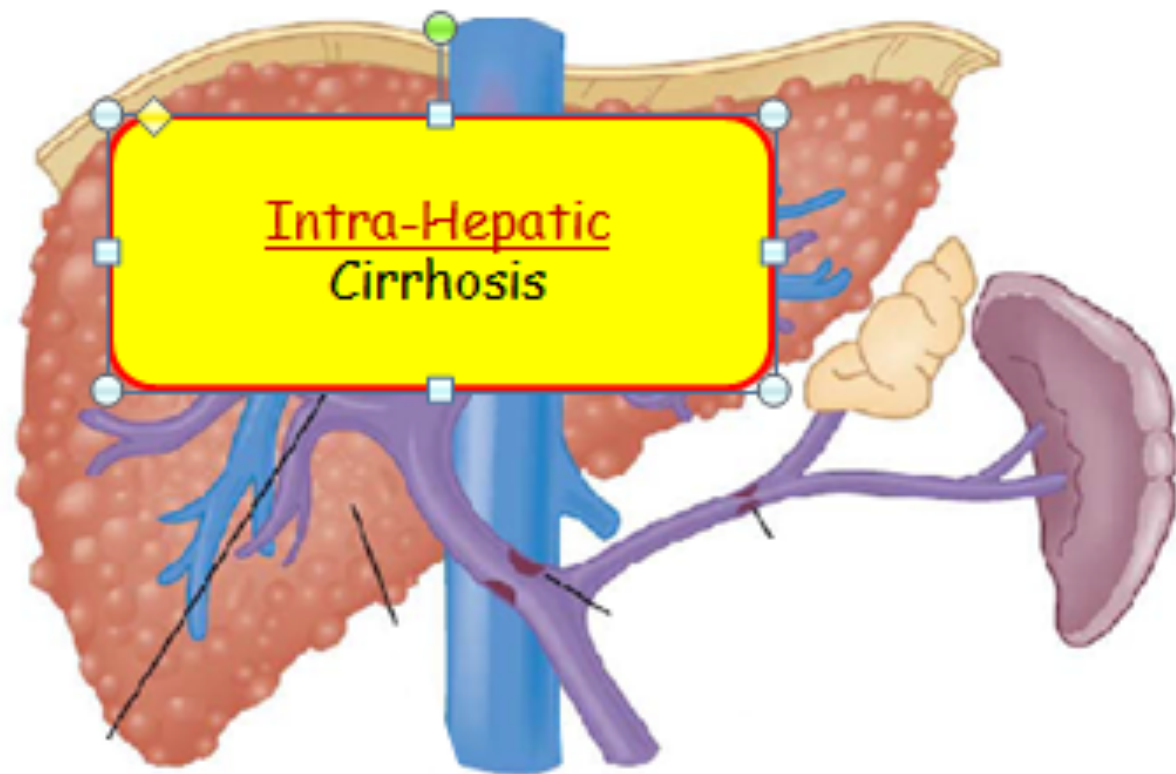
- Myeloproliferative Disorder (P Vera)
- OCP (also a/w hepatic adenoma)

Dx: U/S reversal of flow

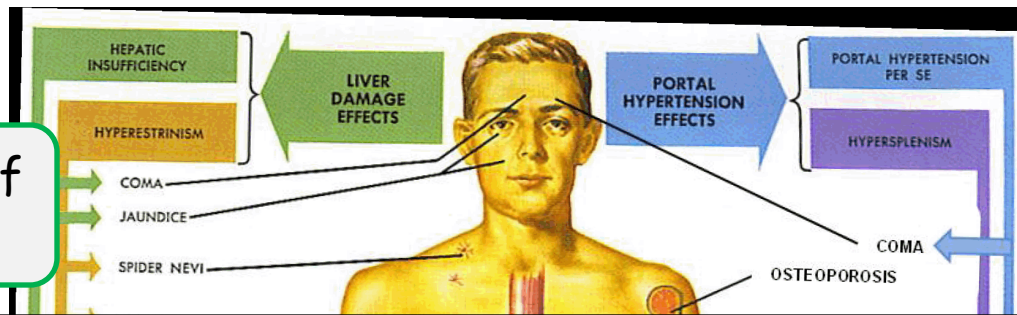




How would portal vv thrombosis (prehepatic) differ from hepatic vv thrombosis (posthepatic)?



The Language of Cirrhosis



Hepatic Failure ('prognostic factors')

Synthesis

Albumin (edema, ascites - **oncotic**)

Vit K Factors, 1972 (coagulopathy, bleeding; PT \gg aPTT)

Metabolism/Excretion

Bilirubin (jaundice; excretion is rate-limiting step)

Ammonia (encephalopathy; failure to metabolize gut NH_3 ; glutamine \rightarrow urea)

Hyperestrogenism

(increased estradiol:testosterone ratio)

Palmar erythema, spider angiomas, gynecomastia

Portal HTN

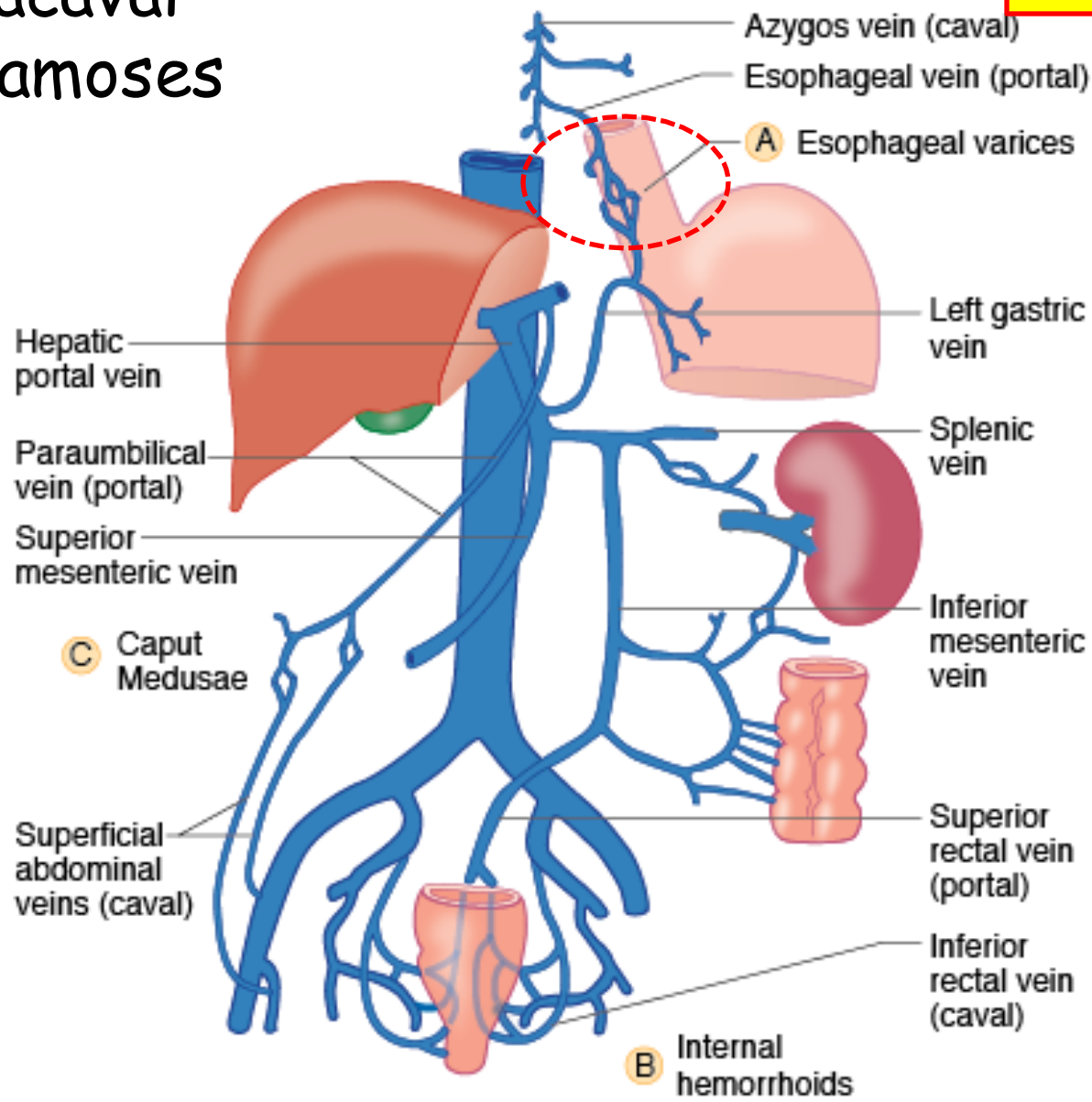
Varices (all sources, bleeding)

Hypersplenism (affects all cell lines, bleeding)

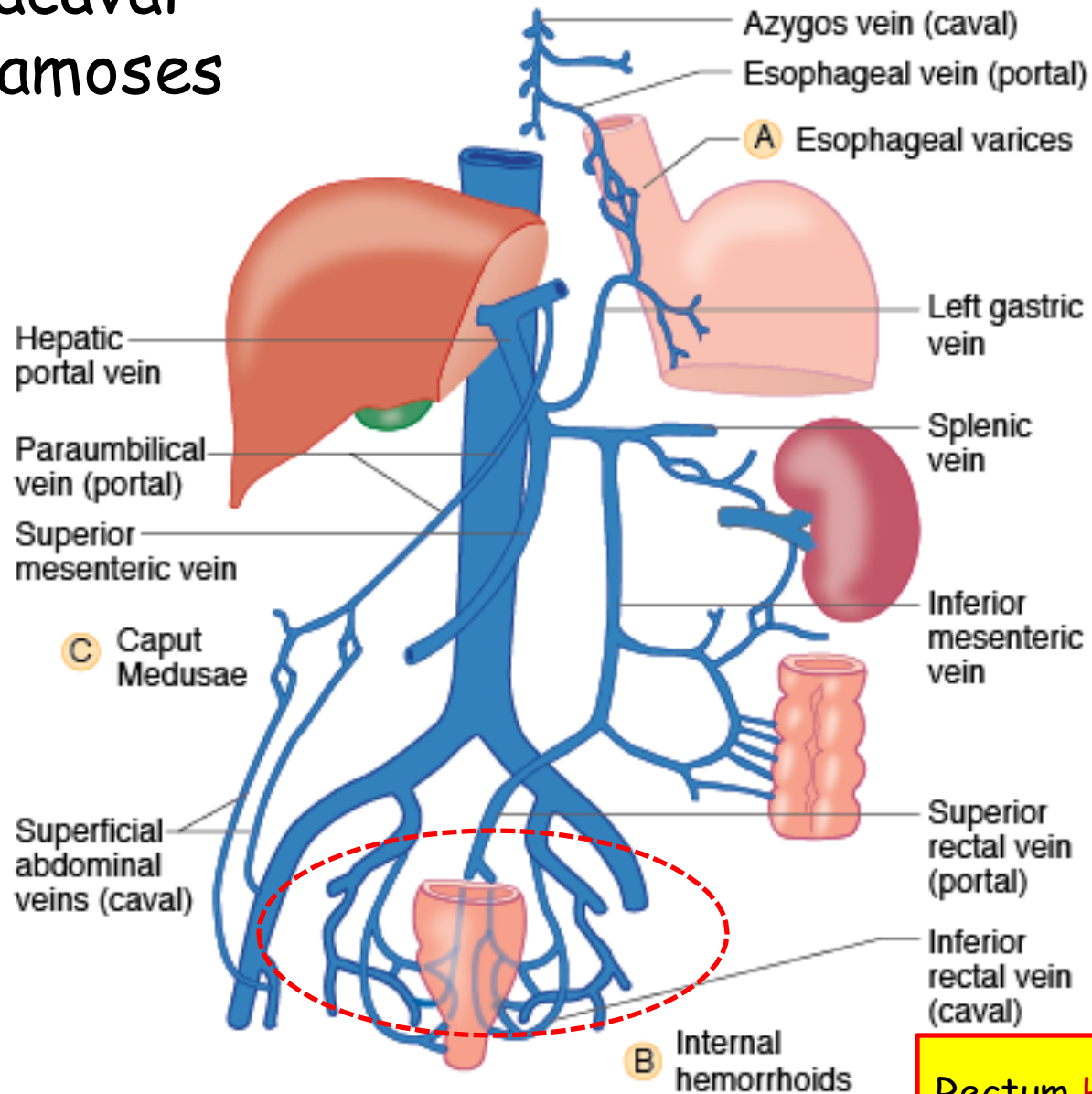
Edema/Ascites - **hydrostatic**

Esophagus Varices
SMV-LGV-EV-AV

Portacaval Anastamoses

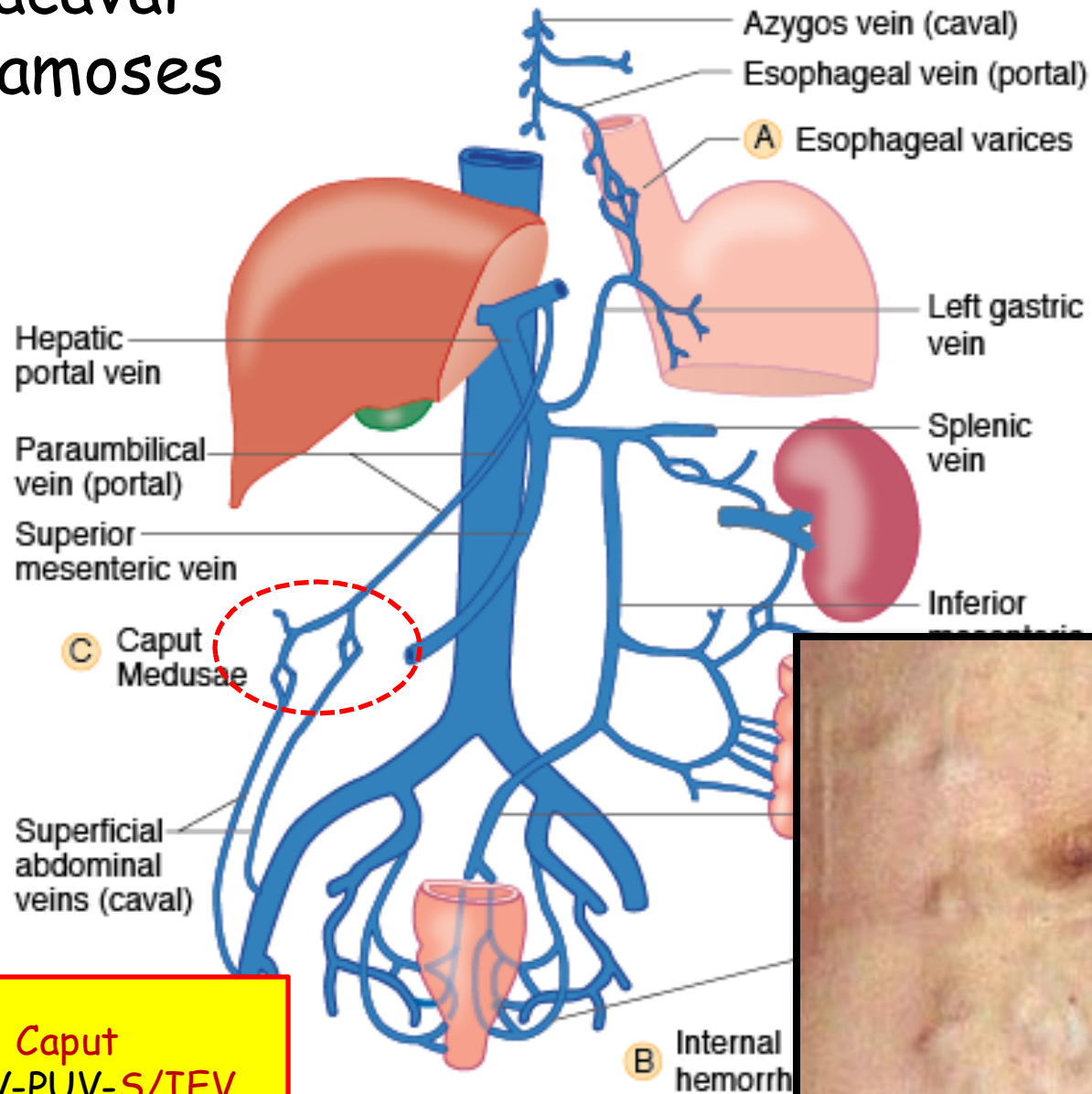


Portacaval Anastamoses



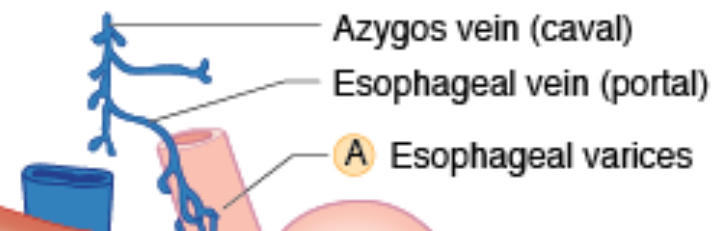
Rectum Hemorrhoids
SV-IMV-SRV-M/IRV

Portacaval Anastamoses



Umbilical *Caput*
SMV-PUV-S/IEV

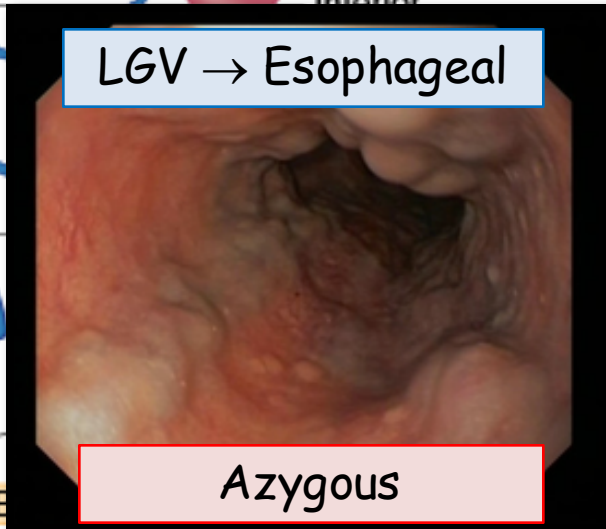
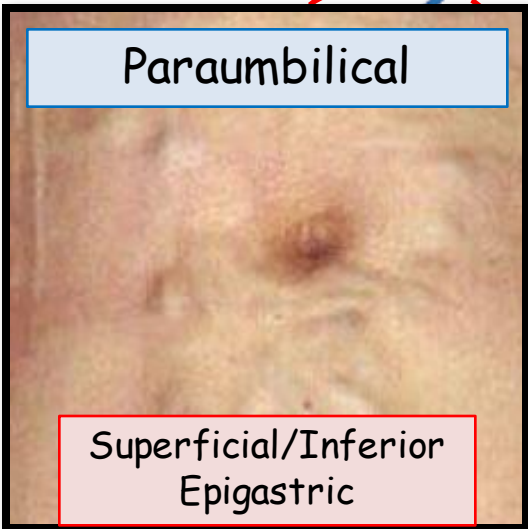
Portacaval Anastamoses



Rarely ask the vessel

Common mentions:

- Inform you of cirrhosis → derivative
- Query you on PVT
- Confuse you c/w Mallory-Weiss tear

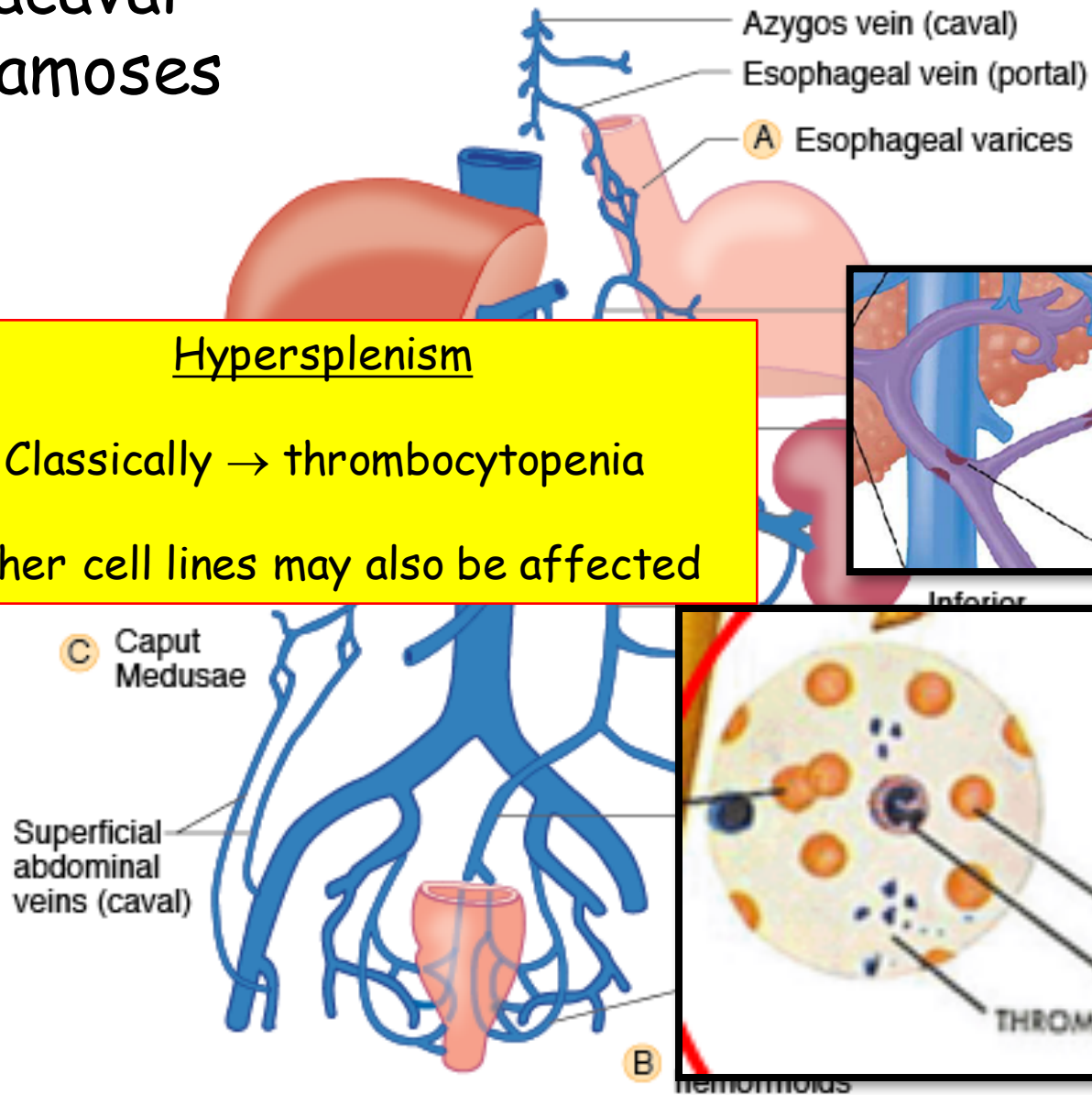


Portacaval Anastamoses

Hypersplenism

Classically → thrombocytopenia

Other cell lines may also be affected



Portal Circulation: WYNTKFTB

- Circulation
 - Portal Vein
 - Hepatic Artery
 - Central Vein → Hepatic Vein → IVC → right heart
- Manifestations of Portal HTN
 - Fluid (edema/ascites), Congestive splenomegaly w/ sequestration, Varices
- Recognizing the common entities
 - Cirrhosis, Thrombosis (portal v, hepatic), Cardiac cirrhosis
- Portacaval anastomoses
 - SMV → LGV → EV → AV
 - SMV → PUV → Superficial/Inferior Epigastric V

50 y.o. guy presents to ER after vomiting large amt of red blood. PE: O2 sat 92%, irregular pulse, palpable spleen. Labs: HCT 59%; EGD: esophageal varices; Liver bx: normal.

Most likely diagnosis to explain his clinical presentation?

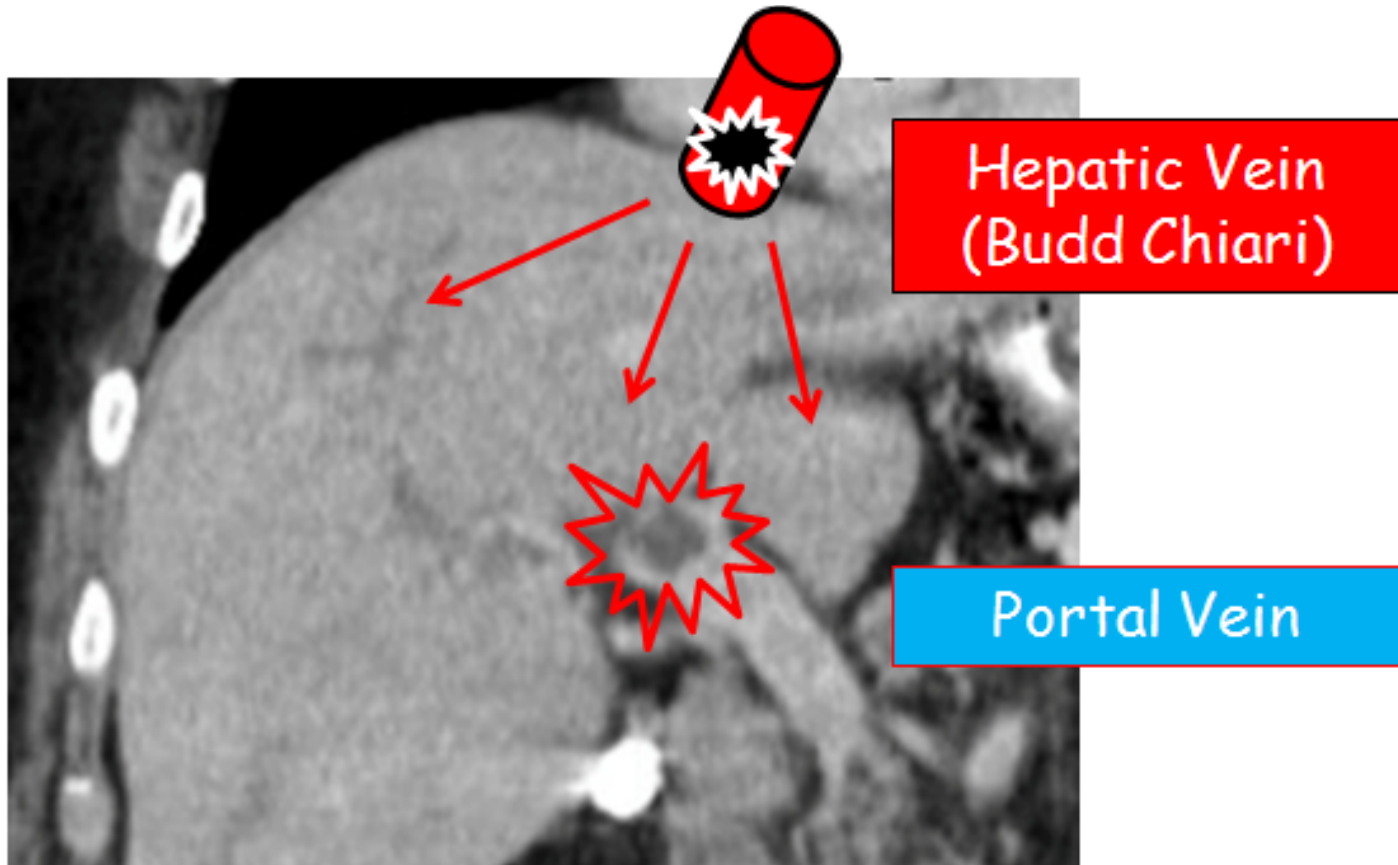
- A. Chronic alcohol consumption
- B. Chronic hepatitis C infection
- C. Hepatic vein thrombosis
- D. Hepatocellular carcinoma
- E. Gastric ulcer
- F. Portal vein thrombosis

50 y.o. guy presents to ER after vomiting large amt of red blood. PE: O2 sat 92%, irregular pulse, palpable spleen. Labs: HCT 59%; EGD: esophageal varices; Liver bx: normal.

Most likely diagnosis to explain his clinical presentation?

- A. Chronic alcohol consumption
- B. Chronic hepatitis C infection
- C. Hepatic vein thrombosis: post-hepatic → congestive liver disease
- D. Hepatocellular carcinoma
- E. Gastric ulcer
- F. Portal vein thrombosis
 - Varices with normal liver in thrombophilic state (P vera)

Labs: HCT 59%



Clot in Portal Vein: how would you expect the patient to present?

Portal HTN
Normal liver
Predisposing etiology