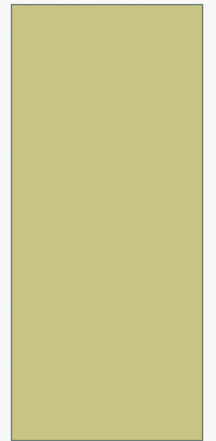


# PORTAL HYPERTENSION

MAZEN HASSANAIN



# CAUSES

- Cirrhosis
- Non-cirrhosis

## Classification of noncirrhotic portal hypertension

### Prehepatic

Portal vein thrombosis

Splenic vein thrombosis

Splanchnic arteriovenous fistula

Splenomegaly (lymphoma, Gaucher's disease)

### Intrahepatic

#### Presinusoidal

Schistosomiasis

Idiopathic portal hypertension/Noncirrhotic portal fibrosis/Hepatoportal sclerosis

Primary biliary cirrhosis

Sarcoidosis

Congenital hepatic fibrosis

Sclerosing cholangitis

Hepatic arteriopetal fistula

#### Sinusoidal

Arsenic poisoning

Vinyl chloride toxicity

Vitamin A toxicity

Nodular regenerative hyperplasia

#### Postsinusoidal

Sinusoidal obstruction syndrome (Veno-occlusive disease)

Budd-Chiari syndrome

### Posthepatic

IVC obstruction

Cardiac disease (constrictive pericarditis, restrictive cardiomyopathy)

## **Causes of portal vein thrombosis**

Abdominal sepsis

Behcet's disease

Cirrhosis

Collagen vascular diseases (eg, lupus)

Compression or invasion of the portal vein by tumor (eg, pancreatic cancer)

Endoscopic sclerotherapy

Factor V Leiden

Hepatocellular carcinoma

Hyperhomocysteinemia

Inflammatory bowel disease

Myeloproliferative syndromes

Omphalitis

Oral contraceptives

Pancreatitis

Paroxysmal nocturnal hemoglobinuria

Pregnancy

Protein C deficiency

Prothrombin gene mutation

Retroperitoneal fibrosis

Transjugular intrahepatic portosystemic shunt

Trauma

# SYMPTOMS

- Asymptomatic
- Complications
  - Gastroesophageal varices
  - Ascites
  - Splenomegaly
  - Underlying disease

# BLEEDING PREVENTION

- Approximately one-third of all patients with varices will develop variceal hemorrhage
- A major cause of morbidity and mortality in patients with cirrhosis
- AASLD RECOMMENDATIONS — Recommendations for prevention of variceal bleeding have been issued by the American Association for the Study of Liver Diseases

- In patients with cirrhosis who do not have varices, no Rx
- In patients who have compensated cirrhosis and small varices that have not bled but have criteria for increased risk of hemorrhage (Child B/C or presence of red wale marks on varices), nonselective beta blockers
- In patients with medium/large varices that have not bled, nonselective beta blockers (propranolol or nadolol) is recommended or undergo EVL
- In patients receive beta blockers, a follow-up EGD is not necessary.
- If a patient is treated with EVL, it should be repeated until obliteration. EGD performed one to three months after obliteration and then every 6 to 12 months to check for variceal recurrence.

# TREATMENT OF BLEEDING

- Initial therapy: hemodynamic resuscitation, prevention and treatment of complications
- Prophylactic antibiotics, preferably before endoscopy (although effectiveness has also been demonstrated when given after).
- Suggest intravenous ceftriaxone (1 g IV) or Cipro (400 mg IV BID)
- UGD should be performed for diagnosis and possible treatment
- Suggest terlipressin in countries where it is available and somatostatin or octreotide (50 mcg bolus followed by 50 mcg/hour by intravenous infusion) where terlipressin is unavailable



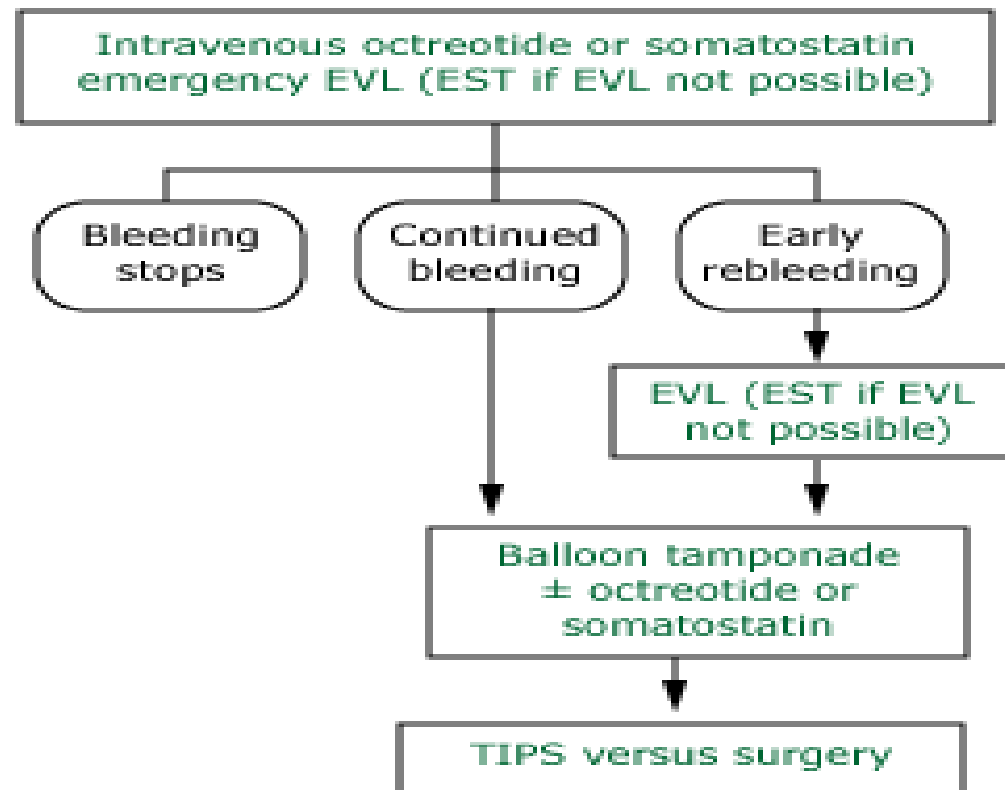
# CONTINUE

- Salvage treatment
  - TIPS (transjugular intrahepatic portosystemic shunt)
  - Surgery is one with well preserved liver function who fails emergent endoscopic treatment and has no complications from the bleeding or endoscopy.
  - The choice of surgery usually depends upon the availability, training, and expertise of the surgeon. Although a selective shunt has some physiologic advantages, it may significantly exacerbate marked ascites. Thus, a portacaval shunt would be preferable in patients with marked ascites

# SHUNT OPERATIONS CAN BE CATEGORIZED AS FOLLOWS:

- Nonselective — those that decompress the entire portal tree, such as portacaval shunts
- Selective — those that compartmentalize the portal tree into a decompressed variceal system while maintaining sinusoidal perfusion via a hypertensive superior mesenteric-portal compartment, such as a distal splenorenal shunt
- Partial — those that incompletely decompress the entire portal tree and thereby also maintain some hepatic perfusion
- Nonshunt operations generally include either esophageal transection (in which the distal esophagus is transected and then stapled back together after varices have been ligated) or devascularization of the gastroesophageal junction (Sugiura procedure).

## Management of acute variceal hemorrhage

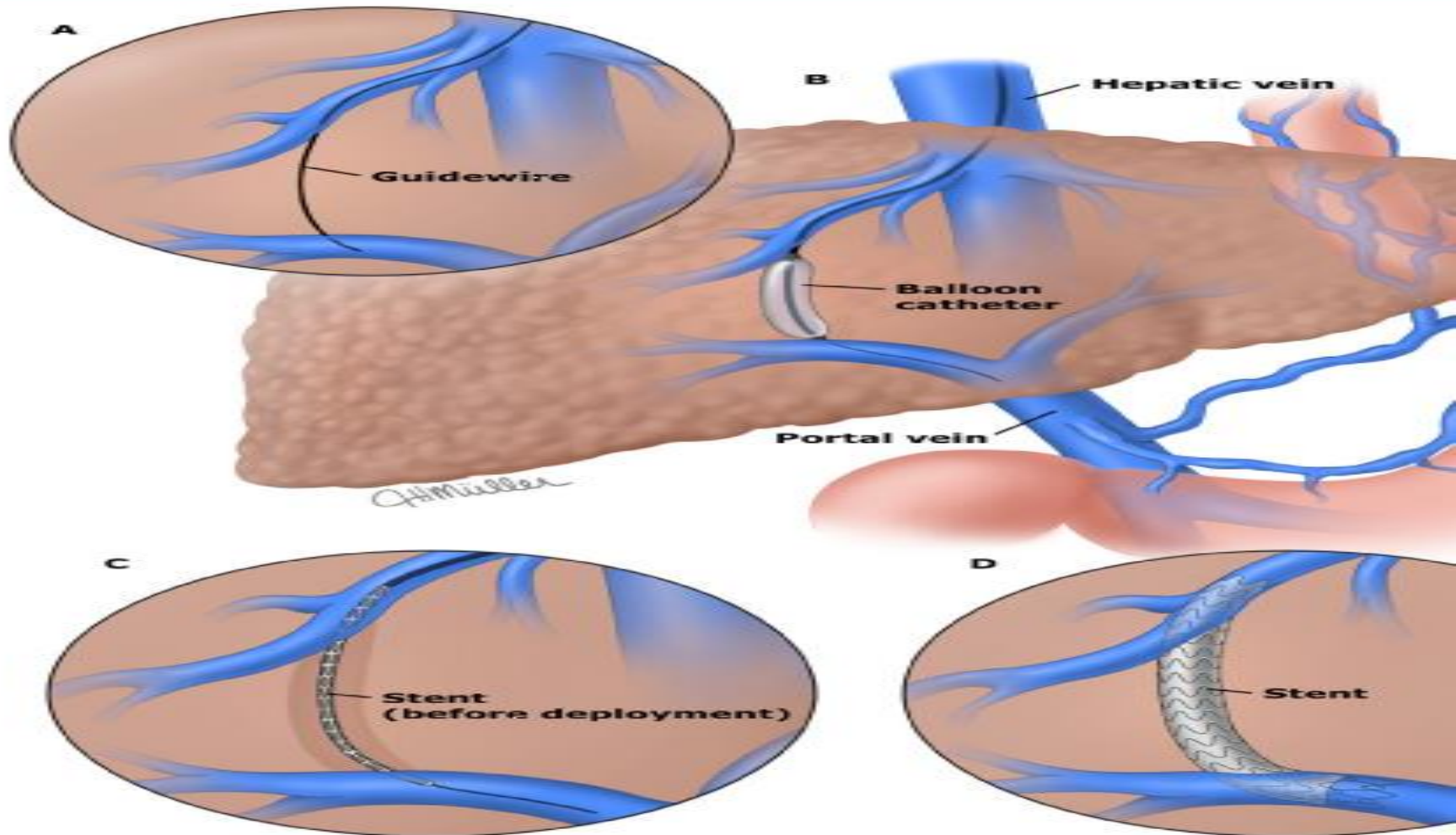


These are only general guidelines and appropriate therapy should be based on the patient's individual circumstances and the expertise available.

EST: endoscopic sclerotherapy; EVL: endoscopic variceal band ligation.

*Adapted from Sanyal, A, et al, Semin Liver Dis 1993; 13:4.*

## Transjugular intrahepatic portosystemic shunt



A transjugular intrahepatic portosystemic shunt (TIPS) is created by passing a needle catheter via the transjugular route into the liver and wedging it there. The needle is then extruded and advanced through the liver parenchyma to the intrahepatic portion of the portal vein. A stent is placed between the portal and hepatic veins. A TIPS is a side-to-side surgical portacaval shunt, but does not require general anesthesia or major surgery for placement. (A) Passage of a needle catheter between the hepatic vein and the portal vein. (B) Inflation of the balloon catheter within the liver to dilate the tract between the hepatic vein and the portal vein. (C) Deployment of the stent. (D) Stent in its final position.

- Maintain a hemoglobin of approximately 8 g/dL.
- Short-term (maximum seven days) antibiotic prophylaxis should be instituted in any patient with cirrhosis and GI hemorrhage.
- Pharmacologic therapy (somatostatin or its analogue octreotide) should start as soon as bleeding is suspected and continue for 3-5 days after confirmation.
- Upper endoscopy, performed within 12 hours, should be used to make the diagnosis and to treat variceal hemorrhage either with endoscopic variceal ligation or sclerotherapy.
- TIPS is indicated in patients in whom hemorrhage from esophageal varices cannot be controlled or in whom bleeding recurs despite combined pharmacological and endoscopic therapy.
- Balloon tamponade should be used as a temporizing measure (maximum 24 hours) in patients with uncontrollable bleeding for whom a more definitive therapy (eg, TIPS or endoscopic therapy) is planned.

# LIVER RESECTION

- Causes:
  - Benign
  - Malignant
- Indications
- Outcomes
- What's resectable
- How much