PORTAL HYPERTENSION

MAZEN HASSANAIN

CAUSES

- Cirrhosis
- Non-cirrhosis

Classification of noncirrhotic portal hypertension

Prehepatic
Portal vein thrombosis
Splenic vein thombosis
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

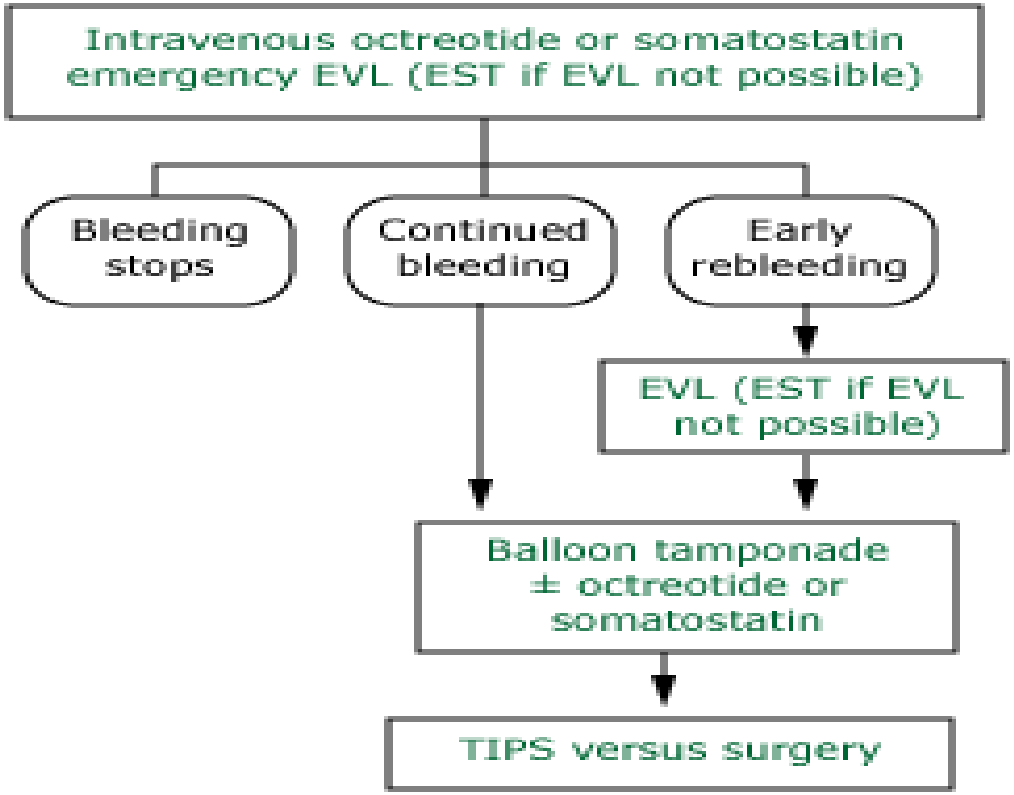
CONTINUE

- 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

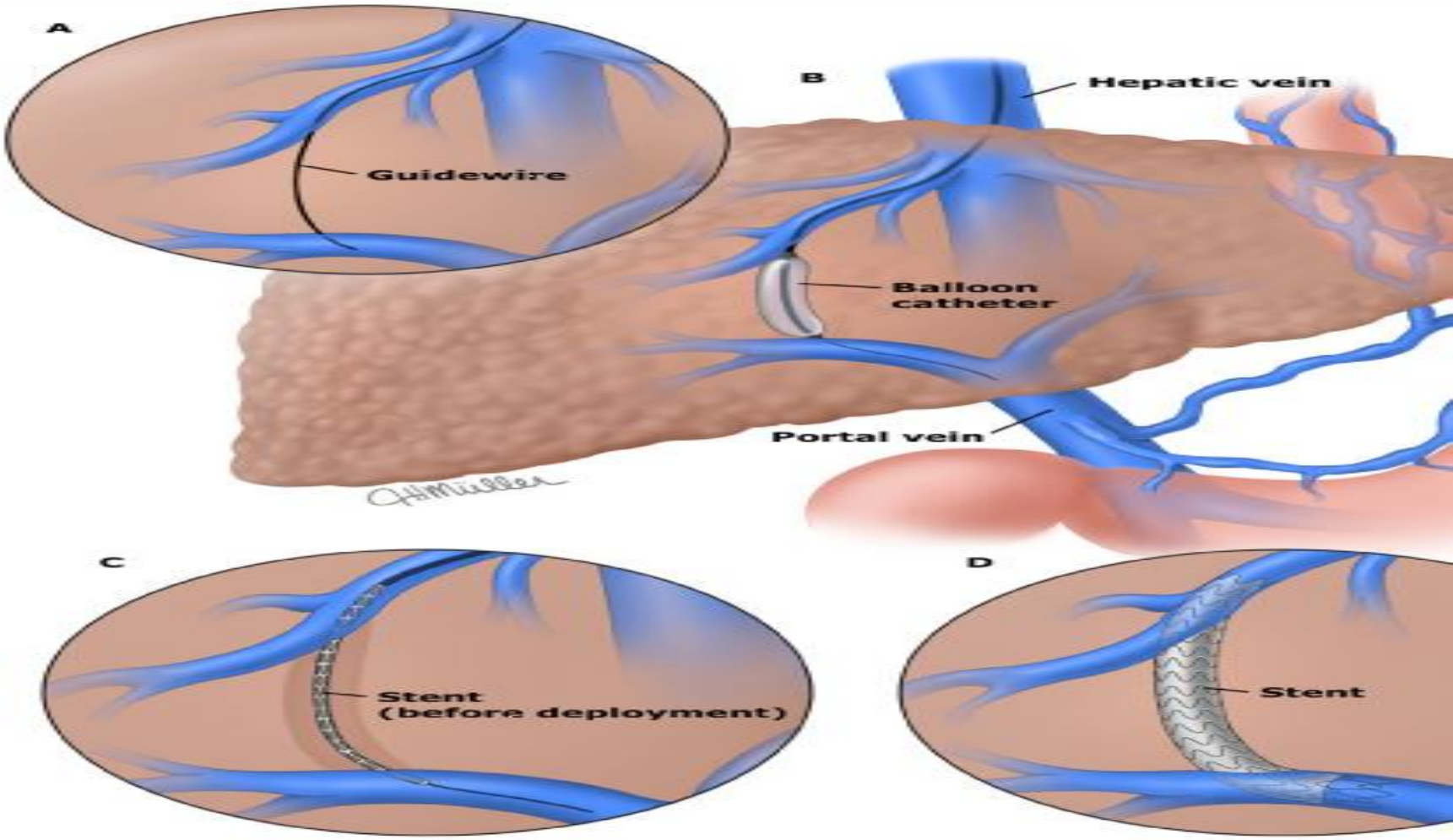


These are only general guidelines and appropriate therapy should be based on the patient's individual circumstances an the expertise available.

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

- 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 : adenoma
  - Malignant : HCC, CC, CRCLM
- Indications
- Outcomes
- What's resectable
- How much