TIPS/DIPS

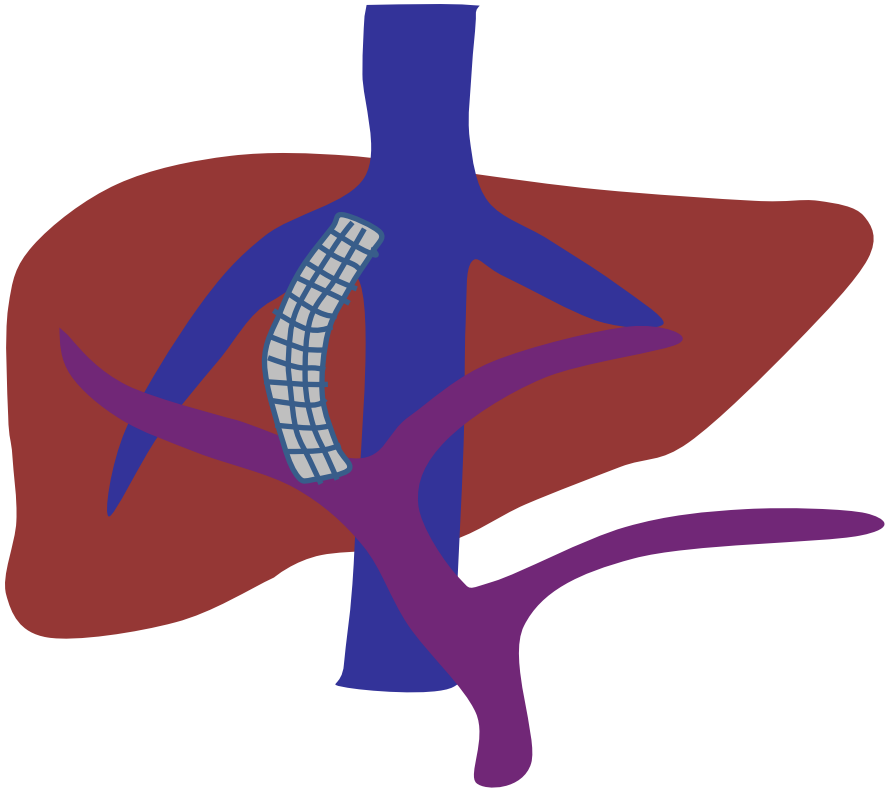
Dr Amar Mukund, MD

Institute of liver and biliary sciences (ILBS),

New Delhi

Introduction

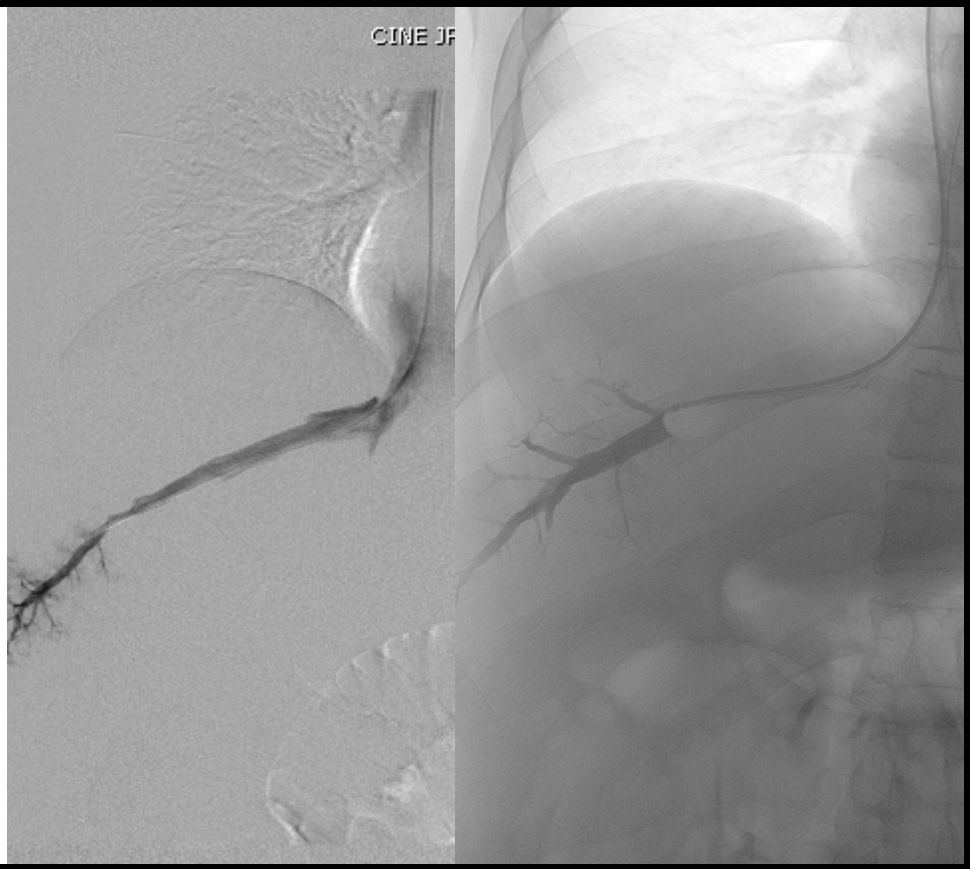
TIPS was conceptualized as a non-surgical procedure to decrease the portal pressure



TIPS is a hemodynamic equivalent of a side-to-side small diameter surgical portocaval shunt

HVPG (Hepatic venous pressure gradient)

- HVPG represents the gradient between PV pressure and IVC pressure
- HVPG = Wedged hepatic venous pressure – free hepatic venous pressure (wedged hepatic vein pressure reflects hepatic sinusoidal pressure and in cirrhosis it provides an accurate estimation of portal pressure)
- The normal HVPG value is between 1 to 5 mmHg, Pressure higher than this defines the presence of portal hypertension, regardless of clinical evidence
- HVPG above 12 mmHg is the threshold pressure for variceal rupture



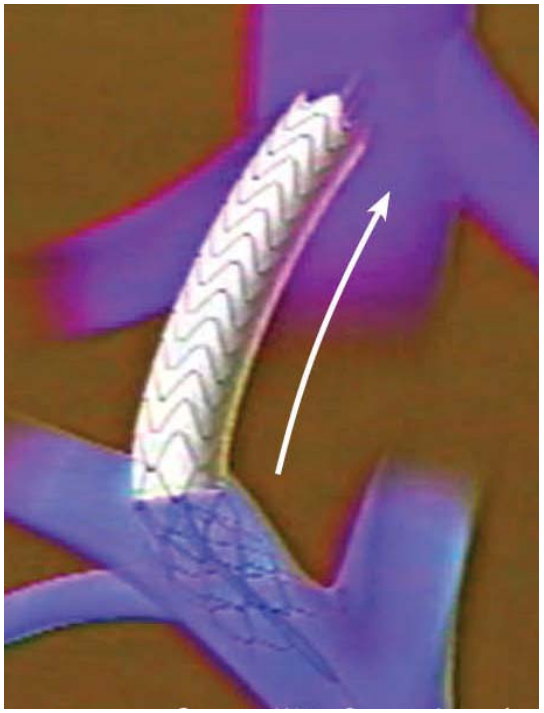
Introduction

- TIPS: creation of a channel between a hepatic vein and a portal vein to decompress the portal venous system
- The channel is ideally created within the substance of the liver
- TIPS creation remains a challenging procedure as it involves the successful passage of a needle from a point of origin (hepatic vein) to a target point (portal vein) through the liver substance
- During TIPS insertion the portal pressure gradient (PPG) is measured.
  - **The PPG is - portal venous pressure – IVC pressure**
  - **Aim is to reduce the (PPG) to <12 mmHg**

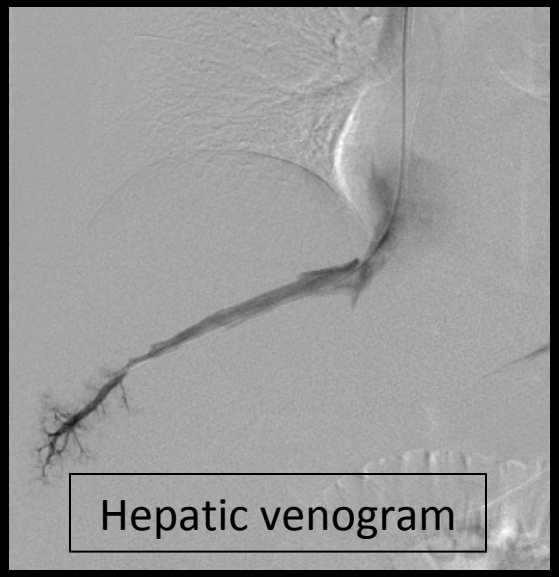
ilbs

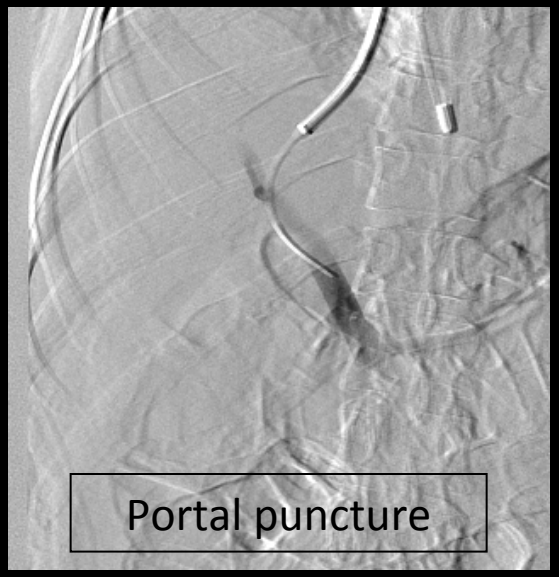
Indications of Transjugular intrahepatic portosystemic shunt (TIPS)

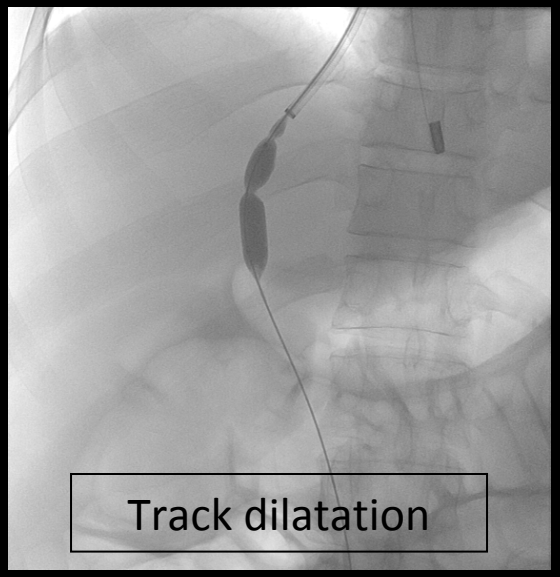
- Acute esophageal variceal bleeding refractory to medical management
- Prevention of variceal rebleeding
- Cirrhosis with refractory ascites
- Hepatic hydrothorax
- Budd-chiari syndrome

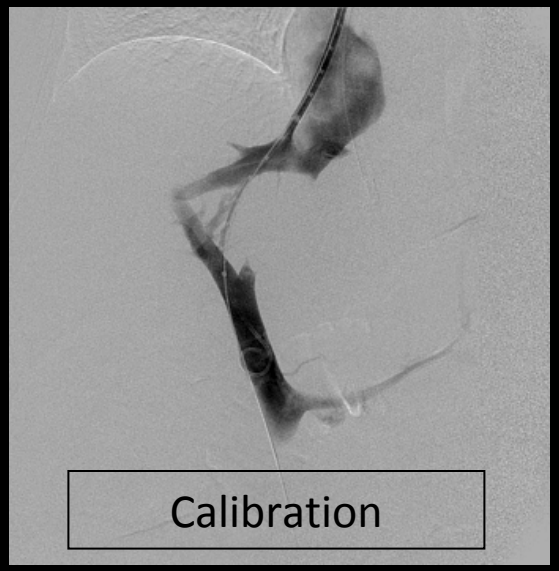


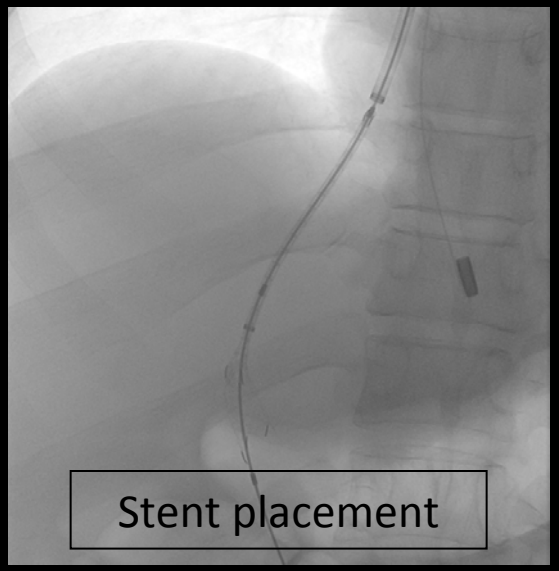
Transjugular intrahepatic portosystemic shunt(TIPS)

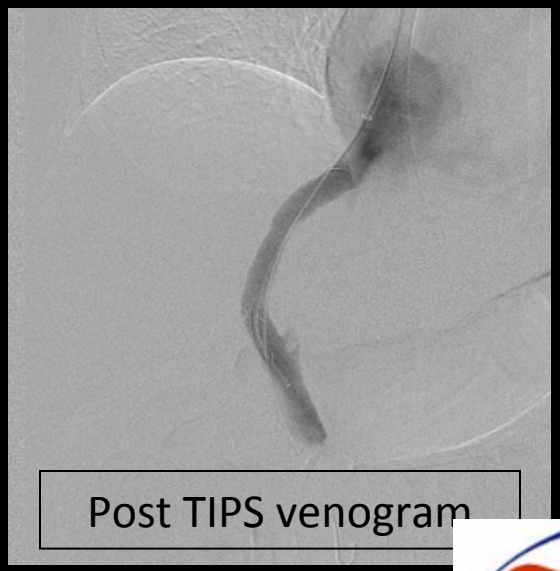




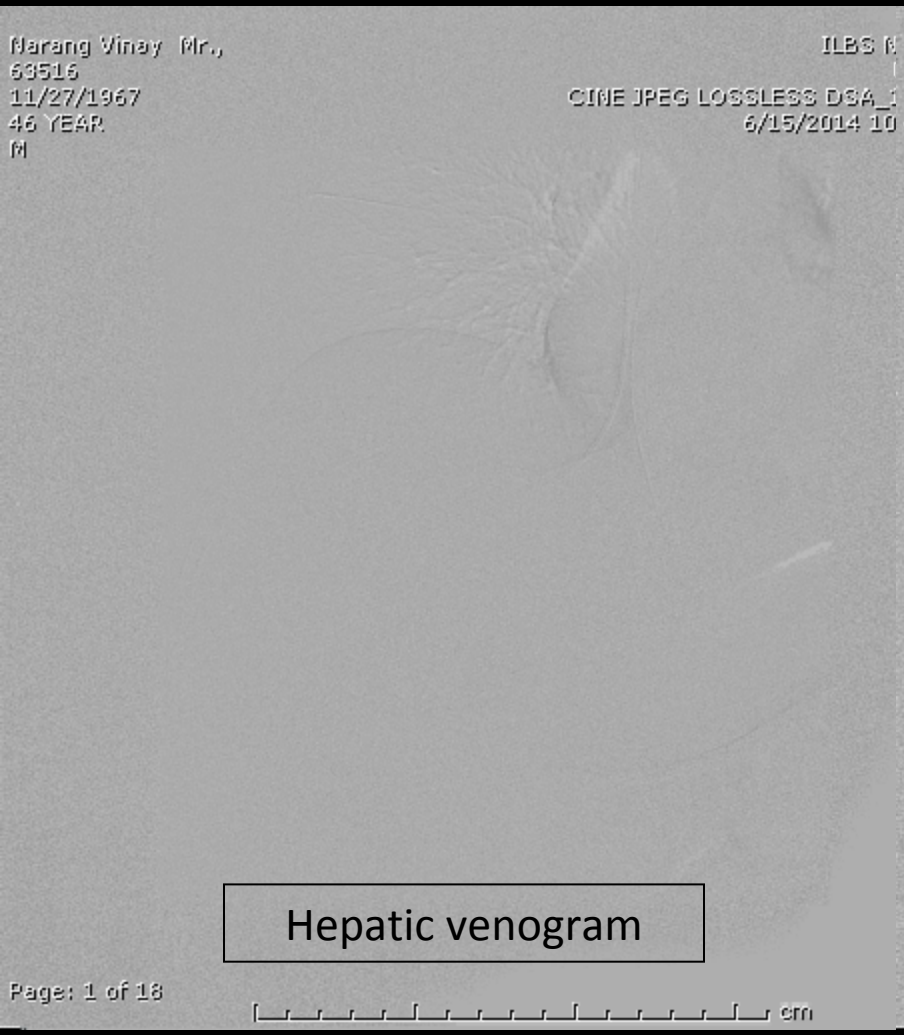








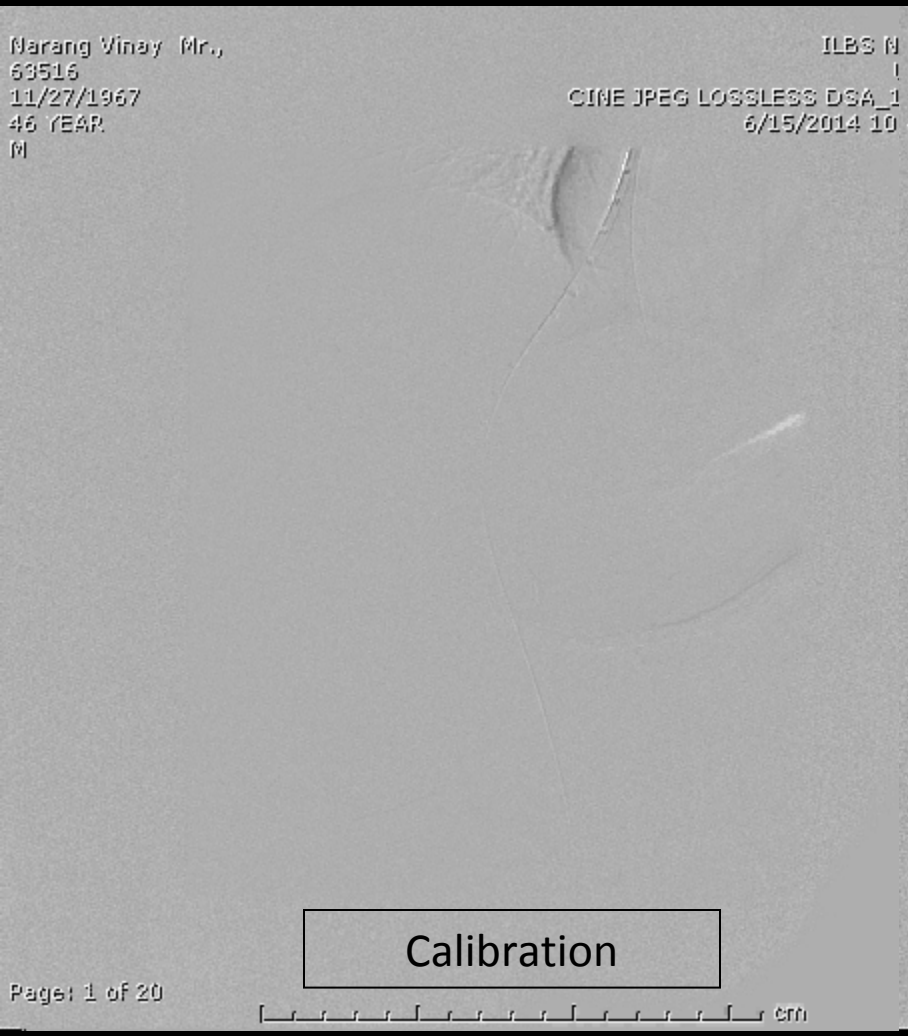
Transjugular intrahepatic portosystemic shunt(TIPS)



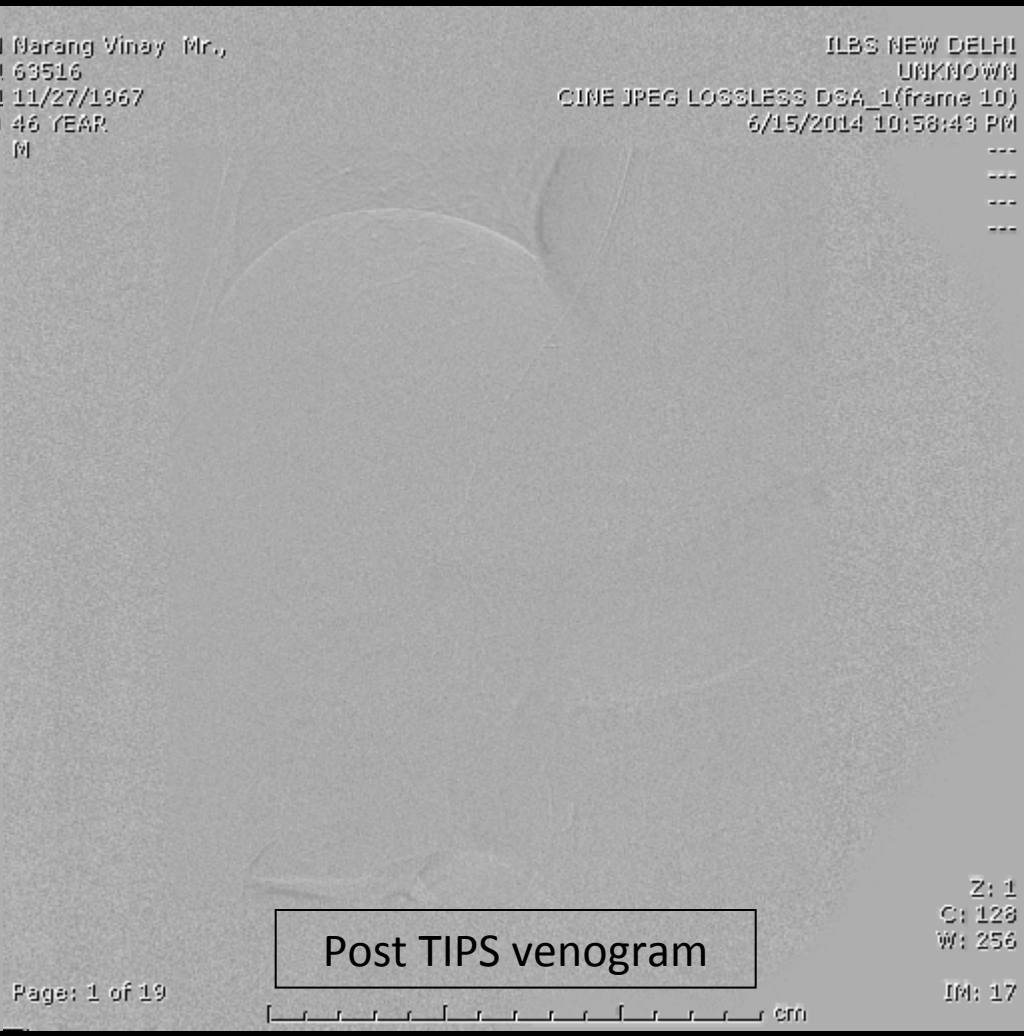
Hepatic venogram

Portal puncture

Transjugular intrahepatic portosystemic shunt(TIPS)



Calibration



Post TIPS venogram

Contraindications & Predictors of outcome

- Cardiac disease and moderate to severe pulmonary hypertension are regarded as contraindications for TIPS

- Relative contraindications and predictors of poor outcome
  - Old age
  - Pre-TIPS HE
  - Bilirubin >3 mg/dl

- MELD score is found to be superior to the Child-Pugh score at predicting post-TIPS mortality
- A MELD score above 18 predicts a significantly higher mortality 3 months after TIPS, compared with patients with MELD scores of 18 or less.

ilbs

Complications of the procedure

- **Minor or moderate**

  (i) Neck hematoma

  (ii) Arrhythmia

  (iii) Stent displacement

  (iv) Hemolysis

  (v) Hepatic vein obstruction

  (vi) Shunt thrombosis

- **Life threatening**

  (i) Hemoperitoneum

  (ii) Liver ischemia

  (iii) Cardiac failure

  (iv) Sepsis

Chronic complications after TIPS placement

- Chronic recurrent encephalopathy
- Stent dysfunction
- Congestive heart failure
- Progressive liver failure
- Portal vein thrombosis
- “TIPSitis”

Conclusion

- Technical advancements in skills and stents have reduced complications and improved patency of TIPS
- With some strong evidence, early TIPS may be considered for patients with AVH having high risk of early rebleeding
- TIPS improves survival and reduces portal hypertensive complications in patients with refractory ascites
- TIPS is the preferred treatment in patients having Budd-Chiari syndrome with no recanalizable hepatic vein

ilbs

Thank you!