



Introduction

1. Transjugular Intrahepatic Portosystemic Shunt (TIPS) is a vascular connection between a hepatic vein and a branch of the portal vein created percutaneously inside the liver via the Jugular Vein at the neck. The portal venous pressure is reduced.
2. TIPS is used to treat the complications of portal hypertension:
 - ◆ Variceal bleeding, bleeding from any of the draining veins from the portal venous system, such as esophageal varices.
 - ◆ Portal gastropathy, an engorgement of the veins in the wall of the stomach, which can cause severe bleeding.
 - ◆ Severe ascites (the accumulation of fluid in the abdomen) and/or hydrothorax (in the chest).
3. The procedure will be performed in the Radiology Department under image guidance by radiologists with special training in interventional radiology. Contrast medium and / or carbon dioxide will be used.

The Operation / Procedure

1. Before the procedure, some examinations may be performed including ultrasound, CT scan and blood examination to assess the anatomy and patency of blood vessels and liver function.
2. The procedure is performed under local anaesthesia using aseptic techniques. General anaesthesia may be used in special occasion.
3. Your vital signs (blood pressure, pulse and oxygenation status) will be monitored throughout the entire procedure.
4. The usual access site is the right internal jugular vein on right side of your neck. A small catheter and a guidewire will be navigated into the hepatic vein of the liver after passing through the superior vena cava and right atrium.
5. From the hepatic vein, the radiologist will try to puncture a branch of the portal vein with a special set of instrument and needle. The liver tissue between the hepatic vein and portal vein will then be dilated with a balloon catheter and a metallic stent implanted to keep the tract open.
6. The venous blood pressure will be measured and the diameter of the stent adjusted accordingly.
7. The procedure will normally take 3 – 6 hours, longer for small liver.
8. The bleeding varices (dilated veins) may also be blocked by metallic coils through the venous route.
9. After TIPS, vital signs will be monitored. A short vascular sheath may be left at the puncture point in the internal jugular vein to facilitate further procedure when necessary.
10. On the next day, a doppler ultrasound will be performed to confirm the patency of the TIPS and baseline measurement will be taken. If the TIPS is patent and the clinical condition satisfactory, the vascular sheath will be removed.
11. Within 6 to 12 months after successful creation of TIPS, up to 50% of patients with bare stents may experience stent lumen narrowing of more than 50%, resulting in recurrent symptoms due to high portal venous pressure. The bleeding rate is up to 24%. The recurrence of symptoms can be treated by redilatation or insertion of an additional stent. Endograft has better patency rate and less rebleeding rate.

Before the Operation / Procedure

1. A written consent is required.
2. Inform medical staff before the examination if patient is or may be pregnant as the examination involves high dose of X-ray that is harmful to a foetus. Pregnancy test may be necessary in case of any doubt if the examination is to be proceed.
3. Inform doctor of history of allergy to food and drugs, and in particular any previous reaction to contrast medium, asthma, urticarial, eczema and allergy rhinitis etc. Oral or intravenous steroid premedication may be needed before injection of contrast medium.
4. Keep fasting for 6 hours prior to the examination.
5. For diabetic patients on Metformin medication, patient should inform medical staff before examination.
6. Check clotting profile for any bleeding tendency, to be corrected if abnormality detected.
7. Set up venous access.



Risk and Complication

1. Encephalopathy (impairment of brain function) controlled by medical therapy (< 25%)
2. Severe or uncontrolled encephalopathy (depends on preexisting liver condition and presence of encephalopathy)
 - 2.1 mild to moderate liver disease (<10%)
 - 2.2 severe liver disease (<40%)
3. Hematoma (blood clot accumulation) at entry site (< 5%)
4. Fever (< 5%)
5. Transient contrast-induced renal failure (< 5%)
6. Hepatic artery injury (< 2%)
7. Bleeding into the biliary tree (< 2%)
8. Gallbladder puncture (< 2%)
9. Stent malposition (< 1%)
10. Transient accumulation of fluid in lungs (< 1%)
11. Bleeding into the abdominal cavity (< 1%)
12. Vascular injury causing liver damage (< 0.5%)
13. Renal failure requiring long term dialysis (< 0.5%)
14. Radiation skin burn (< 0.1%)
15. Severe systemic infection (rare)
16. Procedure related death (rare)
17. Allergic reaction to intravenous contrast medium.
 - Mild reactions: For example, itching, mild skin rash, nausea, vomiting, feeling of warmth, arm pain, sneezing, coughing, etc. These reactions are only temporary and require no treatment.
 - Moderate reactions: These are more serious and prolonged. Examples are severe skin rash, fever, chills, palpitation, high or low blood pressure, etc. These reactions usually need medical treatment.
 - Severe reactions: These usually require immediate medical treatment and can even cause harm. For example, shortness of breath, irregular heartbeat, chest pain, convulsions, kidney failure, unconsciousness, etc.
 - Death: On rare occasion, contrast medium like many other drugs can cause death. The chance of this fatal occurrence resulting from the injection of non-ionic contrast medium is about 1 in 250,000.
 - Delayed reactions: Some patients may experience delayed reaction within 24 hours. The symptoms include 'flu' like illness, arm pain, itching, rash, painful or swollen salivary glands, etc.

Should a complication occur, another life-saving procedure or treatment may be required immediately.

Disclaimer

This leaflet only provides general information pertaining to this operation / procedure. While common risks and complications are described, the list is not exhaustive, and the degree of risk could also vary between patients. Please contact your doctor for detailed information and specific enquiry.

Reference

The Hong Kong Society of Interventional Radiology Limited, Patient Information Leaflet: Transjugular Intrahepatic Portosystemic Shunt (TIPS) (2010)