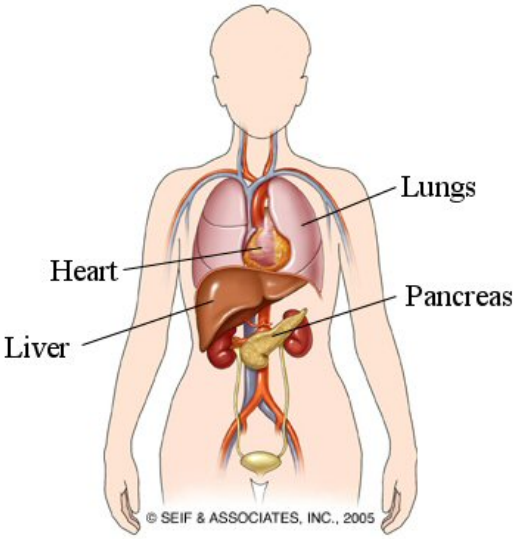
Transjugular Intrahepatic Portosystemic Shunt (TIPS)

Liver disease can cause scar tissue to form in the liver. This scar tissue can cause problems with the normal flow of blood through the organ and prevents the liver from filtering blood. To restore blood flow through the liver, caregivers use a procedure called a transjugular intrahepatic portosystemic shunt, or TIPS for short. TIPS is a procedure to treat complications of severe liver disease, including:

- Bleeding from the esophagus or stomach.
- Accumulation of fluid in the abdomen.

In this procedure a tube (*shunt*) is placed between the *portal vein*, which carries blood from the intestines to the liver, and the *hepatic vein* which carries blood from the liver back to the heart. It is used mostly (but not only) in patients with *cirrhosis* in which the scar tissue within the liver has blocked the flow of blood passing through the liver.



A TIPS creates a new route for blood to flow through a damaged liver and into the major veins that lead back to the heart. This reduces pressure in the veins that flow into the liver. The liver is a necessary pathway for blood to get from the portal vein to the hepatic vein. When the liver is diseased (as with cirrhosis) the blockage increases the pressure in the portal vein. This is called *portal hypertension*. The increase in pressure causes blood to flow around the liver via small veins that connect the portal vein with other veins in the *abdomen* (belly). These veins enlarge and are referred to as *varices*. These enlarged veins occur outside the liver and cause special problems. This is also called *collateral circulation*. These varices are the same as the varicose veins one sees in some legs. They are enlarged veins. Because of their critical locations, if they bleed, they can cause death.

Two of the places varices form are in the stomach and lower *esophagus* (the tube which carries food from your mouth to your stomach). These varices have a tendency to bleed, sometimes causing death from blood loss. By providing a path for blood traveling from the intestines through the liver and back to the heart, TIPS reduces the pressure in the varices. It helps prevent the varices from breaking open and bleeding. There are several types of shunts that are placed surgically. TIPS is a non-surgical way of placing a shunt. The shunt is passed down the jugular vein in the neck by a radiologist using x-ray guidance. The shunt (stent) is inserted in the liver between the portal and hepatic veins, connecting these blood vessels on each side of the liver to improve the flow of blood across the liver.

PROCEDURE

- The procedure is usually performed by radiologists.
- Often a local anesthesia (like Novocain) is given to numb a small area of the skin where the shunt is inserted. Sedatives and pain medicine may be given. In certain cases, general anesthesia (putting patient to sleep) may be used.
- A needle is initially placed in the jugular vein in the right side of the neck to make a small hole. Needles and long, thin tubes called catheters can then be advanced down to the veins in the liver.
- A needle is inserted across the liver to make a connection with a branch of the portal vein. This channel is then expanded, and a tube called a stent is inserted to allow blood to flow more easily across the liver. This tube is left in place.

AFTER THE PROCEDURE

- The patient is usually watched closely after the procedure.

- An ultrasound is commonly performed the morning after the procedure to show that the TIPS is open and working well.
- The main goal during the recovery period is to watch for signs of *complications* (problems).
- Anesthesia helps prevent pain at the time of the procedure, and there is usually only a small amount of discomfort after the procedure.

RISKS AND COMPLICATIONS OF THE PROCEDURE:

- Reactions to the anesthesia.
- Bleeding into the abdomen.
- Irregular heart beat (*cardiac arrhythmia*).
- People with severe liver disease are at risk for deterioration of brain function (*encephalopathy*). This may be a complication after the TIPS has been inserted and may require treatment. Patients who have had encephalopathy may not be good candidates for TIPS.
- Blockage of the shunt occurs in most patients within the first year of placement of the TIPS. This may lead to return of the problems. If this occurs, a new shunt can be placed or the existing shunt can be adjusted.
- The worst complication of placing this shunt is death. The risk comes mainly at the time of the procedure from the complications listed above. Deaths are reported due to worsening liver failure that occurs in the days and weeks following shunt placement. Patients with more advanced liver disease are at greater risk for worsening liver failure after TIPS placement.

Your caregiver will discuss this procedure with you. He or she will help you understand the value and risks of having the procedure.

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