

## Angiography: Transjugular Intrahepatic Portosystemic Shunt (TIPS)

### *What to expect*

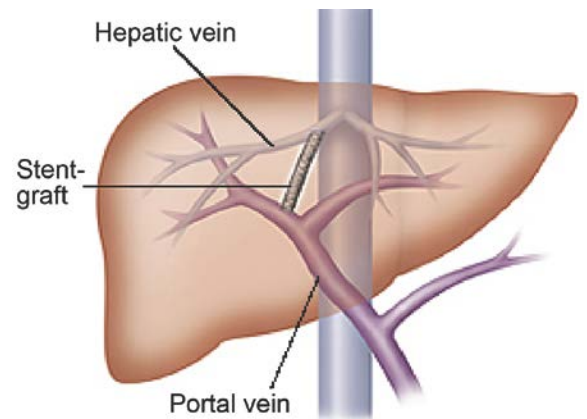
*This handout explains a transjugular intrahepatic portosystemic shunt and what to expect when you have this procedure.*

### What is a transjugular intrahepatic portosystemic shunt?

A *transjugular intrahepatic portosystemic shunt* (TIPS) is a medical procedure. During TIPS, a covered metal tube called a *stent-graft* is used to connect two blood vessels in your liver: the *portal vein* and the *hepatic vein*.

Here are the meanings of the terms:

- **Portal vein:** Blood vessel that carries blood into the liver
- **Hepatic vein:** Blood vessel that drains blood from the liver
- **Transjugular:** Through the *jugular vein* in your neck
- **Intrahepatic:** Inside your liver
- **Portosystemic:** From the portal vein to the hepatic vein
- **Shunt:** a passage between 2 natural channels that allows blood to move from one to the other



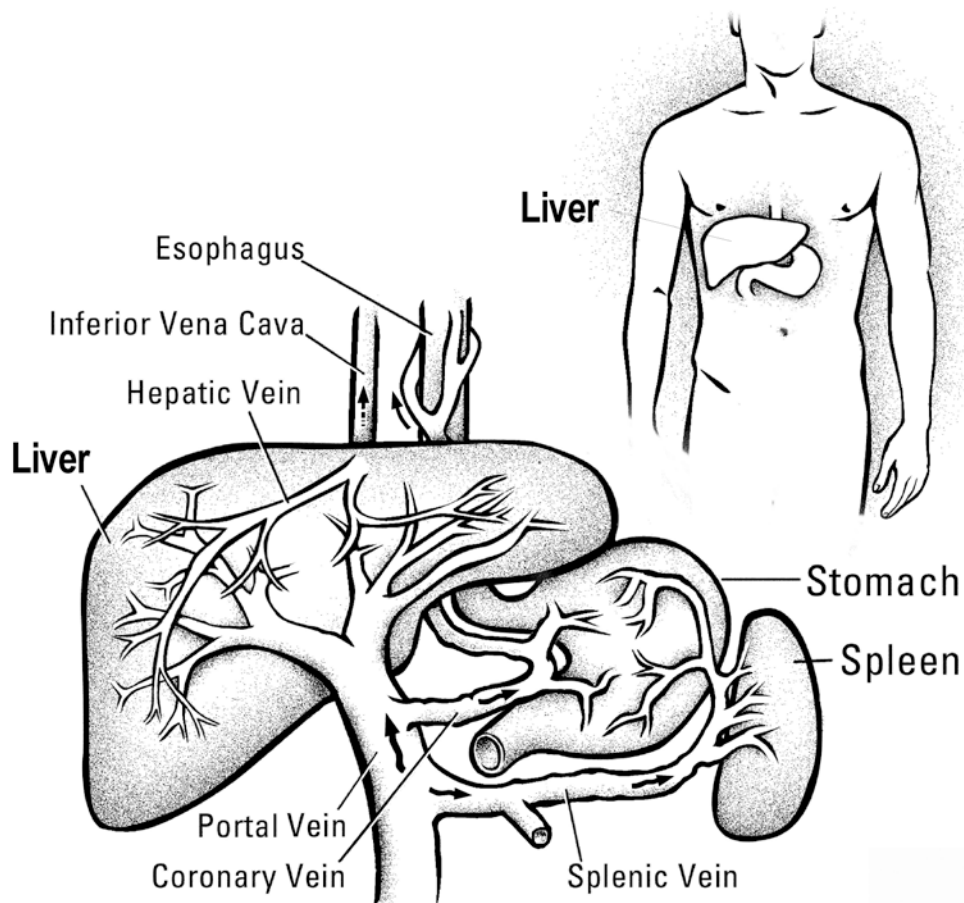
*A stent-graft will be placed to connect your portal vein with your hepatic vein.*

TIPS is most often done for people who have scar tissue in their liver, often caused by *cirrhosis*. This scar tissue blocks the flow of blood through the liver from the portal vein to the hepatic vein.

### How does blood flow in a healthy liver?

In a healthy liver, blood flows from the intestines and spleen through the portal vein into the liver. The liver processes the blood cells and nutrients that were absorbed from food in the intestines. The blood then

filters through the liver tissue and drains into the hepatic veins and then into the heart.



This drawing shows the liver, its veins, and the nearby organs.

### **Why do I need a TIPS procedure?**

You have a problem with your liver that has caused *portal hypertension*. This condition causes extra pressure in the group of veins that drain blood from your stomach, esophagus, spleen, and bowel.

### **What happens in portal hypertension?**

Portal hypertension causes 2 main problems: *variceal bleeding* and *ascites*.

#### **Variceal Bleeding**

High pressure in the veins in the liver can cause the blood flow in the portal veins to back up. The blood must then drain through new pathways called *varices* (enlarged veins). When too much blood fills the veins, they weaken, and possible break. This can cause bleeding.

## Ascites

Ascites is a buildup of fluid in the abdomen. The increased pressure from portal hypertension stops blood from flowing through the liver. Blood then leaks into the abdomen and causes ascites.

## Can TIPS cure these problems?

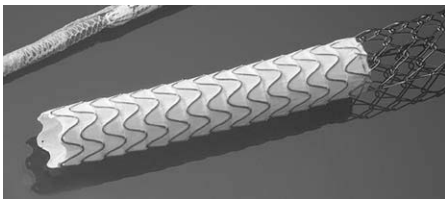
The stent-graft used in a TIPS procedure creates a new path between the portal vein and hepatic veins. This new path helps keep blood from building up in the liver. This should help with the major problems. But, it does not make your liver work better than it already does.

Other problems can also be improved with TIPS. Your doctor will talk with you about how this treatment may help you.

The only long-term cure for portal hypertension is to have a liver transplant. If your doctor has told you that a liver transplant could help you, you can have TIPS done and still get a transplant later.

## How is TIPS done?

- TIPS is done by an *interventional radiologist*, a doctor who specializes in procedures that are guided by X-rays or other imaging.
- During this procedure, you will be given *general anesthesia* (medicine that makes you sleep). You will have a breathing tube to help you breathe. A member of the anesthesia care team will monitor you.
- Your doctor will access your veins through the large *jugular* vein in your neck. Your doctor will then use wires and *catheters* (thin plastic tubes) to enter your hepatic veins. Next, a pathway is created across the liver tissue to your portal vein.
- A *stent-graft* (see the photo at left) is then placed to keep this new pathway open. The blood will flow directly from your portal system into your *vena cava* (the large vein that drains blood from your body and empties into your heart). This will ease the portal hypertension.
- The procedure usually takes about 2 to 3 hours, but it can take longer.



A stent-graft

## Will TIPS work well for me?

A shunt can be created in about 90% of patients (90 out of 100 patients). This means that doctors cannot create a shunt for 10 out of 100 patients. Your doctor will know during surgery if a shunt will work for you.

If your doctor was able to create your shunt and you had:

- **Variceal bleeding:** There is an 80 to 90% chance that you will not have any more bleeding from the varices (80 to 90 out of 100 patients do not have any more of this bleeding).

- **Ascites:** There is about a 65% chance that your belly fluid will go away or lessen within about 1 month (65 out of 100 patients have this result).

Over time, your body may form more scar tissue around the shunt. This can cause a partial block in the blood flow. Very rarely, this scarring fully blocks blood flow. You will need ultrasound tests from time to time to make sure the shunt is working well and that scarring is not causing any problems.

If the shunt stops working well, you may need other procedures to repair it. These procedures are less complex and involve fewer risks than the TIPS procedure. They are done with only moderate sedation (medicine to make you relax), not general anesthesia.

## **Are there risks involved?**

Most people do well after a TIPS procedure, but there are also risks involved. A small number of TIPS patients can develop new or worse *encephalopathy* (mild confusion, trouble concentrating, or changes in their sleep-wake cycle). Most times, these symptoms can be managed with medicines.

Your doctor will talk with you about your risks before you have the TIPS procedure. Please ask any questions you have and make sure that all of your concerns are addressed.

## **Before Your Procedure**

- **Pre-anesthesia consult.** You will meet with an anesthesiologist to talk about your medicines for the procedure. This visit will be either in the hospital or in a clinic. We will set up this visit for you.
- **Arrival time.** If you are an *outpatient* (not already staying in the hospital), a nurse will call you the afternoon before your procedure. If your procedure is on a Monday, the nurse will call you the Friday before. The nurse will:
  - Tell you when to arrive at the hospital
  - Remind you what to do on the morning of your procedure
  - Answer any questions you have
- **Interpreter services.** If you do not understand English well enough to understand these instructions or the details of the procedure, tell us as soon as possible. **A family member or friend may not interpret for you.** We will arrange for a hospital interpreter to help you. This service is free.
- **Allergies.** If you have had an allergy or bad reaction to *contrast* (X-ray dye) in the past, please call our nurse coordinator (see numbers on the last page). You may need medicine for this allergy before the procedure.

- **Kidney function.** If your kidneys are not working normally and we need to give X-ray dye into your blood vessels, we may prescribe a medicine for you to take before and after your procedure to help protect your kidneys.
- **Blood-thinning medicines.** If you take any blood thinners such as Lovenox, Coumadin, or Plavix, you may need to stop taking the medicine before the procedure for 2 to 7 days. The length of time depends on which medicine you are taking. If you have not been told what to do, contact your primary doctor or the clinic that prescribes the medicine for instructions when to stop them.

**IMPORTANT:** If you have ever had a heart stent, a prosthetic heart valve, a pulmonary embolism, or have atrial fibrillation with a history of a stroke, you **must** contact the provider who prescribes your blood-thinning medicine. Tell them that you are having a TIPS procedure and ask what to do about your dose before your procedure.

- **Diabetes medicines.** If you have diabetes and take insulin or metformin (Glucophage), we will give you instructions about holding or adjusting your dose for the day of your TIPS procedure.

## Day Before Your Procedure

- You may eat as usual the day before your procedure. Drink lots of fluids.
- If you are an outpatient, plan for a responsible adult to drive you home after your procedure and stay with you the rest of the day. **You may NOT drive yourself home or take a bus, taxi, or shuttle by yourself.** If you need to take a bus, taxi, or shuttle, a responsible adult **must** ride with you.

## Procedure Day

### At Home

- Take your usual medicines on the day of the procedure, unless the doctor or a nurse tells you to hold them.
- Starting **6 hours** before your procedure, **stop eating solid foods.** You may only have *clear liquids* (liquid you can see through), such as water, broth, cranberry juice, or weak tea.
- Starting **2 hours** before your procedure, take **nothing** at all by mouth.
  - If you must take medicines, take them with **only** a sip of water.
  - Do not take vitamins or other supplements. They can upset an empty stomach.
- Bring with you a list of all the medicines you take.

- If there is a delay in starting your procedure, it is usually because we need to treat other people with unexpected and urgent problems. Thank you for your patience if this occurs.

### **At the Hospital**

- Check in at Admitting on the 3rd floor (main level) of the hospital. Admitting is near the lobby, to the right and behind the Information Desk.
- You may have also been given instructions to go to the **Outpatient Lab** for a blood draw. The lab is behind the Cascade elevators, next to Outpatient Pharmacy. You can go to the lab either before or after you check in at Admitting.
- After checking in and having your blood drawn, take the Pacific elevators to the 2nd floor. Check in at the Radiology reception desk.
- A staff member will:
  - Take you to a pre-procedure area
  - Give you a hospital gown to put on
  - Give you a bag for your belongings.
- While you are in the pre-procedure area:
  - Your family or a friend can be with you.
  - A nurse will ask you some health questions, take your vital signs (such as heart rate), place an *intravenous* (IV) tube in your arm, and go over what to expect.
  - A radiologist or physician assistant will talk with you about the procedure. They will ask you to sign a consent form, if you have not already signed one.
  - You will be able to ask any questions you have.
  - The anesthesia care provider will meet you and go over your health history, as well, before you go into the procedure room.

### **What can I expect after the procedure?**

- While you are still asleep after the procedure, we will move you to the PACU (Perianesthesia Care Unit).
- When you wake up, we will move you to a nursing unit. You will stay there overnight. Nurses will watch you closely for any signs of bleeding or infection.
- You will feel sleepy for the rest of the day, but you should feel normal by the next day. As you wake up more, you will be able to drink liquids and then eat solid food.

- You will have a scar about ½ inch long on your neck.
- Most people go home the next day. You should then be able to return to your usual activities. There is no other recovery needed.

### **When You Get Home**

- You may resume taking your normal medicines. Take **only** the medicines that your doctors prescribed or approved.
- You will be scheduled for an ultrasound of your abdomen about 1 week after your TIPS procedure. Be sure to keep this appointment.

### **When to Call**

Call us **right away** if you have:

- Fever higher than 101°F (38.3°C) or chills
- New abdominal pain
- Confusion or sleepiness that gets worse
- Dizziness
- A yellow color in your eyes or skin
- Shortness of breath that gets worse

### **Who to Call**

UWMC Radiology Patient Care Coordinator .....206.598.6897  
 Procedure scheduling .....206.598.6209  
 After hours (between 5 p.m. and 7 a.m.), and on weekends and holidays  
*Ask for the Interventional Radiology Fellow on call* ..... 206.598.6190

### **Urgent Care**

**If you have an urgent care need, go to the nearest Emergency Room or call 911 right away. Do not wait to talk with one of our staff.**

### **Questions?**

Your questions are important. Call your doctor or healthcare provider if you have questions or concerns.

UWMC Imaging Services:  
206.598.6200