

## Interventional Radiology: 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 tube called a *stent-graft* is placed to connect 2 blood vessels in your liver: the *portal vein* and the *hepatic vein*.

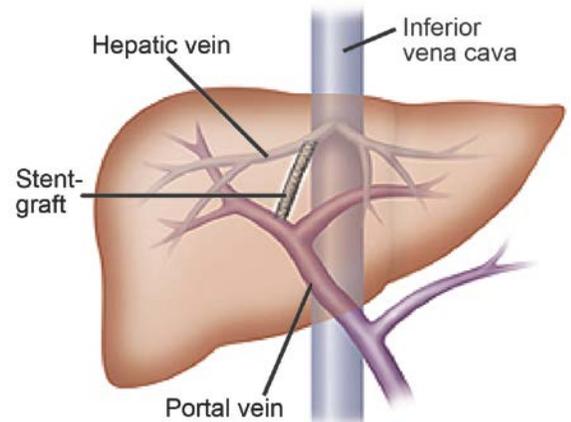
TIPS is most often done for people who have scar tissue in their liver, often caused by *cirrhosis*. This scar tissue blocks blood flow from the portal vein to the hepatic vein.

Here are the meanings of the terms:

- *Portal vein*: Blood vessel that carries blood to 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

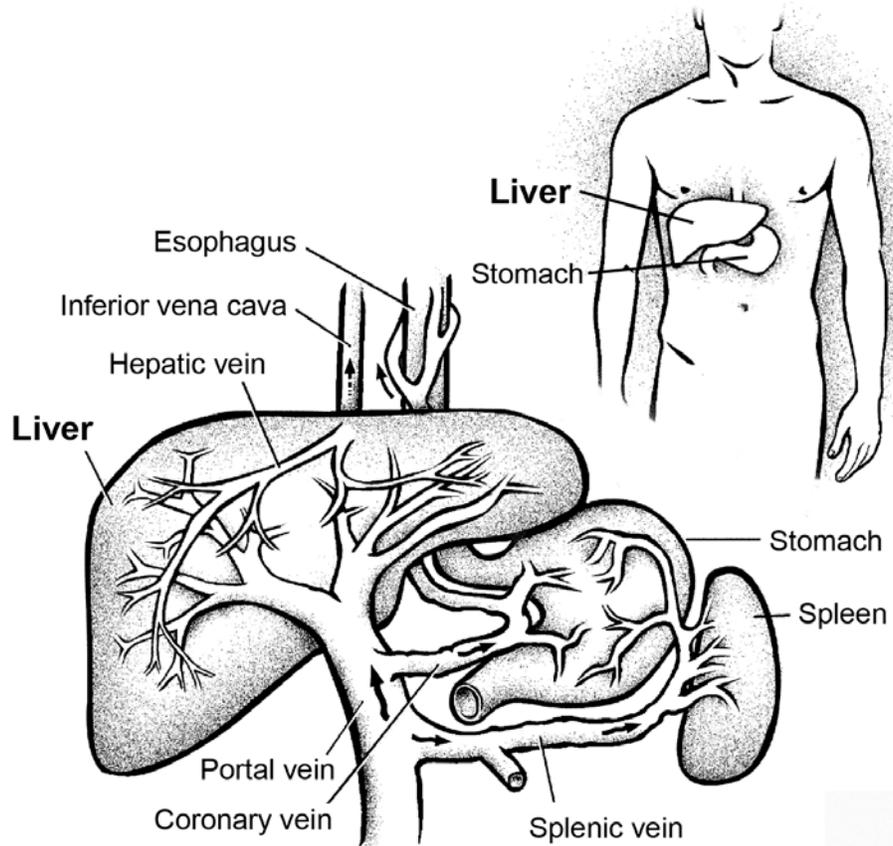
### How does blood flow in a healthy liver?

In a healthy liver, blood flows from the intestines and spleen through the portal vein into the liver. This blood carries nutrients from food that you ate.



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

The liver processes these nutrients. 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 may break. When veins break, it can cause bleeding.

## Ascites

Ascites is a buildup of fluid in the abdomen. This happens when increased pressure from portal hypertension stops blood from flowing through the liver. Blood then leaks into the abdomen and causes ascites. Other related imbalances also cause the body to retain salt and water. This causes swelling in the abdomen and sometimes the legs.

## Can TIPS cure these problems?

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

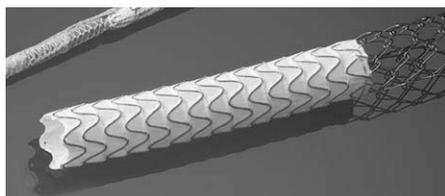
Other problems can also be improved with TIPS. Your doctor will talk with you about how this treatment may help you.

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 TIPS:

- 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 reach your veins through the large *jugular* vein in your neck. Your doctor will then place wires and *catheters* (thin plastic tubes) into 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.



A stent-graft is a fabric tube supported by a metal frame.

The procedure usually takes about 2 to 3 hours, but it may take longer.

## 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 scar tissue around the shunt. This can cause a partial block in the blood flow. Very rarely, this scarring fully blocks blood flow. After TIPS, you will need *ultrasound* exams of your abdomen from time to time. These scans will tell us if your shunt is working well and if scarring is 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. These risks include:

- Bleeding (rarely serious)
- Infection
- Worsening of liver function (rarely)
- New or worse *encephalopathy* (a disease that affects the function or structure of your brain), which causes mild confusion, trouble concentrating, or changes in the sleep-wake cycle

Most times, these symptoms can be managed with medicines.

Your doctor will talk with you about these 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.
- **Plan ahead.** Plan to spend at least 1 night in the hospital. Most patients are sent home the day after the procedure. Some patients may need to stay 1 to 2 extra nights.
- **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 **right away**. We will arrange for a hospital interpreter to help you. This service is free. **A family member or friend may not interpret for you.**
- **Allergies.** If you have had an allergy or bad reaction to *contrast* (X-ray dye) in the past, please call the Interventional Radiology Nurse Coordinator at 206.598.6209. You may need medicine for this allergy before the procedure.
- **Medicine to protect your kidneys.** If we need to give you contrast for the procedure and your kidneys are not working normally, we may prescribe a medicine for you to take before and after your procedure. This medicine will help protect your kidneys.
- **Blood test.** You most likely will need blood test done within the 14 days before your procedure. Sometimes, we do this when you arrive for your procedure. We will tell you if we need to draw blood before that day.
- **Blood-thinning medicines.** If you take a blood thinner such as Lovenox (enoxaparin), Coumadin (warfarin), or Plavix (clopidogrel), you may need to stop taking it for 1 to 10 days before the procedure. The length of time depends on which medicine you are taking. If you have not been told what to do, talk with your provider or the clinic that prescribes the medicine. Ask when to stop taking this medicine.  
**IMPORTANT:** If you have ever had a heart stent, a prosthetic heart valve, or a pulmonary embolism, or if you 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.

## Procedure Day

### At Home

- Take your usual medicines on the morning of your procedure, unless the doctor or a nurse tells you to hold them. Some patients may need to hold blood-thinning or other prescription medicines.

- Do **not** take vitamins or other supplements. They can upset an empty stomach.
- 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.
- Bring with you a list of all the medicines you take.

## At the Hospital

### Blood Draw

If you were told to get a blood draw before your exam:

- Go to Blood Draw/Lab Services on the 3rd floor of the hospital. The lab is near the Cascade elevators, and next to Outpatient Pharmacy.
- After your blood draw, follow instructions for checking in below.

### Checking In

- Take the Pacific elevators to the 2nd floor. Check in at 2nd floor Admitting, to the right of the Radiology Department.
- After checking in with Admitting, you will be told to go to the Radiology Reception Desk.

### Preparing for Your Procedure

- 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 radiology 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.
  - One of the doctors who will do the procedure will talk with you about the risk and benefits of 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. This provider will give you medicine to make you sleep and monitor you during and after the procedure.

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

- You will be watched for a short time in the recovery room.
- You will then move to an inpatient room in the hospital.
- Your family member or friend will be able to be with you once you are settled in your room.
- You will need to rest with your head elevated 30° to 45°.
- Before you get up to walk, we will assess you to make sure you can walk safely. A nurse or aide will help you get out of bed. We will place a gait belt around your waist for extra safety.
- You will stay overnight and be able to go home the next day when:
  - You can eat, drink, and use the restroom
  - Your nausea and pain are under control
  - Your vital signs are stable
  - You are able to walk as usual
  - There are no signs of problems from the procedure
  - You have a responsible driver to take you home

## **Self-care**

- You may resume taking your normal medicines. Also, start taking any new medicines that your doctor prescribed.
- We will schedule you for an ultrasound exam of your abdomen about 1 week after your TIPS procedure. The images will show us if the shunt is open. Be sure to keep this appointment.

## **For 48 to 72 Hours**

- Do not lift anything that weighs more than 5 to 10 pounds (a gallon of milk weighs almost 9 pounds).
- Do only gentle activities. This will allow your neck puncture site to heal.
- Avoid hard work and any exercise that makes you breathe harder or makes your heart beat faster.

## **Dressing Care**

- For 24 hours, keep the puncture site on your neck covered with the dressing. Make sure it stays clean and dry.
- After 24 hours, remove the dressing and check the puncture site. See list under “When to Call” below for any signs that need care.
- You may shower after 24 hours. Do **not** scrub the puncture site. Allow warm soapy water to run gently over the site. After showering, gently pat the site dry with a clean towel.
- Do **not** apply lotion, ointment, or powder to the site. You may apply a new bandage.
- If you apply a new bandage, change it every day for the next few days. Always check the site when you remove the bandage.
- Do **not** take a bath, sit in a hot tub, go swimming, or allow your puncture site to be covered with water until it is fully healed.
- You may have a little discomfort at the site for 1 to 2 days.

## **When to Call**

Call one of the numbers listed on page 9 under “Who to Call” if you have any of these symptoms:

- Bleeding from the puncture site that does not stop, even after you apply pressure at the site for 15 minutes
- Painful swelling at the puncture site
- A lot of bruising at the puncture site
- Signs of infection:
  - Redness, warmth, or tenderness
  - Discharge that smells bad
- Fever higher than 101°F (38.3°C)
- Chills
- A lot of pain or pain that does not go away even if you take the pain medicines your doctor prescribed
- Yellowing of your eyes or skin
- Confusion or sleepiness that gets worse
- A new rash that does not go away

## **Urgent Care**

**Call 911 or go to the nearest emergency room** if you have any of these symptoms:

- Chest pain
- Trouble breathing
- Slurred speech
- Balance problems or trouble using your arms or legs

## **Who to Call**

- Weekdays from 8 a.m. to 4:30 p.m., call the Interventional Radiology Nurse Coordinator at 206.598.6209.
- After hours and on weekends or holidays, call 206.598.6190 and ask to page the Interventional Radiology Fellow on call.

### **Questions?**

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

UWMC Imaging Services:  
206.598.6200