PROCEDURE

Distal splenorenal shunt

A distal splenorenal shunt is surgery that redirects splenic blood to reduce pressure in bleeding-prone veins.

PURPOSE
Reduce pressure in bleeding-prone stomach and esophageal veins

PROCEDURE TYPE
Therapeutic surgery through an abdominal incision

WHERE IT IS DONE
Operating theatre

ANAESTHESIA
General

HOW LONG IT TAKES
About 3 to 5 hours

PREPARATION
Fasting, medicine review, blood-thinner plan, and preoperative tests

RECOVERY
Several hospital days; no driving until cleared and off opioids

MAIN RISKS
Bleeding, shunt clotting, infection, and hepatic encephalopathy

RESULTS
Shunt function assessed during surgery; benefit monitored over time

Overview

A distal splenorenal shunt, or DSRS, is an operation for complications of portal hypertension . This means high pressure in the portal vein system, which carries blood from the digestive organs and spleen toward the liver.

High pressure can enlarge thin-walled veins in the esophagus or stomach. These veins, called varices , can bleed.

During DSRS surgery, the surgeon separates the splenic vein and connects the end coming from the spleen to the left renal vein. This redirects splenic blood into the body's main circulation, lowering pressure in varices while preserving as much blood flow to the liver as possible.

The spleen and kidney usually remain in place. DSRS is major open abdominal surgery.

Why the procedure is performed

DSRS may be considered when portal hypertension causes serious or repeated bleeding from esophageal or stomach varices. It is usually discussed after, or alongside, pressure-lowering medicines and endoscopic treatment. It may be an option if bleeding continues or another shunt procedure is unsuitable.

DSRS is a selective shunt because it mainly lowers pressure in veins connected to the spleen and varices rather than diverting all portal blood away from the liver. This may reduce, but does not eliminate, the risk of hepatic encephalopathy-changes in thinking caused by substances the liver would normally clear.

The operation does not cure cirrhosis or another underlying condition. Its main purpose is to prevent further variceal bleeding.

Who should and should not have it

DSRS may suit someone with recurrent or difficult-to-control variceal bleeding, suitable blood-vessel anatomy, and enough liver function to tolerate major surgery. Scans are used to confirm that the splenic and left renal veins are open and can be safely joined.

The operation may not be appropriate when:

Some issues may delay surgery rather than rule it out. Your team should explain how your anatomy, liver function, and general health affect the decision.

- Essential veins are blocked
- The spleen has been removed
- Liver failure is advanced or rapidly worsening
- Ascites is severe or uncontrolled
- Serious heart, lung, or kidney disease makes surgery unsafe
- Active infection or an uncontrolled bleeding problem needs treatment first
- Previous surgery or unusual anatomy makes the connection unsafe

How to prepare

Follow your treating facility's instructions, which may vary according to your health and operation.

You will usually have blood tests, liver and kidney tests, an electrocardiogram, and imaging such as ultrasound, CT, or MRI.

Give the team a complete list of medicines, supplements, allergies, and previous reactions to anaesthesia. Ask for specific instructions if you take blood thinners like warfarin or apixaban , aspirin, diabetes medicines, or anti-inflammatory medicines. Do not stop prescribed medicine on your own.

Follow the hospital's exact fasting instructions before general anaesthesia. Arrange help for your early recovery and prepare for a hospital stay. If you smoke, tell the team so they can offer support to reduce breathing and wound-healing risks.

What happens during the procedure

You receive general anaesthesia and are unconscious during the operation. Monitoring lines, a breathing tube, and a urinary catheter may be placed.

The surgeon makes an abdominal incision and reaches the splenic vein, which lies near the pancreas. The vein is divided, and the end draining the spleen is attached to the left renal vein. Nearby veins may also be divided to direct high-pressure blood through the new route.

The surgeon checks blood flow, controls bleeding, and may leave a temporary drain before closing the incision. Afterward, you go to a recovery area and may initially need intensive or high-dependency monitoring.

Recovery and what to expect afterward

Pain: Abdominal pain is expected. Tell the team if it suddenly worsens or is not controlled.

Eating: Fluids and food are introduced gradually as bowel function returns. Temporary nausea, poor appetite, or constipation may occur.

Activity: Staff will help you walk early to reduce blood-clot and chest-infection risks. Avoid heavy lifting and strenuous abdominal activity until your surgeon confirms healing.

Driving: You cannot drive home. Do not drive while taking opioid pain medicine or until you can move comfortably, react quickly, perform an emergency stop, and have your surgeon's clearance.

Work: Returning commonly takes several weeks. Physical work may require longer, especially

if you have advanced liver disease or complications.

Risks and possible complications

Possible complications include:

DSRS generally preserves more liver-directed blood flow than a nonselective shunt, but encephalopathy and worsening liver function can still occur.

- Bleeding
- Wound, abdominal, lung, or bloodstream infection
- Clots in the shunt, portal system, or leg veins
- Recurrent bleeding if the shunt narrows or closes
- Hepatic encephalopathy, causing confusion, sleep changes, or poor concentration
- New or worsening ascites
- Injury to the pancreas, spleen, bowel, kidney vessels, or other nearby structures
- Pancreatic inflammation or leakage
- Breathing, heart, kidney, wound-healing, or anaesthetic complications

Results and follow up

The surgeon assesses shunt blood flow during the operation. Ultrasound or another scan may be used before discharge or later to confirm that it remains open.

Follow-up may include blood tests, liver assessment, imaging, and endoscopy. Keep taking prescribed portal-hypertension or liver medicines unless your team changes them.

A working shunt lowers bleeding risk but cannot guarantee that bleeding will never return. Ongoing care is needed for the underlying cause of portal hypertension. Follow-up usually checks the incision, eating and activity, liver function, mental alertness, and shunt blood flow.

Alternatives

The best alternative depends on the varices, liver function, vein anatomy, active bleeding, and previous treatment.

- Medicines: Nonselective beta blockers lower portal pressure but may not be enough after repeated bleeding.
- Endoscopic treatment: Band ligation treats esophageal varices but often requires repeat sessions.
- TIPS: A channel is created inside the liver through a neck vein. It avoids open surgery but can increase encephalopathy and may narrow or become blocked.
- BRTO and related procedures: These can close certain stomach varices but may worsen esophageal varices or ascites.
- Other surgical shunts: These may divert more blood from the liver, increasing encephalopathy risk.
- Devascularization or splenectomy: Selected people may have veins disconnected, sometimes with spleen removal.
- Liver transplantation: This treats advanced liver disease and portal hypertension but requires formal transplant assessment.

When to call your healthcare team

Seek emergency help for:

Contact your surgical or liver team urgently the same day for fever, worsening abdominal pain, repeated vomiting, increasing abdominal swelling, new jaundice, reduced urination, or redness, swelling, pus, or opening of the incision.

For mild ongoing soreness, appetite changes, constipation, or questions about medicines and activity, contact the team during routine hours or discuss them at follow-up.

- Vomiting blood or passing a large amount of black or bloody stool
- Fainting, severe weakness, or signs of major bleeding
- Severe trouble breathing or chest pain
- New severe confusion, inability to wake fully, or a seizure

Common questions

Will I be asleep?

Yes. DSRS is performed under general anaesthesia.

Can I drive home?

No. Someone else must take you home. Resume driving only after your surgeon clears you and you are no longer taking medicines that impair alertness.

How painful is it?

Pain and tightness around the abdominal incision are expected. The team will provide pain relief and help you move safely.

When will I know if it worked?

Blood flow is assessed during surgery and may be confirmed with imaging. Prevention of further bleeding is assessed over longer follow-up.

Will my spleen be removed?

Not usually. The operation redirects blood from the spleen rather than removing it.

Can the bleeding come back?

Yes. Bleeding may return if the shunt narrows or clots, other varices develop, or liver disease worsens. Continued follow-up is essential.

Sources

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