PROCEDURE

Anastomosis

An anastomosis surgically connects two body structures, such as sections of bowel or blood vessels

PURPOSE
To restore flow through bowel, blood vessels, or other structures

PROCEDURE TYPE
Therapeutic surgery, often open or minimally invasive

WHERE IT IS DONE
Operating theatre

ANAESTHESIA
General, or local for some vascular anastomoses

HOW LONG IT TAKES
About 1-6 hours, based on organ and operation

PREPARATION
Fasting, medication review, sometimes bowel preparation

RECOVERY
Several days to weeks; no driving while impaired or restricted

MAIN RISKS
Leakage, bleeding, infection, narrowing

RESULTS
Connection checked during surgery; pathology may take several days

Overview

An anastomosis is a connection made between two body structures. It is usually one part of a larger operation rather than a stand-alone procedure.

A bowel anastomosis joins two healthy ends of the intestine after a damaged or diseased section is removed. A vascular anastomosis connects blood vessels, such as during bypass surgery, organ transplantation, or creation of an arteriovenous fistula for dialysis. Similar connections may be made in the urinary or reproductive systems.

The surgeon may create the connection with stitches, surgical staples, or both. Some operations are performed through one larger incision. Others use minimally invasive techniques, with small cuts and a camera. Robotic instruments may also be used.

Why the procedure is performed

The aim is to restore a pathway for food, digestive waste, blood, urine, or another body fluid.

A bowel anastomosis may be created after removing part of the intestine because of cancer, severe inflammation, a blockage, an injury, or poor blood supply. It may also be used to reverse some temporary ostomies. An ostomy brings the bowel through an opening in the abdomen so waste enters a bag.

A blood vessel anastomosis may redirect blood around a blockage, attach a donor organ to the circulation, repair an injured vessel, or create access for haemodialysis.

Your surgeon should explain what structures will be joined, why a connection is recommended, and whether an ostomy, graft, stent, or staged operation might be needed instead.

Who should and should not have it

An anastomosis may be suitable when unhealthy tissue can be removed and the remaining ends are healthy enough to heal together. For bowel surgery, the connection should have a good blood supply and be free from excessive tension. Similar principles apply to blood vessels.

An immediate connection may be avoided or delayed when the risk of poor healing or leakage is too high. Reasons can include:

In bowel surgery, the surgeon may recommend a temporary or permanent ostomy instead. Sometimes an anastomosis is made but protected with a temporary ostomy while it heals.

Smoking, poor nutrition, uncontrolled blood sugar, and some medicines can affect healing. These factors do not automatically rule out surgery, but they may change its timing or plan.

- Poor blood supply to the tissue being joined
- Severe infection or contamination in the operating area
- Unstable health during emergency surgery
- Tissue that is badly inflamed, injured, or under tension
- A blockage or disease that cannot be safely removed
- Medical conditions or medicines that significantly impair healing

How to prepare

Follow the treating facility's instructions, as its own instructions take priority over general information.

You will usually be told when to stop eating and drinking. Some bowel operations require laxatives or an antibiotic like amoxicillin or doxycycline bowel preparation, but this is not needed for every procedure.

Give the surgical team a complete list of your medicines, supplements, allergies, and previous reactions to anaesthesia. Ask specifically about blood thinners like warfarin or apixaban , diabetes medicines, and anti-inflammatory pain medicines. Do not stop a prescribed medicine unless the treating team instructs you to do so.

You may have blood tests, imaging, heart tests, or an anaesthesia assessment. If an ostomy is possible, an ostomy nurse may mark the best position on your abdomen and explain how a bag works.

Arrange help with transport and early recovery. The expected hospital stay can range from an outpatient visit for some dialysis-access operations to several days after major abdominal or heart surgery.

What happens during the procedure

The anaesthesia team gives the planned anaesthetic and monitors your breathing, heart rate, blood pressure, and oxygen level. Most abdominal and heart operations require general anaesthesia, so you are unconscious. Some blood vessel procedures can be performed using local or regional anaesthesia with sedation.

The surgeon reaches the area through an open incision or several small incisions. Diseased tissue may be removed before the connection is made.

The two ends are then aligned and joined with stitches or staples. Bowel connections may be end-to-end, side-to-side, or end-to-side. The arrangement is chosen to fit the anatomy and reduce tension.

The surgeon checks the connection for blood flow, bleeding, and possible leakage. In some bowel operations, air or coloured fluid is used to test the seal. Drains are not required in every case.

If the tissue does not appear safe to join, the surgeon may change the plan. This can include creating an ostomy, using a graft, or delaying the anastomosis until a later operation.

Recovery and what to expect afterward

Pain depends on the operation and incision. You may feel soreness, pulling, bloating, or cramping. Pain relief is usually given regularly at first and reduced as you recover. Tell the hospital team if pain is worsening rather than gradually improving.

After bowel surgery, drinks and food are introduced according to your recovery and the facility's protocol. Appetite and bowel movements may be irregular for several weeks. After vascular procedures, eating may resume sooner unless another part of the operation affects your diet.

Early movement helps reduce blood clots and chest complications. You will usually be encouraged to sit up and walk soon after surgery. Avoid heavy lifting and strenuous exercise until the surgical team says the connection and incision have healed enough.

Do not drive while taking sedating pain medicine, while movement is limited, or before you can brake and turn safely. Follow any specific driving restriction from your surgeon or insurer.

Return to work depends on the operation and your job. Desk work may be possible sooner than physical work. Recovery after major abdominal, vascular, or heart surgery often takes several weeks.

Risks and possible complications

The risks differ according to the organs involved, your health, and whether surgery is planned or urgent.

Possible complications include:

An anastomotic leak means fluid escapes through the new connection. A bowel leak can cause infection inside the abdomen and may require antibiotics, drainage, or another operation. A leaking or blocked blood vessel connection may reduce blood supply and require urgent treatment.

Scar tissue can narrow a connection later. Treatment may involve an endoscopic procedure, a catheter-based procedure, or further surgery.

- Leakage from the new connection
- Bleeding or infection
- Narrowing or blockage at the connection
- Poor blood flow, clotting, or failure of a vascular connection
- Injury to nearby organs, nerves, or blood vessels

- Blood clots in the legs or lungs
- Anaesthesia-related breathing or heart problems

Results and follow up

The surgeon usually knows during the operation whether the connection was completed and appeared secure. If tissue was removed, laboratory results may take several days or longer.

Before discharge, you should receive instructions about wound care, eating, activity, medicines, and planned follow-up. Staples or external stitches may need removal, although many closures dissolve or remain inside the body.

Follow-up may include an examination, blood tests, or imaging. A dialysis fistula needs time to enlarge and mature before regular use. After bowel surgery, bowel habits may take weeks or months to settle.

Routine follow-up is used to review healing, discuss laboratory results, and decide whether further treatment is needed.

Alternatives

The alternatives depend on why the operation is being considered.

For bowel surgery, an ostomy can divert waste without joining the bowel ends. This lowers stress on a high-risk connection but requires a bag on the abdomen and may need another operation if it is temporary.

A staged operation removes the diseased bowel first and creates the anastomosis later. This allows infection or inflammation to settle, but it means living with an ostomy for a period and undergoing another procedure.

For selected conditions, medicines, endoscopic treatment, or monitoring may delay or avoid surgery. These options are less invasive but may not remove a blockage, restore blood supply, or treat damaged tissue.

For blocked blood vessels, angioplasty and stenting use a catheter rather than open surgery. Recovery is usually quicker, but the approach may not suit the location or extent of disease, and some vessels may narrow again. A surgical bypass may offer a different balance of durability and operative risk.

Ask what would happen without the proposed anastomosis and whether the alternative is temporary, permanent, or likely to require another procedure.

When to call your healthcare team

Contact your surgical team promptly for increasing redness or drainage from the incision, persistent vomiting, worsening pain, fever, difficulty eating or drinking, reduced bowel function, or a new change in a dialysis fistula's usual vibration.

Seek emergency care for:

Use the discharge instructions for contact details and symptom thresholds specific to your operation.

- Severe or rapidly worsening chest or abdominal pain
- Trouble breathing, fainting, or confusion
- Heavy bleeding
- A swollen, painful leg with sudden breathlessness
- A cold, pale, numb, or very painful limb
- A rapidly worsening abdomen with severe illness

Common questions

Will I be asleep?

Most abdominal, heart, and major vascular anastomoses use general anaesthesia. Some dialysis-access and smaller vascular procedures use local or regional anaesthesia with sedation.

Can I drive home?

No after general anaesthesia or sedation. Arrange transport. After major surgery, wait until you are off sedating pain medicine and can move, turn, and brake safely.

How painful is it?

The incision and surrounding tissues usually cause more pain than the connection itself. Pain should gradually improve with medicine, movement, and healing.

When will I know whether it worked?

The surgeon checks the connection during surgery. Longer-term success is assessed through recovery, symptoms, examination, and sometimes imaging or blood-flow tests.

Will I need an ostomy?

Not everyone having bowel surgery needs one. It may be planned, created temporarily to

protect a connection, or required if an immediate anastomosis is unsafe.

Sources

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