PROCEDURE

Abdominal aortic aneurysm repair - open

Open abdominal aortic aneurysm repair is an operation where surgeons replace a weakened, bulging part of the main belly artery (the aorta) with a graft through a larger incision.

PURPOSE
To lower the risk of rupture and serious bleeding

PROCEDURE TYPE
Therapeutic surgical

WHERE IT IS DONE
Operating theatre

ANAESTHESIA
General

PREPARATION
Fasting and adjustment of medicines affecting bleeding

RECOVERY
Days with a variable hospital stay

MAIN RISKS
Bleeding, infection, heart or lung complications, kidney strain

RESULTS
During surgery when graft blood flow is checked

Overview

An abdominal aortic aneurysm repair is a treatment for an abdominal aortic aneurysm. This happens when part of the aorta (the large blood vessel that carries blood from your heart to your belly and legs) becomes weak and balloons outward.

With the open approach, surgeons repair the aneurysm through an incision in your abdomen. They remove the diseased segment and sew in a tube-like graft so blood flows through the graft instead of the weakened area.

The main goals are to lower the risk of rupture and reduce the chance of serious bleeding .

Why the procedure is performed

An aneurysm can enlarge as the vessel wall becomes more fragile. Repair is usually recommended to reduce the risk that the aneurysm will rupture.

Your care team may also consider repair when:

Open repair is one option. It differs from endovascular repair, which places a graft using catheters through the blood vessels rather than through an abdominal incision.

- The aneurysm is causing symptoms (for example, pain related to the aneurysm)
- Imaging shows features that suggest a higher risk of future rupture or that surgery may be safer than monitoring
- The aneurysm's size or growth rate indicates increasing danger

How to prepare

Preparation varies by your health needs and your hospital's routine. Always follow your treating facility's instructions first.

Common steps may include:

In the days leading up to surgery, your team may advise:

On the day of surgery, you'll typically have an IV started and meet the anesthesia team. Most open abdominal aortic aneurysm repairs are done under general anesthesia (you are fully asleep).

- Pre-op testing , such as blood work and assessments of your heart and lungs
- Medication review , including prescription medicines, over-the-counter products, and supplements
- Allergy and prior-anesthesia/contrast history , especially if you've reacted to anesthesia or contrast dye used for some scans
- Planning for help at home , since recovery takes time
- Eating and drinking restrictions before anesthesia (often "nothing by mouth" for a set period)
- Medication adjustments if you take medicines that affect bleeding-only change these if your surgical team tells you
- Quitting smoking (if you smoke) to improve lung recovery and healing

What happens during the procedure

In open abdominal aortic aneurysm repair, the surgeon replaces the weakened segment with a graft.

While you are under anesthesia, the operation generally includes:

Exact technique varies by patient anatomy and surgical plan, but the core steps-control blood flow, remove the aneurysm segment, sew in the graft, and restore circulation-are consistent.

- Incision and exposure: An abdominal incision is made to reach the aneurysm.
- Aortic control: Clamps are placed to temporarily control blood flow through the aorta to reduce bleeding.
- Aneurysm removal: The surgeon opens the aneurysm area and removes the damaged vessel wall.
- Graft placement: A synthetic graft (often a fabric-like tube) is sewn into place between healthy sections of the aorta.
- Restoring blood flow: The clamps are removed and the team checks that blood is flowing through the graft.
- Closing the incision: The incision is closed in layers; drains may be used in some cases.

Risks and possible complications

All surgery carries risk. Open abdominal aortic aneurysm repair has risks related to the operation and to anesthesia.

Possible complications include:

Bleeding and blood supply issues

Infection

Heart and lung complications

Kidney and other organ effects

Graft-related issues

Neurologic and limb risks

Your team should review your personal risk profile based on your medical history and test results.

- Excessive bleeding during or after surgery

- Blood clots that can reduce flow to organs or limbs (uncommon, but a recognized risk after major vascular procedures)
- Wound infection or deeper infection around the incision or graft site
- Urinary tract infection, especially if you had a urinary catheter
- Irregular heart rhythms
- Pneumonia or other breathing problems, particularly if you have reduced lung function
- Kidney strain, which may relate to the stress of surgery and blood pressure changes (and sometimes pre-op imaging factors)
- Slower return of normal bowel function
- Graft narrowing or blockage over time
- Graft infection (rare, but important because it usually requires prompt treatment)
- Temporary or, less commonly, lasting weakness or nerve-related problems due to surgical factors and circulation changes, particularly in people who already have other circulation disease

Results and follow up

A successful open repair generally means:

Follow-up is important because grafts and the rest of the aorta can change over time.

Typical follow-up includes:

Imaging may include ultrasound or CT-based scans, depending on what your care team prefers and your kidney function. Your schedule will be tailored to your anatomy and risk level, often with early checks after discharge and ongoing monitoring later.

- The aneurysm is no longer pressurized and bulging
- Blood is routed through the graft instead of the weakened vessel
- The risk of aneurysm rupture is greatly reduced
- Clinic visits to check healing, incision status, and overall recovery
- Review of blood pressure and symptoms
- Imaging tests to confirm the graft is working as expected

When to call your healthcare team

Call your healthcare team promptly if you have symptoms that could be related to recovery problems. Some issues can be managed with routine contact, while others require same-day advice or emergency care.

Routine follow-up concerns (contact soon, not emergency)

If you're unsure whether something is routine or urgent, ask your care team.

Urgent symptoms (get medical advice the same day)

Emergency symptoms (seek emergency care now)

These symptoms can have different causes, but they need prompt evaluation after this type of surgery.

- Mild incision redness that is slowly improving, or small areas of bruising
- Increasing soreness around the incision that is still manageable and not rapidly worsening
- Constipation or slower bowel function that is improving gradually
- Mild swelling in the legs that improves with rest and time
- Fever or chills that don't settle
- Drainage from the incision, especially if it's pus-like or foul smelling
- Worsening pain in the belly, back, or near the incision rather than steady improvement
- New shortness of breath , especially if it's worsening
- Lightheadedness , fainting, or feeling weak in a way that's unusual for you
- New leg swelling , one-sided calf pain, or sudden changes in leg color or temperature
- Heavy bleeding from the incision or sudden bleeding from anywhere else
- Severe sudden abdominal or back pain
- Chest pain or trouble breathing that is severe or rapidly worsening
- Sudden weakness , numbness, trouble speaking, or facial drooping
- Black or bloody stools , or vomiting blood

Sources

- MedlinePlus (U.S. National Library of Medicine), "Abdominal Aortic Aneurysm Repair"



- National Heart, Lung, and Blood Institute (NHLBI), abdominal aortic aneurysm patient information
- NHS (National Health Service), "Abdominal aortic aneurysm repair" (open surgery)
- Society for Vascular Surgery (SVS), patient education materials on abdominal aortic aneurysm repair (open and endovascular)
- American College of Surgeons (ACS), patient education on abdominal aortic aneurysm and surgical treatment