

Open abdominal aortic aneurysm (AAA) repair

Patient information

What is an abdominal aortic aneurysm (AAA)?

The major artery carrying blood from the heart is called the aorta. Branches from this supply blood to the body. In the abdomen, the aorta has branches to the liver, spleen, gut, and kidneys and then divides into the leg arteries. This last part of the aorta, before it divides, can become dilated (more open) and is called an aneurysm.

This happens most often in men aged 60 and over. Aneurysms are more common in people who smoke and have high blood pressure. There can be a family history of the condition. As the dilatation progresses (like a worn out bicycle tyre or inner tube) the wall of the aorta is stretched and becomes thinner. This can lead to the wall tearing, leading to internal bleeding. This is called aneurysm rupture. Sometimes clots form within the aneurysm and this can cause problems with the circulation to the legs.

When is surgery advised?

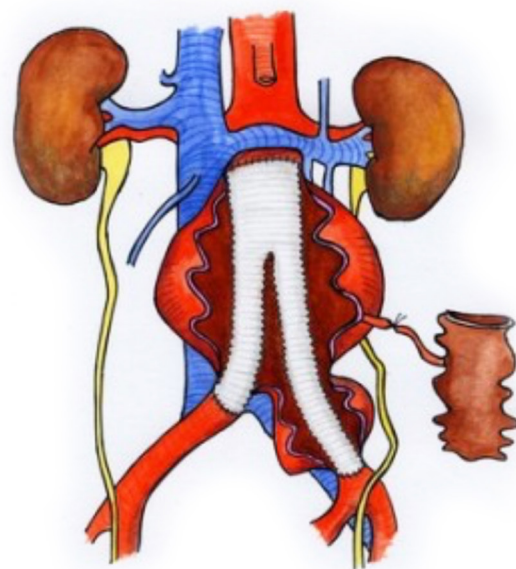
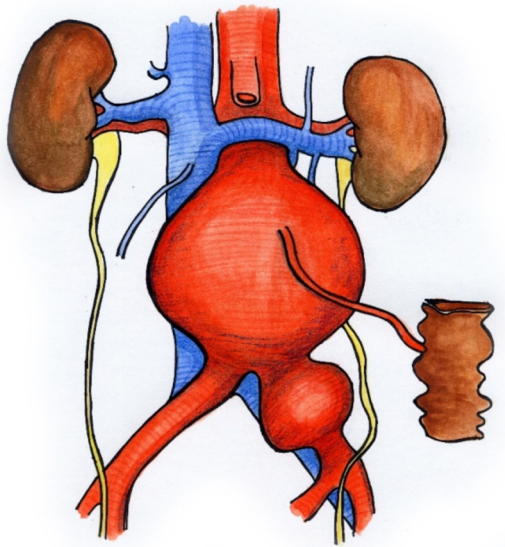
Surgery is commonly advised if you develop an AAA larger than 5.5cm in maximum diameter for men, or about 5cm in women. For these larger aneurysms, the risk of rupture is usually higher than the risk of surgery. If you have a family history of ruptured aneurysm, then surgery is also likely to be advised. The two types of operation available to repair your AAA are open surgery or endovascular repair.

What are the treatment options for AAA?

Treatment options for abdominal aortic aneurysms (AAA) include open surgery and endovascular stent insertion (EVAR). For open surgery, a cut is made in the abdomen and the blood flow through the aorta (main blood vessel in the abdomen) is temporarily stopped. The artery is opened and a graft (synthetic piece of tubing) is sewn inside the artery to replace the enlarged area.

This leaflet has been written in collaboration with:

University Hospitals Dorset NHS Foundation Trust
Dorset County Hospital NHS Foundation Trust
Salisbury NHS Foundation Trust



Who can have an open AAA repair?

To decide what type of aneurysm repair may be offered, a CT scan will be performed along with exercise testing. If you are suitable for either method of repair your surgeon will discuss the benefits of each type of surgery with you and ask what your preference would be.

Complex aneurysms - aneurysms that are near or above the kidney arteries may need a complex aneurysm repair. These are not performed at University Hospitals Dorset (UHD) and if needed, your surgeon would refer you to one of nearest complex aortic centres (usually Southampton Hospital or London).

What are the benefits and disadvantages of open AAA repair?

In the short term, the risk of dying from surgery is higher with open surgery compared to EVAR. However, once the post operative period is complete, you are less likely to need further procedures with open surgery rather than an EVAR. You do not need regular follow-up scans (as you would with an EVAR) and the likelihood of needing future procedures on the aneurysm is less.

The average length of stay for people having open AAA surgery is 7-10 days. After surgery you are looked after on the intensive care unit for approximately 48 hours and then return to the vascular ward. It can take time for the bowels to start working again after this type of surgery. Over the few days after your surgery, you will be allowed more to drink, followed by soft food, and a firmer diet once your bowels are able to cope with it.

Risks of surgery

- Death - in the short term the risk of death following open surgery is approximately 3 or 4 in 100 people. This will vary depending on your general health, fitness, and the complexity of surgery.
- Loss of circulation to the bowel - this can affect between 1-3 in 100 people. If it happens it tends to affect part of the large bowel on the left-hand side of the abdomen. Symptoms may include pain, diarrhoea, and passing blood from the rectum/anus. Rarely, if the circulation does not recover, this may need surgical removal of part of the large bowel and/or formation of a stoma, which is when a section of the bowel is brought out on to the surface of the abdominal wall (part of your bowel is outside the stomach).
- Loss of circulation to the legs - approximately 2 in 100 patients having an open AAA repair develop loss of circulation to the legs. If this happens, another procedure may be necessary to restore the circulation to your leg. Blood thinning medication is given during aneurysm repairs to reduce this risk. Rarely it may not be possible to fully restore the circulation to the leg. This may result in pain in the leg when walking, or very rarely could result in amputation of the leg.

- Bleeding - as this is an operation on a large blood vessel, some bleeding is common. A cell salvage device is used at UHD, which can collect blood you may lose during the operation. If needed this can be given back to you through a small tube into a vein. A blood transfusion is sometimes needed as well. If you have beliefs that stop you from having a blood transfusion, please discuss this with your surgeon.
- Infection - antibiotics are given at the time of surgery to reduce the risk of infection. Infections can occur in different places such as the lungs, bladder, wound, or rarely in the aortic graft. Infection of a graft is very rare, difficult to get rid of completely and has a serious long-term risk to life. Aortic graft infection is approximately a 1 in 100 risk.
- Readmission within 30 days of surgery is approximately 5 in 100 people.
- Sexual dysfunction - approximately 1 in 10 men will experience difficulty with sexual function after surgery. This can include erectile dysfunction and/or retrograde ejaculation, which is when semen enters the bladder and exits through the penis.
- Kidney failure - partial, temporary reduction in kidney function is common and can happen after this type of surgery. If the kidney function becomes very low, some people may need the help of a machine to filter the blood temporarily. Rarely, if the kidneys do not recover long term, dialysis is required.

Other medical risks include heart attack, stroke, deep vein thrombosis (clot in a deep vein), pneumonia, and pulmonary embolism (clot on the lung).

The National Vascular Registry

The National Vascular Registry is a secure and confidential database used by vascular surgery in the UK. This system is in place to monitor and help improve the outcomes of people having vascular operations (including aneurysm repairs). You will be asked if you are happy for your data to be included in the database.

What will happen before my procedure?

Following your cardio-pulmonary exercise testing (CPET), you will have an in-person pre-assessment with the enhanced/advanced vascular practitioner (ECP/ACP). This is to ensure you are prepared and fit for the surgery and to give you a further opportunity to ask any questions. This will include taking some up-to-date blood tests, an ECG (a tracing of your heart) and a physical assessment to review your fitness for surgery in combination with the CPET testing result.

The pre-assessment ECP/ACP practitioner will ask you some questions about your overall health, take your blood pressure, pulse, weight, height, perform a physical examination, and take your oxygen levels as well as details of your home situation and next of kin. They will ask if you take any tablets or use any other types of medication either prescribed by a doctor or bought over the counter in a pharmacy and will advise you on which medications to stop before your operation. Please bring all your medications and any packaging (if available) with you to your pre-assessment. You are welcome to bring a relative or friend to the pre-assessment. Please write a list of questions you may have for the pre assessment ECP/ACP as the appointment is an ideal opportunity to discuss any concerns you may have.

If you wish to take your medication yourself (self-medicate), please ask your vascular enhanced/advanced practitioner when you are at your pre-assessment or when you are admitted. Pharmacists visit the wards regularly and can help with any medicine queries. We will dispense a 14-day supply of your regular medications when you are discharged from hospital.

What happens on the day of open abdominal aortic repair?

Depending on the arrangements made for you, you will most likely be admitted to the Sandbourne ward on the day of surgery. You must follow the nil by mouth instructions you have been provided with, as your operation will likely be cancelled if these are not strictly followed.

The ward nursing staff will show you to a room, confirm your details, and complete the necessary paperwork for your procedure. They will explain the preparations for the operating theatre and show you where the facilities are. Your surgeon will visit you before your operation to explain the procedure again and answer any questions. We will then complete a consent form. The operation involves the use of general anaesthesia. Information about the different types of anaesthesia or sedation we may use are outlined elsewhere in this document. You will see an anaesthetist before your procedure to explore these options.

You will meet your surgeon and anaesthetist and can discuss any questions or concerns you might still have. You will then be taken to the anaesthetic room or the operating theatre, where all the standard monitors will be connected, and a tube will be placed into a vein (see monitoring and equipment section).

If you are having a general anaesthetic, the anaesthetist may put in an arterial line (see monitoring and equipment section) to monitor your blood pressure accurately. Other drips or monitors will then be connected while you are asleep.

You will need a temporary urinary catheter, which is a flexible tube that is inserted into the bladder when you are under anaesthetic and removed when you are mobile and recovering after surgery.

Recovery after open AAA surgery

You will usually go to the intensive care unit (ICU) or the high dependency unit (HDU). Here your nurse and medical team will make sure you have enough fluids, that your heart, lungs, and kidneys are working well, and that you are comfortable. If all is well, you will usually go back to the surgical ward after one or two days.

Eating and drinking

Due to the nature of your open aneurysm repair, your surgeon will guide you on when you can start drinking again. We usually start sips of water the following day. If you can tolerate sips of water, you will then be able to increase to clear fluids such as black tea or coffee, followed by normal fluids and then a light diet. Your team will guide you on when you can start eating and drinking again.

Getting about after your procedure

We usually help you to sit in a chair the day after your open aortic repair. The therapy team will help you with this. You will still have some drips in place and will be having pain control for your abdominal wound and may feel weak from the surgery and the anaesthetic. Following this we will get you moving gently with support until you are safe to walk on your own again. It is important to take the advice of the team caring for you with sitting outside, as this will reduce the chances of developing chest infections and clots to the vein/lungs which can be a post operative complication.

Wound care

You will have dressings over your abdominal wound and both groins if your surgeon has made cuts there as well. These will be changed before you leave hospital if needed. You will be required to make a practice nurse appointment at your GP surgery around five days after discharge from hospital for these to be removed and reviewed. If you need a district nurse visit to your home (if you use a wheelchair or are house bound) your ward nurse will make this arrangement before you leave. Until this time, please keep your dressings clean and dry. Your ward nurse will advise you if they are shower proof dressings before you leave hospital. You will be discharged with adequate pain control for the immediate recovery period. Please take your usual medication as prescribed, as usual and pain control if you need it. Please be aware some bruising at the wound site is normal.

In case of emergency, ring 999 or contact 111 or your GP for advice.

If you experience any sudden leg pain/swelling/dischouration, please seek immediate urgent advice.

If you notice;

- worsening of bruising
- swelling
- redness
- heat
- pain
- increased tenderness or leaking of fluid or blood

Please either call your relevant nurse practitioner team, your GP, or seek emergency help if required/ out of hours.

You will need to avoid heavy lifting or strenuous activity for six weeks to allow your wounds to heal.

Information about important questions on the consent form

1. Photography, audio, or visual recordings

As a leading teaching hospital, we take great pride in our research and staff training. We ask for your permission to use images and recordings for your diagnosis and treatment, they will form part of your medical record. We also ask for your permission to use these images for audit and in training medical and other healthcare staff and UK medical students. You do not have to agree, and this will not affect the care and treatment we provide. We will ask for your separate written permission to use any images or recordings in publications or research.

2. Students in training

Training doctors and other health professionals is essential to the NHS. Your treatment may provide an opportunity for such training, where necessary under the careful supervision of a registered professional. If you would prefer not to take part, please inform your surgeon.

Leaving hospital.

While you are staying with us, the surgical team will visit you every day and can answer any questions you might have about your surgery. On each visit, they will assess your progress and work out the best time for you to be discharged from hospital. Most people are discharged around day 7 to 10 after the operation. Before your discharge the pharmacist will ensure you have the correct medications to take home, and a discharge summary will be completed for you to take away with you.

You will be likely to need six weeks off work before you feel well enough to return. We can provide you with a sick certificate to your time in hospital plus two weeks after discharge. Your GP can then provide you with a sickness certificate as required.

Check-ups and results:

We will arrange to review you in the outpatient clinic local to your area six to eight weeks after the operation. You will see your surgeon or a member of the team.

Driving with an AAA

If you have a small AAA (<5.5cm) you can continue to drive. The DVLA should be notified if your aneurysm reaches 6cm in diameter, but you can continue to drive if you have had satisfactory medical treatment and there is no further enlargement of your AAA. If your AAA reaches 6.5cm in diameter you are temporarily suspended from driving until your AAA is treated.

Heavy goods vehicle (HGV) drivers are disqualified from driving if their AAA is bigger than 5.5cm, but can resume driving if AAA is successfully treated .

Please contact the DVLA if you drive a commercial vehicle for advice.

The DVLA recommend you don't drive for 6 to 8 weeks following abdominal surgery.

Please contact the DVLA on

DVLA medical enquiries

Telephone: **0300 790 6806** Monday to Friday, 8am to 7pm Saturdays, 8am to 2pm

Or visit www.gov.uk/transport/driving-and-medical-conditions for more information.

Please inform your car insurance company about your aortic aneurysm and surgery.

What are the implications for air travel and travel insurance?

The Association of British Insurers has been advised that AAAs are no more likely to rupture at altitude (in the air) than on the ground and it is not aware of any airlines operating a standing rule about refusing patients with this condition. The ABI is also unaware of any travel insurance policies that contain a specific exclusion for AAAs as part of their standard wording. If in doubt, contact your insurer.

Please use the numbers below for any queries either before or following your surgery.

Please note, the advanced practitioner team numbers are for clinical queries.

Please use the secretary's number for administration or outpatient appointment queries.

University Hospitals Dorset

Vascular nurse practitioners: **07747 460938**

Dorchester Hospital

Clinical practitioner: **01305 255898** Secretary: **01305 255480**

Salisbury District Hospital




Vascular nurse specialists: **01722 336262** ext. **4937** or bleep **1112**

The Royal Bournemouth Hospital, Castle Lane East, Bournemouth, Dorset, BH7 7DW

Poole Hospital, Longfleet Road, Poole, Dorset, BH15 2JB

Christchurch Hospital, Fairmile Road, Christchurch, Dorset, BH23 2JX



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w: www.uhd.nhs.uk : @UHD_NHS : @UHTrust : @uhd_nhs

Dorset County Hospital, Williams Avenue, Dorchester, Dorset, DT1 2JY

w: www.dchft.nhs.uk : @DCHFT : @DCHFT : #TeamDCH

Salisbury NHS Foundation Trust, Salisbury District Hospital, Salisbury, Wiltshire, SP2 8BJ

w: www.salisbury.nhs.uk : @SalisburyNHS : @salisburydistricthospital