

Vascular Surgery and Interventional Radiology

Endovascular Aneurysm Repair (EVAR)

Information for patients

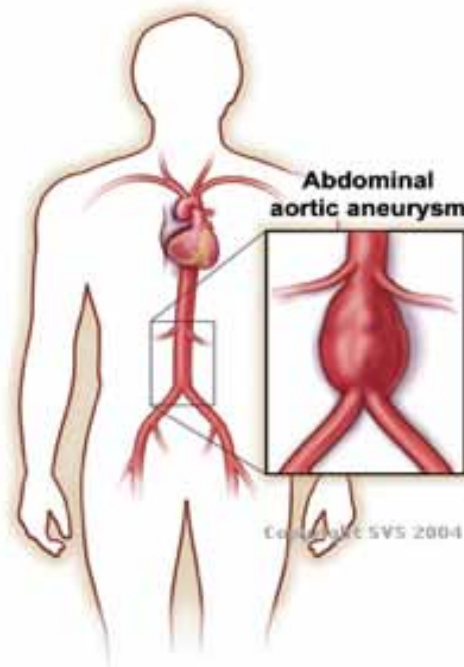


What is an Aortic Aneurysm?

The aorta is the largest artery in the body. It transports blood away from your heart to all the parts of your body. Your aorta runs through your chest, where it is called the thoracic aorta. When it reaches your abdomen, it is called the abdominal aorta. The abdominal aorta supplies blood to the lower part of your body. In the lower abdomen, the aorta splits into two branches (known as the iliac arteries) that carry blood into each leg.

The normal diameter of the abdominal aorta is about 1 inch (or about 2 cm). If it weakens or stretches, then the pressure of blood flowing through this main artery can cause this area of the aorta to expand or bulge outwards like a balloon. This is called an Abdominal Aortic Aneurysm (AAA). If this weakness and expansion occurs in the thoracic aorta it is called a thoracic aortic aneurysm.

Fig .1 Schematic diagram of an abdominal aortic aneurysm



What are the indications for treatment?

If the aneurysm is over 5.5cm we would start considering treatment because the risk of future rupture increases above this size:

- As an emergency if there is rupture of the aneurysm
- If the aneurysm is painful or rapidly increasing in size

What is the treatment for AAA?

There are two ways to repair an AAA – and open repair and an endovascular repair.

Open repair requires a surgical incision (cut) into the abdomen to expose the abdominal aorta. The aorta is opened between clamps and a synthetic tube sewn in place across the aneurysm, which is attached at the top and bottom to a section of normal aorta.

Endovascular repair (EVAR) is the placement of a stent-graft (fabric-covered tube) into the aneurysm through a small hole in the blood vessels in the groin. In general terms, endovascular repair is a less invasive procedure with faster recovery times. However, open repair lasts longer and does not require follow-up scans and further procedures as is sometimes the case with EVAR. Both procedures are proven to be effective and approved by NICE (National Institute of Clinical Excellence).

Am I suitable for endovascular stent grafting?

You may be eligible for elective EVAR if your aortic aneurysm has not ruptured, is large enough (5.5 centimetres, about 2 inches, wide or more), and you have a long enough area of normal artery for the stent graft to attach securely.

EVAR may be a good option if your risk for conventional surgical aneurysm repair is increased because of other illnesses you might have. However, if you have a long life- expectancy or have a

low risk for complications, or if the shape of the aneurysm is not favourable for an endovascular stent graft, your surgeon may recommend conventional surgical aneurysm repair instead. Each case needs to be discussed on an individual basis with your vascular surgeon who will work together with an interventional radiologist if an endovascular repair is felt to be the best option for you.

How do I prepare?

Your vascular surgeon will ask you about your medical history and perform a complete physical examination. In addition, your surgeon may perform several tests, including:

- an electrocardiogram (ECG), which measures your heart's electrical activity
- stress testing, which will help to determine your heart health, and
- a scan to determine if your aneurysm has a favourable shape for endovascular stent graft treatment.
- If your surgeon believes that you are a good candidate for endovascular stent grafting, he or she may arrange a CT scan to choose the correct size and shape of graft.

Am I at risk of complications?

If you have kidney disease called chronic renal impairment, your chances of complications from EVAR may be increased. This is because a contrast dye, which can affect the kidneys, is used during the procedure.

If you have an unfavourable aneurysm shape, associated narrowing of the arteries, or have already had an AAA repaired, you may also have an increased risk of complications.

Other conditions, such as heart or lung disease, may also increase the risk of treatment.

The procedure is performed using the combined skill and knowledge of a vascular surgeon and interventional radiologist, who will decide together on the best option for your particular situation. This will be discussed with you fully.

What happens during EVAR?

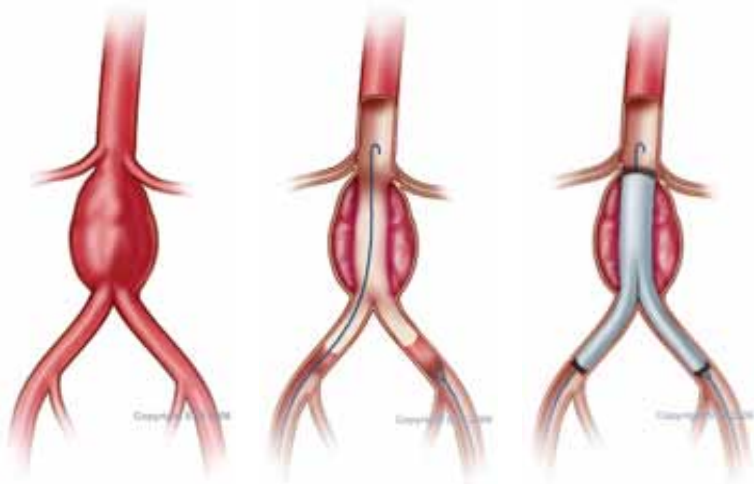
As the procedure begins, you will receive a sedative and a local / epidural anaesthetic to numb the operation area. You might have a general anaesthetic, depending upon your particular circumstance.

Your vascular surgery team will clean your skin and shave hair around the insertion points in the groin to help decrease your chances of infection. Your vascular surgeon will then cut into the skin overlying the femoral artery in your groin. Your vascular surgeon and consultant interventional radiologist will work together as a team to thread a guide wire into your femoral artery and pass it up to the aneurysm. Because you have no nerve endings inside your arteries, you will not feel the wires or catheters as they move through your body. You may feel a slight pressure or a sensation of mild tugging (pulling) during this insertion if the procedure is performed under epidural anaesthesia / local anaesthesia.

Using X-rays that appear as moving images on a screen, a tube is inserted over the guide wire. Usually angiography (a special X-ray using contrast dye to give detailed pictures of the blood vessels) is used to make sure the endovascular stent graft is positioned correctly. You may feel a warm sensation as the contrast dye is injected.

A compressed form of the graft is then inserted through a larger tube, called a sheath. When the graft has reached the aneurysm site, your doctor withdraws the sheath, leaving the graft in place. The graft expands to fit snugly against the walls of your artery and is extended down into the arteries supplying both legs.

Fig 2. Schematic diagram demonstrating placement of stent-graft into abdominal aortic aneurysm.



What can I expect after EVAR?

Usually you will spend 2 to 3 days in the hospital. During the first recovery day you will be permitted to eat and encouraged to walk.

After you leave the hospital, you should not drive until you are pain-free in the groin and are able to perform an emergency stop. You may be permitted to sponge bathe around your wounds but you should avoid soaking your wounds until they have healed. You may also be advised to avoid lifting heavy weights for approximately 4 to 6 weeks after the procedure.

Your surgeon will ask you to return for a follow-up visit after your procedure. At that visit, your surgeon will check your wounds and assess your overall condition.

Usually you will have follow-up imaging tests within the first few months after the procedure to make sure that the stent is still functioning without significant problems and in the proper location. After the first year, you will have yearly imaging tests to

monitor the graft. You may need more frequent imaging tests if there appear to be any potential problems.

Are there any complications?

The potential complications of endovascular stent grafting include:

- Leaking of blood around the graft (“endoleaks”) (See below)
- Movement of the graft away from the desired location (“migration”) (uncommon, but can be many years after placement of graft)
- Blockage of the blood flow through the graft (uncommon)
- Heart problems, respiratory problems
- Vessel problems: rupture, dissection
- Reduced blood flow to bowel or kidneys (uncommon)
- Deterioration in kidney function from the X-ray dye (common although usually transient)
- Sometimes fever and an increase in white blood cell count can happen shortly after endovascular stent grafting. These symptoms usually last 2 to 10 days and are treated with medications such as aspirin and ibuprofen.

Other complications that are rare but serious include a ruptured artery, injury to your kidney, paralysis, blocked blood flow to your abdomen or lower body, infection of the graft and delayed rupture of AAA.

Endoleaks

Endovascular stent grafts can sometimes leak blood through the areas where the graft components join together, or they can allow blood to leak back into the aneurysm sac through small arteries feeding the aneurysm sac. These leaks are called “endoleaks”. While this name is somewhat confusing, it does not imply that your aneurysm has ruptured or is leaking.

Some of the leaks stop by themselves and are not dangerous, but others need to be treated immediately. These leaks can even occur years after your procedure and can be dangerous if the aneurysm continues to enlarge. Thus, after endovascular aneurysm repair, doctors require their patients to undergo long term follow-up with periodic CT scans for the rest of their life to detect and treat problems before they become threatening. Since problems with the graft or endoleaks can occur even years after successful placement, it is important to comply with the follow-up schedule advised by your doctors.

If you suspect or experience any complications because of the endovascular stent graft as described above, you should contact your surgeon or GP.

How to contact us

If you have any questions or queries please contact us on the number at the top of your appointment letter.

Further information

www.rcr.ac.uk – Royal College of Radiologists

www.bsir.org – British Society of Interventional Radiology

www.vascularsociety.org.uk – Vascular Society of the United Kingdom

www.cirse.org – Cardiovascular and Interventional Radiology Society of Europe

If you need an interpreter or need a document in another language, large print, Braille or audio version, please call **01865 221473** or email **PALSJR@orh.nhs.uk**

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