

Abdominal Aortic Aneurysm (AAA)

What treatments are available for aortic aneurysms?

Open Surgery

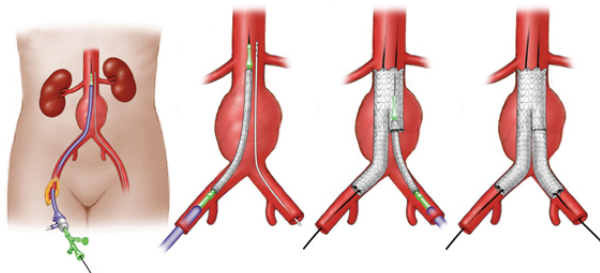
The traditional treatment for aneurysms is surgery to replace the diseased blood vessel with an artificial blood vessel (graft). In the conventional open operation a large incision is made in the abdomen. The blood vessels above and below the aneurysm are clamped in order to control any bleeding and the aneurysm itself is opened. Any blood clot in the aneurysm is removed and any bleeding blood vessels are controlled. The artificial graft is then stitched into place using permanent stitches (see picture right). The graft is made from a man-made material called Dacron or ePTFE (similar to Goretex)

This is a major operation requiring 7-10 days in hospital and usually a short post-operative stay on the intensive care unit. If you have this operation as a planned procedure there is an overall risk of dying of around 5%. This means that 95 patients out of every 100 will be fine and come through the operation. However, a small number of patients (approximately 5 in 100) will die in hospital either during or more commonly after their operation. It is important to remember that your chances of surviving a planned operation are much better than if your aneurysm ruptures, when the overall chance of dying is around 80%.

The conventional open operation has a history dating back over 55 years and is a very effective and durable treatment for aneurysms. Once patients have recovered from the operation most do not have further problems.

Endovascular stenting

More recently key-hole surgery has become the preferred method for treating aneurysms, this is called Endovascular Aneurysm Repair or EVAR. This procedure is different from the conventional operation because it does not usually require any cuts in the tummy. Two small cuts are made in the groin and an artificial graft (tailored individually for each aortic aneurysm) is delivered to and deployed from inside the aneurysm itself. This operation requires a special delivery device to deliver the graft through the arteries to the aneurysm.



The stenting operation is suitable for patients in about 90% of cases. Recovery is faster for most people and it may permit much earlier discharge from hospital. More complex grafts have been developed which deal not only with abdominal aneurysms but also with complex aortic arch and thoracoabdominal aneurysms involving major branches of the aorta. An endovascular graft can be constructed with branches to supply major arterial vessels (branched graft) or holes (fenestrations) in the side of the graft so a stent can be inserted into the branch (fenestrated graft). Hybrid procedures involve a combination of open and endovascular techniques. These techniques are expanding the population suitable for aneurysm treatment as previously only relatively fit patients could withstand the major surgery involved in repair of complex thoracoabdominal aneurysms.

Non-surgical treatments

The ultimate aim of some research is to slow or prevent aneurysm growth, reducing or eliminating the need for surgery. There are no treatments proven to reduce the need for aneurysm surgery but work continues. We are currently involved in recruiting for a study evaluating a treatment designed to slow the rate of aneurysm growth. I will discuss this with you if you are suitable for this.

Emergency treatment for ruptured aneurysms

Patients who do not die from a ruptured aneurysm in the community may present to hospital as an emergency usually with back and abdominal pain. There is about a 50-60% chance of surviving the operation but recovery in these circumstances is often prolonged.

What are the results of surgery for aortic aneurysms?

The long term durability of endovascular stenting is becoming clearer however you will need to be seen regularly to follow the stent up. This is usually done by ultrasound or CT scanning. About 10-15% of people will require further procedures to their aneurysms however in the vast majority of cases this is much more straight forward than the initial repair.

If you have had an open repair then I will usually see you at 6 weeks then once more in a year with an ultrasound. If everything looks good I would usually leave you in the care of your GP and arrange an ultrasound in 5 years time.

Are there complications of treatment?

There are a number of potential problems that can occur after open aortic aneurysm surgery. These fall into 2 main categories: generalised complications and local complications. Both types of complication can prolong the stay in hospital and may be fatal if they are severe enough. There is a risk of dying from open aneurysm surgery of between 3-5%.

Generalised complications

This means problems that can occur away from the site of the operation. They occur because a major operation under general anaesthesia has been performed usually with significant blood loss.

The commonest types of generalised complication usually occur in the heart or the lungs. They take the form of heart attacks, clots in the legs/lungs (DVT/PE), kidney dysfunction and chest infections. In the majority of patients, especially those having a planned operation, these complications can be successfully treated. The combined presence of heart lung and kidney complications can result in the condition of multi-organ failure (MOF). This is frequently fatal.

Local complications

This means problems related to the site of the operation.

The main early problem that can occur is bleeding at the place where the main artery has been joined to the artificial graft. This can be severe. The surgeon will stop all bleeding before completing your operation but sometimes further bleeding can develop during the recovery period - especially within the first 24 hours. If this happens the patient can require a further operation to control the bleeding.

Nerves controlling sexual function run very close to the aorta. Although attempts to preserve these nerves are usually made during an aneurysm repair they can be frequently damaged. In men this can lead to loss of erections. If erections are preserved, retrograde ejaculation can take place where the semen is ejected into the bladder due to incoordination of the various muscles. The effects of damage to the same nerves in women are not clear in the age group that usually require this operation.

Sometime after the operation, infection can develop in the artificial graft, although this is rare. If this does occur it can be a major problem and will probably lead to further surgery to fix the problem.

Occasionally replacement of the major artery in the abdomen can lead to impairment of the blood supply to part of the colon (colonic ischaemic). If this becomes very severe then further surgery can be necessary to remove the damaged colon and prevent further complications.

In approximately 30% of patients a weakness can develop in the scar on the tummy. If this happens it occurs months or even years after recovery from the original surgery. It can lead to bulging in the abdominal wound and the development of an incisional hernia. This seems to be more common in aneurysm patients and may require a further operation.

What measures are taken to reduce complications?

To reduce the risk of DVT

Anti-embolic graduated compression stockings may be used, providing there is no evidence of hardening of the arteries in the legs. Intermittent compression of the legs and/or feet using airbags is sometimes used in theatre to improve blood flow in the leg veins during the anaesthetic. Most patients also receive heparin injections to reduce the risk of blood clots forming. After your operation you will be encouraged to move around as early as possible.

To reduce the risk of infection

Antibiotics will be given at the start of the operation and sometimes for one or two doses after the operation. Physiotherapy will be started shortly after the operation to prevent secretions accumulating in the chest.