



Abdominal Aortic Aneurysm

What is an Abdominal Aortic Aneurysm?

An aortic aneurysm is defined as an abnormal dilatation of the aorta whereby its maximum diameter is 3cm or greater.

Are Abdominal Aortic Aneurysms common?

Approximately 4% of the UK population aged over 65 years suffer with an abdominal aortic aneurysm (AAA). They are six times more likely to be found in men than woman with a prevalence of almost 10% in men aged over 65 years. AAA account for 12,000 hospital admissions in England per year and are attributed as the cause of death for 6000 deaths in England and Wales each year.

What causes the aorta to dilate?

It would appear that both a genetic susceptibility and environmental factors influence the development of an Abdominal aortic aneurysm (AAA). Individuals found to have AAAs have a high likelihood of concomitant cardiovascular disease e.g. previous stroke or heart attack, or peripheral arterial disease, and its associated risk factors; cigarette smoking, high blood pressure etc. Interestingly diabetes would appear to be protective against AAA formation. Rarely AAA develop as a result of infection or following previous traumatic injury to the aorta. AAA may also run in families and 20% of patients have a relative who has also suffered with an AAA; recently specific genes including the LRP1 gene, have been implemented.

What are the symptoms and clinical signs of an AAA?

Seventy-five percent of infra-renal abdominal aortic aneurysms are dormant (asymptomatic) at the time of identification being discovered during routine health checks or investigations for other medical conditions.

Alternatively, with an AAA may cause symptoms as a result of compression on adjacent structures with back pain or loin being common complaints. You may also notice a pulsatile lump in the abdomen that can occasionally be tender. Due to the change in blood flow dynamics through the now swollen aorta blood is more prone to clot formation. This may impact on the blood supply to your legs and pelvis causing intermittent claudication or critical leg ischaemia. Some AAA are associated with a heightened inflammatory response by the body which may cause flu like symptoms including tiredness, night sweats, rigors and reduced appetite.

Abdominal aortic aneurysms may rupture which is life threatening and requires emergency surgery. The Circulation Clinic does not offer emergency treatment for ruptured AAA and we advise all patients to seek help through the standard emergency channels if you become acutely unwell and are known to have an AAA.

When should an abdominal aortic aneurysm be repaired?

The answer to this question is very simple: an AAA should be considered for repair when the risk of rupture is greater than the risk of undergoing an operation to prevent rupture. The natural history of an AAA is that of slowly accelerating expansion until rupture occurs. The best predictor of rupture is the maximum AAA diameter (see table 1). Currently, the best available evidence supports the proposal that all patients with an AAA that measures > 5.5cm should be considered for repair. There are however occasions when repair may be considered at a lower size threshold e.g. if the AAA is rapidly expanding or is causing significant symptoms.

DIAMETER	5-YEAR RISK OF RUPTURE
<5 cm	5%
5-6 cm	25%
6-7 cm	35%
>7 cm	75%

table 1: Rupture risk of AAA according to maximum diameter.

How are AAA repaired?

There are two main methods of repairing an AAA in the elective setting: Open surgical repair and Endovascular Aneurysm repair (EVAR) and open surgical repair.

Open surgical repair is performed through an abdominal incision under general anaesthesia. The aneurysmal aorta is reconstructed with a polyester graft that is physically sewn into the aorta above and below the aneurysmal segment. In order to achieve the best outcomes meticulous pre-operative planning, intra-operative technique and post-operative care is required.

EVAR offers a less invasive treatment to open surgical repair for patients with a suitably shaped AAA. It involves the insertion of a stent-graft to re-line the aorta from within: access to the aorta is gained through the arteries in the legs. The stent-graft is not physically sewn to the aorta but relies on the outward recoil of the stent to maintain its position. Occasionally this fails allowing blood to re-perfuse the aneurysm –an endoleak.

Which is better EVAR or open surgical repair?

There have been a number of trials comparing EVAR to open surgical repair. They report early (within 30 days of the operation) survival benefits associated with EVAR due to its less invasive nature. However, these initial early benefits may be offset by the increased likelihood of requiring further interventions if the initial repair was an EVAR: one third of EVARs may require a secondary procedure within 3 years of the initial operation. Furthermore, EVAR, unlike open surgical repair, requires ongoing surveillance to identify stent-graft failure early with regular ultrasound or CT scans.

Ultimately the choice rests with the client, at the Circulation Clinic we will ensure a fully informed discussion is undertaken during which our clients are able to discuss their individual requirements and preferences with a recognised expert in the field of AAA repair.



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