CONDITION

Abdominal aortic aneurysm

Learn about abdominal aortic aneurysm symptoms, risk factors, screening, monitoring, treatment options, and signs that need emergency care.

WHAT IT IS
Enlarged or weakened area of the abdominal aorta

BODY SYSTEM
Heart and circulation

MAIN SYMPTOMS
Abdominal or side pain, back pain, pulsing near the belly button, tenderness

WHAT CAUSES IT
Complex, partly inherited wall weakening

HOW IT IS DIAGNOSED
Abdominal ultrasound or other imaging

MAIN TREATMENT
Monitoring, cardiovascular risk reduction, aneurysm repair

CAN IT BE CURED?
Sometimes - repair can treat the aneurysm

IS IT AN EMERGENCY?
Sometimes - sudden severe pain or fainting

LONG-TERM OUTLOOK
Often monitored safely, but rupture is life-threatening

Overview

An abdominal aortic aneurysm, often called an AAA, is an enlarged or weakened area in the part of the aorta that passes through the abdomen. The aorta is the body's largest artery. It carries oxygen-rich blood from the heart to the rest of the body.

An abdominal aorta is generally considered aneurysmal when its diameter reaches 3 centimeters or more. However, treatment decisions are not based on one measurement alone. Doctors also consider the aneurysm's growth, shape, location, symptoms, and the person's overall health.

Most abdominal aortic aneurysms grow slowly and do not cause symptoms. They may be found during a screening ultrasound or a scan performed for another reason. Smaller aneurysms can often be monitored safely.

AAA matters because the weakened section can continue to enlarge. A large aneurysm may tear or rupture, causing life-threatening internal bleeding. The risk of rupture generally increases as the aneurysm becomes larger, although size does not predict every rupture.

Screening can identify an aneurysm before symptoms develop. In the United States, the U.S. Preventive Services Task Force recommends one-time ultrasound screening for men ages 65 to 75 who have ever smoked. It recommends selective screening for men in that age group who have never smoked, based on other risk factors and personal preferences. Recommendations differ for women because the balance of benefits and harms is less certain in some groups. A clinician can help determine whether screening is appropriate.

Symptoms

Most people with an abdominal aortic aneurysm have no symptoms. Aneurysms found through screening or unrelated imaging may have been present for years without causing discomfort.

When symptoms occur, they can include:

These symptoms have many possible causes and do not necessarily mean that an aneurysm is present. New, persistent, or unexplained abdominal or back pain should still be discussed with a healthcare professional, especially if the person has a known AAA.

A leaking or ruptured aneurysm is a medical emergency. Possible warning signs include sudden, severe abdominal, back, side, or groin pain; fainting; marked weakness; confusion; sweating; shortness of breath; or pale, clammy skin. A person may also develop a rapid heartbeat or signs of very low blood pressure.

Call emergency services immediately if these symptoms occur. Do not drive yourself to the hospital. Rapid assessment and treatment are essential.

- A deep, steady pain in the abdomen or side
- Back pain that is not clearly related to movement
- A pulsing feeling near the belly button
- Pain or tenderness over the aneurysm

Causes and risk factors

An AAA develops when the aortic wall loses strength and gradually expands under the pressure of flowing blood. This is usually a complex process involving inflammation, changes in the wall's structural proteins, inherited tendencies, and cardiovascular risk factors. Although

AAA is associated with atherosclerosis, or fatty plaque buildup in arteries, atherosclerosis is not considered its only cause.

Smoking is one of the strongest modifiable risk factors. Risk rises with greater lifetime tobacco exposure. Current smoking is also associated with faster aneurysm growth and a higher risk of rupture. Stopping smoking can reduce future cardiovascular and aneurysm-related risk, even after many years of use.

Other factors associated with AAA include:

Family history is important because close relatives may share genetic and environmental risks. Tell your clinician if a parent, sibling, or child has had an aortic aneurysm or aortic rupture.

An AAA is not usually caused by exercise, lifting, or a single stressful event. However, blood pressure control is important once an aneurysm has been found.

- Older age, especially age 65 or older
- Male sex, although aneurysms in women may rupture at smaller diameters
- A parent, sibling, or child with an AAA
- High blood pressure
- Coronary artery disease or disease in other arteries
- High cholesterol
- A history of smoking
- Certain uncommon inherited connective tissue disorders

Diagnosis

Abdominal ultrasound is the main test used for screening and routine measurement. It uses sound waves, does not involve radiation, and is painless for most people. The test measures the widest part of the abdominal aorta.

A clinician may also find an AAA unexpectedly on a CT scan, MRI, or another imaging study. A physical examination alone cannot reliably rule an aneurysm in or out. Some aneurysms can be felt as a pulse in the abdomen, but many cannot, particularly in people with a larger body size.

CT angiography uses X-rays and intravenous contrast dye to produce detailed pictures of the aorta and nearby arteries. It may be used when symptoms suggest a complication, when ultrasound images are unclear, or when doctors are planning a repair. Kidney function and previous reactions to contrast dye are considered before the test.

If an aneurysm is found, its diameter and location should be recorded. Previous scans may be

reviewed to see how quickly it is growing. Measurements can vary slightly between tests, so clinicians try to compare studies performed with consistent methods.

The usual diagnostic process may include:

- Reviewing symptoms, smoking history, family history, and cardiovascular conditions
- Measuring blood pressure and examining pulses
- Confirming the aneurysm with imaging
- Estimating its size and growth rate
- Assessing whether the anatomy may be suitable for a particular type of repair

Treatment and management

Management depends on the aneurysm's size, growth, symptoms, anatomy, and rupture risk. Age, kidney and heart health, surgical risk, and personal preferences also matter. A vascular specialist is a doctor who treats diseases of arteries and veins and may help guide these decisions.

Monitoring

A small AAA that is not causing symptoms is often monitored with repeat ultrasound. Imaging intervals become shorter as the aneurysm approaches the usual size for considering repair. The interval may also change if measurements are uncertain or the aneurysm grows more quickly than expected.

Surveillance is active care, not the absence of treatment. Keeping scheduled scans is important because aneurysms often enlarge without causing symptoms.

Reducing related health risks

No medicine has been proven to reliably shrink an AAA or stop its growth. Treatment commonly focuses on reducing the risk of heart attack, stroke, and other cardiovascular problems.

Management may include stopping smoking, controlling blood pressure, addressing cholesterol, staying physically active when medically appropriate, and following a heart-healthy eating pattern. A clinician may prescribe medicines for blood pressure, cholesterol, or another condition based on the person's overall cardiovascular risk. These medicines should not be started, stopped, or changed without professional guidance.

People with a stable AAA can often continue ordinary activity. Exercise plans and limits should be discussed with the treating clinician, particularly when an aneurysm is large, growing, or

causing symptoms.

Repair

Repair is generally recommended when an aneurysm is causing symptoms related to the aneurysm. For aneurysms without symptoms, U.S. cardiovascular guidance recommends repair at a diameter of at least 5.5 centimeters in men or at least 5.0 centimeters in women. Repair may also be considered when a smaller aneurysm grows by at least 0.5 centimeter over six months. Individual decisions may differ because no single threshold is right for every person.

The two main approaches are:

Not every aneurysm has anatomy suitable for EVAR. The care team should explain the expected benefits, short-term risks, long-term monitoring needs, and possibility of later procedures for each option.

A suspected rupture requires emergency surgery or endovascular repair when feasible. This is different from planned repair, which allows time to evaluate health risks and discuss options.

- Open surgical repair: A surgeon opens the abdomen and replaces the weakened section with a synthetic tube called a graft. Recovery is usually longer, but the repair is durable.
- Endovascular aneurysm repair, or EVAR: A specialist guides a fabric-covered stent through arteries in the groin and places it inside the aneurysm. This reduces pressure on the weakened wall. EVAR usually has a shorter initial recovery, but it requires long-term imaging because the device can leak, move, or need another procedure.

Complications

The most serious complication is rupture. Blood can escape into the abdomen or surrounding tissues, causing a sudden fall in blood pressure and reduced blood flow to vital organs. Emergency treatment is required.

Other possible complications include:

EVAR has device-specific complications. An endoleak occurs when blood continues to flow into the aneurysm sac outside the stent graft. Some endoleaks only require monitoring, while others need treatment. The graft can also shift, become blocked, or lose its seal.

Open repair has a longer initial recovery and carries the risks of major abdominal surgery. Later complications are less common but may include graft infection, blockage, or problems where the graft joins the artery.

- A blood clot forming within the aneurysm and blocking blood flow farther down the leg

- Pressure on nearby structures, which may contribute to pain or other symptoms
- Rapid enlargement or a leak that occurs before complete rupture
- Heart, lung, kidney, bleeding, infection, or circulation problems related to repair

Follow up

Routine follow-up is essential for both unrepaired and repaired aneurysms. For an aneurysm under surveillance, follow-up usually includes imaging, review of symptoms, blood pressure care, smoking status, and management of cardiovascular risk.

Contact the treating clinician promptly if there is new or worsening abdominal, back, side, or groin pain, even if a scan is already scheduled. The clinician can decide whether earlier imaging is needed.

After EVAR, lifelong imaging is generally required to check the stent graft and aneurysm sac. The exact schedule and type of imaging depend on the device and earlier results. After open repair, imaging is usually less frequent, but long-term follow-up remains important because other areas of the aorta can sometimes enlarge.

Routine follow-up includes scheduled appointments, stable symptoms, and planned imaging. Sudden severe pain, fainting, confusion, profound weakness, or cold and clammy skin is not a routine follow-up issue. Call emergency services immediately.

Sources

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