Endovascular AAA Repair
A Weakened Blood Vessel

What does it mean to have an abdominal aortic aneurysm (AAA)? This is a balloon-like bulge in a major blood vessel, the aorta. The bulge forms at a weak place in the vessel wall. An AAA is dangerous because it can rupture. This is serious, and can be fatal. But now that you know you have an AAA, steps can be taken to treat the problem and prevent a rupture.

A Silent Problem

An AAA is called a “silent” problem because it usually causes no symptoms. It’s sometimes found by a healthcare provider during a routine exam. More often, it’s detected when tests are done for an unrelated problem. Once an AAA is found, tests can be done to measure its size and follow its growth.

Who Develops an AAA?

Anyone can have an AAA. But certain factors increase the risk that an AAA will form or rupture. These include:

- Having a close relative (parent, brother, or sister) who has had an AAA
- Smoking
- Having high blood pressure
- Having blood vessel disease in another part of the body
- Being over age 55 if you’re a man, or over age 65 if you’re a woman
The Next Step—Endovascular Repair

Learning that you have an AAA can be a shock. But treatment is available. Your doctor recommends endovascular repair. This surgery uses small incisions to repair the aneurysm. Your healthcare team can tell you more about this procedure. Your team may include your primary healthcare provider, nurses, and a vascular (blood vessel) specialist. You can also learn more about AAAs and how they are treated with endovascular repair by reading this product.

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Understanding AAA

Blood vessels are tubes that carry blood throughout the body. **Arteries** carry oxygen-rich blood from the heart to the rest of the body. (Blood vessels that carry the blood back to the heart are called veins.) AAA occurs when a part of the largest artery in the body, the aorta, weakens and expands.

![Diagram of blood vessels](image)

The abdominal aorta carries oxygen-rich blood from the heart to the lower body.

What Is the Aorta?

The aorta is the artery that carries blood directly from the heart. Blood then flows from the aorta into smaller arteries that supply the rest of the body. A healthy artery is smooth inside, allowing blood to flow easily. The part of the aorta that travels through the abdomen (stomach area) is called the **abdominal aorta**. Smaller arteries branch off the abdominal aorta to carry blood to organs in the abdomen. These arteries include the renal arteries, which supply the kidneys. Lower down, the aorta divides into the two iliac arteries, which supply blood to the legs.
When an AAA Forms

The problem starts when the lining of the aorta is damaged. Or, the aorta may become weakened due to certain factors that run in families. The weakened artery stretches outward, expanding like a balloon. The resulting bulge is called an aneurysm. As it expands, the artery wall becomes thinner and weakens even more. High blood pressure further strains the artery wall. It may become so thin that it ruptures (leaks, bursts, or tears open). This is fatal if not treated right away.

An aneurysm forms when part of the wall of the aorta weakens and balloons outward. Aneurysms can form in the iliac arteries, too.

Plaque (a fatty substance composed of cholesterol and other particles) may be found in the weakened artery wall. Blood may thicken (clot) inside the artery. Blood can still flow through the clot, so this may not cause symptoms.

AAA and Arterial Disease

If you have an AAA, it’s possible that you also have disease in other arteries. If so, you’re at risk of a heart attack, stroke, and vascular problems in the legs and other areas of the body. Your healthcare provider may recommend that you be screened for these conditions.

Brain
If the arteries supplying the brain are blocked, a stroke may result.

Heart
A blockage in an artery supplying the heart muscle can cause a heart attack.

Kidneys
Clogged renal arteries can cause kidney problems.

Legs
A blockage in a leg artery causes a painful condition called peripheral arterial disease.
Your Medical Evaluation

An exam and tests give your doctor more information about your AAA. Certain tests measure the size of the aneurysm. They can track changes in the AAA over time. Other tests assess blood flow.

History and Physical Exam

After an exam of your abdomen, you’ll be asked about your family medical history. Your doctor will also ask about your own health history. Contrast fluids used for tests may contain iodine, so you’ll be asked about allergies to iodine or seafood.

Imaging Tests

Imaging tests create pictures of the arteries. This helps determine the size and shape of the aneurysm. Tests include:

- **Ultrasound.** Sound waves are used to create an image of the blood vessels. For this test, your healthcare provider moves a sensor across your abdomen.

- **CT (computed tomography).** A series of x-rays are taken with a special x-ray machine. Computers use these x-rays to create a picture of the aneurysm. Before this test, you may be given contrast fluid through an IV (intravenous) line. This helps arteries show up clearly.

- **MRI (magnetic resonance imaging) makes images by analyzing energy released by tissues in the body after exposure to a strong magnet. A different type of contrast is used for this test.**

Other Tests

These tests may be done before repair of the artery:

- **Arterial Doppler study.** Blood flow in the legs is measured with a special probe and blood pressure cuffs placed on the leg.

- **Arteriography.** This test creates an x-ray image (arteriogram) showing the blood flow through the aorta and other arteries. Contrast fluid is used for this test.
Preparing for Endovascular Repair

With endovascular repair, very small incisions are made in the groin. A graft (a tube made of strong, flexible fabric) is inserted through an incision and into an artery. The graft is guided to the aneurysm. Once there, it takes pressure off the weak artery wall. Your surgeon will tell you how to prepare for the procedure. He or she will also talk with you about the risks and possible complications.

Before an Endovascular Procedure

- Have tests as advised by your surgeon.
- Tell your surgeon about any medications, herbs, or supplements you take. Your surgeon may advise you to make certain changes before surgery.
- Arrange to take a week off work.
- Pack a bag for a hospital stay of 1 to 3 days.
- Don’t eat or drink after the midnight before the procedure.

Risks and Complications of Endovascular Repair

Risks include, but are not limited to:

- Injuries to the blood vessels used for access and to other nearby blood vessels
- A leak around or behind an endovascular graft
- Back pain and fever
- Blood clot on or in the graft

- Blood clots in the legs
- Kidney failure
- Conversion to open surgery
- Infection
- Injury to nearby structures
- Heart attack, stroke, or death
Endovascular Repair: Your Experience

At the hospital, you’ll be taken to a prep room to get ready. You’ll then be moved into the operating room. The procedure takes about 2 to 3 hours. After you go home, imaging tests will track the condition of the graft over time.

Before Surgery

At the hospital, you will be asked to fill out certain forms. You’ll then be taken to a prep room, where you’ll change into a hospital gown. At this time:

- You’ll discuss your **anesthesia** (medication used to keep you pain-free during surgery) with a doctor or nurse. Your anesthesia options may include medication to keep you relaxed, to block pain, or to make you sleep.
- An IV line will be started to give you medication and fluids.
- Hair may be removed from the area where the catheter will be inserted.
- You’ll be taken to the room where the procedure takes place. Once there, you’ll lie on a table beneath x-ray cameras. These cameras are used to help place the graft.

During Surgery

Two small incisions are made in the groin. A catheter (thin, flexible tube) is threaded through an artery at each incision. The collapsed graft is placed inside one of the catheters.

The surgeon uses x-ray guidance to move the graft through the arteries toward the damaged part of the aorta. The catheters are then used to place the graft in position.

Once the graft is in position, the surgeon expands it. Metal springs or hooks hold it in place above and below the aneurysm. The catheters are then removed.
After Surgery
When the procedure is complete, your surgeon may do some tests to check the graft. The incisions in your groin will then be closed. You’ll be taken to your hospital room. You can expect to stay in the hospital for 1 to 3 days. During this time you’ll be closely monitored. Your IV and urinary catheter (tube to drain urine) may remain in place until shortly before you leave the hospital.

Going Home
Your surgeon will most likely clear you to go home when you are alert, your pain is under control, and you are able to eat and digest food. Have an adult family member or friend drive you home.

Follow-up Care
After endovascular repair, you’ll need follow-up tests often. Your first follow-up visit will be about 1 week after the procedure. At this time, imaging tests will be done to check the graft. In most cases, imaging tests are needed every 3 to 6 months for the first 2 years. After that, you will most likely have yearly tests. If there is a problem with the graft, further endovascular repair or open surgery may be needed to fix it.
Helping Your Body Heal

Recovery often takes a week or less. Follow these tips to help it go smoothly:

• Take your medications as directed.
• Avoid strenuous activity until your doctor says it’s okay. Gradually increase your activity level. It may take some time for you to return to normal activities.
• Don’t lift anything weighing over 5 pounds for 4 to 6 weeks after the surgery.
• Check your incision every day for signs of infection (swelling, redness, drainage, or warmth).
• Keep your incision clean. Wash it gently with soap and water while you shower.
• Don’t swim or use a hot tub until your doctor says it’s okay.
• Avoid sitting or standing for long periods without moving your legs and feet.
• When possible, keep your feet up when sitting in a chair.

When to Call Your Doctor

Call your doctor if you have any of the following:

• Swelling or bleeding at the insertion site
• Chest pain or trouble breathing
• A temperature of 100.4°F (38°C) or higher
• A change in the temperature or color of your feet or legs
• Pain in the low back or stomach area
Living a Healthier Life

Even though your AAA has been fixed, you’re still at risk of artery disease in other parts of the body. Below are some actions you can take to reduce your rupture risk and keep your arteries healthier. Ask your healthcare provider for help getting started.

Reducing Rupture Risk

High blood pressure can make your AAA grow more quickly. To reduce high blood pressure:

• **Quit smoking.** Smoking raises blood pressure and makes blood clots more likely. So get medical help and quit for good!

• **Change your diet.** An eating plan based on vegetables, fruits, whole grains, and low fat dairy products can help lower blood pressure. Cutting sodium (salt) helps, too.

• **Exercise.** Daily exercise can lower your risk of artery problems. If you’re new to exercise, start gradually and work up to 30 minutes most days of the week.

• **Maintain a healthy weight.** If you’re overweight, losing as little as 5 or 10 pounds can improve your health. Start by setting a goal you know you can reach.

• **Take medication as prescribed.** When used correctly, medications can help control blood pressure. If your doctor has prescribed medication, set up a routine so you won’t miss any doses.

If You Have Diabetes

Diabetes is a disease that raises the level of glucose (sugar) in the blood. This damages arteries and worsens artery disease. But controlling blood sugar levels can reduce the damage. Control involves exercise, watching what you eat, and monitoring blood sugar daily. Many people with diabetes must also take medication or insulin. Discuss your treatment options with your healthcare provider. You may be advised to work with a dietitian or a certified diabetes educator to help you improve your control.
Screening for AAA

You learned about your AAA in time to do something about it. But you’re not the only one who should take heed. AAA runs in families. This means that your brothers, sisters, and children could be at risk. Screening could save the life of someone you love. So urge your family members to ask their healthcare providers about screening for AAA.