

10 Things to Know About Aortic Disease & Aortic Surgery

If you've been diagnosed with aortic disease and may need surgery, this information will help you know what to expect.

1 | What is the aorta?

The aorta is the largest artery. It carries blood from the heart to the rest of the body. The aorta begins in your chest and extends into your abdomen, or belly. In the chest, it is called the **thoracic aorta**. The thoracic aorta has four main parts: the **aortic root**, the **ascending aorta**, the **aortic arch** and the **descending aorta**. The portion of the aorta in the belly is the **abdominal aorta**.

2 | What is aortic disease?

Aortic disease occurs when the aorta develops weak walls and bulges (**aortic aneurysm**) or develops a tear (**aortic dissection**).

An **aneurysm** is an enlargement that can affect any part of the aorta. Often, aortic aneurysms do not cause symptoms. They might be found by chance on an imaging exam. However, symptoms such as sudden increase in blood pressure; nausea; pain in the chest, jaw, neck or upper back; coughing, hoarseness or shortness of breath; or even difficulty swallowing can be warning signs of an aortic aneurysm. If the aneurysm becomes large enough, a person might need surgery.

An **aortic dissection** is a life-threatening emergency with symptoms similar to those above. However, some patients have older, chronic dissections that may eventually require surgery.

3 | What causes an aortic aneurysm or dissection, and how does this affect my life?

Several conditions can lead to aortic disease. One of the most common causes is uncontrolled high blood pressure. Smoking also increases the risk for aortic disease. Another cause is atherosclerosis, or plaque buildup within the wall of the aorta. Over time, this plaque stiffens the aortic walls, setting the stage for an aneurysm to develop.

Less commonly, aneurysms are caused by genetic factors. People with Marfan's, Ehlers-Danlos or Loeys-Dietz syndrome, who have a family history of aortic disease, or who were diagnosed with aortic disease before turning 30, may have a genetic cause.

Having aortic disease need not change your lifestyle much. It is important to keep your blood pressure under 140/90 mmHg. You may need to take medications to improve your blood pressure and lower the chance of an aortic disease emergency. Also, people who have a chronic aortic dissection should not lift heavy objects over 50 lbs. If your job requires heavy, manual lifting, let your cardiac surgery team know.

4 | What are the surgical treatment options for an aortic disease and what are the risks of surgery?

There are two types of surgical approaches to fix the aorta. These are **open surgery** and **endovascular surgery**, also known as **TEVAR**. Your surgeon will decide which approach is best for you based on many factors, including the extent and location of your aortic disease. With either approach, you will receive general anesthesia and be placed on your back on the operating table. A breathing tube will help you breathe, and an anesthesiologist will monitor your vital signs throughout surgery.

If you require **open surgery for thoracic aortic disease**, you will need a **sternotomy** (division of the breastbone) and be put on a **cardiopulmonary bypass** (heart-lung) machine. Your surgeon will remove the diseased portion of your aorta and repair the blood vessel with an **aortic tube graft**. This graft is made of Dacron, a synthetic material with a canvas-like texture. Your operation will be completed in about 4 hours.

Endovascular repair (TEVAR) requires an incision made in your groin. A thin tube, or **catheter**, is inserted through your arteries and to your aorta. Guided by X-ray that shows live pictures of your aorta, your surgical team will insert a stent through the catheter. The stent

is a tube made of fabric and metal wire that supports the weak part of the aorta. The procedure requires about 2 to 4 hours in the operating room.

The risks of surgery depend on your current health and the type of operation you require. A cardiac surgeon or nurse practitioner will discuss the risks of your operation with you. In general, the risks of aortic procedures are low, and the benefits outweigh the risks of leaving aortic disease untreated by surgery.

5 | If I choose not to have surgery, what options do I have?

Patients with aortic disease who do not have surgery for it are treated by keeping their blood pressure under control and taking the right medications. Doctors use periodic imaging tests to monitor the aneurysm to make sure it does not get too large. This is called **aortic surveillance**.

6 | What should I expect before surgery?

Before your operation, your cardiac surgery team will take a complete medical history and give you a physical examination. You may also need a series of tests that will help the team know more about your health. These tests often include a CT(CAT) scan, echocardiogram, carotid ultrasound, left heart catheterization or coronary CT scan, and blood work. You may need other tests as well.

Please inform your physician or nurse practitioner of all medications, both prescribed and over-the-counter, as well as any supplements that you are taking. Your care team will let you know if you should stop taking any medications before your surgery. If you use blood thinning medication, you will need to stop taking it for a time prior to surgery. If you smoke, quit smoking as soon as possible before your operation.

You should avoid eating or drinking anything after midnight the evening before surgery. The evening before and the morning of your operation, you will apply a nasal ointment and shower or bathe with a preoperative body wash. Before surgery, you will need to sign a consent form to give your surgical team permission to perform your operation. Read this form carefully, and be sure to ask questions about anything you do not understand.

7 | How long will I be in the hospital?

When your operation is over, you will be taken to the intensive care unit (ICU). You will remain in the ICU for

as long as necessary. Once you are well enough, you will be transferred to a regular nursing care unit.

Your physical therapy will begin in the hospital. You will be encouraged to get out of bed and walk around for longer periods of time. You will be allowed to walk up and down stairs. There will likely be some discomfort after your operation, but this is normal. You will be given pain medication as needed to treat this pain.

The length of your hospital stay will depend on the type of operation you have and your overall health before your operation. The usual a hospital stay is 3 to 4 days for an endovascular procedure and 5 to 7 days for an open procedure, but much will depend on your personal recovery.

When you are well enough, you will be discharged either to home or to a rehab facility. Once at home, a visiting nurse will come to your home once or twice a week to check up on you.

8 | Will I have any limitations after surgery and when will I be able to return to work?

If you are recovering from an **open aortic surgery**, you will need to take some precautions to protect your breastbone, or **sternum**. For 6 to 8 weeks, you will need to avoid lifting, pushing or pulling anything more than 20 lbs. When getting in and out of bed, or if you need to cough or sneeze, you will need to use a pillow to apply steady pressure across your chest. This will stabilize your sternum and help it heal. Until you receive clearance from your cardiac surgery team about 4 weeks after your operation, you will not be able to drive and you will need to sit in the backseat while riding in a vehicle.

If you have had **endovascular surgery**, you will not be able to drive for 2 weeks after surgery.

Also, if your surgery included a carotid subclavian bypass or required a horizontal incision in your upper chest, for 2 weeks you should not raise your arms above your head or lift anything weighing more than 10 pounds.

If you are taking narcotic pain medication, do not drive or operate heavy machinery.

You will need to practice daily hygiene to keep your surgical incisions clean. However, you should not soak or submerge your wounds in a bath. Instead, take showers and allow soap and water to flow over your incisions before patting them dry.

You will need to be cleared by your cardiac surgery team before returning to work. If you work at a desk job, you can expect to go back to work around 4 to 6 weeks. If your work involves manual labor, you can expect to go back in 6 to 8 weeks.

9 | How will I need to take care of myself once at home after surgery?

Blood Pressure and Heart Rate

You should check your blood pressure at home. Keep a daily record of your blood pressure, and bring it with you to your follow-up visit. Your blood pressure should be between 90/60 mmHg and 140/90 mmHg. Your heart rate should be 60 to 100 beats per minute (bpm). If your blood pressure or heart rate are often outside of these ranges, contact your cardiac surgery or cardiology office.

Breathing

Until your follow-up appointment or until you have fully resumed your normal activities, use your incentive spirometer (breathing machine) five times per day for 10 to 20 reps.

Medications

The medications you need to take may change after your hospital stay. Take your medication as directed. Keep a list of all of your medications, what each is for, how much to take (dosages) and how often to take them. Contact your healthcare provider if you think your medicine is not helping or if you have side effects. Do not stop medications without speaking to a healthcare professional. If you need to take a blood thinner after surgery, your heart care team will help you manage this medication.

Diet and Weight

Weigh yourself daily to check for signs of fluid retention. Call your doctor if you gain 2 or more pounds in a 24-hour period. Eat enough protein, which will help your healing. For heart health, a low-fat, low-salt diet is recommended. The American Heart Association suggests eating less than 300 mg of cholesterol and less than 2,400 mg of sodium per day. If you have less of an appetite after surgery, try supplementing meals with protein or meal replacement shakes.

Rest and Sleep

After surgery, you might tire more easily. Getting plenty of rest and sleep will help your recovery. However, discomfort and disruption in your sleep cycle may make it more difficult to sleep. You may also become more aware of your heartbeat at night. This is all normal and will improve with time. As a sleep aid, you may try melatonin supplements.

Exercise

It is important to exercise daily and gradually increase your activity. Walking is one of the best exercises. Walk at your own pace. If you get tired, stop and rest. Stop any activity if you feel short of breath, notice irregular heartbeats, feel faint or dizzy, or have chest pain. Rest until these symptoms go away.

10 | What follow-up appointments will I need after my operation?

One month after surgery, you will see your aortic surgery team for a postoperative CT scan. After they evaluate you, you may be cleared to go onto outpatient physical therapy, resume driving and return to work.

You will continue to have follow-up appointments and CT scans based on the type of surgery you had. If you had an aneurysm repair, you will usually be seen once again 6 months to a year after surgery. If you are stable at one year, you may no longer need surveillance CT scans. If you had surgery to correct an aortic dissection, you will require more frequent CT scans. You will be seen again at 3 months, and again at 6 or 9 months after surgery. If your repair is stable, you will continue to have annual follow-up appointments. It is important to follow your follow-up plan to ensure the best outcome after your procedure.

Normal Experiences After Surgery vs. Symptoms That Need Medical Attention

It's normal to:

- Not have much of an appetite or have changes in tastes
- Experience weight loss of up to 15-20 pounds
- Have difficulty sleeping at night
- Have problems with constipation
- Have mood swings
- Have a lump at the top of or under your incision site
- Have muscle pain or tightness in your chest, shoulders and upper back

Call 911 if you experience any of the following:

- New, sudden or severe headache
- Changes in eyesight
- Difficulty speaking or swallowing
- Increased weakness or pain in arms or legs
- New or sudden onset of numbness or loss of sensation in the arms or legs
- New or sudden onset of pain in your chest, back, abdomen or neck
- Shortness of breath
- Fainting

Contact your healthcare provider if you experience any of the following:

- Signs and symptoms that you had before surgery return
- Lightheadedness or dizziness
- Fever higher than 101°F (38.4°C)
- Gain of 2 or more pounds in 24 hours
- Redness, swelling or drainage from wound
- Arm or leg feels warm, tender and painful or appears swollen and red
- Heart palpitations
- Shortness of breath
- Lightheadedness or dizziness
- Depression
- You have questions or concerns about your condition or care