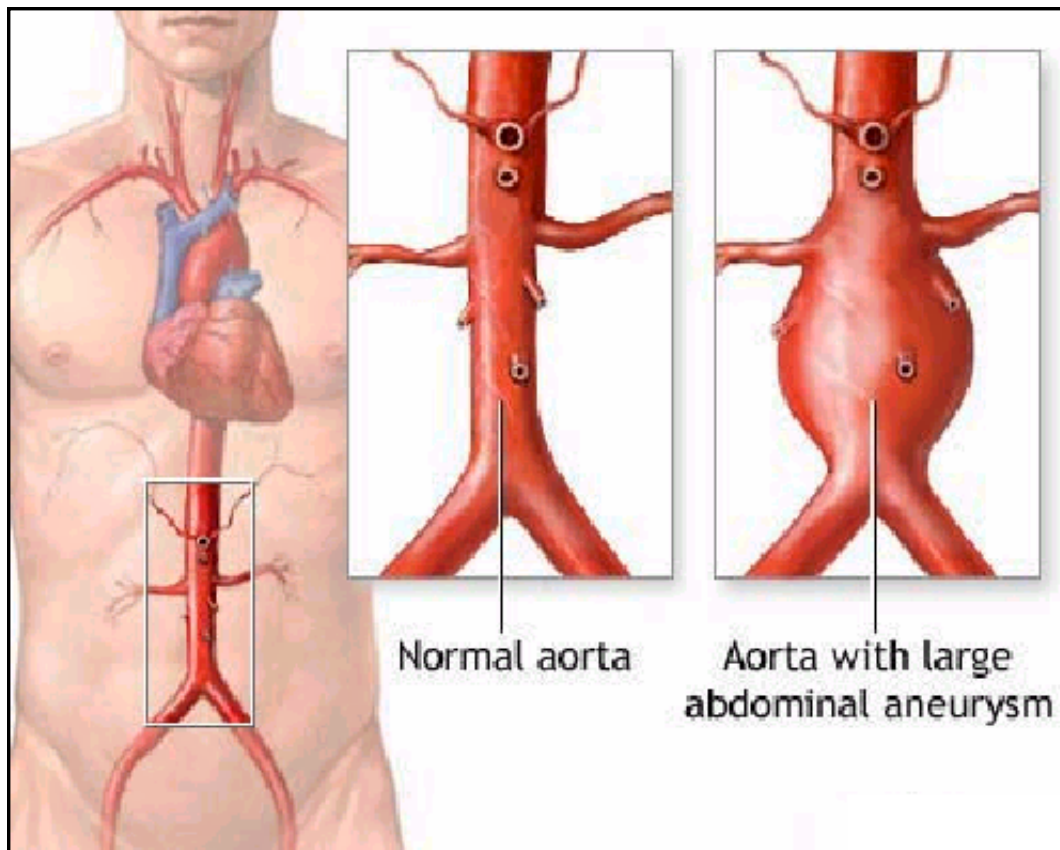


# **Aortic Aneurysms**

*A Patient's Guide to Surgery*

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## **The Aorta**

The Aorta is the largest artery in the body. It arises in the left ventricle of the heart, goes up a little ways (ascends) then arches and goes down through the chest (descends). It then goes through the abdomen where it divides into 2 common iliac arteries that go to the legs. The diaphragm divides the aorta into the thoracic (chest) and abdominal aorta. The aorta carries oxygen-rich blood from the heart to the rest of the body.

## **Aortic Aneurysms**

An aneurysm is a bulge in the wall of an artery. It usually occurs when the wall of an artery becomes weak or damaged by the build-up of fatty deposits in a process called atherosclerosis. As the atherosclerosis becomes worse, the constant pressure of blood coursing through the artery causes the wall to become damaged. The artery then enlarges and can develop a bulge called an aneurysm. This process is slow and takes decades to develop.

Aneurysms can form in any artery in your body. However, most aneurysms occur in the aorta with 75% occurring in the abdomen and the other 25% in the chest.

Rupture of an aortic aneurysm is the 13th leading cause of death in the U.S. causing over 15,000 deaths each year. When detected early, the aorta can usually be repaired with surgery.

## **Risk Factors for Aortic Aneurysms**

Abdominal aortic aneurysms occur in more than 3% of individuals over the age of 50. They are 5 times more common in men than in women. In the majority of cases, atherosclerosis and high blood pressure (hypertension) are the underlying causes of the aneurysm. Smoking is also a major risk factor because it contributes to the development of atherosclerosis.

Genetics can play a role. Approximately 25% of patients diagnosed with an aneurysm have a close relative with the same condition.

Cocaine use can also cause the development of aneurysms. Cocaine causes a rapid rise in blood pressure which may then result in a tear of the lining of an artery. A person's risk of developing an aneurysm increases with the amount of cocaine used and is not reversible.

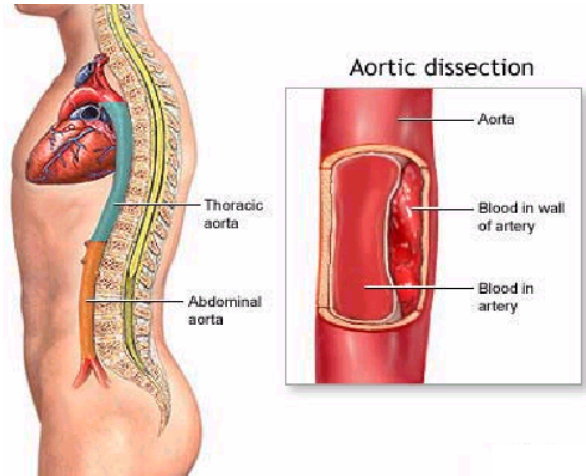
Some people are born with a weakness in an artery wall such as those with Marfan syndrome or Ehlers-Danlos syndrome. These conditions cause deterioration of the elastic fibers in the wall of the artery and cause formation of mucous-filled cysts. Most of these aortic aneurysms form in the descending thoracic aorta (chest). Other causes of thoracic aneurysms are due to advanced syphilis, aortic infections or inflammations, and traumatic injury to the chest—such as when the chest hits the steering wheel in an auto accident. Sometimes the cause is unknown or unclear.

Most aortic aneurysms are found incidentally during routine medical testing or a physical exam. There are usually no symptoms. When an artery is more than 1.5 times its normal size, it is classified as an aneurysm. Aneurysms less than 5 cm wide in the abdomen and 6 cm in the chest

have a low risk of rupture. Surgical repair is recommended for aneurysms over these measurements.

### **Aortic Dissections**

The wall of an artery consists of 3 layers: an inner layer called the intima, a middle layer called the media, and an outer layer called the adventitia. If a tear occurs in the inner lining of an artery, it is called a dissection. This tear creates a space between the inner and outer layers. If blood leaks into that space it can cause a variety of severe conditions including a heart attack or stroke.



There are 2 types of aortic dissections: acute and subacute. Acute dissections involve sudden, severe symptoms and may require emergency surgery. Subacute aortic dissections involve more gradual and less severe symptoms and may be treated with high blood pressure medications called antihypertensives. Beta blockers are commonly used because they slow the heart rate and reduce the force of heart muscle contraction which then reduces the workload of the heart.

A dissecting aortic aneurysm occurs when an aortic dissection is also accompanied by an aneurysm. Type A dissections occur in the ascending aorta. Type B dissections occur in the descending aorta. Type A dissections are considered more dangerous.

### **Treatment for Aortic Aneurysms**

Surgery may be necessary if an abdominal aortic aneurysm is larger than 5 cm, a chest aneurysm is larger than 6 cm, or the aneurysm is growing rapidly. Traditional surgery requires the abdomen (or chest if the aneurysm is thoracic) to be opened. The damaged section of aorta is replaced with a synthetic tube graft. The flow of blood through the aorta is stopped while the graft is sewn into place. Open surgical repair is performed under general anesthesia and requires 1-2 days in the ICU and another 5-7 days in the hospital.

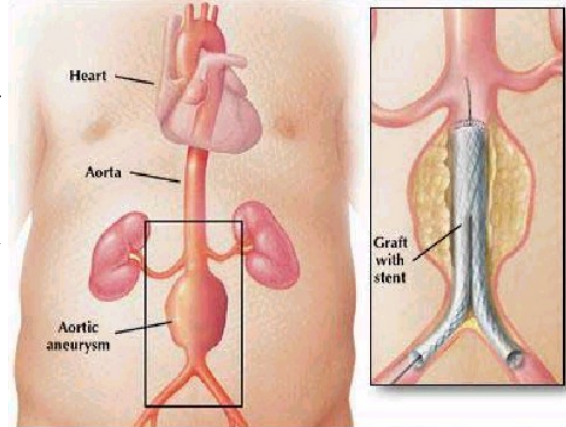
### **Aortic Stents**

Stent grafts may be used as an alternative to traditional surgery. In this procedure, the physician makes a small incision in both groins, then inserts a catheter to place the graft at the site of the aneurysm. A second graft is placed below the aneurysm or in the opposite iliac artery. Once the grafts are in place, they self-inflate and are anchored in place with small metal prongs. The placement of the grafts is designed to seal off the aneurysm and reline the wall of the aorta. The procedure is less traumatic to the blood vessel, permits people to recover more quickly, and requires a shorter hospital stay. Stent grafts are used more frequently than the open procedure. However, complications can occur after surgery including blood leaking from the aorta into the aneurysm (endoleak), continued growth or rupture of the aneurysm, and occlusion of the artery to one or both legs.

## Follow-up for Stent Graft Placement

Follow-up exams will be required at 1 month after surgery, and yearly thereafter. These exams include CT scans, blood tests, ultrasound or MRI scans as well as physical exams. The CT scan will require the use of contrast dye. Notify the physician of any allergies or severe reactions you may have to contrast dye.

## Recovery from Surgery



*It is normal to experience the following; all of these will resolve with time:*

Pain. The intensity and frequency will differ from day to day. You may also have pain not only at the incision site, but anywhere in the abdomen (or chest if you had a thoracic aneurysm). Medications range from Tylenol and ibuprofen (Advil, Motrin) to prescriptive narcotics. These medications may not totally relieve the pain but can make the pain tolerable.

Constipation and/or diarrhea. This is caused by the manipulation of the bowels during surgery and from pain medications. Eat high fiber foods and take a stool softener or bulk laxative daily.

Difficulty sleeping. This may be caused by pain. Take the pain pills at bedtime to help you relax.

Low grade fevers. These can be caused by the healing process and not taking deep breaths. Take 10 deep breaths at least 4 times a day.

Some swelling and redness along the incision.

Incisions take approximately 6 weeks to heal. Do not go into a swimming pool, hot tub or take a tub bath until the incisions have completely healed. Do not lift, push or pull on anything that puts pressure on your incision.

## Call the Doctor for the Following:

- Extreme redness, puffiness or drainage from or around the incision.
- Temperature above 102° F.
- Severe abdominal pain.

## Other Considerations

Remember that your body is unique. No one can predict how your body will respond to treatment or how quickly it will heal after surgery.