



Diseases and Conditions

Aortic dissection

By Mayo Clinic Staff

An aortic dissection is a serious condition in which the inner layer of the aorta, the large blood vessel branching off the heart, tears. Blood surges through the tear, causing the inner and middle layers of the aorta to separate (dissect). If the blood-filled channel ruptures through the outside aortic wall, aortic dissection is often fatal.

Aortic dissection is relatively uncommon. The condition most frequently occurs in men in their 60s and 70s. Symptoms of aortic dissection may mimic those of other diseases, often leading to delays in diagnosis. However, when an aortic dissection is detected early and treated promptly, the chance of survival greatly improves.

Aortic dissection symptoms may be similar to those of other heart problems, such as a heart attack. Typical signs and symptoms include:

- Sudden severe chest or upper back pain, often described as a tearing, ripping or shearing sensation, that radiates to the neck or down the back
- Loss of consciousness
- Shortness of breath
- Sudden difficulty speaking, loss of vision, weakness or paralysis of one side of your body, similar to those of a stroke
- Weak pulse in one arm compared with the other

When to see a doctor

If you have signs or symptoms such as severe chest pain, fainting, sudden onset of shortness of breath or symptoms of a stroke, call 911 or emergency medical assistance. These signs and symptoms don't always indicate a serious problem, but it's best to get checked quickly. Early detection and treatment may help save your life.

An aortic dissection occurs in a weakened area of the aortic wall. Chronic high blood pressure may stress the aortic tissue, making it more susceptible to tearing. You can also be born with a condition associated with a weakened and enlarged aorta, such as Marfan syndrome, bicuspid aortic valve or other rarer conditions associated with weakening of the walls of the blood vessels.

Rarely, aortic dissections are caused by traumatic injury to the chest area, such as during motor vehicle accidents.

Aortic dissections are divided into two groups, depending on which part of the aorta is affected:

- **Type A.** This more common and dangerous type involves a tear in the part of the aorta where it exits the heart or a tear in the upper aorta (ascending aorta), which may extend into the abdomen.
- **Type B.** This involves a tear in the lower aorta only (descending aorta), which may also extend into the abdomen.

Risk factors for aortic dissection include:

- Uncontrolled high blood pressure (hypertension)
- Hardening of the arteries (atherosclerosis)
- Weakened and bulging artery (pre-existing aortic aneurysm)
- An aortic valve defect (bicuspid aortic valve)
- A narrowing of the aorta at birth (aortic coarctation)

Certain genetic diseases increase the risk of having an aortic dissection, including:

- **Turner's syndrome.** High blood pressure, heart problems and a number of other health conditions may result from this disorder.
- **Marfan syndrome.** This is a condition in which connective tissue, which supports various structures in the body, is weak. People with this disorder often have a family history of aneurysms of the aorta and other blood vessels.
- **Other connective tissue disorders.** This includes Ehlers-Danlos syndrome, a group of connective tissue disorders characterized by skin that bruises or tears easily, loose joints and fragile blood vessels and Loeys-Dietz syndrome, with twisted arteries, especially in the neck.
- **Inflammatory or infectious conditions.** These may include giant cell arteritis, which is an inflammation of the arteries, and syphilis, a sexually transmitted infection.

Other potential risk factors include:

- **Sex.** Men have about double the incidence of aortic dissection.
- **Age.** The incidence of aortic dissection peaks in the 60s and 80s.
- **Cocaine use.** This drug may be a risk factor for aortic dissection because it temporarily raises blood pressure.
- **Pregnancy.** Infrequently, aortic dissections occur in otherwise healthy women during pregnancy.
- **High-intensity weightlifting.** This and other strenuous resistance training may increase risk of aortic dissection by increasing blood pressure during the activity.

An aortic dissection can lead to:

- Death due to severe internal bleeding
- Organ damage, such as kidney failure or life-threatening intestinal damage
- Stroke
- Aortic valve damage (aortic regurgitation) or rupture into the lining around the heart (cardiac tamponade)

Detecting an aortic dissection can be tricky because the symptoms are similar to those of a variety of health problems. Doctors often suspect an aortic dissection if the following signs and symptoms are present:

- Sudden tearing or ripping chest pain
- Widening of the aorta on chest X-ray
- Blood pressure difference between right and left arms

Although these signs and symptoms suggest aortic dissection, more-sensitive imaging techniques are usually needed. Frequently used imaging procedures include:

- **Transesophageal echocardiogram (TEE).** This test uses high-pitched sound waves to produce an image of the heart. A TEE is a special type of echocardiogram in which an ultrasound probe is inserted through the esophagus. The ultrasound probe is placed close to the heart and the aorta, providing a clearer picture of your heart than would a regular echocardiogram.
- **Computerized tomography (CT) scan.** CT scanning generates X-rays to produce cross-sectional images of the body. A CT of the chest is used to diagnose an aortic dissection, possibly with an injected contrast liquid. Contrast makes the heart, aorta and other blood vessels more visible on the CT pictures.
- **Magnetic resonance angiogram (MRA).** An MRI uses a magnetic field and pulses of radio wave energy to make pictures of the body. An MRA uses this technique to look at blood vessels.

An aortic dissection is a medical emergency requiring immediate treatment. Therapy may include surgery or medications, depending on the area of the aorta involved.

Type A aortic dissection

Treatment for type A aortic dissection may include:

- **Surgery.** Surgeons remove as much of the dissected aorta as possible, block the entry of blood into the aortic wall and reconstruct the aorta with a synthetic tube called a graft. If the aortic valve leaks as a result of the damaged aorta, it may be replaced at the same time. The new valve is placed within the graft used to reconstruct the aorta.
- **Medications.** Some medications, such as beta blockers and nitroprusside (Nitropress), reduce heart rate and lower blood pressure, which can prevent the aortic dissection from worsening. They may be given to people with type A aortic dissection to stabilize blood pressure before surgery.

Type B aortic dissection

Treatment of type B aortic dissection may include:

- **Surgery.** The procedure is similar to that used to correct a type A aortic dissection. Sometimes stents — small wire mesh tubes that act as a sort of scaffolding — may be placed in the aorta to repair complicated type B aortic dissections.
- **Medications.** The same medications that are used to treat type A aortic dissection may be used without surgery to treat type B aortic dissections.

After treatment, you may need to take blood pressure lowering medication for life. In addition, you may need follow-up CTs or MRIs periodically to monitor your condition.

Here are a few tips to reduce your risk of an aortic dissection:

- **Control blood pressure.** If you have high blood pressure, get a home blood pressure measuring device to help you monitor your blood pressure.
- **Don't smoke.** If you do smoke, take steps to stop.
- **Maintain an ideal weight.** Follow a low-salt diet with plenty of fruits, vegetables and whole grains and exercise regularly.
- **Wear a seat belt.** This reduces the risk of traumatic injury to your chest area.
- **Work with your doctor.** If you have a family history of aortic dissection, a connective tissue disorder or a bicuspid aortic valve, tell your doctor. If you have an aortic aneurysm, find out how often you need monitoring and if surgery is necessary to repair your aneurysm.

If you have a genetic condition that increases your risk of aortic dissection, your doctor may recommend medications, even if your blood pressure is normal.

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Oct. 28, 2014

Original article: <http://www.mayoclinic.org/diseases-conditions/aortic-dissection/basics/definition/con-20032930>

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