

ALDERFER & TRAVIS CARDIOLOGY, PC
670 Lawn Ave., Suite 3A Sellersville, PA 18960
Tel (215)257-9500 FAX (215) 257-9500

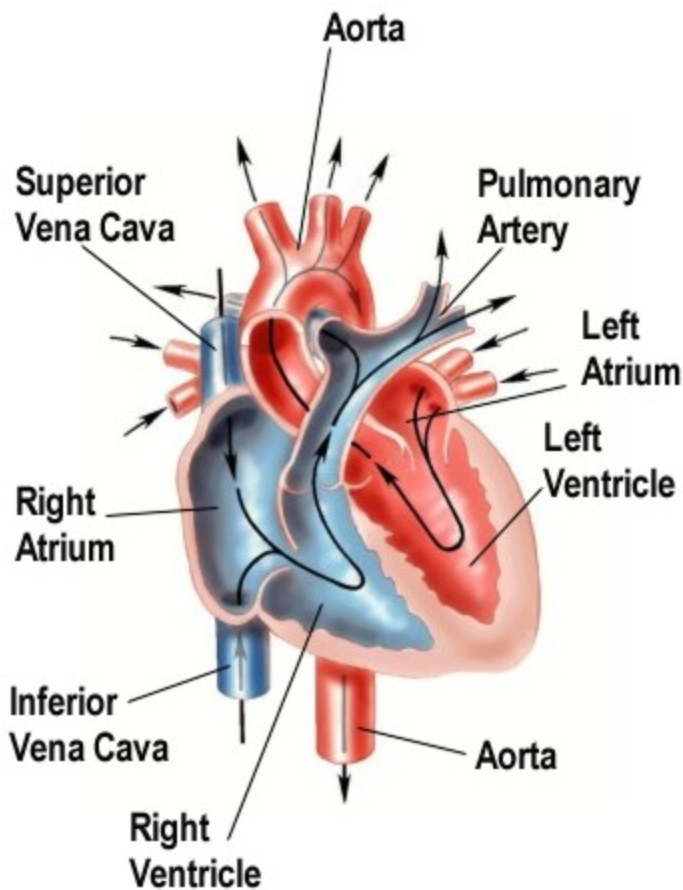
Aortic Dissection

What is a dissection?

A dissection is a split, or tearing of the wall of a blood vessel, allowing bleeding into and along the wall of the vessel.

What is the aorta?

The aorta is the main blood vessel of the body (see illustration below). It originates from the heart. Blood vessels that supply the rest of the body including the coronary arteries, the head and arms branch off of the aorta. The aorta descends down through the chest. In the abdomen, the aorta gives off branches that feed the abdominal organs and intestines. It then it divides into the iliac arteries, which carry blood to the legs. The aorta is approximately 1.5 inches in diameter.



The aorta consists of several layers. The inner layer is called the intima. This is a thin layer of flat cells that coat the inside of the vessel. The middle layer is called the media. This is composed of smooth muscle cells that give strength to the artery. The outer layer, called the adventitia, is also thin and contains small blood vessels and nerve fibers.

What is an aortic dissection?

An aortic dissection is a split that occurs between the intima and the media. The intima is also split, and the blood stream can enter the channel created by this split and extend it for some distance. The split most often forms in the segment of the aorta nearest the heart. The split may extend throughout the entire length of the aorta. The dissection plane may re-enter the normal channel and lead to no significant problems. Usually, however, aortic dissection leads to significant disruption of the aorta and often death results. The extension of the dissection back to the aortic valve can cause leakage of the aortic valve, disruption of the flow of the coronary arteries, or rupture into the pericardium, the sac that contains the heart. Extension of the dissection into the neck blood vessels can lead to stroke. Extension of the dissection into the abdominal blood vessels can

interrupt the blood supply to the kidneys, intestine or liver.

What causes aortic dissection?

Most people who suffer aortic dissection suffer from a disease known as cystic medial necrosis. In this condition the tissue "glue" that binds the layers of the aorta together is weak and the tensile strength of the aorta is compromised. There are a number of hereditary conditions in which aortic dissection is common. These include Marfan's syndrome, Turner's syndrome, Noonan's disease, and Ehlers-Danlos syndrome. Another population at risk for aortic dissection is people with significant high blood pressure (hypertension). Elevated blood pressure may lead to dilatation of the aorta and ultimately to dissection.

What are the symptoms of aortic dissection?

Severe pain is the usual presenting complaint in patients with aortic dissection. The pain is often described as a "ripping" or "tearing" pain usually located in the mid upper back. There may be some pain in the chest as well. Heart attack is often suspected. One of the distinguishing features in contrast to a heart attack is that the pain is generally much more severe and usually radiates to the back. Weakness, sweating, nausea, rapid pulse, shortness of breath and a sense of impending doom may accompany the pain. The blood pressure is often elevated.

How is aortic dissection diagnosed?

The diagnosis is made by taking pictures of the dissection. There are several methods which may be used. The diagnosis requires that pictures be taken of the dissection itself. The diagnosis may be suspected on a chest x-ray if the aorta looks dilated. A cardiac ultrasound (echocardiogram) can sometimes image a dissection involving the first part of the aorta and is excellent at assessing the aortic valve and pericardium. An echocardiogram performed through the esophagus (transesophageal echocardiogram or TEE) is an excellent tool to look at the first part of the aorta and the aorta descending towards the diaphragm. A CT scan of the chest is a very useful method to make the diagnosis as is a magnetic resonance image (MRI) of the chest.

How is aortic dissection treated?

Aortic dissection may be life-threatening. If left untreated, there is a very high early mortality rate. Even with prompt and appropriate treatment, death is common. A prompt call to the medics is critical.

Once the diagnosis is made, treatment depends upon the location of the dissection and what branch blood vessels have been affected. If the first part of the aorta is affected, emergency heart surgery is usually performed to replace that segment of aorta. At times the aortic valve may also need to be replaced. At times, more extensive surgery will be required to replace additional segments

of the aorta if critical blood vessels are compromised. As the complexity of the surgery increases, so does the mortality rate and risk of complications. Some of the inherited diseases of the aorta lead to such weak tissues that surgery may not be possible.

When the dissection involves the descending aorta and when critical branch blood vessels are not affected, the treatment is medical, not surgical. Drugs to lower blood pressure, pain medication and beta-blockers (drugs that cause relaxation of the blood vessels) may be used. The key to treatment is excellent blood pressure control, which reduces the forces acting on the wall of the aorta. In the long term, there may be additional episodes of dissection or extension of the dissection and the development of aneurysms which may require surgical correction.