The Medical Minute: What is an abdominal aortic aneurysm?

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There are approximately 200,000 people each year found to have an abdominal aortic aneurysm and about 32,000 are repaired electively each year.

The aorta is the largest artery in the body. It originates from the heart where it is called the ascending aorta, courses through the chest as the descending aorta, and then through the abdomen as the abdominal aorta. In the abdomen it supplies blood to its organs and then supplies blood to both lower extremities. The portion of the abdominal aorta below the kidney (renal) arteries is called the infrarenal abdominal aorta.

An aneurysm is the most common vascular disease that causes disability and death. An aneurysm develops when the wall of an artery develops a weakness. They come in various shapes, sizes, and locations. The most common location of an aneurysm is the infrarenal abdominal aorta. The pressure from the blood flowing through the aorta can cause the weakened area to bulge. The normal size of the infrarenal abdominal aorta is approximately 2 centimeters. As this expands, it can stretch past the safety margin of the aorta. If this occurs, it can rupture or burst. This can cause severe internal bleeding, which may result in shock and death. The mortality rate for a ruptured abdominal aortic aneurysm approaches 80 percent and as high as 40 to 70 percent in those who arrive to the hospital alive.

Another risk from an abdominal aortic aneurysm is embolization to the lower extremities. Embolization occurs when pieces of clot or debris

travel out of the aneurysm sac down the arteries of the lower extremities. This can cause severe pain in the lower extremities and even loss of limb.

If found prior to rupture, abdominal aortic aneurysms can be treated with highly effective and safe methods.

What are the symptoms of abdominal aortic aneurysms?

A patient with an abdominal aortic aneurysm may not feel any symptoms. If symptoms do develop, the patient may experience:

-- A pulsatile mass in the upper or mid abdomen with a beat similar to a heartbeat.

-- Severe, sudden pain in the abdomen or lower back, which may come on acutely. This may be a warning sign of impending rupture.

-- The patient may develop discoloration, pain, or sores (ulcerations) on the feet or toes due to debris from the aneurysm sac.

If the aneurysm does rupture, you may experience sudden onset of pain, dizziness, severe weakness, and may eventually lose consciousness. This is a life threatening occurrence and medical attention should be immediately sought.

What are the causes of abdominal aortic aneurysms?

The leading cause of aneurysm formation may be the development of inflammation in the wall of the aorta. This may cause the wall to become weak and eventually break down. This inflammation can be caused by

atherosclerosis (hardening of the arteries) or risk factors that contribute to it such as high blood pressure (hypertension) and smoking. Atherosclerosis causes fatty deposits to build up in the artery wall (called plaque). This plaque buildup over time can cause the artery to narrow, become stiff, and even weaken. Other factors that can increase the risk of an abdominal aortic aneurysm include:

-- Being a male over 60 years of age

-- Having high blood pressure

-- Smoking

-- Having an immediate relative who has had an abdominal aortic aneurysm

Abdominal aortic aneurysm is more common in males than females and the risk of developing one increases with age.
How do you diagnose an abdominal aortic aneurysm?

Abdominal aortic aneurysms not causing symptoms are most often found on imaging tests for another condition. It may be felt on routine physical exam as a pulsatile mass in the abdomen. If an aneurysm is suspected, then one of the following tests may be ordered to confirm the diagnosis:

-- Abdominal ultrasound

-- CT scan

-- MRI

How is an infrarenal abdominal aortic aneurysm

treated?

Observation: If the aneurysm is small, then physicians will monitor you every six to 12 months with either CT or ultrasound. Other risks factors should be addressed during this follow-up period, particularly because of the possibility of enlargement.

Open surgical repair: If the aneurysm is larger than 5.0 to 5.5cm or is enlarging, open surgical repair may be recommended. This is done with an abdominal incision and replacement of the aneurysmal portion of the aorta with an artificial (prosthetic) graft. The blood now flows through the graft. You may be in the hospital four to seven days after surgery and need to allow six weeks to three months for a complete recovery. This has a 90-percent success rate for long term.

Endovascluar stent graft: This may be done instead of open repair. In the endovascular procedure, the aneurysm is repaired from the inside of the artery using catheters threaded in from the groin. Groin incisions may or may not be needed. X-ray imaging and contrast injections are used in the placement of the endograft. Recovery times are usually shorter and the hospital stay is reduced to one to three days. This method does require more frequent follow-up visits with imaging procedures. Not all aneurysms are suitable to this treatment approach due to its shape or its proximity to the renal arteries.

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