# Aneurysms:
# Awareness, Symptoms, and Treatments

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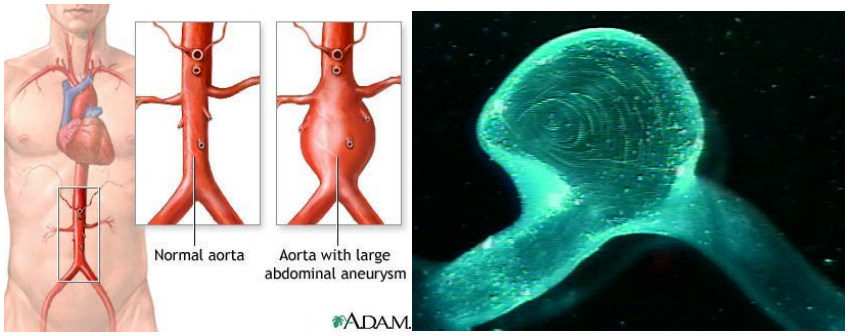



## What is an aneurysm?

An aneurism is the bulging of a blood vessel. They are caused by a weakening of the wall of the blood vessel. Aneurisms can occur anywhere in the body where there is a blood vessel. The larger an aneurysm becomes, the more likely it is that it going to burst and the victim will then bleed internally. (3)

## Are there Different Types of Aneurysms?

Aneurysms can happen anywhere there is a blood vessel. Most occur in arteries at the base of the brain and in the abdominal aorta, the main artery leading from the heart. Aneurysms can be described as two different shapes. There are saccular aneurysms that resemble a small sack, and fusiform aneurysms that resemble spindles.

Aneurysms can also be described as either true or false. True aneurysms involve all three layers of the blood vessel, the intima, media, and adventitia layers. False aneurysms only involve the outermost layer, the adventitia layer. (3)

## What Causes an Aneurysm to Form?

A weakening of the wall of the blood vessel causes the bulge to form. Atherosclerosis, hardening of the arteries, and trauma can play a large role in causing the weakening. More uncommon, bacteria and fungal infections can also weaken the arterial wall to the point of aneurysm formation. (4)

**Abdominal Aortic Aneurysm Size and Rupture Risk***

| AAA Diameter (cm) | Rupture Risk (%/yr) |
|---|---|
| < 4 | 0 |
| 4–4.9 | 1% |
| 5–5.9* | 5–10% |
| 6–6.9 | 10–20% |
| 7–7.9 | 20–40% |
| > 8 | 30–50% |

*Elective surgical repair should be considered for aneurysms > 5.0–5.5 cm.

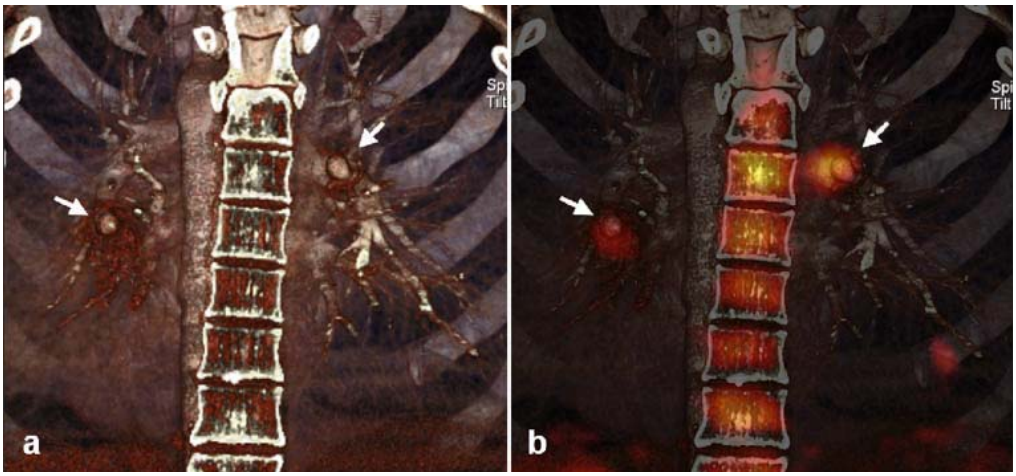
## Who is at risk for aneurysms?

Those who smoke have the greatest risk. People with hypertension and those at an older age are also at higher risk. The peak occurrence of aneurysms happens between the ages of 70 and 80. 5 to 10 % of mean between 65 and 79 have an abdominal aneurysm. Caucasian males with a family history are also at a higher risk. (1)

## What are the symptoms of aneurysms?

Most aneurysms are asymptomatic. Patients may feel a steady, deep pain as the artery expands. Patients might also feel a prominent pulsing in there abdomen. If a patient does not immediately die from a ruptured aneurysm, they may experience severe pain in their extremities and general fever and malaise. A majority of the time, aneurysm

will grow without any symptoms. Many aneurysms are detected through physical examination, ultrasonography, CT, and MRI, however. PET/CT equipment has also been used to detect inflammation of pulmonary artery aneurysms. (5) What was first believed to be vasculitis was actually two aneurysms that were the result of Behcet disease. Regular monitoring of aneurysms with ultrasound has been proven to help decrease the risk of rupture by catching the aneurysm before it becomes too large. This approach has been proven to be cost effective in men, but is not yet proven to be cost effective in women.




White arrows show the location of pulmonary artery aneurysms.

## How do you treat aneurysms?

Without surgery, the mortality rate of a ruptured aneurysm approaches 100%. But even with treatment, mortality is around 50%. This is due to the fact that patients that have aneurysms will usually also have other cardiovascular problems. (4)

The surgical procedure to treat aortic aneurysms involves replacing the portion of the aorta with the aneurysm with a synthetic graft. A graft is a type of tube, more recently

a metallic tube that can be inserted through the arteries of the leg. Continues and frequent check-ups are required to detect any problems that could arise from the graft.

In a recent study, 12% of patients who received treatment for thoracic aneurysms received secondary intervention. The need for the intervention is a good indicator of the long term success of the repair of the aneurysm. The 2-year survival rate for the patients who received secondary intervention was 58%. The 2-year survival rate for patients who did not receive secondary intervention was 85%. (2)

# References


(1) Cosford PA LG. Screening for abdominal aortic aneurysm (Review). The Cochrane Library 2007(2).

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(3) The American Heritage Stedman's Medical Dictionary Web Site. Available at http://www.kmle.com/search.php?Search=aneurysm&FuzzyTrack=aneuryism&IsFuzzy=YES. Accessed April 17, 2007

(4) The Merck Manual Online Medical Library Web Site. Available at: http://www.merck.com/mmpe/sec07/ch079/ch079b.html#sec07-ch079-ch079b-1546. Accessed April 17, 2007

(5) Timm Denecke OS, Holger Amthauer, Enrique Lopez Hanninen. PET/CT visualises inflammatory activity of pulmonary artery aneurysms in Behcet disease. European Journal of Nuclear Medical and Molecular Imaging 2007.