Brain Aneurysm

Alternate name: Cerebral Aneurysm

DEFINITION

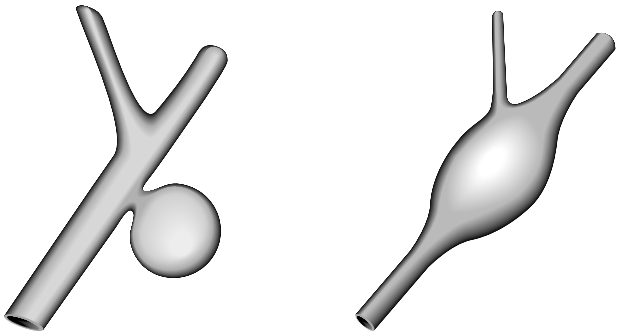
The term **Brain aneurysm** (also called a cerebral aneurysm) refers to a condition where a weakness in the wall of a blood vessel (artery) in the brain causes the vessel to balloon outwards. This ballooning leads to a stretching and thinning of the artery wall over time. Aneurysms may form in different parts of the body but a brain aneurysm is located inside the head, in an artery that supplies the brain with blood.

DESCRIPTION

The aneurysm can look like:

1) a single bulge on one side of the blood vessel (called a saccular or berry aneurysm)
2) or like a bulge in the middle of the blood vessel (called a fusiform aneurysm).

saccular aneurysm **fusiform aneurysm**



DANGER ASSOCIATED WITH A BRAIN ANEURYSM

The danger associated with an aneurysm is related to the thin wall of the bulging, or ballooning vessel. Under pressure from the blood flowing in the artery, a brain aneurysm can leak or burst (rupture). If this occurs blood will go into the space (subarachnoid space) around the brain. This type of bleeding is called a subarachnoid hemorrhage (SAH) and is considered a medical emergency. For additional information on subarachnoid hemorrhages see the patient guide, *Subarachnoid Hemorrhage*.

Brain aneurysms can occur anywhere in the brain but most often are found where blood vessels branch apart, or where the blood flows at a higher pressure.

WHO GETS ANEURYSMS?

- It is estimated that 3 to 5 percent of the adult population have a brain aneurysm.
- Although aneurysms can occur at any age, they happen most often in people 35-60 years of age.
- Aneurysms occur slightly more often in women than in men.

SYMPTOMS

A brain aneurysm that has not leaked or ruptured usually **will not** cause any symptoms. Brain aneurysms may develop silently, without any warning.

Rarely, very large aneurysms may cause symptoms such as:

- Headaches
- Double vision or loss of vision
- Pain above or behind an eye
- Droopy eyelid
- Bigger eye pupil
- Loss of feeling (numbness) of the face
- Seizures

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CAUSES

Brain aneurysms can develop for a variety of reasons. Some risk factors that have been linked to developing an aneurysm include:

- Family history of brain aneurysms
- Smoking
- Hypertension
- Atherosclerosis (hardening of the arteries)
- Excessive use of alcohol
- Use of cocaine
- Head injury
- Some inherited genetic disorders (e.g. Marfan's syndrome, polycystic kidney disorder)
- Infections of the heart or brain

However, brain aneurysms can occur in people without any risk factors.

DIAGNOSTIC TESTS

CT scan, Magnetic Resonance Imaging (MRI), and cerebral angiogram are the main diagnostic tests to find out if you have an aneurysm.

TREATMENT

The treatment for a brain aneurysm may vary and depends on the size and location of the aneurysm.

- If the aneurysm is small, or in an area of the brain where it is not likely to rupture, then your doctor may recommend observation. This means that you would have an MRI or cerebral angiogram from time to time to make sure the aneurysm is not getting any bigger.

- In cases where the aneurysm is felt to be more at a risk of rupturing, then your doctor may recommend either a **surgical clipping** or an **endovascular coiling** for your aneurysm.

Surgical clipping involves an operation to reach the aneurysm through an opening in the skull (*called a craniotomy*). A small metal clip is placed at the base of the aneurysm, so that the aneurysm is closed off from the rest of the blood vessel. The surgery for the clipping of an aneurysm is explained in more detail in the patient guide, *Aneurysm Clipping*.

Endovascular coiling involves placing soft spirals made out of platinum inside the aneurysm. During an angiogram, a tube (catheter) is inserted into an artery in the groin and carefully advanced into the brain. Using this catheter, the radiologist will fill the aneurysm with platinum coils. The procedure for endovascular coiling is explained in more detail in the patient guide, *Endovascular Treatment of Cerebral Aneurysm With Platinum Coils* (GDC).

The result of a successful surgical clipping or endovascular coiling is that blood flows normally through the artery, but no longer enters the aneurysm itself. With no blood flowing into the aneurysm it is no longer at risk of leaking or rupturing.

WHAT YOU CAN DO

Whether your treatment involves observation, or you are waiting for coiling or clipping, there are a few things that **you should do** to lower your risk of an aneurysm rupture.

- Stop smoking
- Control your blood pressure
- Avoid any medications and natural or herbal products that "thin" the blood (we could make a separate list for these)

Signs of an aneurysm rupture

Sudden onset of a severe headache (often reported as the worse headache of the person's life) with either:

- Nausea and/or vomiting
- Drowsiness or confusion
- Loss of consciousness
- Seizure
- Difficulties to speak
- Weakness or paralysis of your arms or legs

The rupture of an aneurysm is considered a medical emergency. If you experience any of the above signs you **must** seek immediate medical assistance.