

Treatment of Cerebral Aneurysms by Embolization

What is a cerebral aneurysm?

A cerebral aneurysm is a bulge (dilation) in the wall of an artery in the brain (Figure 1). The vessel wall is weaker at this point and may tear, an event known as an aneurysm rupture. Rupture is rare, and the risk varies with the location of the aneurysm. It also increases with the size of the aneurysm and is higher in people who smoke or who have high blood pressure. When an aneurysm ruptures, it is often serious: nearly half of the patients affected do not survive, and about half of the survivors are left with a disabling impairment.

Should all cerebral aneurysms be treated?

An aneurysm that has caused bleeding must be treated urgently to prevent further bleeding that could damage the brain. However, treatment is not always necessary for an aneurysm that has never bled, which is usually discovered incidentally on a brain imaging test performed for another reason. If treatment is recommended, it is generally not an emergency. If follow-up is advised, it is done with MRI or CT angiography.

What does minimally invasive endovascular treatment involve?

One way to treat an aneurysm is to block it off from inside the arteries. Under general anesthesia, a small tube called a microcatheter is inserted through the femoral artery in the groin and guided up to the brain, to the artery where the aneurysm is located (Figure 2). Various devices can be deployed through this catheter, either alone or in combination, to occlude the aneurysm or reconstruct the artery (Figure 3):

- Coils (implants made of a very flexible metal wire) or plugs (small cages made of fine metal mesh) are used to block the aneurysm.
- Stents with a wide mesh (metal implants that resemble small springs) may be used in addition, to reinforce the artery.
- Tight-mesh stents (called flow diverters) are implanted in the artery, where they gradually cause the aneurysm to close off (thrombosis).

Another possible treatment is surgical clipping. If it is indicated, a consultation with a vascular neurosurgeon will be offered.

What are the possible complications?

Regardless of the type of procedure, rare but potentially serious complications can occur. They are, however, less frequent than the risk of rupture if the aneurysm is left untreated. A brain artery may become blocked (ischemic stroke), and in rare cases the aneurysm may rupture (hemorrhagic stroke with bleeding). These complications can cause temporary or permanent disability (such as paralysis of part of the body, speech difficulties, or vision problems) and, very rarely, may be fatal. Minor or temporary complications may also occur, such as a hematoma at the catheter insertion site or a urinary tract infection if a urinary catheter was placed during the procedure. Finally, after treatment, especially in patients with a ruptured aneurysm or uncontrolled high blood pressure, the aneurysm may sometimes come back and, in rare cases, require a second procedure.

What should I do if I have an unruptured cerebral aneurysm?

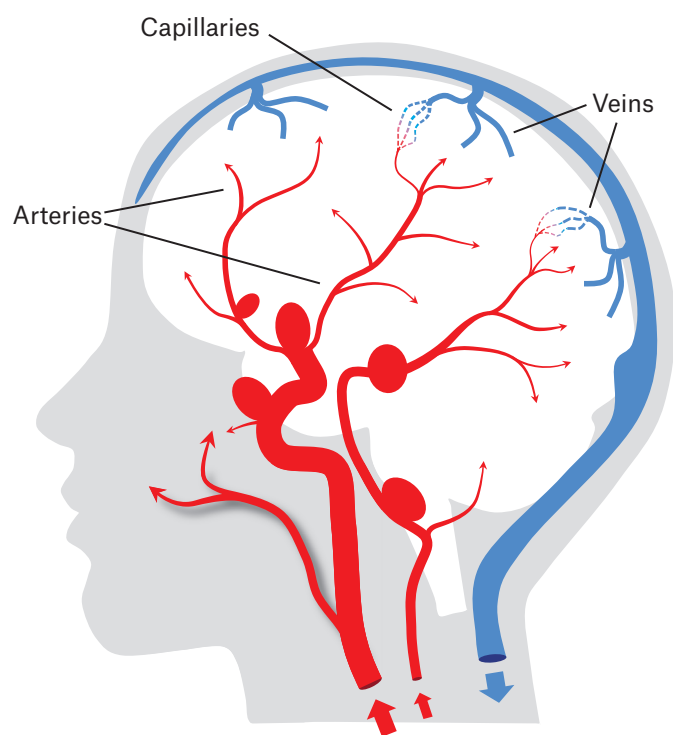
According to current knowledge, everyday activities such as playing sports, sexual activity, and air travel do not increase the risk of aneurysm rupture and are not contraindicated. Cerebrovascular risk factors should be identified and managed. Smokers are therefore advised to quit, and high blood pressure should be treated.

In rare cases, cerebral aneurysms can run in families. Screening is offered to family members (parents, siblings, children) when indicated.

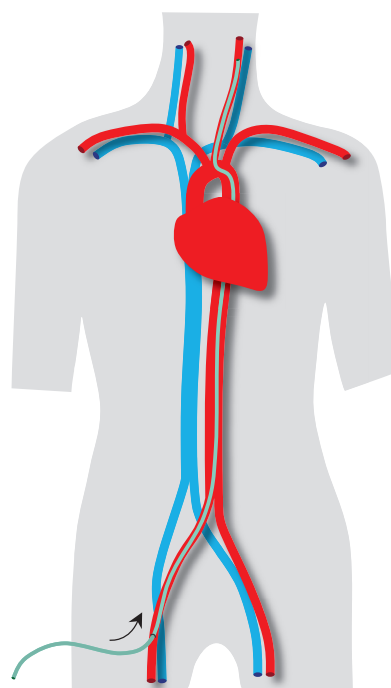
Is endovascular treatment covered by health insurance?

Yes, this treatment is covered by basic health insurance (LAMal).

Treatment of Cerebral Aneurysms

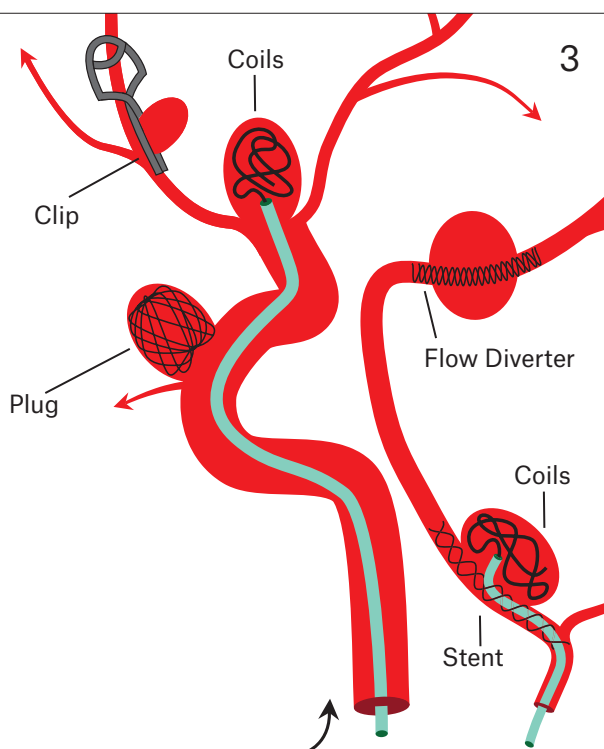


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2

Insertion of a microcatheter by puncture of the femoral artery in the groin



3

4

Embolization by deploying devices in the artery (stents) and/or in the aneurysm (coils or plugs) through a microcatheter; surgical treatment by clipping the aneurysm



Immediate or delayed occlusion of the aneurysm

Contact Information

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