



# Advancement in Brain Aneurysm Treatment Methods: Surgical Clipping and Endovascular Coiling

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## DESCRIPTION

Brain aneurysms are weak or thin spots on an artery in the brain that balloon out and fill with blood. They can cause serious health problems such as stroke, brain damage, coma, and death if they rupture or leak. Therefore, it is important to diagnose and treat brain aneurysms before they cause complications. There are different types of brain aneurysms, such as saccular, fusiform, and mycotic. The most common type is saccular, which looks like a berry hanging from a vine. Saccular aneurysms are usually found at the base of the brain, where the major arteries branch off.

The treatment of brain aneurysms depends on several factors, such as the size, location, shape, and risk of rupture of the aneurysm. There are two main approaches to treat brain aneurysms: surgical clipping and endovascular coiling.

Surgical clipping involves making an incision in the scalp, opening a hole in the skull, and locating the aneurysm under a microscope. The neurosurgeon then places a tiny metal clip across the neck of the aneurysm to stop blood flow into it. This prevents the aneurysm from growing or bursting.

Endovascular coiling is a less invasive procedure that uses a catheter to reach the aneurysm through the blood vessels. The neurosurgeon or neuroradiology then inserts soft platinum coils into the aneurysm through the catheter. The coils fill up the aneurysm and cause blood to clot around them. This seals off the aneurysm from the artery and reduces the risk of rupture.

Both surgical clipping and endovascular coiling have advantages and disadvantages. Surgical clipping is more effective in

eliminating the aneurysm completely, but it has a higher risk of complications such as bleeding, infection, brain damage, and stroke. Endovascular coiling is less risky and has a shorter recovery time, but it has a higher chance of recurrence or incomplete occlusion of the aneurysm. In recent years, there have been significant advances in both surgical clipping and endovascular coiling techniques. Flow diverters are special devices that redirect blood flow away from the aneurysm when placed across it. They are used for large or complex aneurysms that are difficult to treat with conventional methods. Flow diverters can lead to complete elimination of the aneurysm in most cases. They are inserted through a catheter like coils, but they cover a larger area of the artery.

Stent-assisted coiling is a technique that uses a metal mesh tube to support the coils inside the aneurysm. The stent helps prevent the coils from moving or falling out of place. It also helps prevent narrowing or spasm of the artery after coiling. Stent-assisted coiling is used for wide-necked or irregular-shaped aneurysms that are hard to coil alone.

Aneurysm genetics is a field of research that studies the underlying genetic causes and risk factors for brain aneurysms. It also aims to identify people who have a family history or predisposition to develop brain aneurysms. Aneurysm genetics can help improve screening, prevention, and treatment strategies for people with brain aneurysms. These are some of the latest advances in brain aneurysm research and surgery that have improved the outcomes and quality of life for people with brain aneurysms. However, more research is needed to develop new and better ways to prevent, diagnose, and treat brain aneurysms in the future.

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