
RSNA Press Release

New Treatment Option for Ruptured Brain Aneurysms

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OAK BROOK, Ill. — Researchers in Finland have identified an effective new treatment option for patients who have suffered a ruptured brain aneurysm, a potentially life-threatening event. Results of the new study on stent-assisted coil embolization were published today in the online edition of *Radiology*.

An aneurysm is a bulge or sac that develops in a weak area of a cerebral artery wall. Subarachnoid hemorrhage occurs when an aneurysm ruptures, diverting oxygen-rich blood from vital areas to the space between the brain and the skull. The ruptured vessel can be repaired surgically or through a minimally invasive procedure called embolization, in which the sac is filled with metal coils in order to prevent repeat bleeding from the aneurysm and to restore normal blood flow in the artery.

"The treatment decision is complicated in cases of acutely ruptured aneurysms," said the study's lead author, Olli Tähtinen, M.D., assistant professor of radiology at Tampere University Hospital in Tampere, Finland.

Embolization treatment of cerebral artery aneurysms is becoming increasingly favored over surgical repair, especially when the patient is older or in poor medical condition. However, embolization is challenging when the neck of the aneurysm is wide, because the metal coils have a tendency to protrude out of the sac into the artery. A balloon-tipped catheter threaded to the site of the aneurysm can sometimes, but not always, solve the problem.

"When the width or neck of the bulge is particularly wide, aneurysms can be difficult to treat surgically or with balloon-assisted embolization," Dr. Tähtinen said.

The researchers studied the effects of stent-assisted embolization in 61 patients, including 41 women and 20 men, who were treated for subarachnoid hemorrhage at three Finnish hospitals over a 4.5-year period. According to Dr. Tähtinen, the study represents the most extensive analysis to date of stent-assisted embolization treatment of acute subarachnoid

At A Glance

- Stent-assisted coil embolization is a feasible treatment option for ruptured wide-necked brain aneurysms that are difficult to treat surgically.
- A brain aneurysm is a bulge or sac that develops in a weak area of a cerebral artery wall.
- Stent-assisted coil embolization is minimally invasive.

hemorrhage.

In the study, interventional radiologists performed coil embolization by first placing a stent, a small wire mesh tube, over the neck of the aneurysm to help keep the coils within the aneurysmal sac. The procedure was a technical success in 44 (72 percent) of the 61 patients. Adequate blood flow was restored in 39 (64 percent) of the patients.

"Our study shows that stent-assisted coil embolization is a feasible treatment option for ruptured brain aneurysms that are difficult to treat surgically or with balloon-assisted embolization," Dr. Tähtinen said. "Stent-assisted embolization may offer an important addition to the treatment repertoire for these critically ill patients."

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"Wide-Necked Intracranial Aneurysms: Treatment with Stent-Assisted Coil Embolization during Acute Subarachnoid Hemorrhage—Experience in 61 Consecutive Patients." Collaborating with Dr. Tähtinen were Ritva L. Vanninen, M.D., Ph.D., Hannu I. Manninen, M.D., Ph.D., Riitta Rautio, M.D., Ph.D., Arto Haapanen, M.D., Ph.D., Tero Niskakangas, M.D., Ph.D., Jaakko Rinne, M.D., Ph.D., and Leo Kesi-Nisula, M.D., Ph.D.

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