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NEWS

RSNA Press Release

Brain Aneurysms Successfully Treated Without Open Surgery

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At A Glance

- Detachable coil embolization, a minimally invasive way to treat brain aneurysms, is less costly and requires less recovery time than open surgery.
- Brain aneurysms affect 2% - 5% of the U.S. population. Half of aneurysm ruptures result in death.
- Coiling is now used to treat 30% of brain aneurysms in the U.S.

NEW YORK - Radiologists are using a nonsurgical procedure to isolate and block weakened cerebral blood vessels that are in danger of rupture, helping patients avert stroke or even death, according to Jacques Dion, M.D., professor of radiology and neurosurgery and head of interventional radiology at Emory University Hospital in Atlanta, Ga.

Detachable coil embolization offers a new approach to treating brain aneurysms, or weaknesses in the arterial wall. Delivered through an intra-arterial catheter, coils are packed into the aneurysm to block blood flow to the affected area, thus preventing rupture. Each coil is made of soft, delicate surgical material and looks like a miniature Slinky®.

"Coiling is less invasive and requires significantly less recovery time than brain surgery for aneurysm repair," said Dr. Dion, who spoke on the topic today at a Radiological Society of North America (RSNA) media briefing on image-guided therapies.

Brain aneurysms are a serious medical condition, affecting 2 to 5 percent of the U.S. population. They are believed to be congenital, developing over time in a weak spot in a brain blood vessel. The annual risk of rupture with cerebral hemorrhage is 1.5 percent. Half of aneurysm ruptures result in death. Of the survivors, about half have some form of stroke or neurological deficit. Large, non-ruptured aneurysms may compress surrounding nerves and brain tissue, causing headaches and possibly paralysis. Smaller, non-ruptured aneurysms typically cause no symptoms until they hemorrhage.

Currently, detachable coil embolization is used to treat over 30 percent of cerebral aneurysms in the U.S. Detachable coil embolization allows treatment of cerebral aneurysms that previously were considered inoperable. Conversely, some aneurysms are impossible to coil and require open brain surgery, or craniotomy.

"Patients with unruptured aneurysms can expect a detachable coil embolization to take a

couple of hours, followed by an overnight stay in the neurointensive care unit. Patients are then ready to return to their normal lives immediately," Dr. Dion said. "The in-hospital recovery from a craniotomy without rupture is five to eight days with another two to three weeks of home recovery." According to Dr. Dion, coil embolization has been shown to be less expensive than craniotomy.

Dr. Dion recommends that people who have an aneurysm be treated in high-volume medical centers that have extensive experience and offer expertise in coil embolization and brain surgery. "A patient is best served by high-quality treatment by experts in both fields," he said. He cautioned, "It is not in a patient's best interest to accept treatment from a hospital that sees only three brain hemorrhages a year."

"Surgery has been around for decades, while coiling is relatively new," Dr. Dion said. "We do not have the same kind of long-term experience and follow-up that surgeons have with craniotomy. However, there are approximately 200,000 people worldwide who have been treated with coils since 1991," he said. Because it is more likely for an aneurysm to recur following coil embolization than surgery, patient follow-up using imaging studies is performed for two to five years.

"There are many kinds of technological advances that are allowing us to treat aneurysms now that we could not treat five years ago. In the future, there will be increased use of coiling relative to surgery," Dr. Dion said. He pointed out that the European International Subarachnoid Aneurysm Trial of patients with ruptured aneurysms was prematurely stopped after 2,143 patients, because the patients who underwent detachable coil embolization were doing much better in terms of instances of death and dependency than the surgical patients.

"The study found a relative risk reduction in dependency or death of 22.6 percent in favor of coiling," Dr. Dion said. "Following the study, Great Britain went from treating 40 percent of brain aneurysm patients with coiling to almost 80 percent. Coiling is now the first line therapy in Great Britain and many other European countries, and surgery is reserved for the patients who cannot be coiled."

Dr. Dion believes that in the coming years more patients will be referred from community hospitals to larger centers offering comprehensive, specialized care, and that will contribute to better outcomes. "Also, we expect to see an explosion of technology that will increase the efficacy of coiling," he said.

The RSNA is an association of more than 33,000 radiologists, radiation oncologists and related scientists committed to promoting excellence through education and by fostering research, with the ultimate goal of improving patient care. The Society's headquarters are located at 820 Jorie Boulevard, Oak Brook, Ill. 60523-2251. (http://www.rsna.org)

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