Adding A Stent To Repair Aneurysms May Prevent Recurrences

The addition of a simple stent can help prevent potentially lethal blood vessel bulges in the brain from recurring after they are repaired in a minimally invasive "coiling" procedure, according to new research by Johns Hopkins physicians. A report on the research, published in the July *Journal of Neurointerventional Surgery*, could make coiling a more viable option for the 30,000 people diagnosed with brain aneurysms each year in the United States, the investigators say.

Cerebral aneurysms, abnormal outward pouching of blood vessels in the brain, are traditionally repaired by an "open" operation, in which surgeons remove part of the skull, cut into the brain to reach the affected blood vessel, and then place a metal clip on the vessel where it balloons outward to close it down. In the past several years, surgeons are increasingly repairing aneurysms through coiling, in which they thread a platinum wire into a small incision in the groin, push it through the body's network of blood vessels to the bulging one, then pack the wire into the bulge where a natural clotting reaction closes it off.

Though endovascular (through the vessel) coiling has significant benefits compared to clipping, such as a lower risk of infection and recovery times measured in weeks instead of months, it also comes with a significant drawback—recurrence of the aneurysm about a third of the time, says study leader Alex Coon, M.D., assistant professor of neurosurgery, neurology and radiology, and director of endovascular surgery at the Johns Hopkins University School of Medicine. Traditional aneurysm surgery has a low recurrence rate of about two percent.

To avoid recurrence and the need for further surgery, some surgeons have experimented with insertion of a stent, or small tube, in the blood vessel near the neck of the aneurysm. The goal is to prop open the affected vessel so that more wire can be packed into the bulge. To learn whether stents actually prevent recurrence or add complications, Coon and his colleagues looked at medical records of 90 people whose aneurysms were repaired by coiling at The Johns Hopkins Hospital between May 1992 and March 2009. A stent was used in a third of the operations.

After two years of follow-up, the researchers found that aneurysms recurred in more than 40 percent of patients who did not have stents. The recurrence rate in the stented patients was only about 15 percent, and stented patients had no more complications than those without stents. Coon notes that endovascular surgery for aneurysms is becoming more common, and knowing what can prevent recurrence will help surgeons and patients make informed decisions about the choice of procedure.

"It's easy to treat someone's aneurysm, but can you treat it durably and make it last? We've now shown in our study that stenting—something that makes sense from an engineering perspective, a clinical perspective and a common sense perspective—truly works," he says.

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