

Treating complex brain aneurysms without open surgery

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A new device to treat brain aneurysms with stents improves access to the blood vessels allowing endovascular neurosurgeons to offer the minimally invasive technique to patients with complex cases. Dr. Demetrius Lopes, an endovascular neurosurgeon at Rush University Medical Center, was the first in the U.S. to use the new delivery system, called the Neuroform EZ Stent System.

A brain [aneurysm](#) is an abnormal bulging or ballooning outward of an artery wall that is at risk of bursting, potentially causing severe [brain damage](#) or death. Neuroendovascular surgeons use stents, small cylindrical nitinol mesh tubes inserted into the artery by [catheter](#), to provide a scaffold for aneurysm coiling, the process of placing tiny platinum coils into the aneurysm to reduce the chances of aneurysm rupture.

This minimally invasive procedure is challenging to perform on complex cases because it can be difficult to navigate the stent through the twists and turns of the [blood vessels](#). The only other option for repair is clipping, a surgical procedure that requires a craniotomy, an opening of the [skull](#) surgically.

The new Neuroform EZ Stent System uses the same stent technology as the current stent, but employs a modified [delivery system](#) to make it more flexible and conformable to aid in accessing smaller vessels further into the brain.

The new delivery system uses a transfer system. The catheter is initially empty and thus more flexible. The catheter is inserted into the artery in the leg, and navigated through the blood vessels in the body up into the brain. Once the stent is properly aligned, the stent is deployed and placed into position.

"We had the perfect ship with the Neuroform Stent, but sometimes it was challenging to sail it. Now we have the perfect sail in the new delivery system," said Lopes.

With the improved access to smaller blood vessels, Lopes believes the system will be especially beneficial for the most common type of aneurysm, called a bifurcation aneurysm, which is a weakening of the wall where the artery splits into branches. Stenting and coil embolization are currently used to treat most wide neck cerebral aneurysms at Rush University Medical Center. The procedure is less invasive and requires significantly less recovery time than open surgery for aneurysm repair.

Additional benefits include minimal blood loss and the option for local anesthesia. Patients who did not have a ruptured aneurysm prior to treatment may be able to leave the hospital the day after the procedure and return to their normal routine within days.

Provided by Rush University Medical Center

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