

The Medical Minute: New treatment of brain aneurysms

October 7 2009, By Kevin M. Cockroft

(PhysOrg.com) -- Penn State Milton S. Hershey Medical Center recently became only the third hospital in Pennsylvania and one of only about 30 institutions in the country to offer a new minimally invasive treatment for brain aneurysms. Brain aneurysms are balloon-like out-pouchings that can develop in brain arteries. Like balloons, these out-pouchings can burst, causing a devastating type of stroke as blood leaks in and around the brain. This new treatment uses a liquid, glue-like substance called Onyx HD to completely fill aneurysms from the inside of the blood vessel, thereby preventing them from ever bleeding or causing a stroke.

Many years ago, brain aneurysms could only be treated with a major, invasive microsurgical procedure that involved opening the skull and working around the folds of the brain to place a metal clip across the base of the aneurysm. This procedure frequently took several hours, required a hospital stay of about a week and often left patients out of work for several weeks. In recent years, minimally invasive brain aneurysm treatment called aneurysm coiling has become increasingly popular.

During an aneurysm coiling procedure, a catheter is introduced into the femoral artery in the upper leg through a small, quarter-inch incision. This catheter is guided up into an artery in the neck that is feeding the brain. From there, a smaller, thinner, micro-catheter (about the size of a thin piece of spaghetti) is directed into the [brain aneurysm](#) itself. Fine, soft loops of platinum wire called coils are then placed inside the aneurysm. Once “packed” with coils the aneurysm clots off, preventing

new blood from entering it and thereby preventing future bleeding. While this procedure has a high rate of initial success and patients recover very quickly, over time some aneurysms, particularly those that are very large or have a wide base, can grow as continued [blood flow](#) compresses the coil mass. In addition, when an aneurysm has a wide or broad base it may be difficult to maintain a safe and stable position for the coils within the aneurysm.

Onyx HD was designed to overcome some of these shortcomings.

The Onyx HD procedure is performed in a way very similar to the coil embolization procedure. However, instead of placing coils in the aneurysm, the liquid Onyx HD is used. Onyx HD is carefully injected directly into the aneurysm through a small, thin micro-catheter while the bottom or base of the aneurysm is temporarily sealed with a separate balloon-tipped catheter. The liquid is extremely thick and the injection requires a considerable amount of slow pressure.

Once in contact with blood, this thick material stays together as one cohesive mass, which gradually solidifies, filling the entire aneurysm. Because of the temporary balloon blocking the aneurysm base, the Onyx HD can recreate the configuration of the normal artery, even when the aneurysm base is very broad. This “remodeling” ability, and the more complete aneurysm filling that occurs, allow for the successful treatment of more broad-based aneurysms and should reduce the chances of growth among these challenging aneurysms.

Onyx HD aneurysm embolization is performed as an inpatient procedure under general anesthesia. The entire procedure may take three or more hours depending on the size of the aneurysm. Patients usually stay in the hospital for one or two days. Recovery time is short and many people return to work within in a week or two.

Onyx HD is an exciting new minimally invasive addition to the treatment of brain aneurysms. However, not all aneurysms can or should be treated with Onyx HD. Aneurysm coiling and open microsurgery remain the most common treatments for brain aneurysms and many tiny aneurysms may not need to be treated at all.

Provided by Pennsylvania State University ([news](#) : [web](#))

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