

Running Head: Aneurysm

Cerebral Aneurysm Repair

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“Oh no, we see a blip on the MRI.” Thousands of thoughts go through your head, what does that mean? What can be done? Can anything be done? You have been suffering headaches, blurred sight, and ringing in your ears, so they sent you to this MRI which was scary enough. Even with the new open format, there is still the clanging and strange noise of the MRI. Then after you tolerate the test you heard those words the doctor spoke. You are catching your thoughts while the doctor tries to explain: “This may be an aneurysm; we will have to do an angiogram to find out.” He continues on with explaining the risk and benefit of the procedure, and the dangers of an aneurysm. At this point you can’t remember the first thing he said, and you are so confused.

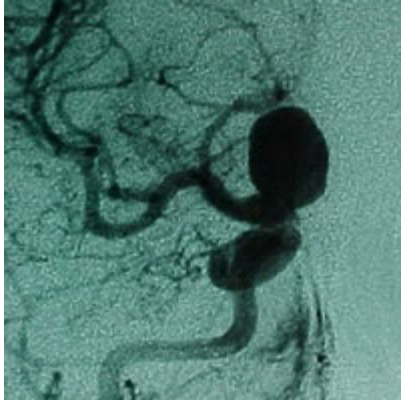
What is an aneurysm? The answer may sound something a little like this:

“An aneurysm is a weak spot in the wall of a blood vessel that stretches or balloons out, forming a thin-walled bubble or sac. Aneurysms can form in blood vessels anywhere in the body. Cerebral aneurysms form in blood vessels of the brain.” (Cordis Corporation, 2006)

An aneurysm can either leak blood slowly or it can pop like a balloon being overfilled with air, both ways starving an area of the brain of oxygen. The feeling of your own mortality just falls upon your shoulders, and as your heart quickens the thought, “No, stay calm the brain cannot handle the pressure of stress too.”

The brain is very sensitive and unfortunately if we lose brain function, the cells will not grow back. The best we can expect is the brain reroutes itself and we gain the function back that we have lost. A common reason for losing brain function is a ruptured aneurysm. This can not only be life altering it can be fatal. Another problem can be from the pressure of the aneurysm itself on other areas of the brain. This pressure can cause other deficits in cognitive abilities.

Usually, with the typical signs or symptoms the doctor will start out with an MRI. This can show a degree of an aneurysm. This will give the doctor a general location of an aneurysm. The next step will be to have a Cerebral Angiogram. An Angiogram is a picture taken of the brain vessels via contrast and fluoroscopy radiation. (Swearingen, 1995) In lay man’s terms, the doctor will access the femoral artery and insert a catheter up through the arterial tract to the brain, where the MRI shows the aneurysm is located. Then a contrast dye will be injected as the Fluoroscopy X-rays are taken, giving the doctor a picture of the flow of the vessels of the brain, and around the aneurysm. It will show the placement, size, damage, of the aneurysm.



(Scientific, 2009)

Doing a picture of all the vessels lets the doctor see if there are any other aneurysms hiding. Also, with 3d dimensions abilities of the cameras, they are able to see what the aneurysm is blocking, compressing, or starving tissue.

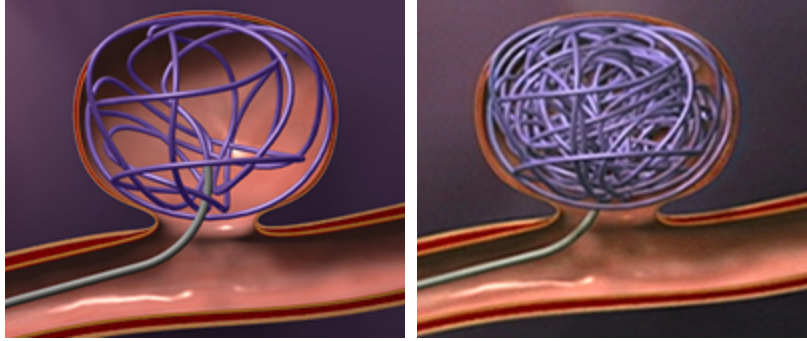


(Scientific, 2009)

Our brain has also allowed us to create some wonderful technology to repair an aneurysm in the brain.

The next step is surgery. This is not a typical surgery. This procedure will be performed in Interventional Radiology by a neurologist. The procedure will be done under general anesthetic. The doctor will again enter through the femoral artery with a catheter going back up to the brain. Another Angiogram will be done for the patients benefit and to reorientate the doctor. Next is a very tedious procedure of deciding and placing of the coils or liquid embolic solution. This is to correctly embolize the aneurysm without blocking any vessels feeding pertinent parts of the brain that are associated with this aneurysm.

The most common products used for embolization are coiling and liquid embolic solutions, which are mentioned above. Coiling is long strands of very thin, coiled wire that look like guitar strings but are flexible like telephone cords. (Cordis Corporation, 2006) The coils are flexible enough to conform to the aneurysm shape. (Scientific, 2009)



(Scientific, 2009)

Another way to fill an aneurysm is through the liquid embolic solution. This solution is in a liquid form and injected through the catheter. When the solution comes in contact with bodily fluids such as blood it hardens immediately. This is used more in difficult aneurysms. Both are very successful at embolizing an aneurysm.

After the aneurysm is successfully clotted, the patient may have to endure brain surgery to have the aneurysm clipped out. This is done in cases where the aneurysm is causing compression on the brain or other arteries. If brain surgery is not needed at the present time, the patient will be monitored for any future problems from this aneurysm and for future aneurysms that may occur.

Do to medical technology, what seems like a horrific condition can be dealt with effectively. With the strange headaches, dizziness, blurred vision, and ringing of the ears now gone, this is one check up that you won't miss in six months.

References

- Cordis Corporation. (2006). *Understanding Your Cerebral Aneurysm, Diagnosis and Treatment Options*. Miami Lakes: Cordis Corporation.
- Scientific, N. G. (2009, January 1). <http://www.brainaneurysm.com/aneurysm-pictures.html>. Retrieved February 2010, 2010, from Brain Aneurysm Resources:
<http://www.brainaneurysm.com/aneurysm-pictures.html>
- Swearingen, P. (1995). *Manual of Critical Care Nursing*. St. Louis: Mosby.
- The Endovascular Company. (2007). *Facts about Onyx Liquid Embolic System*. Irvine: ev3 Corporate World Headquarters.