Brain Arteriovenous Malformations

What is a brain arteriovenous malformation?

A brain arteriovenous malformation (AVM) is a blood vessel problem that affects about 1 in 1,000 people. AVMs are formed at about 8 weeks of a fetus’ development during pregnancy and are an abnormal connection of arteries to veins.

This abnormal connection causes problems with blood flow around the AVM, which increases the risk of stroke, bleeding, seizures, and other brain problems. However, many times there are no symptoms for years. AVMs are not hereditary (they do not run in families).

How is an AVM diagnosed?

Brain AVMs are usually found between 10 and 40 years of age. The first sign of a brain AVM typically falls into one of 4 categories:

1. bleeding in the brain (intracranial hemorrhage)
2. seizure
3. headache
4. speech, vision, and hearing problems.

Children are more likely to have symptoms of brain bleeding than adults. AVMs are usually found using a computed tomography (CT) or magnetic resonance imaging (MRI) scan of the brain. However, a blood vessel study called “cerebral angiography” is needed to set up a treatment plan.

How are AVMs treated?

A number of factors are considered in the decision to treat AVMs and the type of therapy chosen. Some treatments are:

• surgery
• high-dose radiation (radiosurgery) is an option when the brain AVM is in an area of the brain where surgery is a high risk
• blocking the blood flow by placing small particles through a tube (catheter) into the AVM (endovascular embolization).

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What is a vein of Galen malformation?

A special kind of AVM is the vein of Galen malformation. The vein of Galen (VOG) is a vein located deep within the brain. As with other AVMs, blood flow in this area of the brain is not normal. Blood can flow too quickly to the heart and cause heart problems.

Sometimes a VOG malformation is diagnosed before birth. Other times a VOG malformation is found later in childhood. Early diagnosis is very helpful in order to protect brain function and organ development.

How is a VOG malformation diagnosed?

When a mom is pregnant, having an ultrasound to view the baby in utero may show a VOG malformation. After a baby is born, a computer tomography (CT) or magnetic resonance imaging (MRI) scan is done.

Sometimes problems in other organs lead to a diagnosis in children. For example, a child with a VOG malformation can have heart, kidney, liver, and lung problems. As with other AVMs, cerebral angiography is needed to set up a treatment plan.

How is a VOG malformation treated?

Some VOG malformations do not need treatment and are watched at follow-up appointments with your child’s health care provider. When treatment is needed, catheter-based, endovascular embolization is often used.

Learn more

To learn more, visit our website at www.childrenshospital.vanderbilt.org/neurovascular.

For an appointment, call (615) 875-7368.