Fact Sheet

Arterio-venous malformation of the brain

What is it?

An arterio-venous malformation (AVM) is a condition that develops during growth in the womb. It occurs in the small capillaries between an artery and a vein. Enlarged blood vessels are produced, which can form a knot that looks like a "bag of worms". The pressure in the enlarged blood vessels causes movement (or shunting) of blood from artery to vein across the AVM.

Where does it occur?

AVMs can be found anywhere in the brain and may extend from the outer surface to the inner cavities of the brain (ventricles).

In the rare *Vein of Galen Malformation*, an AVM occurs in one of the large veins of the brain. The ordinary flow of the fluid in the brain ventricles (cerebro-spinal fluid) is interrupted. The pressure of this fluid is increased. This may cause enlargement of the ventricles ("hydrocephalus"). Occasionally brain and spinal cord AVMs may also be found in association with skin lesions (angiomas).

What are the symptoms?

Although an AVM occurs in the brain before birth, only a small portion of the children affected show symptoms straight away. Many never have any problems. An AVM is usually recognised when bleeding has occurred into or around the brain.

Symptoms may include:

- Severe headache.
- Vomiting.
- Neck stiffness.
- Fitting - sometimes epileptic fitting may occur without any bleeding.

AVM and babies

When a large AVM is present in a newborn baby, the symptoms may cause heart problems. This is because the pressure in the AVM moves (or shunts) blood from the arteries into the veins and causes an increase of blood in the veins. This puts an increased load on the baby's heart.

How is it diagnosed?

- Your doctor will sometimes be able to hear the increased blood flow through a stethoscope. The noise is called a bruit (broo-ee).
- An AVM is usually diagnosed only after symptoms have occurred (see above).
- A CAT scan (x-ray) or MRI scan is used to diagnose the AVM.
- Injecting dye into a blood vessel that feeds blood into the brain shows the AVM on x-rays (angiogram).

What is the treatment?

Your doctor may recommend surgery, as the risk of repeated bleeding is high. However, this is not always the case. Ask your doctor about the choices for your child.

Remember

- **AVM is usually diagnosed only after symptoms occur. Ask your doctor about the choices for treatment.**

This fact sheet is for education purposes only.
Please consult with your doctor or other health professional to make sure this information is right for your child.

This document was reviewed on 21st April 2009.

the children's hospital at Westmead | SYDNEY CHILDREN'S HOSPITAL RANDWICK | Kaleidoscope HUNTER CHILDREN'S HEALTH NETWORK

www.chw.edu.au www.sch.edu.au www.kaleidoscope.org.au

© The Children's Hospital at Westmead, Sydney Children's Hospital, Randwick & Kaleidoscope * Hunter Children's Health Network – 2009