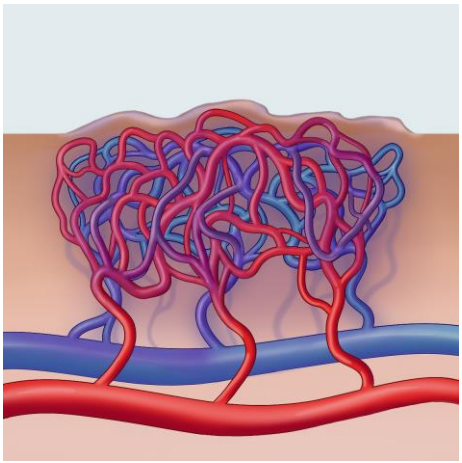
Arteriovenous Malformations

What is an Arteriovenous Malformation (AVM)?

An AVM is an abnormal connection between an artery (a vessel carrying blood from the heart to the rest of the body) and a vein (a vessel returning blood to the heart).



- AVMs occur when the cells that make arteries are not able to stop growing.
- It is an abnormal tangle of blood vessels causing them to not work in the right way.
- An AVM is like a shortcut. When blood goes through an AVM, the blood is returned to the heart instead of delivering it to the rest of the body. This means that the heart is not working properly and may have to work harder.
- AVMs usually only occur in one place in the body and are not usually passed on from parents.
- Rare AVMs can happen with genetic syndromes:
    - **CM-AVM Syndrome:** Capillary birthmarks of different shape, size and color with underlying AVMs that can cause overgrowth of the area. The AVMs may also be in the spinal canal.
    - **Hereditary Hemorrhagic Telangiectasia (HHT):** AVMs in the lungs, brain, and intestines.

What are the signs and symptoms of an AVM?

Many patients with AVMs may have subtle symptoms at first including:

- Skin changes: a pink, purple or red birthmark
- Warmer skin over the AVM
- Bleeding
- A pulse or vibration over the AVM (known as a “thrill”)
- Pain with activity or at rest

Over time, the increased blood flow can lead to overgrowth of the affected body part. If left untreated, severe cases can cause bleeding, tissue loss, or heart failure.

How are AVMs diagnosed?

The best way to get the right diagnosis is to be seen by a doctor who will get a full history of your child’s symptoms and do a proper exam on your child.

At CHLA, you will meet with our Vascular Anomalies Center team who will go over the history of the problem, make a diagnosis, and recommend treatments.
Additional testing may be needed such as:

- Ultrasound: Non-invasive imaging to look at tissues of the body.

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- MRI: Machine that takes detailed pictures of inside the body without radiation.
- Diagnostic Angiography: Test that allows you to see blockages of blood vessels.
- Genetic testing and/or blood work: Tests cells and tissues to check for changes in genes.

How are AVMs Treated?

No two AVMs are exactly alike and therefore treatment is based on your child's symptoms. Treatment options may include:

- **Embolization**: Injection of a glue-like material into the malformation to stop the abnormal blood flow.
- **Laser Therapy**: Helps lighten the appearance of the red/blue veins, especially for AVMs with birthmarks on the skin.
- **Surgical removal**
- **Medications**:
    - **Ibuprofen:** A medication that can be obtained over the counter for pain.
    - **Topical skin creams:** Used for any ulcerations (sores) of the skin.

Family Resources

AVM Survivors
Website: www.avmsurvivors.org

Vascular Birthmarks Foundation
Website: www.birthmark.org

National Organization for Vascular Anomalies (NOVA)
Website: www.novanews.org

Parents Helping Parents
Website: www.php.com

AboutFace USA
Website: www.aboutface.ca

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