Schedule your appointment with the Vascular & Interventional Specialists of Charlotte Radiology.
Our Interventional Radiologists are experts in vascular care, able to treat vascular malformations and a variety of other conditions using minimally invasive techniques.

To schedule a consultation with one of our Interventional Radiologists, please call 704.358.IRMD.

Visit CharlotteRadiology.com for more information on procedures, technology, our subspecialized physicians and more.

The softer side of surgery.
What are vascular malformations?
Vascular malformations are abnormal collections of veins, arteries, capillaries or lymphatic vessels—or a combination of these. Although present at birth, not all vascular malformations are noticed right away. Some become apparent years later. Vascular malformations occur during the prenatal development of arteries, but the cause is unknown.

Charlotte Radiology’s Interventional Radiologists and the vascular anomalies team at Levine Children’s Hospital work together to diagnose, triage and provide treatment plans for patients with simple to complex vascular malformations.

“Vascular anomalies” is the umbrella term for hemangiomas, vascular malformations and other birthmarks. Up to 1% of the population is affected. There are a few main types of vascular malformations:

- **VENOUS MALFORMATIONS (VM)** involve veins only. They may cause a lump under the skin with occasional redness and pain in that area.

- **LYMPHATIC MALFORMATIONS (LM)** involve only lymph vessels. Like VMs, they may cause a lump under the skin. LMs are prone to infections, requiring repeated antibiotic treatments. These are typically located in the face and neck and usually become apparent during the first years of life.

- **VENOLYMPHATIC MALFORMATIONS (VLM)** involve both veins and lymph vessels and can cause symptoms similar to VMs and/or LMs. These can become apparent at any age.

- **ARTERIOVENOUS MALFORMATIONS (AVM)** involve arteries connected directly to veins with no capillaries in between. AVMs may cause pain, bleeding or a pulsating bulge in the affected area. In infants, they also can be stressful on the heart due to rapid shunting of blood from arteries to veins.

- **PULMONARY ARTERIOVENOUS MALFORMATIONS (PAVM)** shunt blood without picking up oxygen from the lungs, resulting in low oxygen, shortness of breath and fatigue. These malformations may also cause bleeding and/or allow clots to pass through the lungs, thereby increasing the risk of stroke or a brain abscess. Interventional treatment is recommended for PAVMs when they get to a certain size. There is a hereditary link, so family members should be screened. Many patients with PAVM have recurrent severe nosebleeds or a family history of recurrent nosebleeds.

- **HEMANGIOMA** is a benign vascular tumor rather than a malformation. Hemangiomas have a rapid growth phase between birth and three months of age and tend to resolve completely by age 7. New treatment options, including medical treatment with propranolol, can now be prescribed for patients with large hemangiomas.

How are vascular malformations diagnosed?
Vascular malformations are often visible on the skin and can sometimes be diagnosed with a simple physical exam; however, the full extent of malformations is sometimes only apparent with dedicated MR imaging. Ultrasound can also help distinguish the types of malformations.

How are vascular malformations treated?
Surgery may pose a risk of significant blood loss and should be avoided in most cases. Interventional Radiologists treat vascular malformations with embolization, a minimally invasive technique to shut off blood flow to the malformation. This blocks the abnormal veins, arteries or lymphatics from the inside, thereby causing the malformations to decrease in size.