A Comprehensive Approach to Treating Vascular Disease

Vascular disease refers to conditions affecting the circulatory system, the network of blood vessels that carry blood to every part of the body. Veins carry oxygen-depleted blood from the body back to the heart, to be oxygenated by the lungs. Arteries take oxygen-rich blood from the heart back out to the body. Vascular diseases disrupt this process in a variety of ways. Often, vascular problems require surgical intervention. In keeping with our holistic treatment philosophy, our vascular program takes a comprehensive approach, including initial assessment and evaluation and management of risk factors. Our specialists collaborate to tailor treatment plans to each patient’s health, age, and lifestyle.

Most arterial conditions fall under one of two categories: atherosclerosis, in which the arteries become narrowed or plugged with plaque, and aneurysm, a weakening in the artery wall which produces abnormal dilation or bulging of the artery. Common arterial conditions include:

- Aortic aneurysm
- Carotid stenosis
- Peripheral arterial disease (PAD)

Unlike arteries, veins have valves that help keep blood moving towards the heart. Vein problems tend to be due to either valve dysfunction or clots. Common vein conditions include:

- Varicose veins
- Venous stasis disease and stasis ulcer
- Leg edema (swelling)
- Deep venous thrombosis (DVT)
- Thrombophlebitis
Count on our vascular specialists for expertise and experience.

Vascular surgeons are sometimes called “the plumbers of the body,” because they fix problems with the arteries and veins—the “pipes” that transport blood to and from the heart. Depending on the condition being treated, a vascular surgeon may need to balloon, stent, or bypass arteries clogged with plaque, repair or tie off a bleeding artery, remove blood clots obstructing a vein, or obliterate an abnormal vein. Some vascular problems, such as varicose veins, can be treated with minimally invasive outpatient elective surgery. Other vascular diseases, such as a ruptured aneurysm or an ischemic leg, are critical and require emergency open or endovascular surgery.

“I’m an avid biker and active, healthy person. But I fell and the handlebars went into my neck, causing a carotid artery injury. My care was fantastic—thorough, compassionate and brilliant. Turns out I was a high risk for a stroke, but Dr. Pak performed a delicate operation and I was back in the saddle really quickly. I’m so grateful for the amazing care at Marin General Hospital.”

– Judi Kirshbaum, vascular surgery patient

“You really never appreciate what a hospital can be until you have a little more intimate contact like I did. From the minute I walked in to MGH, to the minute I left, it was nothing but professionalism and a sense of caring. As far as the facility is concerned and the people that work there—It’s like family. I’ll be forever grateful. I don’t think there is any better, anywhere, as far as I’m concerned. Dr Pak saved my life...everyone there did.”

– Jim Weymouth, vascular surgery patient
On the Forefront of Innovation
At Marin General Hospital, we pride ourselves on offering our community the best possible care. That means keeping up with the latest techniques, technologies and treatments. Our hospital is one of a few in the Bay Area to participate in the National Society of Vascular Surgery’s national quality database. Though our Stanford collaboration, we participate in new research initiatives and case conferences. What’s more, one of our distinguished surgeons serves on the Clinical Practice Council for the National Society of Vascular Surgery. These efforts put our hospital in a leadership role as a provider of vascular care, while making the latest medical innovations available to the community we serve.

Uncommon Expertise in Common Vascular Conditions
We treat a broad spectrum of vascular disease, including the following common conditions.

Carotid Stenosis
The carotid arteries supply blood to the brain. Carotid stenosis refers to narrowing of these arteries due to atherosclerosis. If bits of plaque or a blood clot forming on the plaque surface break loose, they may block small arteries in the brain, resulting in a stroke. Because carotid disease is the cause of more than 50% of strokes, treating severe carotid stenosis is recommended to reduce stroke risk. Carotid endarterectomy remains the gold standard for treatment of carotid disease. Performed under a light general anesthetic, this surgery involves carefully removing the plaque from the inner lining of the artery.

Essential Partners in Many Hospital Care Teams
Vascular surgery is an essential component of many of the care teams in the hospital. Vascular surgeons are often called upon to lend their expertise by:

• Working with the trauma team to assess and treat people with life-threatening bleeding from vascular injury
• Collaborating with plastic surgeons and podiatrists on the wound care and limb salvage teams to achieve healing of extremity wounds
• Surgically removing tumors that surround or invade blood vessels
• Placing difficult intravenous or intra-arterial lines
• Helping cardiologists locate vessels for pacemaker insertion
• Harvesting veins for heart bypass surgery
• Creating shunts for dialysis
• Dissecting around major blood vessels so spine surgeons can insert hardware
In special cases, carotid stenting is advised. Carotid disease is best treated before it causes stroke, but plaque can develop in the artery without warning signs. Are you at risk? Take our vascular screening questionnaire on page 10.

Peripheral Arterial Disease (PAD)

Peripheral arterial disease, or PAD, affects an estimated 12 million people in the US. Very likely, you know someone with PAD. Unfortunately, almost 30% of people with PAD are unaware they have it. PAD refers to a narrowing in the arteries of the legs caused by atherosclerosis, or “hardening of the arteries.”

The earliest sign of PAD is a deep muscular ache or weakness in the leg that arises after walking a certain distance and dissipates after standing still a few minutes. A third of people with PAD develop limb-threatening ischemia, in which blood flow becomes so restricted that they could lose the leg if blood flow is not restored. Our vascular team is specially equipped to treat PAD with a variety of open surgical and endovascular techniques.

Varicose Veins and Superficial Thrombophlebitis

When you move your legs, the leg muscles contract against the vein like a pump, forcing blood up and out of the leg. Valves in the veins open and close, letting blood through but keeping it from flowing backward. If the valves are not functioning properly, reversal of blood flow occurs which leads to venous pooling in the legs and varicose veins. Beyond cosmetic concerns, varicosities can cause leg discomfort. It is also not unusual to get clots, called superficial thrombophlebitis, in a cluster of large varicose veins.

Rather than “vein stripping,” we use a minimally invasive technique called vein ablation to treat varicose veins associated with superficial vein incompetence (valve problems). A small tube introduced through a needle stick is used to “cauterize” the vein using heat energy. Once the vein is closed, the blood is diverted into the healthier veins in the leg, and more normal blood flow is achieved. Vein ablation is done as an outpatient procedure, often in the office under a local anesthetic.
Deep Vein Thrombosis (DVT)

Deep venous thrombosis (DVT) is a clot in the deep veins within the leg muscle. Most DVTs result from periods of inactivity, such as long plane or car trips, surgical procedures or leg immobilization due to a fracture or other injury. DVT can dislodge and travel through the veins to the heart and lungs, causing a pulmonary embolism (PE). Although only a small number of DVT cases lead to a pulmonary embolism, this complication is fatal 30–40% of the time. DVT can also cause permanent damage to the valves in the leg veins, resulting in deep venous insufficiency (DVI), or pooling of blood in the legs. Our outpatient vascular lab provides same-day ultrasound scanning for DVT diagnosis, so that treatment can be started immediately, often preventing a trip to the emergency room. Blood thinners are a mainstay in treatment for DVT. Some people with DVT may also be good candidates for clot thrombolysis, a minimally invasive procedure to remove the clot surgically.

Other Vascular Conditions

Our full-service vascular program has expertise in treating leg wounds, thoracic outlet syndrome (TOS), access for hemodialysis, peripheral and thoracic aneurysms, arterial dissections, acute limb ischemia, and arterial entrapment syndromes.

Vascular Ultrasound Imaging

Ultrasound is an important clinical tool for management of vascular problems. It allows us to image blood vessels non-invasively and without radiation or contrast dye. Our IIAC-accredited outpatient vascular lab is staffed by experienced full time Registered Vascular Technicians (RVTs) and outfitted with the very best state-of-the-art imaging equipment and data management systems. The lab offers a full array of exams, including imaging for aneurysms, carotid disease, PAD, DVT, and varicose veins. We also offer quarterly community screening events to quickly assess for presence of AAA, PAD, or carotid disease in people with risk factors.

Vascular Screenings

We offer quarterly community screening events to quickly assess for presence of AAA, PAD, or carotid disease in people with risk factors. Are you a screening candidate? Take this short questionnaire:

1. Do you have longstanding high blood pressure, high cholesterol, or diabetes?
2. Have you ever suffered a heart attack, angina, stroke or mini stroke?
3. Do you have a family history of heart disease or stroke?
4. Do you smoke or have you had a heavy smoking habit in your life?
5. Are you over 65 years old?
6. Does the muscle in the back of your calf hurt every time you walk?
7. Have you ever had a foot or ankle wound that took over 2 months to heal?

If you answer “Yes” to any two of these questions, a vascular screening could be right for you.

The US Preventative Services Task Force recommends one-time screening for AAA in men ages 65 - 75 years who have ever smoked. Call 1-415-925-VEIN (8346) to schedule your screening today.