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An estimated 80 million people in the United States suffer from some form of venous disorder. Between 25 million and 50 million Americans with venous disorder will have varicose veins, making varicose veins more common than arterial disease. Patients may complain of leg fatigue or heaviness, pain and achiness, burning, throbbing, leg swelling, night cramping, and “restless legs.” In some cases, varicose veins can progress to skin discoloration, bleeding, and leg ulcers. In the past, treatment meant vein-stripping surgery in the operating room. Fortunately, advances in state-of-the-art technologies have made less-invasive and safer treatments possible in the outpatient clinic.

What are varicose veins?

Varicose veins are dilated, abnormal-looking surface veins usually found in the legs. Usually bluish in color, they are frequently ropey or worm-like in appearance. In contrast, spider veins, also known as telangiectasias, are tiny red, blue, or purple blood vessels visible beneath the skin. Spider veins are frequently a cosmetic concern, but when numerous may indicate an underlying vein with leaky valves.

Healthy leg veins have a series of one-way valves allowing for blood flow in a segmental fashion upward to the heart. Blood flow from the leg back to the heart is conducted through a system

Varicose veins

In-office treatment advances with technology

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of deep and superficial veins. In most people, about 80 percent to 90 percent of venous return from the legs is through the deep veins, which are usually normal. Treating leaky valves in the superficial system diverts blood flow to the healthy deep system.

When the valves fail to close tightly, venous blood flows back down toward the feet, resulting in increased pressure in leg veins, or venous hypertension. Venous hypertension can lead to leg swelling and aching, skin discoloration, and leg ulcerations. This condition is often referred to as chronic venous insufficiency, and the valves are referred to as incompetent. Commonly affected are the great saphenous vein, which runs on the inside of the thigh and lower leg, and the small saphenous vein, which runs behind the calf. These veins, part of the superficial venous system, in most cases are the sources of visible varicose veins. Other sources of varicose veins include perforator veins, which connect the deep veins with the superficial veins. Venous insufficiency or

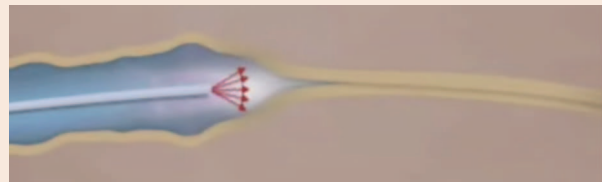
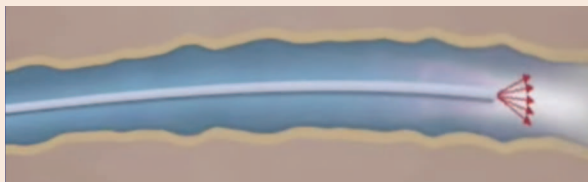
valve incompetence is usually related to heredity. Women are affected more than men. Blood clots in the veins, multiple pregnancies, and occupations that require long periods of standing all may exacerbate vein wall and valve problems.

Diagnosis

One need only look at a patient’s legs to see if there is a potential vein problem. Many patients often note that a varicose vein is “growing down the leg” or “growing up the leg” toward the groin. Many patients will have swollen feet and ankles, achy legs, persistent itching, and leg fatigue or heaviness, particularly after prolonged standing. In more advanced cases, symptoms may include recurrent or persistent leg ulcers, skin deformities, and discoloration of the skin, with up to 5 percent of patients having secondary skin abnormalities. Sometimes, inflammation and clots can develop in the surface varicose veins, resulting in pain, tenderness, and redness. This condition is referred to as superficial phlebitis or thrombophlebitis.

Determining if there are any problems in the saphenous veins or deeper veins requires ultrasound evaluation. Varicose vein patients with leg swelling, skin changes, or other symptoms should undergo an ultrasound to determine which veins are affected before treatment recommendations are made.

Vein ablation



Often referred to as endovenous laser ablation (EVLA), the latest innovation in minimally invasive treatments uses heat energy that is delivered to the vein wall, causing the vein to close.

Office-based treatments

The first line of treatment for symptoms due to varicose veins or venous insufficiency is conservative management, which may include the use of compression or support stockings. While compression may relieve symptoms, it is not curative and compliance is sometimes a problem.

Corrective treatment for varicose veins or venous insufficiency must first focus on the elimination of the leaky valves. The traditional treatment for patients with significant symptoms has been either accomplished surgically by removing the vein from the leg, known as vein stripping, or chemically by sclerotherapy, a nonsurgical treatment in which a solution injected into a vein closes it off. Surgical stripping has not been well accepted by patients, who perceive the procedure as risky and disfiguring. Sometimes patients require hospitalization, with recovery periods as long as two to three weeks. Surgical stripping has also been associated with complications including hematoma (clotted blood within the tissues), nerve damage, and frequent recurrence. Sclerotherapy is performed commonly with minimal risk but is associated with high failure rates.

Modern therapy for varicose veins addresses the underlying cause without disfigurement. The latest innovations in minimally invasive treatments use heat energy that is delivered to the vein wall, causing the vein to close. These techniques, often referred to as endovenous laser ablation (EVLA) or radiofrequency ablation (RFA), are often done in the office with local anesthesia and sometimes mild sedation. Both procedures are approved by the FDA.

Endovenous ablation. To do EVLA or RFA, a fiber-optic catheter or radiofrequency catheter is inserted into the saphenous vein or its tributaries. Local anesthesia is used to envelop the vein to be treated. Heat energy is delivered generally to the tip of the catheter, and the catheter is pulled back at a constant rate. The heat energy damages the vein wall, resulting in the closing of the vein vessel, and thereby preventing blood flow from going in the reverse direction. This restores venous

Risk factors for venous disease

Heredity: The No. 1 risk factor for varicose veins and spider veins is family history.

Gender: Women are more likely to suffer from abnormal leg veins. Up to 50 percent of American women may be affected.

Multiple pregnancies: Hormonal factors, cardiovascular changes, and the fetus cause increased pressure on the veins.

Age: With each decade after 30, the prevalence of venous insufficiency increases by as much as 10 percent.

Trauma: Trauma in the past can lead to valve failure in the future.

Blood clots: Blood clots, called deep vein thrombosis, can lead to leaky valves in the deep veins.

physiology or function to normal, as blood flow is directed to the deep veins, which are normal in most patients. The advantages of these techniques over vein stripping have been well documented and include less pain, shorter convalescence, and many fewer complications such as nerve damage, hematoma, wound infections, and deep-vein thrombosis (DVT). In most cases, patients are able to return to normal activity in one or two days with only a few restrictions. Adverse events associated with endovenous ablation have been minimal and include failure to close the vein, transient numbness and tingling along the course of the treated vein, and a mild “pulling” sensation in the thigh.

Sclerotherapy. This injection procedure is commonly used to treat spider veins. A variation of this treatment, ultrasound-guided sclerotherapy, enables the experienced clinician to perform sclerotherapy of deeper leaky veins, or varicosities. Another variation involves the use of a foam preparation that improves the effectiveness of the sclerosing solution by four to five times. Although larger veins can be treated with ultrasound-guided or foam sclerotherapy, there may be a higher rate of failure, and possibly a slightly higher rate of side effects, such as temporary darkening of the skin and inflammation.

Phlebectomy. Modern phlebectomy techniques were introduced in the 1950s by Swiss dermatologist Dr. Robert Muller. His modifications made it possible to remove veins from patients under local anesthesia through very small incisions with specialized hooks. Ambulatory phlebectomy (AP) is now a widely practiced technique, and is most useful for large, twisted, surface varicose veins. In experienced hands, a vein can be removed with minimal scarring through incisions as small as one to two millimeters. AP may

be performed as a single procedure, or commonly is performed immediately after EVLA or RFA.

Integrating procedures

Successful treatment of varicose veins requires rational selection of interventions. Endovenous ablation, sclerotherapy, and AP are suitable for the office and may be performed together. In our clinic, we routinely use multiple treatments. For example, a patient may undergo endovenous laser treatment of the great saphenous vein and have additional procedures, such as ultrasound-guided foam sclerotherapy and ambulatory phlebectomy, during the same visit. Combining endovenous ablation, AP, and sclerotherapy techniques with accurate ultrasound imaging makes possible a more complete treatment plan and a better outcome.

Vein specialists

If you are considering treatment, ask your primary care provider to recommend a vein specialist. A vein specialist should be proficient with all the available tools. Inquire about the qualifications of the health care professionals treating you. Consider getting additional information from the American College of Phlebology (www.phlebology.org). Phlebology is an emerging medical specialty that deals with vein disorders that was first recognized by the American Medical Association as a distinct specialty in 2005. Currently, physicians working in this area of medicine come from varied backgrounds, including, but not limited to, general or vascular surgery, interventional radiology, anesthesiology, and internal medicine.

With ultrasound documentation of valve incompetence, most health insurance carriers cover part or all of the cost of treatment of symptomatic varicose veins. If you have health insurance, check your policy regarding vein treatments that are covered, what your potential share of cost might be, and whether the treating professional needs prior authorization in order to perform the procedure. ❏

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