

Varicose veins

Definition

Varicose veins are dilated, tortuous, elongated superficial veins that are usually seen in the legs.

Description

Varicose veins, also called varicosities, are seen most often in the legs, although they can be found in other parts of the body. Most often, they appear as lumpy, winding vessels just below the surface of the skin. There are three types of veins, superficial veins that are just beneath the surface of the skin, deep veins that are large blood vessels found deep inside muscles, and perforator veins that connect the superficial veins to the deep veins. The superficial veins are the blood vessels most often affected by varicose veins and are the veins seen by eye when the varicose condition has developed.

The inside wall of veins have valves that open and close in response to the blood flow. When the left ventricle of the heart pushes blood out into the aorta, it produces the high pressure pulse of the heartbeat and pushes blood throughout the body. Between heartbeats, there is a period of low blood pressure. During the low pressure period, blood in the veins is affected by gravity and wants to flow downward. The valves in the veins prevent this from happening. Varicose veins start when one or more valves fail to close. The blood pressure in that section of vein increases, causing additional valves to fail. This allows blood to pool and stretch the veins, further weakening the walls of the veins. The walls of the affected veins lose their elasticity in response to increased blood pressure. As the vessels weaken, more and more valves are unable to close properly. The veins become larger and wider over time and begin to appear as lumpy, winding chains underneath the skin. Varicose veins can develop in the deep veins also. Varicose veins in the superficial veins are called primary varicosities, while varicose veins in the deep veins are called secondary varicosities.

Causes and symptoms

The predisposing causes of varicose veins are multiple, and lifestyle and hormonal factors play a role. Some families seem to have a higher incidence of varicose veins, indicating that there may be a genetic component to this disease. Varicose veins are progressive; as one section of the veins weakens, it causes increased pressure on adjacent sections of veins. These sections often develop varicosities. Varicose veins can appear following **pregnancy**, **thrombophlebitis**, congenital blood vessel



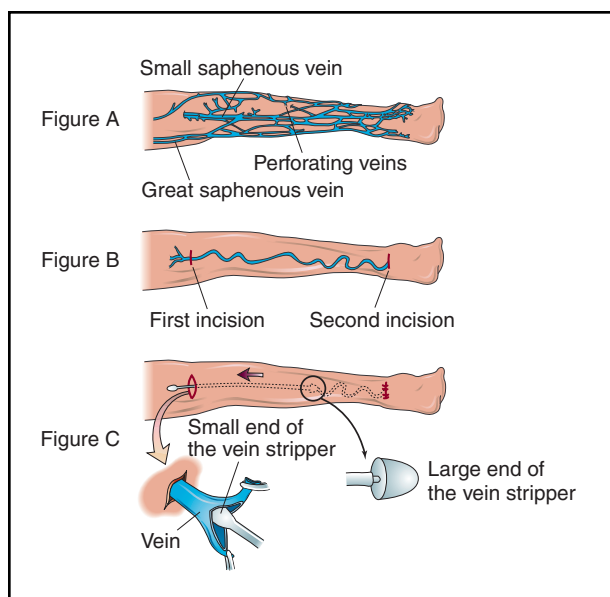
Varicose veins on a man's leg. (Custom Medical Stock Photo. Reproduced by permission.)

weakness, or **obesity**, but is not limited to these conditions. **Edema** of the surrounding tissue, ankles, and calves, is not usually a complication of primary (superficial) varicose veins and, when seen, usually indicates that the deep veins may have varicosities or clots.

Varicose veins are a common problem; approximately 15% of the adult population in the United States have varicose veins. Women have a much higher incidence of this disease than men. The symptoms can include aching, **pain**, itchiness, or burning sensations, especially when standing. In some cases, with chronically bad veins, there may be a brownish discoloration of the skin or ulcers (open sores) near the ankles. A condition that is frequently associated with varicose veins is spider-burst veins. Spider-burst veins are very small veins that are enlarged. They may be caused by back-pressure from varicose veins, but can be caused by other factors. They are frequently associated with pregnancy and there may be hormonal factors associated with their development. They are primarily of cosmetic concern and do not present any medical concerns.

Diagnosis

Varicose veins can usually be seen. In cases where varicose veins are suspected, but can not be seen, a physician may frequently detect them by palpation (pressing with the fingers). X rays or ultrasound tests can detect varicose veins in the deep and perforator veins and rule out blood clots in the deep veins.



Varicose veins may be surgically removed from the body when they are causing pain and when hemorrhaging or recurrent thrombosis appear. Surgery involves making an incision through the skin at both ends of the section of vein being removed (figure B). A flexible wire is inserted through one end and extended to the other. The wire is then withdrawn, pulling the vein out with it (figure C). (Illustration by Electronic Illustrators Group.)

Treatment

There is no cure for varicose veins. Treatment falls into two classes; relief of symptoms and removal of the affected veins. Symptom relief includes such measures as wearing support stockings, which compress the veins and hold them in place. This keeps the veins from stretching and limits pain. Other measures are sitting down, using a footstool when sitting, avoiding standing for long periods of time, and raising the legs whenever possible. These measures work by reducing the blood pressure in leg veins. Prolonged standing allows the blood to collect under high pressure in the varicose veins. **Exercise** such as walking, biking, and swimming, is beneficial. When the legs are active, the leg muscles help pump the blood in the veins. This limits the amount of blood that collects in the varicose veins and reduces some of the symptoms. These measures reduce symptoms, but do not stop the disease.

Surgery is used to remove varicose veins from the body. It is recommended for varicose veins that are causing pain or are very unsightly, and when hemorrhaging or recurrent thrombosis appear. Surgery involves making an incision through the skin at both ends of the section of vein being removed. A flexible wire is inserted through one end and extended to the other. The wire is then with-

KEY TERMS

Congenital—Existing at or before birth; a condition that developed while the fetus was in utero or as a consequence of the birth process.

Edema—Swelling caused by a collection of fluid in a tissue or body cavity.

Hemorrhage—Bleeding from blood vessels.

Palpation—The process of examining a patient by touch.

drawn, pulling the vein out with it. This is called “stripping” and is the most common method to remove superficial varicose veins. As long as the deeper veins are still functioning properly, a person can live without some of the superficial veins. Because of this, stripped varicose veins are not replaced.

Injection therapy is an alternate therapy used to seal varicose veins. This prevents blood from entering the sealed sections of the vein. The veins remain in the body, but no longer carry blood. This procedure can be performed on an out-patient basis and does not require anesthesia. It is frequently used if people develop more varicose veins after surgery to remove the larger varicose veins and to seal spider-burst veins for people concerned about cosmetic appearance. Injection therapy is also called sclerotherapy. At one time, a method of injection therapy was used that did not have a good success rate. Veins did not seal properly and blood clots formed. Modern injection therapy is improved and has a much higher success rate.

Prognosis

Untreated varicose veins become increasingly large and more obvious with time. Surgical stripping of varicose veins is successful for most patients. Most do not develop new, large varicose veins following surgery. Surgery does not decrease a person’s tendency to develop varicose veins. Varicose veins may develop in other locations after stripping.

Resources

BOOKS

- Alexander, R. W., R. C. Schlant, and V. Fuster, eds. *The Heart*. 9th ed. New York: McGraw-Hill 1998.
- Berkow, Robert, ed. *Merck Manual of Medical Information*. Whitehouse Station, NJ: Merck Research Laboratories, 1997.