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Alternatives in the management of varices

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Options range from no treatment at all, to elastic support, elevation of the legs, exercise of leg muscles, and sclerotherapy, to surgical removal.

Management of the protean manifestations of venous disorders of the inferior extremity includes many options, ranging from radical surgery to no treatment at all. The severity of the venous problem must be weighed against the patient's overall general medical condition, since the basic objectives of treatment are rehabilitation and prophylaxis. To place the available alternative treatments in clearer perspective, we have tabulated all new patients whom we examined in the peripheral vein clinic at the Mayo Clinic over a one year period.

Of the 1,066 patients examined, 202 (19 percent) had problems that were not caused by venous disease, such as edema, lymphedema, lipedema, hemangioma, malignancy, and various other conditions. Of the 864 (81 percent) who had venous problems, 244 (28 percent) had deep venous insufficiency, as evidenced by edema, cyanosis, breakdown of the cutaneous venules, and skin changes such as stasis dermatitis, pigmentation, cellulitis, and ulceration. The remaining 620 patients (72 percent) had varicosities of the saphenous system. In 373 (44 percent of the 864), the varicosities were considered of such magnitude that surgical removal was advised; in 247 (29 percent), the venous problems were of lesser magnitude and surgical treatment was not recommended. Some of these patients received no treatment, and others were treated by elastic support, elevation of the legs, exercise, or sclerotherapy.

Surgical treatment

For patients who are otherwise in good health, surgical removal is the preferred treatment for clinically incompetent varicosities of superficial veins as demonstrated by retrograde filling. A thorough stripping operation removes the malfunctioning varix and yields long-term symptomatic and objective control, with good to excellent results for 10 years or longer in 85 percent of patients.

We often see patients in whom the varicosities are not the primary problem. We offered surgical treatment to 373 of the 864 patients in this series in whom results of their general medical examination were otherwise satisfactory; however, only 155 (18 percent of the 864) actually underwent operation.

Not all venous stasis problems require surgical treatment: neither should all patients undergo operation even though their varicose veins could be treated surgically. Varicose veins should not be treated surgically in a patient who has uncontrolled malignant or metabolic disease, advanced cardiovascular disease, or impaired leg function because of neuromuscular or orthopedic disease. The treatment should not be more hazardous than the venous disease itself.

Elastic support

Although not as effective as surgical treatment in providing symptomatic relief of venous stasis, elastic support is an important alternative treatment and relieves heaviness, aching, fatigue, and cramping and prevents edema and its associated stasis complications. The strength of the support must be proportional to the degree and symptoms of venous insufficiency. Use of elastic bandages or stockings assists the venous return by collapsing the stagnant venous pools in the superficial veins and enhancing the efficiency of the pumping action through compression of the calf muscles. The compression increases the tissue pressure and promotes return of the extracellular fluid into the capillary venous system.
Management of varices

Elastic support also protects the often fragile skin and tissue from external trauma.

Deep venous insufficiency, usually the sequela of deep thrombophlebitis and manifested clinically by edema, cyanosis, cutaneous and secondary superficial varices, and skin changes such as dermatitis, pigmentation, and ulceration, always requires elastic support. Effective elastic support for the postphlebitic leg syndrome varies according to the severity of the problem and the occupational demands on the patient. A rule of thumb is that the elastic support should be sufficiently strong to prevent development of ankle edema toward the end of the day. Some patients may have to wear a ½ in. thick rubber pad held beneath two elastic bandages 4 in. wide; for others, ready-made lightweight hose may suffice.

Ulcers are commonly associated with chronic deep venous insufficiency; if small, they may heal simply with the use of a good elastic support supplemented with periodic elevation of the legs and dressings moistened with aluminum subacetate solution diluted 0.25 percent with water as conditions require. This outpatient treatment allows patients to continue gainful employment.

An elastic bandage usually is preferable to a stocking. The bandage can be applied according to the specific contour of the extremity and to the area needing compression, whereas the stocking may not always give the proper compression where most needed. The concavities around the malleoli, where the most refractory and painful ulcers often appear, are not compressed adequately by a stocking or bandage alone and require padding with foam rubber ½ in. thick. A bandage should be used to hold the padding in place.

For patients for whom heavy elastic stockings are needed, we prescribe such ready-made strong stockings as made by the Ohio Truss Company or by Bell Horn. These appear to be durable and maintain their strength for a long time. We prefer the full heel in these stockings to prevent edema and possible breakdown below and behind the malleoli. The heavy stockings are often objectionable, especially to women, since they are somewhat more noticeable than those of lighter weave. The Parke-Davis, the Bauer & Black, and the Sigvaris elastic stockings also provide excellent support for most patients with chronic deep venous insufficiency. When swelling is not a problem, lighter weight elastic hose, such as pantyhose for women and Parke-Davis elastic hose for men, are comfortable and well accepted. The custom-made garments by Jobst are prescribed for odd-shaped extremities. These garments also are often used for control of symptomatic varices or edema that is associated with pregnancy.

Elevating the extremity

Periodic elevation of the extremity is as important as elastic support in reducing venous pressure. The ankle should be elevated approximately 20 cm higher than the heart level. This reduces the venous pressure in the foot to nearly zero, as evidenced by the collapse of the superficial veins on the dorsum of the foot. To obtain this level of elevation, the patient must rest in bed rather than sit in a chair.

Elevating the extremity may be the only way to reduce the venous pressure and tissue edema if the patient cannot reach the foot because of limited hip motion or is unable to apply an elastic support because of debility. In severe postphlebitic leg conditions, elastic support must be combined with daily periods of rest and elevation in order to prevent more serious stasis problems. The physician must use caution in recommending elevation of the legs in patients with cardiopulmonary problems or gastrointestinal reflux.

Exercising leg muscles

Exercise of the leg muscles, particularly the calf muscles, is essential for normal function of the musculovenous pumping against gravitational forces. Walking lowers the venous pressure to about one-third of the standing pressure under normal conditions. If varicose veins or deep venous insufficiency is present, the ambulatory venous pressure is not lowered effectively, especially if muscular action is also impaired. Combined with adequate elastic support, walking aids the “peripheral venous heart” action by promoting venous return flow and strengthening the calf muscle tone. Other useful exercises for the leg muscles are jogging, bicycling, and swimming. Exercising the leg muscles while in bed is also helpful, especially for patients who cannot ambulate frequently.

Sclerotherapy

Sclerotherapy as the exclusive treatment of varicose veins was discontinued at the Mayo Clinic in the 1930s because of its unacceptable high recurrence rate; however, it continues to have a useful but limited role in the treatment of venous disorders. A rather diffuse cutaneous venous diathesis may occur in the presence of clinically normal main channels of both greater and lesser saphenous systems, and these varicosities are too small and fragile for satisfactory surgical removal.

Many veins are too small for an incision, with its inevitable scarring, but are of
cosmetic concern and may even erode through the skin and cause spontaneous bleeding. These may be closed satisfactorily by injecting a sclerosing solution by means of a small-gauge needle. Venous stars also can be injected with a sclerosing solution that has been diluted by foaming so it will not slough the overlying skin. The patient should be told, however, that a pigment stain of hemosiderin, which may be of equal cosmetic concern, may persist in place of the blue vein. Sclerotherapy also may control the venous stasis problem after a thorough vein-stripping operation, but it should not be planned as a follow-up in an incomplete stripping operation.

The initial dose of sclerosing solution should be very small. After the vein has been injected, the injection site should be compressed to allow inflammatory adhesions to occlude the vein. The period of compression is debatable, but for small veins, three to five days may be sufficient. Since most of the small veins and venules are of cosmetic significance only, one area may be injected as a therapeutic trial; if objective improvement occurs, treatments can be continued. We have used the sclerosing solution monoethanolamine olate (Monolate®) for at least 20 years. Other commercially available agents are sodium tetradecyl sulfate (Sotradecol®), sodium morrhuate, and quinine urea hydrochloride. The physician should make certain that the patient is not allergic to a sclerosing solution before injecting it.

When treatment is unnecessary

Minimal, asymptomatic varicosities do not require treatment, since these veins often may be functioning normally even though they appear dilated and tortuous. Retrograde reflux cannot be demonstrated clinically in many of these smaller veins. Persons with thin legs may be overly concerned over the prominence of veins that are not concealed by adipose tissue; however, these veins are usually normal and should not be treated. Dilated and tortuous veins without significant reflux in younger patients should be reevaluated at about two to three year intervals, and if the venous breakdown is progressing, a prophylactic stripping operation can be considered.

Varicosities in older patients may never need treatment, but if they become symptomatic, operation may be indicated; otherwise, elastic support may suffice. Treatment also should be withheld until symptoms not definitely ascribed to the varicosities have been clearly identified and hopefully resolved. Often, disorders such as degenerative joint disease, neuromuscular dysfunctions, restless leg syndrome, and edema of systemic origin may produce symptoms that mimic those of venous stasis.

Summary

When surgical treatment of varicose veins is not indicated, or is withheld because of associated problems of greater magnitude, other therapeutic measures may be considered. These include elastic support, elevation of the legs, exercise to strengthen the calf musculature, and sclerotherapy. Each of these measures, independently or in combination, provides considerable relief of signs and symptoms of the venous problems in many patients. In difficult venous stasis problems in which the optimal treatment remains in doubt, a therapeutic trial of elastic support is safe and often helpful in defining the role of chronic venous insufficiency in the patient's symptom complex.