Peripheral Vascular Surgery

Vascular Surgery
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Arterial Surgery
Patients with peripheral vascular disease of sufficient magnitude to require surgery are frequently elderly and have multiple associated diseases, making them poor surgical risks. They require careful preoperative evaluation, usually including arteriography, and the surgery often lasts many hours. In addition, careful postoperative observation is mandatory to detect hemorrhage or thrombosis. For these reasons, arterial surgery has not been performed in our outpatient surgical suite.

Venous Surgery: Varicose Veins
Not all patients with varicose veins are suitable for surgery as an outpatient. The patient with severe bilateral greater saphenous varicosities, with multiple dilated adventitial veins, especially if obese, is best treated as an inpatient. Even using two surgical teams working simultaneously, the operation requires two or three hours if it is performed properly. Varicose veins of lesser magnitude, especially if unilateral or involving the lesser saphenous system, are nicely handled on an outpatient basis.

Etiology
The causation of varicose veins is not well understood, although heredity has long been felt to be of primary importance. As more sophisticated methods of evaluation have emerged, it now appears that congenital absence of the iliofemoral valve is also of importance. Trauma is a minor cause of varicosities. Secondary varicose veins develop in some patients who have had previous deep venous thrombosis, and this association should always be searched for.

Clinical Evaluation
Even the very largest varicosities may be asymptomatic, whereas small localized varicosities may cause significant aching, especially after prolonged standing. Although varicosities do cause discomfort in some patients, many others seek medical help for cosmetic reasons.

Evaluation of varicose veins should be done in a well-lighted room with the patient standing on a platform so that complete inspection of both legs, front and back, can be carried out. Large protuberant blowouts are frequently the site of perforators, and a defect in the fascia in this area can be detected.

The Trendelenburg test should be used to demonstrate incompetence of the valve at the saphenofemoral junction. With the patient supine, the
leg is elevated to empty the veins; the patient is then asked to stand while
the examiner applies digital pressure at the saphenofemoral junction, keeping
the saphenous vein occluded. If the veins fill slowly from the ankle up and
this is not affected by sudden release of the pressure occluding the saphenous
vein, the saphenofemoral valve is competent and the patient should not have
a high ligation and stripping; the vein should be preserved for possible later
use as an arterial substitute. If release of the pressure results in sudden retro­
grade filling, then incompetence of the valve is proven, and surgery can be
expected to be of benefit. A similar test can be used to evaluate the competence
of the lesser saphenous valve where the vein enters the deep system in the
popliteal space. This vein, however, cannot be used as an arterial substitute
so the test has little clinical significance.

Treatment
A physician seeing a patient with varicose veins has four treatment options
to choose from: (1) no treatment, for those with minor asymptomatic varicose
veins; (2) external compression with below-knee elastic stockings; (3) compres­
sion sclerotherapy, "injections"; and (4) surgery. The choice depends on many
factors, including the severity of the venous condition and the desires of the
patient.

1. Some patients require no therapy. It is sufficient to reassure them
that their varicosities are minor and will not lead to complications.

2. For the patient with aching discomfort aggravated by standing, below­
knee stockings give excellent relief. In fact, if the stockings do not help the
discomfort, it is probably not due to the veins. Above-the-knee stockings
are rarely, if ever, of benefit in the ambulatory patient, because not only are
they uncomfortable, but they kink behind the knee when the leg flexes, and
they fail to give adequate compression to the thigh. In women, support hose
frequently give symptomatic relief.

3. Sclerotherapy was first used over 100 years ago, and by the early
part of this century the technique was widely practiced. However, the agents
were caustic and complications frequent, so complete surgical removal of
the veins became the treatment of choice. Compression sclerotherapy continued
to be popular in central Europe, and now there has been a resurgence of
interest elsewhere in the world. Not only has the technique been modified
and standardized, but many fewer complications from the sclerosing agent
have occurred since 3% sodium tetradecyl sulfate has been available. With
this agent the destruction appears to be limited to the venous intima with
very little perivenous inflammatory response.5

Indications for sclerotherapy vary with the enthusiasm of the physician
for the technique, but it still appears that complete surgical extirpation gives
the best long-term results for primary varicose veins of either the long or
short saphenous veins, especially if incompetence can be demonstrated. Any
veins remaining after surgery, or which develop later, can then be eliminated
very successfully with compression sclerotherapy. This technique can also
be used with great patient satisfaction for minor superficial veins which a
patient wishes to have removed for cosmetic reasons.

In order for injection sclerotherapy to be successful, as stressed by Fegan,2
the vein must be empty, the volume of sclerosing agent small, and the vein
compressed until it is obliterated. The patient is first examined while standing,
and the veins to be injected are marked with indelible ink. By alternating
compressing the vein with one hand and stripping it empty with the other,
perforators can be located. Although not essential, the closer the injection
is to the perforator the more likely is success. The marked veins are then
injected with the patient supine and legs slightly elevated, using not more