REFRESHER COURSE FOR GENERAL PRACTITIONERS

THE TREATMENT OF VARICOSE VEINS

BY

REGINALD T. PAYNE, M.D., M.S., F.R.C.S.

I heard two beggars that under an hedge sate,
Who did with long talk their matters debate.
They had both sore legs most loathsome to see,
All raw from the foot well most to the knee.
"My leg," quoth the one, "I thank God is fair."
"So is mine," quoth the other, "in a cold air,
For then it looketh raw and as red as any blood,
I would not have it healed for any world's good.
No man would pity me but for my sore leg,
Wherefore if I were whole I might in vain beg.
I should be constrained to labour and sweat,
And perhaps sometime with scourges be beat."

ROBERT CROWLEY, *Epigrams*, c. 1550.

Idiopathic varicose veins are common in all sections of the community, and every general practitioner is faced with the problems of diagnosis and treatment. Sometimes he must take full responsibility, while in other cases treatment can be carried out successfully only in conjunction with a specialist. The results will be gratifying if diagnosis is accurate and the scope of treatment recognized.

The consultant tends to see the most advanced cases and other people's failures. In some there has been a non-recognition of threatening complications or the true origin of a dermatitis. In others treatment has failed because of ignorance of the anatomical territories of the internal and the short saphenous veins. Some failures are due to the giving of injections in quite unsuitable cases, others to giving inadequate injection treatment in suitable cases. The treatment of ulceration, phlebitis, etc., may prove unsuccessful through the omission of necessary surgical measures.

The treatment and management of limbs in which there is varicosity or enlargement of the superficial veins secondary to obstruction or thrombosis of the deeper veins are not considered here. Such cases should be eliminated by a careful history and a full clinical examination.

Diagnosis

Treatment should not be undertaken without an adequate medical history and a careful examination.

History.—It is important to know the patient's age, the age at which the veins developed, their speed of progress, the effect of any pregnancies, the nature of any complications, the details of past treatment, and the nature of the present disability. The character of the patient's work and other physical activities should be ascertained.

Past History.—Information must be sought about the patient's previous health. Has there ever been typhoid fever or any other possible cause of deep thrombosis? Is there a history of skin disease, of peripheral arterial disease, or of other disability of the lower limbs?

Family History.—A family history of varicose diseases occurs in approximately two-thirds of the cases, and a bad history has an important bearing upon the question of treatment. The practitioner who embarks upon the treatment of a familial case in which the veins have started at an early age and have progressed rapidly with successive pregnancies will gain little credit from injection treatment.

Physical Signs.—A general examination is advisable if systemic disease is suspected. Both lower limbs must be examined and the general condition of the skin and subcutaneous tissue determined. More detailed information about the size, thickness, and tortuosity of the veins can be obtained by palpation. Varicosity of the short saphenous vein (Fig. 1) is apt to be overlooked, and examination for this should always include the region behind the external malleolus.

The various tests for venous incompetence should be carried out. These include the determination of a well-defined impulse on coughing or percussion of the vein, and Trendelenburg's test. Special attention should be directed to the skin. There may be thinning in relation to actual varicosities or congestion of the lower and inner part of the leg when the internal saphenous vein is incompetent.

FIG. 1.—Posterior aspect of legs showing varicosity of left internal and short saphenous veins.

FIG. 2.—Chronic varicose ulceration in region of right external malleolus, associated with incompetence and varicosity of short saphenous vein.

Details of any phlebitis, eczema, ulceration, or oedema must be noted, and the relationship of these complications to the underlying veins determined (Fig. 2). The horizontal position is best when examining an area of suspected phlebitis.

It is advisable also to know whether the arteries are clinically normal in the feet, and the latter should be examined for deformities such as hallux valgus, corns, etc. The type and suitability of shoes should be noted.

Principles of Treatment

The practitioner must know what may be reasonably expected from the various methods of treatment. Relief may be obtained in uncomplicated cases by supports, by injections, by operation, or by a combination of operation and injection. Varicosities below the knee, especially when thin-walled, respond well to injections. If, however, the internal saphenous vein is incompetent in the thigh, or if the veins are relatively straight and thick-walled, then thrombosis will be uncertain and recanalization likely. Operation, or operation and injection, will be needed in these cases.

In complicated cases it is essential to know the extent and nature of the underlying varicose veins. If these are of a type likely to respond to injections, then injection will have to be incorporated in the scheme of treatment. If, on the other hand, the veins require operative treatment, then the complications will have to be dealt with and the appropriate surgical treatment carried out. The ideal to be aimed at is the cure of complications, the obliteration of incompetent veins, and the restoration of a limb which requires no permanent support.

External supports are indicated only in uncomplicated cases when other treatment is not possible or advisable, or as a temporary measure during injection treatment. The various types of crêpe bandages can be extremely helpful, but all too frequently these are applied in such a way as to give little support to the limb. Elastic stockings must fit accurately, and should be fitted by the suppliers. Measurements for them should be taken first thing in the morning.

Injection Treatment

Many drugs have been used as sclerosing agents, but quinine-urethane is one of the most certain. It must be used only by those familiar with intravenous technique, as leakage into the tissues may produce necrosis. The veins should be distended by a light rubber tourniquet, and then the patient should lie horizontally on a couch in a comfortable position. Treatment should start in the distal veins and one injection should be given at each sitting. The initial dose should be 0.5 ml., and subsequent dosage should not exceed 2 ml., depending upon the size of the vein. Local reactions are usually moderate, except when the veins are very thin-walled or very large. Mild general quinine reactions occasionally occur in women. Large veins should be treated at intervals of five to seven days, while smaller veins may be treated at intervals of two or three days. A crêpe bandage may give support during the treatment of large veins.

Cases for operation will not normally come under the care of the general practitioner, but post-operative injections may be required. Occasionally excellent results are obtained in those borderline cases in which surgery would appear to be preferable but in which for one reason or another it is decided to test the efficacy of injections.

Phlebitis

Phlebitis in the lower limbs is invariably due to varicose veins and is secondary to venous stagnation and nutritional impairment of the vein wall. The diagnosis will be established by the history and by the presence of varicosities and a tender subcutaneous swelling, with fixation and discoloration of the overlying skin. Oedema may be marked in massive thrombophlebitis.

The objects of treatment are: (1) to prevent spread of the thrombosis in the superficial varicose veins; (2) to prevent spread of the thrombosis to the deep veins with the risks of pulmonary embolus; (3) to control oedema; (4) to improve the circulation; (5) to control infection if present; and (6) to prevent recurrence.

Anticoagulants will not be discussed here, as these will not normally be used in cases under the general practitioner's care. The following are the main types of phlebitis.

Local.—In mild or moderately severe cases the leg should be enclosed in "elastoplast" and a pad incorporated immediately above the upper limit of the thrombosis. Moderate activity should be permitted, although fatigue must be avoided. The elastoplast should be changed at weekly intervals and should be continued until the local inflammatory changes have disappeared.

Spreading.—Ligation of the internal saphenous vein at the saphenous opening may be indicated in cases with ascending thrombosis in the thigh.

Recurrent and Chronic.—Most of these cases show saphenous incompetence in the thigh, and operative treatment is necessary after the acute attack has subsided.

"Sock" Phlebitis.—In this condition there is much periphlebitis with extensive woody induration of the tissues of the lower part of the leg. Resolution occurs with prolonged elastoplast treatment, but operative treatment of the veins is usually required to prevent recurrence.

Infective Thrombophlebitis.—These cases are usually streptococcal and associated with high fever, rigors, and acute inflammatory signs. Penicillin and saphenous ligation are indicated.

Diagnosis may be difficult when the veins are embedded in a large amount of fat. Conditions such as thrombophlebitis migrans, thrombo-angiitis obliterans, etc., should be considered when thrombosis occurs in apparently normal veins.

The use of external supports may be needed temporarily after the acute phase has subsided. When operation is indicated this should be carried out during a quiescent interval. If injections are indicated these should not be started until at least six months after the attack of phlebitis.

Eczema or Dermatitis

Typically varicose eczema starts in the lower third of the leg, in relation to old-standing areas of congestion, but it may develop over varicosities anywhere or be secondary to ulceration (Fig. 3). Long-continued eczema leads to sensitization of the skin and involvement of other parts of the body. Recurrence is inevitable if the varicose origin of the eczema is not recognized.

Curative treatment involves treatment both of the eczema and of the veins. It is essential to decide whether the veins can be cured by injections or by operation. Elastoplast should not be used on patients with eczema.

Mild Cases.—Local treatment will usually cure small areas of dry eczema. An ointment of equal parts of zinc oxide ointment and soft paraffin should be applied daily and the affected region covered with as little dressing as possible. The old ointment should be cleaned off with liquid paraffin at each daily redressing. Some cases respond well to "siccolam," but

very little must be applied and the new ointment should be put on the top of the old. No other dressing is necessary. A mild "sphagnol" ointment often proves helpful, and x-ray treatment is invaluable in old-standing cases. If injections are indicated these may be carried out during the treatment of the eczema.

Severe Cases.—When the eczema is extensive or severe, treatment should be on the above lines, but combined with a period of absolute rest in bed, with the lower end of the bed elevated. In many cases there are indications for operation. This can be carried out under penicillin cover after rest and local treatment have controlled the eczema.

FIG. 3.—Chronic varicose ulceration with scarring, pigmentation, and eczema.

Varicose Ulceration

There are many methods of treatment of varicose ulceration. I have gradually come to the conclusion that long-standing cases are best treated by operation if sound healing of the ulceration and a useful limb requiring no external support are to be secured. The special indications for operation are either incompetent veins in the thigh, incompetent communicating veins in the calf, or incompetent thick-walled veins.

Cases Suitable for Injection.—If the veins are of a type suitable for injection, then treatment must be built around this, and small and early ulcers may be cured by this measure alone. Most cases, however, require a combination of injections and external support. Injections should start distally and as near the ulcerated area as is safe, and the limb should be enclosed in elastoplast below the knee. This should be changed weekly and a further injection given. Elastoplast treatment should be continued for about three weeks after the ulceration has healed and it should be followed by the use of a crêpe bandage for a further three to four weeks.

Cases Suitable for Operation.—The ulceration is healed by postural treatment before carrying out surgery. This involves a period of absolute rest in bed, with the lower end of the bed raised on 8-in. (20-cm.) blocks. The ulcerated area should be dressed with an ointment of equal parts of zinc oxide ointment and soft paraffin, and covered with light gauze dressing. Fresh ointment is applied daily after cleaning off the old ointment with liquid paraffin. The oedema and pain rapidly clear up, and a foul infected ulcer is converted to a clean granulating wound which heals steadily. Penicillin cover has made operation possible immediately healing has occurred. This

method of treatment may also be used as a preliminary to injections or permanent supports.

The various types of adhesive dressings cannot be considered, nor can the treatment of very complicated cases be discussed in which there is ulceration, eczema, chronic phlebitis, and bone change. There are two points which may be of some value to the general practitioner. The first is that, although penicillin applications may sterilize an ulcer, they will not necessarily lead to healing, and may, exceptionally, cause a generalized skin eruption. Secondly, rashes may follow the prolonged use of ointments containing sulphonamides.

Haemorrhage

External haemorrhage may arise either spontaneously from thin-walled and congested malleolar varicosities, or it may result from injury. In either case the blood loss may be rapid and considerable. Immediate elevation of the limb must be followed by a firm local dressing. Ulceration may develop at the site of the haemorrhage. Subsequent treatment of the veins is indicated.

Internal haemorrhage may occur. Spontaneous cases result from the rupture of minute subcutaneous vessels, and active treatment is rarely needed. Traumatic haemorrhage may occur when a large vein is torn but the skin remains intact. A small haematoma may resolve satisfactorily with elastoplast treatment, but a large one may require evacuation. Traumatic thrombosis may lead to an extending phlebitis.

Pregnancy

Varicosities usually start about the second or third month of pregnancy. Rapid progress often occurs when there is a bad family history of varicose diseases, and especially when varicosities have started at puberty. Uncomplicated varicosities do not cause oedema, but may be associated with other causes of swelling of the lower limbs. The degree of discomfort produced is partly an individual factor and partly related to the speed of development of the varicosities. Generalized skin congestion and discoloration may be marked. Vulval varicosities and piles may also develop.

Active treatment is not often advisable, because success is unlikely owing to the speed of development of the condition. If local symptoms are marked or if the veins are large, then crêpe bandages or elastic stockings should be worn and an afternoon rest taken if possible. Injection treatment should be regarded as quite exceptional, and quinine should not be used. The veins usually show considerable improvement after delivery, but they never return to the condition they were in before the pregnancy. After the baby has been weaned active treatment should be carried out in keeping with the general principles already indicated. Every subsequent pregnancy tends to aggravate existing varicose veins, and thus increases the risks of subsequent complications. If active treatment has been carried out and a further pregnancy is desired, then such treatment should be completed well before the pregnancy starts, and should be safeguarded by wearing a below-knee stocking throughout the pregnancy.

In a leading article in the *Journal of the American Medical Association* (September 9, 1950, p. 182) it is estimated that the minimum cost to medical students of attending medical school for one academic year, including the cost of tuition, other fees, books, equipment, all essential living, and travel, ranges from \$567 (£202 at the present rate of exchange) to \$2,252 (£804), with a median of \$1,473 (£526).