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VARICOSITIES OF VEINS CHOICE OF TREATMENT, AND END-RESULTS*

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This subject naturally falls into three parts: (1) varicosities of veins, (2) choice of treatment, and (3) end-results, and it would appear desirable to consider it under these three headings.

Varicosities of Veins

I propose to confine my remarks to varices occurring elsewhere than in the anal canal, and, in order not to provoke too wide a discussion, to consider chiefly varicose veins in the lower limb; but it is necessary to remember that they may be met with in the pampiniform plexus, in the lower oesophageal region, occasionally in the walls of the chest or abdomen, and in the scalp, and also that they are not very uncommon in both the cranial and spinal parts of the pia mater. The fact that varicosity may affect the veins of the pia mater indicates a developmental origin, and the view, therefore, that varicose veins in the legs are the result of the upright posture and occupational factors such as prolonged standing would appear to be incomplete unless the influence of a congenital factor is assumed to be present also. It is probable that posture, by throwing an increased strain upon the unsupported leg veins, is contributory, but since varicose veins are occasionally found in quadrupeds such as horses the upright posture in man cannot be held to be solely responsible, while their occurrence in the meninges and the fact that many people who do prolonged standing go through life without developing varicose veins would further discount the effect of the upright position as the all-important factor in aetiology. That a primary congenital defect, whether in the venous walls, in the valves, or in the innervation of the veins themselves, is not the whole story is apparent from the fact that we do not find varicose veins in the legs of infants. Their frequent occurrence during pregnancy emphasizes the importance of an obstructive factor and possibly an endocrine one also, since varicosities sometimes appear quite early in pregnancy. Whether the weakness of the venous walls is of an inflammatory or non-inflammatory character, whether it is due to lack of nerve tonus or valvular insufficiency, or is the result of a form of new growth comparable to an angioma, is debatable, but in the case of the leg veins there can be no doubt of the influence

of the two important factors to which reference has been made—namely, the inherent or congenital, and the obstructive or congestive.

Before further considering varicose veins in the lower limb it may be as well to make a few remarks about the common or adolescent variety of varicocele. This is a condition which, appearing at a time of physiological hyperactivity, is usually transient and requires for its relief merely a suspensory bandage for the left testis and the reassurance of the patient as to its insignificance. Certain of the Services, however, still require candidates

FIG. 1.—Diagrammatic illustration of varicose knots. Owing to defective valves the high intravenous pressure in the trunk, c, acts at e¹, e², in combination, when muscular action compresses the main deep vein, a, with the pressure transmitted along the connecting veins, d¹, d².

a, deep vein; b, deep fascia; c, varicose vein; d¹, d², connecting veins; e¹, e², varicose knots; f¹, f², muscle masses.

who are affected by this condition to be treated by operation before they are accepted. Is it not time that a modification of such regulations should be advocated? What potential source of disability or invalidism is an adolescent varicocele in an otherwise perfectly fit young recruit when he is compared with one whose left pampiniform plexus is less tortuous and turgid? The only disadvantages from a Service point of view possessed by a man with varicocele would appear to be that in the Tropics the condition may be somewhat exaggerated, since venous tone is there

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diminished, and in a community of men living together there may possibly be psychological repercussions; but these considerations are insignificant. Minor degrees of varicocele are comparatively common, but with the passing of adolescence they disappear, and it is exceedingly rare to meet with the condition in middle-aged or elderly men. Operations for varicocele should therefore not be performed except in very exceptional circumstances. Already it is pleasing to note that the official viewpoint regarding varicocele is broadening in some Services, and I am indebted to the Medical Director-General of the Navy, Surgeon Vice-Admiral Sir Percival Nicholls, for kindly informing me that, according to Naval recruiting regulations to-day, a candidate with a varicocele may be accepted provided it is not likely to form a serious impediment to the efficient performance of duty. Such an outlook might be commended more generally.

A vein may be said to be varicose when it is dilated (usually irregularly), elongated, and tortuous. In the case of the leg veins the condition may affect the main superficial venous channels or their smaller tributaries. The irregularities in dilatation which give a beaded or pouching appearance to the affected veins depend upon pressure differences between the superficial and deep venous channels (Fig. 1).

Choice of Treatment

I propose to limit my remarks to the treatment of varicose veins and not deal with complications such as phlebitis, ulceration, or eczema. Leg varices may be treated by (1) excision or ligation, (2) the injection of sclerosing substances to produce local thrombosis, or (3) by combinations of these methods. No treatment is necessary for minor degrees when there are no symptoms; but such cases often progress, and indications for treatment may then arise.

Before locally treating any case of varicose veins, however, we should endeavour so far as possible to remove the cause, and while we know no way of influencing the congenital factor we may be able to lessen congestion by more rest, provide support in the form of an elastic stocking, elastic adhesive, or Unna's paste, or effect the removal of an abdominal tumour; while we must not lose sight of the fact that, after parturition, varicosities which have arisen in pregnancy frequently disappear. It is most important also to determine whether the deep veins are patent or not. If they have been occluded—for example, as a result of typhoid fever or white-leg—then the varicose enlargement of the superficial veins must be regarded as compensatory, and these must not be interfered with. If there is any doubt as to the patency of the deep veins a tourniquet should be applied above the varicose veins just tightly enough to occlude the subcutaneous veins, and the patient made to walk about. If the suction action of the contracting leg veins is able to empty the distended varicose veins the deep channels must obviously be open, but if the varicosities increase it must be concluded that the deep channels are occluded and the superficial veins must not be obliterated.

End-results

It is important to refer to this aspect before proceeding to a detailed consideration of the methods of treatment, because the two are interdependent: the treatment chosen must in great part depend upon what is found to be its end-result when compared with that following alter-

native procedures. It has already been stated that varicose veins are progressive; more veins may become involved even after adequate treatment, and if the progressive character of the condition is not recognized, whatever particular treatment has been undertaken may incorrectly be held to have failed. This fact accounts for some of the alleged recurrences after injection treatment; there can be no doubt, however, that following this treatment true recurrences do occur, and in most of such cases injection alone should not have been the method used. It should be remembered that when the intravenous pressure remains high the thrombus induced by injection may soon be canalized.

A study of end-results has shown that injection treatment alone is insufficient in cases where the varices are

FIG. 2.—Diagrammatic representation of the saphenous vein in the thigh and its main tributaries, showing the necessity for ligating the vein above the highest of these to avoid the opening up of channels such as a, d', d'', f, and a, d', e, and thereby the re-establishment of the main saphenous channel.
a, superficial circumflex iliac; b, superficial epigastric; c, superficial external pudic, tributaries of internal saphenous vein. The femoral vein is shaded.

practically limited to an internal saphenous system in which the great saphenous vein is much distended throughout owing to a rapid reflux of blood through its incompetent valves and in which the venous pressure is therefore high. In such cases where the Trendelenburg test is found to be positive, ligation of the internal saphenous vein above its highest tributary and just before its termination in the femoral vein is indicated. It is necessary to perform the ligation at this particular site, since recurrence may take place if reflux is permitted to occur into a tributary through failure to ligate the saphenous trunk above its entry (Fig. 2). Other cases liable to relapse after injection are those in which large localized venous pouchings occur with a high intravenous pressure, and certain of these are better excised.

Methods of Treatment

A study of end-results shows that some cases of varicose veins may be adequately dealt with by injection alone, others by combined injection and ligation, and still others by limited excisions. Choice of treatment must be determined by the particular group of case to which the patient belongs. It is therefore necessary to decide which patients are best suited for each of these particular varieties of treatment—namely, injection, injection with ligation, or excision.

Injection.—This method is suitable for relatively small and comparatively isolated varices such as are so commonly seen in young and middle-aged women. For the injection many different sclerosing agents have been used, but in 1937 H. I. Biegeleisen of New York drew attention to mono-ethanolamine oleate, claiming that it was less toxic and a better sclerosing agent than sodium morrhuate and that, being, in contradistinction to morrhuate, a definite chemical compound, it could be prepared in perfectly comparable batches. In Cardiff we have verified Biegeleisen's contention, and are now using mono-ethanolamine oleate, $C_{17}H_{33}COONH_2CH_2CH_2OH$. This is a deliquescent solid, which is made into a 5 per cent. solution that is slightly turbid; although it may safely be employed in this form it is better clarified by the addition of 25 per cent. glycerin or 2 per cent. benzyl alcohol. Five c.cm. or more may be used at weekly intervals. A firm thrombus is formed, and this solution is, in our opinion, the most satisfactory of the sclerosing agents. Morrhuate and quinine urethane solutions have their contraindications, while salicylates tend to be painful. None of these disadvantages attends the use of the oleate solution, and as it is only slightly irritant to the perivenous tissues, ulceration is not likely to occur if a little escapes through the puncture in the vein.

Ligation.—Where Trendelenburg's test is positive in the type of case already referred to, in which the great saphenous venous trunk is chiefly affected, ligation of the termination of the trunk by fine silk or catgut suture is combined with injection of the outstanding varicose clusters. The descending thrombosis which follows the ligation greatly reduces the number of veins that require to be treated by injection, and the removal of the hydrostatic pressure from above renders the injections more effective. At the same time the advantages of an ambulatory form of treatment are preserved, since the ligation as well as the injection treatment is carried out under local analgesia. Emphasis has already been laid on the necessity for tying the internal saphenous vein at the saphenous opening above its highest tributary—that is, immediately before its termination in the femoral vein. It is also advisable, after ligating and dividing the vein between ligatures, to transfix the short segment of vein beyond each ligature and again tie the ligatures so as to make sure of their not slipping. This is particularly important in a patient who is allowed to walk about. It is as well not to transfix the upper segment of the vein proximal to the ligature lest thrombus form around the transfixion suture and extend into the femoral vein, where it may conceivably be detached and give rise to pulmonary embolism or infarction—a complication which we have fortunately never seen in connexion with the treatment discussed.

Excision.—The great majority of varicose veins can be satisfactorily treated either by injection alone or by injection with ligation; a small group remain which may require further ligations—for example, of the external

saphenous vein, or a more distal ligature in the case of the internal saphenous in addition to the terminal ligature already described. Some few remain that are best treated by excision: such are cases of large isolated and distended knots occurring in young people and often apparently not directly connected with either saphenous system. These are comparatively rare.

Conclusion

With the great increase in the popularity of sclerosing solutions in recent times the more surgical methods of treatment have become somewhat neglected, but a study of the number of failures resulting from injection alone has shown that the best treatment of varicose veins is only occasionally injection, ligation, or excision, each practised as an independent measure. Most cases are best treated by a combination of injection and ligation.

Summary

The aetiology of varicose veins is surveyed, congenital and congestive influences being considered prominent factors.

Varicocele is a transient condition and should be treated conservatively.

Recurrences after treatment of the leg veins, and new varices incorrectly regarded as recurrences, are discussed.

It is contended that most cases are best treated by combined ligation and injection, particularly where Trendelenburg's test is positive.

The preparation and advantages of ethanolamine oleate solutions as sclerosing agents are discussed.

REFERENCE

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NERVOUS DISORDER AFTER INJURY

A REVIEW OF 400 CASES

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A distinguished judge is reported recently to have stated that he regarded workmen's compensation as far and away the most difficult branch of the law, and he added that one of the chief difficulties in all these cases was traumatic neurasthenia. The medical aspect of the Workmen's Compensation Act presents many problems, particularly in the nomenclature and classification of the various functional nervous disorders which may be associated with injury. To label such disorders with the general heading "traumatic neurasthenia" is to ignore modern psychological approach and to stultify prognosis and treatment. One of the objects of this review is to call attention to the confusion which appears to exist in this respect and to put forward certain suggestions for classification. I write as a general physician who has been interested in such cases for the past twenty-five years, and not as a specialist in psychiatry.

There are two aspects of any injury. First, there is the surgical aspect, which deals with the anatomical disturbance caused by such injury, and its local effect: of the series under review 235, or 59 per cent., come into this category. Secondly, there is the result of the injury on the patient's nervous system. By this I do not imply organic injury to nerves, but a functional or psychogenic reaction which may lead to distortion or exaggeration of