A CLINICAL LECTURE ON VARIX.

Delivered at the Manchester Royal Infirmary.

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CURRENT OPINION.

GENTLEMEN,—No disease is seen among the out-patients of our hospital more commonly than varix of the lower extremity, and probably, for this very reason, there is none which generally attracts less interest. The student assumes that he is perfectly familiar with varicose veins of the leg, and that he has nothing to learn concerning the affection, in accordance with which view he passes on to cases which are regarded as more obscure, and, therefore, as more interesting. But, as a matter of fact, there are few common diseases regarding which we find a divergence of opinion greater than that presented to us by the current textbooks of surgery in the chapters dealing with this affection. Its symptoms are indeed recognised with clearness and comparative unanimity, but regarding its causes, its true nature, and even its common complications, we find the widest discrepancy of opinion.

In illustration of these remarks I may quote to you passages from two of the most recent and most popular textbooks of surgery. In one we read as follows:

Varix is induced by any condition which leads to a frequently repeated or more or less permanent distension of a vein, such as prolonged standing the pressure of tight garters prolonged or forcible exertion, the pressure of a pregnant or displaced uterus or of a pelvic tumour, or obstruction to and occlusion of the deeper veins Moreover, chronic constipation often hinders the return of blood from the lower limbs, whilst inherited weakness, or the relaxation of system due to sedentary habits, must also be looked on as predisposing causes The effects of this condition are very varied there is usually a little oedema of the ankles congestion of the skin often follows. Eczema is frequently induced by the irritation (of congested patches) and may terminate in actual ulceration.¹

Such may be taken as the more widely-adopted view, but the following quotations from Mr. Pearce Gould's article in Treves's *System of Surgery* appear difficult to reconcile with the above:

Facts render it exceedingly probable that the real cause of varix is an inherited tendency to over-development of veins, or perhaps to some defect in the veins. It is important to bear in mind that the conditions which reveal varicose veins are by no means necessarily those which induce them. Anything which produces fullness of the venous system not only makes the large veins evident to sight, but the distension of the dilated veins may cause pain. It is this fact which leads patients, and surgeons too, to attribute too great an etiological importance to standing or exercise, to pregnancy or constipation. In many cases these are only the conditions which lead to the varix being noticed. The frequent association of chronic congestion, oedema, eczema, ulceration, and chronic induration of the skin with varicose veins is a fact, but that they are related as cause and effect is highly improbable.

ETIOLOGY.

Having thus briefly referred to the current teaching upon this subject, let us turn to the clinical facts and endeavour to ascertain which of these two somewhat opposed views best meets the actual conditions. Accepting the definition of varix as a permanent dilatation of a vein, we may conclude on *a priori* grounds that such dilatation must be due to one or other of the following conditions, acting either alone or in combination:

I. The resisting capacity of the vein may be diminished owing to:

1. Lack of external support.

2. Weakness of the wall or of the valves due to (a) congenital peculiarities, (b) acquired defects.

II. The distending force of the contained blood may be increased by:

1. An obstacle to the escape of blood from the veins, such as diseases of the heart, lungs, and liver, and local pressure upon veins or gravitation.

2. An increased afflux of blood from the arteries and capillaries.

Certain of these possible causes of varix we may quickly exclude, as their presence would be tolerably obvious, and they are certainly absent in all ordinary cases.

The lack of external support may well determine the

localisation of varix in the superficial rather than in the deep veins, and doubtless often does so, but it can hardly be regarded as a cause of the disease.

Acquired weakness of the venous wall is not as a rule present as a primary condition, the wall being generally hypertrophied—at least in the earlier stages of the disease.

Local weakness of the vein may in rare cases be produced by an injury and lead to varix.

Thus, then, we reduce the possible common causes of varix to three classes:

1. Congenital enlargement of the veins or weakness of their walls or valves.
2. Obstruction to the exit of blood from the veins.
3. Increase in the influx of blood to the veins.

CLINICAL CLASSIFICATION.

Let us now endeavour to divide into groups the cases which come before us. If you will do so I think that you will recognise three main types, which are by no means always well defined or mutually exclusive, but which nevertheless present a certain broad distinction.

A.—Developmental Varix.

First we have a group of cases in which a large trunk stands out from a limb whose tissues are otherwise healthy. This condition may be present in one or both limbs, but is often strictly unilateral even when highly developed. It is more common in the left side. The internal saphena, with or without some of its larger branches, may be alone affected, or the disease may be limited to the external saphena vein, or large branches only of either trunk may be selected. In most cases the special characteristic is the limitation of the disease and its selection of large channels. The subjects are often young adults, and the most marked cases occur in perfectly robust young men; the type is commonly met with among rejected candidates for the public services. There is often a history of hereditary tendency to varicose veins or to hæmorrhoids. In some cases the veins of the upper limb are also prominent. Oedema, eczema, and ulceration are conspicuous by their absence, or if ulceration occurs it is from atrophy of the skin overlying a large venous pouch and is not of the type of the ordinary "varicose ulcer." Hence almost the only secondary troubles due to this disease are pain and a risk of hæmorrhage from injury to a large subcutaneous vein. No external cause is discoverable; pregnancy, constipation, and the like are readily excluded. The only etiological indications which we possess are the history of heredity and the not infrequent association with varicocele with enlargement of the veins of the arm and chest and occasionally with nævus.

It is difficult to believe that such cases can be due to any known cause of venous dilatation other than a congenital peculiarity. The primary hypertrophy of the venous wall, the distribution of the disease, which, whether it be universal or very sharply localised, is in either case inexplicable by any known cause of obstruction; the fact of development at a fixed age—that of puberty; the hereditary history; the association with nævus, which is certainly a congenital disease of blood vessels; even the special proclivity of the male sex; all combine to indicate a congenital origin and we may characterise these cases as *developmental varix*.

B.—Obstructive Varix.

Secondly, we have a more common group of cases in which the varix is far less sharply limited. It is bilateral, except at its earliest appearance. We no longer find one or a few large and sharply-defined trunks, but we have an almost proportionate swelling of veins of all sizes, and therewith the wall is apt to be slightly obscured in outline by some swelling around the vessels. Rare in the young and in early adult life, this type increases in frequency with later years. It is more common in the female sex. Complications, such as oedema, eczema, or chronic ulceration are almost always ultimately developed, but we do not often find large thin-walled venous sacs, with their possibilities of profuse hæmorrhage. It is in these cases that we can very commonly obtain information as to a possible cause of venous obstruction, and especially we find that pregnancy may be referred to; the frequency of the disease among women has been already noted, and it will be found that such women have usually borne children; while in a large number of cases there is a direct connection as regards

time between the development of the varix and the occurrence of pregnancy.

Here then our indications point to obstruction of the venous return as the prominent cause of the disease. Its development in later life, its dissociation from other vascular abnormalities, its symmetry and diffused character, its association with oedema and other effects of raised intravenous pressure, the obscuring of the outlines of the venous walls by slight inflammation, the definite association with pelvic pressure, all these allow us to use provisionally the term *obstructive varix* for this group of cases.

C.—*Hyperæmic or Inflammatory Varix.*

Thirdly, we find occasionally no varix of the larger trunks, but we have patches scattered over the surface of the leg in which the venules only are enlarged, and present themselves as somewhat radiating stellate or leash-like areas of dusky red streaks. An analogous condition is met with in the veins of the pharynx in many cases of chronic pharyngitis and in the smaller facial and other veins of plethoric subjects. The affected areas are generally infiltrated with the products of old chronic inflammation, and it is probable that these small varices are a direct result of such inflammation and of the prolonged hyperæmia connected therewith. On these grounds we may describe the condition as *hyperæmic or inflammatory varix*, and regard it as probably due to a long-continued increase in the arterial blood supply. In the lower limb this condition is not common, but it may be met with in association with various inflammatory conditions as with chronic ulcerations, exposure to heat, and the like.

DEVELOPMENTAL AND OBSTRUCTIVE VARIX.

If now we omit from further consideration the third of these types of varix we find that we are left with two main groups of cases—the “developmental” and the “obstructive.”

The first corresponds to the description quoted from Mr. Pearce Gould, the second to that of Messrs. Rose and Carless. The first is the simpler type; its characters are well-defined, its causation is tolerably obvious. It is devoid of any complications due to a defective blood current in the limb because no resistance is offered to the circulation. An abnormally large channel will hold an abnormally large quantity of blood, but has no direct effect in preventing the flow of that blood along its lumen—in fact a larger channel would *per se* tend to assist the circulation, unless complications were introduced by the failure of its valves. Wherein the congenital defect consists is less readily ascertained. In the majority of cases it is probable that the wall of the vein is affected and that the true pathology is a condition of hyperplasia. In some cases possibly a defective valvular structure may originate the condition, but this cannot be the usual primary lesion, as defective valves alone would only cause varix by interfering with the flow of blood through the vein, and would thus lead to general tissue congestion with its resultant defects of nutrition. The essential condition of purely developmental varix is that the venous enlargement is primary and the accumulation of blood within the vein is secondary.

The obstructive type is of more complicated origin. Venous obstruction alone does not readily give rise to varix, but produces only a congestion, which is not permanent, but which disappears with the removal of its cause. Nothing is more common than to find in pregnant women an enlargement of the veins of the labia and lower limbs, which is commonly called varix, but which is wanting in the distinguishing character of permanency. Such dilatations often pass away after the birth of the child and the consequent removal of intra-pelvic pressure upon the large veins. It is only in a limited number of cases that a permanent varix is produced. Hence we require some condition beyond mere obstruction, and such a condition might merely be one of the degree of obstruction, or might consist in some special peculiarity of the vessels of the individual. As regards the degree of the congestion, we might regard the development of varix as requiring a certain considerable lapse of time or frequency of repetition, or a certain excessive amount of obstruction. We find, however, that in very many people neither frequency, duration, nor intensity of obstruction suffice to cause varix. Extreme congestion may appear with each of many pregnancies, and may still fail to acquire permanency, while every degree of severity

of pressure due to operation, accident, and disease may fail utterly to produce varix. Thus venous obstruction alone does not produce the development of a truly varicose condition, and we are forced to the conclusion that obstructive varix must be due to obstruction acting upon weakly veins which are prone to dilate. As we have already seen that there is the strongest evidence that venous dilatation may arise apart from any obstruction, and as a direct result of developmental peculiarities, it is reasonable to assume that a minor degree of such developmental defect may well fail to cause varix under ordinary conditions, but may, when slight or temporary obstruction has been produced, readily render itself obvious. Thus, then, we again seek in congenital venous defects the determining factor of the permanent varix which follows congestion, and our obstructive type owes its origin to a combination of developmental error and acquired obstruction. Either factor may predominate, but both are present.

And, lastly, we must assign to the obstructive factor the common complications of varix, complications the existence and frequency of which cannot be denied or assigned to an accidental association. Obstruction alone, and not dilatation, will produce oedema, tissue degradation, eczema, and ulceration; when these conditions exist there is not a mere congenital hyperplasia of veins. The results are, however, complicated by the fact that in obstructive varix the removal of the primary obstacle to the circulation is liable to leave further cause of obstruction. The mechanism of the condition is different from that of the purely developmental type. There is no longer an active enlargement of the vein with mere accumulation of its contents. The vein has now been stretched by pressure from within, and thereby its valves have probably been rendered incompetent, and its muscular fibres have undergone some atrophy. Hence we have a permanent source of obstruction and a permanent tendency to retention of blood in the capillaries, and to consequent tissue changes.

TREATMENT.

These considerations will influence to some extent our methods of treatment, in so far as they influence our prognosis after operation. The excision of varicose veins, however performed, is capable of relieving the patient of dilated areas and of developmentally imperfect vessels; it is not capable of relieving obstruction except by the indirect method of substituting healthy for valveless channels. When the developmental defect is limited to few trunks, to a single trunk, or even to a large pouch, the best results will be obtained. Where it is more widely distributed, and especially in cases in which the veins are large throughout the whole body, operation is far less successful. In the obstructive type of the disease the probabilities of success will largely depend upon the relative etiological importance in each case of developmental error or of obstruction. Thus varix of large vessels persisting after a first pregnancy indicates a marked developmental error, and is fairly amenable to operative treatment; diffused varix with tissue congestion of slow production is more typically obstructive and is far less favourable for surgical treatment. Obviously many other factors come into play in determining the prognosis after operation, but these considerations as to the essential origin of the disease have none the less a real value in guiding our advice.

In conclusion, may I once more insist upon the fact, which is too often ignored, that the essential cause of varix is in nearly all cases a congenital venous defect; that such defect may, if severe, show itself spontaneously, although in a comparatively mild and uncomplicated form, but that slight deficiencies are only rendered prominent by a superadded cause of congestion, and that unfortunately they are then liable to be accompanied by other troublesome results of a retarded venous circulation?

REFERENCE.

¹Rose and Carless, p. 297.

— PASTEUR INSTITUTE AT KASAUJI.—Since this institute was opened under the direction of Major Semple, 75 patients have been under treatment and 62 have been discharged. Although several of them have been bitten on the face by dogs and jackals there has been no failure. Seven British officers, 25 privates, 12 European civilians, and 31 of the native population have been treated.