Clinical lecture on varicose veins of the lower extremities / by William H. Bennett.

VARICOSE VEINS

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Clinical Lectures

ON

VARICOSE VEINS

OF THE

LOWER EXTREMITIES

BY

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WITH THREE PLATES

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PREFACE

These Lectures, with the exception of the third, have already appeared in the 'Lancet' of the present year.

They are now published, with a few trifling alterations and additions, as originally delivered.

Although the tables include, solely, cases treated at St. George's Hospital between the years 1880 and 1888, the Lectures themselves contain views and conclusions based upon an experience, almost entirely personal, extending over a much longer period.

It is hardly needful to say that they do not in any way pretend to be an exhaustive treatise on Varix.

At the same time it is hoped that they will be found to afford, in a convenient manner, an amount of practical information on certain points connected

with varicose veins of the lower limbs, which is not, as a rule, to be obtained from sources readily accessible to the student and practitioner.

For the drawings which are reproduced in the Plates I am indebted to my friend and late House-surgeon Mr. A. H. Ward.

W. H. B.

Chesterfield Street, Mayfair:
October 1889.

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VARICOSE VEINS

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LECTURE I.

GENTLEMEN,—Of the advice so abundantly offered to the student during his clinical studies, there is probably none more thoroughly sound than that which urges upon him the necessity for acquiring an intimate knowledge of the most common diseases, and at the same time warns him against devoting too large a share of his short curriculum to the study of those rare and interesting cases which are naturally so fascinating to us all. Such advice cannot be often enough repeated, nor can it be too closely followed, for I presume it must fall to the lot of most of you, a little later in your career, to be called upon to treat diseases which are ordinary rather than rare; and you may take it as a fact that by the success which follows your treatment of these common affections will your ability, for the most part, be estimated by

that section of the public from which your patients come.

However much the out-patient departments of our general hospitals may be from time to time adversely criticised, there is not the least doubt that—at present at all events—they afford the only accessible means by which the study of common diseases is open to the ordinary student, and those of you who have attended my practice among the out-patients here will recollect how constantly I was in the habit of calling your attention to valuable series of these common affections.

I hope, therefore, that I need offer no apology for devoting these lectures to the consideration of varicose veins of the lower extremities, one of the commonest as well as one of the most troublesome of surgical affections.

I propose to take as a basis for my observations the accompanying tables, in which are included, I believe, all the cases which came under my care in the out-patient department of St. George's Hospital, in which the varicose veins were obvious and pronounced, and in which treatment was sought either on account of the abnormal veins themselves or for some condition directly dependent upon them.

Twenty-three other cases, not tabulated, in which the symptoms were unassociated with any obvious varicosity are of interest, and will be considered

separately. I shall also have to refer to various cases which have been under my care in the wards of the hospital and in private practice.

At the expense, I fear, of being rather wearisome, it is my intention first to briefly consider *seriatim* the several points suggested by the headings of these tables—not that I suppose any new or startling facts will be forthcoming, but because, so far as I know, it is a long time since any analysis of such a large number of cases of this affection has been published, and also because I believe it cannot be otherwise than profitable to occasionally test the accuracy of teachings some of which owe their acceptance to little more than tradition, and which may in course of time require modification. (*See* Tables.)

Relative Number of Cases occurring in the two Sexes.

The number of cases amongst the females exceeds that on the male side by 21·62 per cent., which may be easily accounted for by the large proportion of cases apparently dependent on pregnancy; indeed, if the column of causes under this head be noticed, it is manifest that in the absence of pregnancy the number of cases in females would be considerably exceeded by those in the males. This is more particularly seen in cases affecting both limbs.

TABLE A.—

Limb or limbs affected	Total number of cases	Veins involved						Circumscribed varix at saphenous opening			Apparently predominating causes			
		Generally throughout leg and thigh	Generally throughout leg below knee	Popliteal region and outer side of leg	Internal saphena only	Veins over internal saphena only	Veins over calf of leg only	Both sides	Left	Right	Constipation	Hereditary tendency	Injury	Doubtful
Both . .	92	58	—	15	19	—	—	7	15	6	45	20	—	27
Left . .	93	39	26	—	25	2	1	—	20	—	36	15	1	41
Right .	74	29	25	5	10	2	3	—	—	6	8	39	2	25
—	259	126	51	20	54	4	4	7	35	12	89	74	3	93
—	—	48·62	20·07	7·72	20·85	1·54	1·54	2·70	13·51	4·63	34·36	27·02	1·15	35·9

TABLE B.—

Limb or limbs affected	Total number of cases	Veins involved						Circumscribed varix at saphenous opening			Apparent causes occurring singly or in combination			
		Generally throughout leg and thigh	Generally throughout leg below knee	Popliteal region and outer side of leg	Internal saphena only	Veins over internal saphena only	Veins over ankle and foot only	Both sides	Left	Right	Pregnancy	Constipation	Hereditary tendency	Injury
											Combined			
Both . .	163	140	14	—	9	—	—	—	14	13	131	59	?	—
Left . .	91	43	8	13	27	—	—	—	6	—	15	63	26	—
Right .	61	—	15	13	24	2	7	—	—	6	6	7	34	2
—	315	183	37	26	60	2	7	—	20	19	152	139	60	2
—	—	58·10	11·74	8·25	19·04	0·63	2·22	—	6·34	6·03	—	—	—	—

...ALES (259 CASES).

...e of patient when disease was first noticed			Predominating complications									Uncomplicated
Between twenty-five and forty	After forty	Doubtful	Piles	Varicocele	Varicose veins over pubes	Ulcer	Eczema	Persistent œdema	Thrombus (recent)	Evidence of old thrombus	Valgus	
46	—	6	13	9	1	29	15	—	—	In many cases	5	20
29	25	26	8	6	1	30	7	3	9		—	29
9	11	13	—	2	—	8	13	—	17		—	34
84	36	45	21	17	2	67	35	3	26	—	5	83
32·43	13·89	17·35	8·10	6·56	0·77	25·86	13·51	1·15	10·03	—	1·93	32·04

...EMALES (315 CASES).

...e of patient when disease was first noticed			Predominating complications								Uncomplicate
Between twenty-five and forty	After forty	Doubtful	Piles	Varicose veins in labia	Ulcer	Eczema	Persistent œdema	Thrombus (recent)	Evidence of old thrombus	Anæmia and menstrual irregularities	
119	—	24	42	2	47	31	2	23	In many cases	10	6
7	—	53	14	—	33	9	4	7		18	6
13	14	—	3	—	13	—	—	—		16	29
139	14	77	59	2	93	40	6	30	—	44	41
44·12	4·44	24·44	18·73	0·63	29·52	12·69	1·90	9·52	—	13·90	13·01

Taking the cases in which the affection is limited to one side, the number in males actually exceeds that in the opposite sex (particularly on the right side) in spite of the probable influence of pregnancy as a determining cause.

Extent of the Disease and the Veins involved.

1. *General varicosity throughout leg and thigh.*— (α) *On both sides.* Here the difference in the number of cases occurring in the two sexes is most marked. In many of the cases on the female side there was a distinct history of the affection having first shown itself very slightly in one leg, and then to have subsequently affected both limbs, equally, after two or three pregnancies, the limb originally affected being, as a rule, the left. In some of the cases the disease commenced in both limbs simultaneously after the first pregnancy. (β) *On the left side only.* Here the number of cases is about equal in the two sexes, being slightly in excess on the male side.

(γ) *On the right side only.* It is remarkable that in the females not a single instance of general varicosity was noted, although in three cases it was stated, by patients who were affected in both limbs, that there had first been varicosity on the right side, the left having become afterwards involved, in consequence of pregnancy in two of the cases, and 'low fever' in the other.

Amongst the males, on the other hand, there was evidence of general varicosity in many cases; and it is noteworthy that, in five of these, there was fulness of the veins throughout the whole limb at the time of the first appearance of the disease.

2. *General varicosity not extending above the knee.*—Here, again, the difference in the number of cases in the two sexes is very marked, and is not easily explained. On the male side not a single instance presented itself in which *both limbs were involved*, whereas the females produced fourteen cases; in three of these the disease appeared in the second limb after the first pregnancy, and as the patients were young, it is probable that successive pregnancies will, if they occur, entail varicosity throughout both limbs.

Of cases limited to the *right or left limb only*, it will be seen that the males afford far more examples than the females, the difference in numbers being less marked in the right limb, although in that the number is much greater in the males.

3. *Varicosity of the veins over the popliteal and fibular regions only.*—Of this condition no instance occurring in *both limbs* was seen amongst the females, but it was stated by a few of those who presented themselves with general varicosity of both limbs that the disease was first noticed in these regions, and gradually increased.

In the males there were fifteen cases, but I could

obtain no evidence of the condition having become general in any man.

In the examples of this class which were confined to *one limb* the women were affected to the extent of thirteen cases in each limb, whereas the men provided no instance in the left limb, and only five in the right.

4. *Varicosity limited to the internal saphena and its immediate branches.*—The aggregate number of these cases was rather larger in the females, but the instances occurring in *both limbs* were very much more common in the males. When confined to the *left limb* they were almost equal in numbers in the two sexes, but in the *right limb* the cases on the female side very greatly exceeded those in the males. In all the patients seen with this condition the internal saphena was affected from end to end, including its radicles on the foot; there was no fulness or increase of tension about the deep parts of the limb; nor was there, when the affection was confined to a single limb, any general increase in size on the affected side more than could be accounted for by the enlargement of individual and manifest veins. As a rule, the varicosity in the leg was in excess of that in the thigh, but in about 20 per cent. of the cases the tortuosity or size of the veins in the thigh exceeded that in the leg.

In a certain number of instances the disease was

most evident as a large mass of veins occupying the lowest third of the thigh, above and below which the saphena was only slightly involved, and in the majority of these there was a large globular varix at the saphenous opening.

In most of the cases of varix limited to the saphena occurring in men, the affection was first noticed at the ankle, and gradually extended upwards. In fourteen instances, however, the fulness, when first observed, involved the whole vein; four of these were on the left side and ten on the right, these latter having become manifest early in life—a point of interest in relation to the possible hereditary nature of some of these varicosities.

As to the point at which the disease was first observed in the women no definite evidence was forthcoming, in consequence of difficulties due to pregnancy, excessive constipation, and menstrual troubles.

5. *Mass of varicose veins at inner side of thigh, overlying but not involving the saphena.*—Only six cases were seen in which this condition could be with certainty diagnosed; two of these were in females. In all the cases the varicose mass could be entirely separated from the saphena, which, apparently healthy, ran beneath. The veins of the leg in the men were not visibly affected, but in the women, both of whom had borne children, there was some fulness below the

knee. In two instances, both males, there was a globular varix at the saphenous opening.

It is possible that some of the cases previously mentioned, in which a large mass of veins existed in the lower part of the thigh, the saphena being almost healthy above and below, may belong to this class; indeed, I have recently dissected out a mass of this kind from a patient in the Belgrave Ward, which proved to be quite unconnected with the saphena. (Plate I.)

6. *Varicosity limited to veins of ankle and foot.*—The seven instances of this condition occurred in females, and were confined to the right limb. In all, with the exception of two cases which followed upon fracture of the leg, the disease was noticed at an early age.

7. *Isolated mass of varicose veins over calf of leg.*—This appears to be the rarest form of varicosity met with in the lower limbs. Only four cases occurred; all were in males—one in the left leg, three in the right; and there was no evidence of other varicosity. In all, the external saphena seemed to be involved.

I have recently had another case under my care in the hospital, and on dissecting out the mass, which consisted of fifteen inches of greatly dilated veins, the efferent vessel was found to be the proximal part of the external saphena, whilst the afferent

vessels were the distal part of the same vein, and two small veins which came through the fascia, one on each side of the upper end of the tendo Achillis. (Plate III.)

8. *Circumscribed varix at the saphenous opening.*—This condition occurred much more frequently in men than in women.

The seven instances in which the affection existed at both saphenous openings were limited to males with varicosity *in the two limbs*. Five of these were in cases of general varicosity of the legs, and more or less of the thighs, the remaining two being in cases of varicosity confined, apparently, to the two internal saphenas and their immediate branches.

In varicosity of *both limbs* with varix at the saphenous opening on *one side only*, the percentage occurring in males largely exceeded that in the females, on the left side; but on the right, the percentage amongst the women was rather greater than in the men. In the males with general varicosity of *one limb only*, the varix at the saphenous opening was present on the left side nearly thrice as often as on the right; whereas with the females the percentage was larger on the right. In all the patients presenting this condition the saphena itself was large or varicose, although in a few cases to a hardly perceptible degree.

I have recently seen a case in which there was a

globular varix in Scarpa's triangle of the kind under discussion, without the least sign of varicosity of the saphena or any other vein. The patient had long ago been told it was a hernia, and indeed came to me with a view to submitting himself to the operation for the radical cure of that affection. The condition had existed from childhood.

Probable Causes.

Foremost amongst the causes commonly spoken of as producing varicose veins are constipation and pregnancy; the latter, acting either alone or, as often happens, in combination with the former, accounting almost entirely for the large excess of cases of general varicosity seen in females.

It is, however, important to realise that most of the so-called originating causes are, in reality, only causes which determine either the increase of the disease, or of certain symptoms connected with it, and are not necessarily associated in any way with its real origin.

Certain forms of hepatic and cardiac disease have from time to time been credited with a large share in the production of varicose veins in the lower limbs; and it is possible that in a very slight degree this may be correct, although the evidence upon which the conclusion rests is somewhat vague.

At the same time there is no doubt whatever that

morbus cordis may be, and often is, a fruitful source of complications, to be referred to later, in patients whose veins are already varicose.

The only obvious originating causes of general varicosity in the lower limbs appear to be the following:—(α) Obliteration of a large vein following upon (1) the formation of thrombus, such as may occur in typhoid fever, certain forms of gout and other affections, or (2) injury, of which five instances are noted in my tables, all being cases of fracture (one of the pelvis, two of the thigh, two of the leg). (β) Local pressure, such as that produced by tumours or fæcal accumulations, the latter being limited for all practical purposes to the left limb, and being, in my mind, of doubtful value as a cause. (γ) Pressure of a long column of blood may, in the case of the internal saphena, placed as it is outside all accessory muscular support, no doubt account for the fulness and slight elongation, hardly amounting to real varicosity, which is commonly seen in that vein amongst subjects who follow occupations necessitating long standing; but in the exaggerated varix, which is not uncommon in this vessel, some other cause must exist, since it occurs indifferently in all classes of individuals, and quite independently, at times, of continuous standing.

It is, however, clear that in a large number of cases, especially those affecting the right limb,

varix occurs without any such obvious cause. The question therefore arises as to whether a limb, in which the venous apparatus was originally perfect, becomes varicose till late in life, excepting as the result of some obvious cause of the kind alluded to.

Personally, the more I see of this affection the more I incline to the belief that a large proportion of these varicosities originate in congenital defects in the venous apparatus, which in some patients are distinctly hereditary. If this be the case, it would naturally be more easily demonstrated in instances of varicosity affecting the right side, which for all ordinary purposes may be assumed to be free from the influence of that doubtful originating cause, a loaded colon.

A reference to the tables will show that the percentage of cases on the right side with a distinct hereditary history is about equal in the two sexes—viz. rather more than fifty per cent. That the disease must—sometimes at all events—depend upon peculiarity in the veins themselves seems probable from the way in which severe varicosity develops in men who are robust in all other respects, and who do not suffer from constipation or other conditions in the least degree likely to produce the affection. Further, the disease affects all classes, rich and poor, with curious impartiality; it occurs in the active and sedentary, in the weak and strong, in the short

as well as the tall, and is to a great extent independent of occupation.

Again, the difference in the behaviour of the veins of the two limbs when these are subjected to precisely the same conditions is sometimes remarkable, for it is occasionally found that under these circumstances varicosity will develop in one limb only, leaving the other unaffected, either entirely or until a much later period in life. The best illustration of this is seen in varicosity arising apparently from the local constriction produced by the use of garters, in which the disease may be confined to one side, perhaps the right.

I hardly see how the occurrence of such cases can be explained otherwise than by assuming that some inherent defect or abnormality exists in the venous apparatus.

I have been unable to connect the *occupation* of the patient in any definite degree with the actual production of this disease, excepting in certain cases, already alluded to, in which the internal saphena was involved; but some occupations which entail long standing, exposure to great heat, or repeated slight injury undoubtedly tend to increase the varicosity or cause complications such as thrombus, ulcer, eczema, and œdema.

The influence of *stature* is interesting but vague. As a rule the veins seem to be affected in nearly

equal proportions in the tall and short, though general varicosity, without much affection of the saphena or other purely subcutaneous veins, is more commonly seen in short than tall subjects. On the other hand, cases in which the disease is more or less limited to the saphena are not often seen in any but tall patients.

The results of local constrictions from external sources (e.g. the use of garters) have been referred to incidentally; and although I believe more importance than necessary has been attributed to these local constrictions in the production of the disease, they have, without doubt, a tendency to cause a rapid increase in the varicosity, and may give rise to painful complications. It is, of course, difficult to obtain precise information from females as to these probable causes, in consequence of the constant association of pregnancy and constipation, the former predominating when the disease affects both limbs, and constipation when the left side only is involved.

Time of the Appearance of the Disease.

Under this head was noted the time at which the patient's attention was first called to the affection. This has, of course, but little real bearing upon the date of the actual commencement of the disease, for in some of the cases it was noticed accidentally after

trifling injury, and in many others it was obvious that the varicosity had existed long before it was seen by the patient.

The *males* afforded no instance in which *both limbs* were affected before the age of twenty-one, but between twenty-one and twenty-five no less than forty of the total number of ninety-two cases first attracted attention. In cases confined to the *left limb*, two of the thirteen examples noticed before the age of twenty-five had existed from 'childhood,' and three gave trouble before the age of twenty-one. In varicosity of the *right side only*, fifty per cent. of the cases were noticed prior to the age of twenty-one, five of these having been observed soon after puberty. It is noteworthy that no case in which both sides were involved commenced after forty.

The *females* presented but few cases affecting *both limbs* before the age of twenty-five, but between twenty-five and forty an enormous increase is shown, which is easily accounted for by the effect of child-bearing. Of the cases limited to the *left side*, about thirty-five per cent. were noticed before the age of twenty-five; of these three caused trouble before the age of twenty-one and after pregnancy. When the *right limb* only was involved, more than half the cases were noticed before twenty-five (twelve of which attracted attention prior to the age of twenty-one). The only examples of varicosity commencing after

forty were the fourteen cases in which the right limb was affected.

Complications.

Under this head are noted conditions which were held to be fairly dependent for their existence or continuance upon the varicose veins, or which owed their origin to the same cause.

1. *Hæmorrhoids.*—As may be expected, these occurred more commonly in patients in whom *both limbs* were varicose (i.e. in cases in which general varicosity was most advanced), and under these circumstances were more frequently seen in women than in men. In varicose veins of the *left limb* this complication was again found more frequently in females than in males, in whom it was only present in association with excessive constipation. It is remarkable that no instance of piles was seen in males when the varicosity was confined to the *right limb*, only three cases being seen in females. In two of these the piles followed upon lingering parturition long after the original varicose veins had been noticed, and in the third they seemed to have been caused by uterine displacement in a virgin.

2. *Varicocele.*—In the majority of the examples of this complication its existence was unsuspected by the patients. In the cases occurring with varicosity of *both limbs*, two were double, and with one of these

there existed also severe piles; the remaining seven varicoceles were on the left side. Those connected with varicose veins in the *left limb* only were not observed by the patients, excepting in one case where there was neuralgia testis. The two instances associated with varicosity in the *right limb* only, were manifest to the patients, but caused no trouble.

With reference to this complication, one point of interest was elicited—viz. that, with one exception, all the cases of varicose veins in which varicocele was present were noticed at a comparatively early age.

3. *Varix over pubes.*—The two examples of this condition occurred in males; one followed fracture of the pelvis, and the other was a sequel to typhoid fever; in the former there was general varicosity of the left limb, and in the latter both limbs were involved.

4. *Varicose veins in labia.*—The two instances of this affection were seen in cases of the most exaggerated varicosity of the lower limbs I have ever met with. The patients were very fat multipara; in one attention was called to the complication by the formation of an abscess in the labium, presumably due to the breaking down of a thrombus. There were extensive piles in both cases.

5. *Ulcer and eczema.*—Under these heads there is little that requires comment. A large number of the

ulcers, which presented every variety, were due to slight injuries to parts already eczematous; a few were the result of the bursting of varicose veins; and a small number were apparently spontaneous, but in reality resulted from the breaking down of thrombi, this cause being most commonly seen in men. A considerable proportion of the cases of eczema were associated with multiple hæmorrhages (purpura).

It is curious that on the female side no instance of simple eczema was met with in cases of varicosity confined to the right limb.

6. *Persistent* (*'solid'*) *œdema.*—These cases were all of long standing, and were limited in each instance to the lower two thirds of the leg. The parts were greatly hypertrophied, of stony hardness, and insensitive. In all there were scars of old ulcers, and in five a distinct history of syphilis was present.

7. *Recent thrombus.*—In connection with this complication occurred some of the greatest differences between the men and women; for whilst in the former there was no example of recent thrombus in varicosity affecting both limbs, there were twenty-three cases in the total number of 163 varicosities of both limbs in females. In the majority of these the thrombus was confined to one side, principally the left, and seemed to be associated with either the puerperal state or menstrual irregularities.

Thrombus in cases of varicose veins limited to

the *left limb* was more frequent in men than women. Three of the instances seen in the males were due to injury, four were examples of passive coagulation (gouty?) in old age, and two occurred spontaneously in young subjects. For the seven cases on the women's side no definite cause could be found.

In varix affecting the *right limb only*, no recent thrombus was noticed in the females; but in the males there were seventeen cases, all due to slight injuries, excepting three which were spontaneous in origin.

Although it has become a rather common custom to speak of thrombi which form spontaneously in many of these cases of varicose disease, as being of 'gouty' origin, they are, I believe, far more often due to extreme feebleness of the circulation connected with some form of heart affection, either functional or organic.

I have under my care at the present time a lady, beyond middle-age, who is afflicted with general varicosity of both lower limbs, and whose heart's action is so weak that if the limbs are allowed to remain in the dependent position for any considerable time one or more thrombi invariably form.

So long as she remains in the recumbent posture, or is careful to keep the legs well elevated, no formation of thrombus occurs. She has been assured that the blocks are due to gout, although her personal

history is free from evidence of its existence, and she does not come of a gouty stock.

There is in my mind not the least doubt that the unfortunate tendency to coagulation in this case is entirely the result of the defective cardiac action.

There is, however, a peculiar variety of thrombus which seems to occur only in those persons who are of a pronounced gouty habit; such, at least, is my experience.

The peculiarity referred to exists in the fact that the blocks form only when the patient happens to be confined to bed or laid up suddenly in any way after having been previously in apparent good health. So long as the customary exercise &c. is uninterrupted, the tendency to coagulation appears to be in abeyance. All the cases of this kind which have come under my immediate notice have been in males. I have recently had a good example under my care in the person of a gentleman whom it was necessary to confine to bed for a few days after a small operation, he having before been in good general health, but, at the same time, greatly disposed to gout.

Five days after taking to his bed he awoke in the middle of the night with a feeling of pain on the inner side of the knee, and found in that situation a hard, tender lump, which proved to be a thrombus in the internal saphena vein.

Upon inquiry it was ascertained that a similar block had formed, in the same way, higher up in the thigh, some years previously, whilst he was temporarily laid up.

Cases like this, although not common, are certainly not very rare, and their occurrence is well worth bearing in mind, as it shows the necessity for caution in confining a certain class of patients to bed for a longer time than is absolutely necessary.

8. *Old thrombus.*—Evidence of this condition existed in many cases in both sexes, and varied from the minute phlebolith to a mass of hard, tortuous, insensitive blocks several inches long. The largest seen in the cases tabulated was in a man in whom the whole of the saphena below the right knee was completely occluded. This block had been years in forming; it began above the ankle, and gradually increased by the occasional deposit of new coagulum at the proximal end of the old thrombus, which caused pain and tenderness for periods varying from three days to a fortnight, and then gradually became insensitive, hard, and permanent. I have recently had under my care in the hospital a still more exaggerated instance of this 'creeping' form of thrombus, which extended from the ankle to the middle of the thigh, and was still growing.

9. *Valgus.*—The occasional association of valgus with general varicosity of the veins of the lower

limbs is of certain interest in connection with the possible hereditary origin of some of these cases.

In the five instances noted in my tables, the valgus had existed from childhood, and the varicose veins had become troublesome very early in both limbs simultaneously. The patients were all males, and there was in each case a history of valgus and varix on the part of the father.

Uncomplicated Cases.

At first it may appear singular that so small a proportion of the total number of cases should have been free from complication. In reality, however, this is easily explained by the fact that my tables include only hospital patients, who, as a rule, do not apply for treatment until the symptoms from which they suffer are sufficient to interfere with their occupations, the result, therefore, being that treatment is generally sought, not on account of the abnormal veins themselves, but for some complication immediately connected with them.

Conclusions.

A careful consideration of the cases tabulated and many others seen in hospital and private practice, in addition to dissections, into the details of which I need not enter now, seems to me to render the following conclusions reasonable :—

1. That, discounting the influence of pregnancy, the tendency to the development of varicose veins in the lower limbs is greater in men than in women.

2. That the disease for the most part arises from congenital and often hereditary defect or other abnormality in the venous apparatus, there being no evidence to show that a vein originally perfect (excepting, perhaps, the long saphena) ever becomes varicose before middle age, in the absence of such obvious causes as those previously referred to.

3. That two distinct classes of the disease exist: one beginning in the deep veins, and subsequently involving the superficial; the other affecting the superficial veins only, usually the long saphena and its radicles, and being confined almost entirely to tall subjects.

4. That the large mass of varicose veins in the lower part of the thigh, often associated with a globular varix at the saphenous opening, may in many cases, although apparently connected with the long saphena, be independent of it, being fed for the most part by veins coming through the fascia from the deeper parts of the limb—a point worthy of consideration in the treatment of these cases, as I propose to show in a future lecture.

LECTURE II.

I PROPOSE to devote the present lecture to the consideration of the following points of interest: I. The diagnosis of varicose veins in the incipient stage of the affection. II. The symptoms, mode of formation, and significance of circumscribed varix at the saphenous opening.

I. THE DIAGNOSIS OF VARICOSE VEINS IN THE INCIPIENT STAGE.

In the majority of cases of varicosity met with in hospital practice, the symptoms are so obvious that at first sight it seems superfluous to waste time upon their consideration; but if you will follow me I think that I can demonstrate that the disease is not always so easy of recognition as is commonly imagined, for it is necessary to bear in mind that the swollen, pouched, and tortuous veins coursing over a limb, which may itself be greatly enlarged, are seen only in advanced disease, and are quite absent in the very early stages; which accounts, I presume, for the fact that the onset of the affection is sometimes entirely

overlooked. Although, as I have said, our hospital practice does not afford many cases of incipient varicosity, there is no doubt that a number of patients apply for treatment on that account, but the disease of which they complain seems so trivial that they have to give place to others who are more urgently ill.

I have, however, seen amongst the out-patients the twenty-three cases alluded to in my first lecture, belonging, I believe, to this class, in which no obvious varicose veins were present—a fact which probably explained the reason for these patients having been previously treated for affections of a totally different nature.

In private practice these early cases are less rarely seen than in hospital work, for the reason just referred to, and in consequence of the way in which hospital patients delay application for treatment until diseases are as a rule advanced. In uncomplicated varicosity it is essential, for the purposes of treatment, to determine as to whether the disease affects for the most part the deep or the superficial veins. In the greater number of advanced cases the deep and superficial vessels are probably involved to about the same degree; but this is by no means always so. Let us, therefore, take an instance in which varicosity is only obvious in the superficial veins (e.g. the saphena with its immediate branches),

and consider how the existence of the disease in the deeper vessels may be determined.

The condition most commonly pointing to implication of the deep parts is a general enlargement of the limb, limited in the early stages to the leg, which is more than can be explained by the mere existence of the large superficial veins. The increase in size may or may not be associated with slight œdema, in the absence of which the enlargement presents itself as a kind of flabby fulness, excepting after the standing position has been assumed for some time, when the flabbiness gives place to a feeling of unnatural tension. In many cases the increase is so slight as to be hardly appreciable, and I have known the peculiar hardness of the calf of the leg after standing mistaken for an especially fine tone of muscles, in an instance in which a comparison of the two limbs had manifestly not been made.

Further evidence is afforded by the appearance of a collection of small varicose veins below and behind the inner ankle, or, as is more common, over the outer side of the popliteal region or fibular side of the leg at its upper part—conditions which merely indicate that varicosity involving the deeper parts is prone to extend to the superficial veins in one or all of these situations.

Although this extension to the superficial vessels is not necessarily connected with any general fulness

of the limb, sufficient to attract attention, it is, I believe, in most instances preceded by pain of a peculiar kind, to which I particularly wish presently to call attention, as it differs from that usually described as depending upon varicose veins.

In the thigh the evidence of implication of the deeper parts is less pronounced in the very early stages of the disease, but there are two symptoms which may be considered, excepting in very rare instances, pathognomonic—viz. a varix at the saphenous opening, and a collection of fine radiating veins appearing over the inner aspect of the limb, not far above the knee. There may also be some general increase in size, but in the thigh it is so difficult to estimate a very slight increase that it is a symptom of little value, especially on the right side.

The commonest symptoms produced by uncomplicated varicosity are pain and œdema, with a feeling of weight and general weakness in the limb. In ordinary and fairly advanced cases, the patient rises in the morning almost, if not entirely, free from discomfort; as the day advances pain comes on, and gradually increases towards night, until the legs are raised or the recumbent position is assumed. Should œdema coexist, it will, like the pain, gradually increase during the day, and is often towards evening accompanied by intense itching, which is generally at its worst shortly after the patient lies down—i.e.

just as the œdema commences to subside. Although pain and œdema are very commonly associated in these cases, there is not necessarily any definite relation between the two symptoms. At times the occurrence of œdema seems to be a relief to the acuteness of pain, so long as it does not assume a formidable character and give rise to painful complications like eczema or ulcer. In passing, it may be worth mentioning that although ulcers—which are, I need hardly say, common in cases of varicose veins—as a rule cause great discomfort, instances are occasionally met with in which they are a distinct relief to pain. I have seen several cases myself in which little or no pain was felt whilst the sores were open, but in which upon the healing of the ulcers great pain followed. In each of these cases there was œdema, and the discharge from the sore, which obviously relieved tension by acting as a drain, was profuse and watery.

The pain occurring in commencing varicosity of the deep veins before any perceptible change has taken place in the superficial vessels is peculiar in its nature and behaviour. It is pathognomonic, I believe, of incipient varicosity, but I can find no reference to it in this relation in the ordinary works on surgery. Although I cannot say that it is to be met with in all cases, in many it certainly occurs, its real cause being often undetected, and the patients treated, as a rule, for gout, rheumatism, or valgus.

The pain under discussion commences in one or both legs almost directly after the patient rises in the morning, or at any other time upon assuming the erect position after the recumbent posture has been maintained for a considerable period; it is very acute, and rather 'crampy' in character; the limb is neither stiff nor markedly tender. After an hour or so the acute discomfort subsides, the 'crampy' pain disappearing first, leaving the patient apparently well till later in the day, when in the more advanced cases aching pain follows, with or without œdema. The following are good cases to illustrate this symptom:—

Case 1.—A strong, healthy-looking girl, twenty-five years old, applied for treatment amongst my out-patients, for pain in the right leg, which came on daily directly after rising in the morning, was severe and 'crampy' for an hour or rather more, and then by degrees entirely left her. Towards evening a little aching pain followed about the lower part of the leg, and occasionally she noticed some swelling around the ankle.

She had been treated, she said, elsewhere for hysteria and flat-foot. The latter she certainly had not, and of the former the only evidence was slight hyperæsthesia of the leg, which is not at all uncommon in early cases of varicosity. The leg itself was quite natural in appearance, but was very slightly

larger in circumference than the opposite limb, the increase being more than could be explained by the fact of the affected side being the right. I at once concluded the case was one of commencing varicosity in the deeper parts, and ordered an elastic stocking, which entirely relieved the morning pain.

Six months afterwards she again became an out-patient, and then had distinctly marked varicose veins in the right upper fibular region. She had worn out her elastic stocking, but thought it hardly necessary to get another, as she suffered then from no morning pain, but later in the day there was some aching and more œdema than when she was at the hospital previously.

Case 2.—A gentleman consulted me on account of pain in the right leg, which had been previously diagnosed as gout and rheumatism.

This pain commenced in the morning precisely as in the preceding case, and subsided in the same way, leaving him comfortable till the afternoon or evening, when aching pain of an entirely different kind supervened, being sometimes accompanied by considerable swelling 'just above his boot,' which caused so much distress that occasionally when out shooting he had to return home early. By the following morning the swelling was usually gone, and the same daily sequence of symptoms recurred. The leg itself was entirely free from any indication of superficial varicose veins,

but was a little enlarged, and there was slight œdema about the ankle. I told him the cause of his suffering was commencing varicosity, and ordered an elastic support for the limb.

A year later I saw him again, when there were well-marked varicose veins coursing over the popliteal region, and below and behind the inner malleolus was a collection of small tortuous veins, forming quite a pad in that situation.

It is, I think, evident that this particular pain is, as I have said, quite distinct from that which is usually described as produced by varicose veins, both in the manner of its onset and in its general character; indeed, I have heard it stated by a surgeon of repute that the very peculiarities of the pain negative the possibility of its being due to varicosity.

The explanation is, however, it seems to me, simple, if the difference in the condition of the veins at the commencement of the change towards varix, and in advanced cases of the disease, be considered. In the incipient stage of the affection the veins are to some extent resilient, their coats perhaps being at the same time rather hypertrophied, especially in the muscular layer. In the advanced disease, the veins, pouched and tortuous, are insensitive, flabby, or rigid tubes, without resilience at all. The results of these conditions are the following. In the incipient cases, the veins, when subjected to more than the normal

pressure, immediately resist the unnatural tension, being assisted in this by the contractions excited in the fibres of the muscles around them—at all events, in the case of the intra-muscular veins. Thus is produced the acute, somewhat crampy pain which, under these circumstances, naturally occurs at the time of rapid increase in the blood-pressure in the veins, which, by reason of their resiliency, recover something like their previous calibres during the time the abnormal tension is relieved by the recumbent position of the patient.

The peculiar subsidence of this pain is accounted for, in my judgment, by the active resistance in the vessel being gradually overcome by the continual, uniform, increased blood-pressure, so that no noticeable further discomfort occurs until the distension is sufficient to cause the ordinary pain, with or without œdema, met with in advanced varicosity.

The daily repetition of these conditions results in the gradual advance of the disease, the typical morning pain ultimately entirely disappearing, either in consequence of the veins becoming over-dilated and insensitive, or, as more commonly happens, from the extension of the disease, in the directions previously indicated, to the superficial veins, which, being independent of muscular or other extraneous support, dilate rapidly, and so afford a speedy relief to the tension in the deeper parts of the limb.

Varicosity of the superficial veins occurring without general enlargement of the limb or antecedent pain is probably due either to the disease commencing in these vessels themselves, or to their implication sufficiently early to prevent, by the comparative ease and rapidity with which they yield to pressure, any considerable tension in the subjacent parts.

II. Varix at the Saphenous Opening; its Symptoms, Mode of Formation, and Significance, particularly with reference to the Development of Varicosity in the Limb below.

The appearance of this condition may be one of the earliest indications before middle age of commencing varicosity, or it may only become manifest late in life, after the whole limb has become varicose.

The affection shows itself in the situation of the saphenous opening to the inner side of the femoral artery, either as a somewhat flattened but distinct swelling, or as a prominent globular tumour, the surface of which is often of a bluish tint. In either case, the swelling, which is softish, fluctuating, and 'compressible' (not 'reducible,' as it is usually described to be), presents distinct impulse on coughing, and is most tense and prominent in the erect position, becoming softer, less marked, or even entirely dis-

appearing when the patient lies down. The tension produced by the standing posture is further increased by abduction or outward rotation of the thigh, which may cause discomfort, or possibly acute pain, especially if the tumour is of the projecting kind. Under ordinary circumstances, no inconvenience is caused by the affection in many cases, the patient being unaware of its existence until attention has been accidentally called to it. Sometimes, however, there is a distressing feeling of weakness or pain in the groin, the latter varying in degree with the position of the limb.

Varicosity of the long saphena to a greater or less degree almost always coexists, and there may or may not be other manifest varicose veins in the thigh or leg, or in both. The only case I have ever seen in which varix at the saphenous opening was entirely unassociated with other evidence of varicosity is the rare instance mentioned in my last lecture.

Although the two kinds of tumour which I have described as occurring in the form of varix now under discussion are generally looked upon merely as different stages of the same condition, I have no doubt they represent two distinct varieties of the affection, differing in seat of origin and subsequent relations.

The first kind, showing itself as a flattened

swelling, and retaining almost the same shape, however large it may become, is situated for the most part beneath the cribriform and deep fascia, and may therefore be called 'subfascial.'

The second kind, globular and projecting, is principally superficial to these fasciæ both in origin and situation, and may be termed 'subcutaneous.' Of the first variety I once dissected a perfect specimen; the dilatation affected the long saphena above its proximal valve, implicating at the same time the femoral vein to a large extent; the whole varix was beneath the cribriform and deep fascia, excepting just around the point of entrance of the saphena. Of the second kind I have never dissected an example of so large a size; but the curious prominence and shape of the tumour, even when small, and the ease with which the colour of the blood in the varix is perceptible through the skin, leave little doubt as to its differing in some respects from the subfascial variety. Moreover, it is easy to produce the two distinct conditions artificially by a simple experiment on veins *in situ* or recently removed from the cadaver.

I do not, of course, mean to infer that in a large subfascial varix no part of the tumour ever becomes subcutaneous, nor do I mean that no part of a well-marked sample of the subcutaneous kind ever extends beneath the fasciæ. Originally, however,

they are distinct conditions, and, to whatever size they may grow, the two varieties will be anatomically recognisable, the one being for the most part deep, the other principally superficial.

Given the necessary state of blood-pressure, the tendency to the formation of saphenous varix appears to depend upon the disposition of certain vein valves in the upper part of the thigh.

It is therefore necessary to consider with some care, first, the most perfect arrangements of these valves found in the human subject, and, secondly, the commonest departures from the perfect types, with a view to the proper estimation of the possible effect of these deviations in the production of varicosity.

The following details are derived from the examination of a considerable number of subjects, and will, I believe, be found to be generally correct, although they may in some respects differ from the descriptions given in certain of the anatomical text-books, in which the situations of the vein valves are but vaguely indicated.

1. *Arrangements which may be considered perfect.*

(*a*) A pair of valves a little above or below the level of Poupart's ligament, which may be conveniently called 'ilio-femoral,' as they may be

situated indifferently in the iliac or common femoral vein; a second pair, 'inferior common femoral,' placed just above the termination of the profunda vein; and two pairs in the upper end of the long saphena, one of these being placed, as a rule, at the orifice of this vein, on a level with, or more commonly beneath, the cribriform fascia; the other lying superficial to this fascia, half an inch or more farther down the trunk of the vessel,—called respectively the proximal and distal 'upper saphenal valves.'

(β) A similar arrangement to the foregoing, but with absence of the inferior common femoral valve, which is replaced by two pairs of valves, one at the orifice of the profunda vein, the other at the point of junction of the superficial femoral vein with the common femoral. This, although a presumably perfect arrangement, is very seldom met with, the profunda valve being apparently the rarest in the thigh.

(γ) Two pairs of valves in the external iliac vein: one, the ilio-femoral, close to Poupart's ligament; the other, the 'superior external iliac,' situated at any point between the ilio-femoral valve and the entrance of the internal iliac vein, the saphenal valves being double, as in α and β, but with entire absence of the inferior common femoral, profunda, and superficial femoral valves.

2. *Deviations from the perfect types, with suggestions as to their possible effects.*

(*a*) *Absence of ilio-femoral valve.*—In this condition any increase of blood-pressure from above will result in abnormal strain on the inferior common femoral and the proximal saphenal valves. As the former is much the stronger, and very rarely inadequate, there will be a tendency to inadequacy on the part of the proximal saphenal valve, or to dilatation of the saphena and immediate part of the common femoral vein, resulting in a varix at the saphenous opening of the subfascial kind. Should the proximal saphenal valve be absent, or, as is rather common, inadequate, the distal one existing, and being at the same time adequate, the tendency will be to the development of a prominent globular dilatation of the saphena between its distal valve and the femoral vein, which will also be involved to some extent if the dilatation becomes excessive.

The varix thus formed at the saphenous opening is of the subcutaneous variety, the main part of the tumour being superficial to the cribriform fascia both in its origin and relations. If, under similar conditions, both of these upper saphenal valves be absent or insufficient, the tendency then is to more or less general varicosity of the saphena vein.

As having some bearing upon the variety of saphenous varix developed in this class of deviation, it is worth mentioning that absence of the ilio-femoral valve is very commonly associated with absence or inadequacy of the proximal saphenal valve.

(*b*) *Absence of the ilio-femoral and inferior common femoral valves; one or both saphenal valves being present, and a strong pair of valves (superior superficial femoral) existing at the termination of the superficial femoral vein, the orifice of the profunda being without valves.*—In this case it seems reasonable to assume that the tendency would be to varicosity of the branches of the profunda vein, which may, if the proximal saphenal valve be wanting or inadequate, be associated with globular varix at the saphenous opening, possibly accounting for the occurrence of this kind of saphenal varix with a varicose mass at the inner side of the thigh above the knee, which may be unconnected with the long saphena vein itself, the efferent vessels passing into the deep parts, and being in reality connected with the lowest branches of the profunda. Should both upper saphenal valves be wanting or inadequate, some general varicosity of the saphena may replace the local varix at the saphenous opening.

The existence of this arrangement may also possibly explain certain cases of varicosity in which the disease appears to affect the lower parts of the

thigh more than the leg. The only case of this kind that I have been able to dissect I found by chance in the post-mortem room. The superior superficial femoral valve was very strong, and appeared unusually large; the profunda was valveless, its branches being very large, and in some instances pouched; from the lower branches there could be traced through the fascia several vessels which passed into a collection of varicose veins above the knee, which also communicated by two very small vessels with the saphena, which was but slightly dilated. It was, however, plain that the varicosity was mainly connected with the profunda.

(*c*) As a natural corollary of the arrangement just described, it would seem probable that a deviation would be found in which *a strong valve existed at the termination of the profunda, the superior superficial femoral valve being absent.* I have, however, never seen such a profunda valve, excepting in one case, where the superficial femoral valve was also present (perfect type, β).

(*d*) *Entire absence of all valves in common femoral, superficial femoral, and profunda veins, with absence or inadequacy of external iliac valves; the saphenal valves being present, and perhaps numerous.*—In one case there were no less than seven pairs of valves in the saphena above the knee. Here, in the development of varicosity the tendency would be to its

early occurrence throughout the limb, either simultaneously in the thigh and leg, or more probably first in the leg and subsequently in the thigh and saphena, the latter becoming involved throughout, as the disease in this case would be of the ascending kind.

I need hardly say that the deviations which have been now described are not intended to include all the various and complicated abnormalities sometimes met with in the arrangement, number, or adequacy of the vein valves, but are merely selected as they afford examples of departures from the perfect types which seem to be capable of influencing to some degree the development of certain varieties of varicosity.

Although I have no doubt that, under certain circumstances, the arrangement and adequacy of these valves have an important relation to the production of varicose veins in a fair proportion of cases, it is perfectly certain that a large number of instances of varicosity, so called, are seen in which the valves have nothing whatever to do with the occurrence of the disease.

This remark especially applies to those cases of general varicosity limited to one limb, in which the whole of the veins are extensively affected, the limb itself being greatly enlarged, but in which there is neither œdema nor inconvenience, unless some accidental cause gives rise to complication.

In these instances it seems to me that the affection is a purely congenital one, the patients having, in fact, been born with veins abnormally large, and perhaps tortuous, but otherwise natural, the valves being strong and not inadequate.

In some cases, again, the disease may approach a condition which is almost nævoid. In either case the direct congenital origin of the affection is rather indicated by the occurrence of evidence of other vascular abnormalities—e.g. the scars of old nævi—in a considerable number of patients who are the subjects of this class of varicosity. Further corroborative evidence of this view is afforded by the following case, which Dr. Penrose kindly dissected for me.

A man, forty years of age, who died in the hospital of bronchitis, was seen, after death, to have great general enlargement of the right lower extremity, the opposite limb being natural. The skin of the affected side was perfectly healthy and natural, showing none of the thinning which is common in cases of acquired varicosity.

On examination the whole limb was found full of large and tortuous veins, the common femoral being nearly double the size of that in the left limb, the veins of which were perfectly normal in every respect throughout. The saphena was as large as the femoral vein in the opposite thigh. *The external and common*

iliac veins were much larger than normal, greatly exceeding in size those on the opposite side. The valves present on the affected side were the ilio-femoral, inferior common femoral, and two upper saphenals. All of these were natural in appearance, but were very large, being of just such a size as the magnitude of the veins required. Moreover, they were so strong that distension of the veins by the injection of water almost to the point of bursting failed to make them inadequate. On the left side the ilio-femoral valve was absent, the inferior common femoral and upper saphenals being present and competent.

The case was typical of its kind, being finally rendered complete by the discovery of *the scar of an old nævus on the left hip, and four congenital vascular tumours (nævi) in the liver.*

I cannot imagine any condition, other than congenital asymmetry, which could produce such an increase in the size of the veins, particularly the common and external iliac, on one side of the body only, the valves being at the same time so perfect in relative size, strength, and adequacy.

LECTURE III.

The management of ordinary and uncomplicated cases of varicose disease of the lower limbs is, at first sight, so simple an affair, that it may perhaps seem hardly necessary that a lecture should be devoted to the details of this form of palliative treatment.

As a matter of experience, however, it is impossible to avoid feeling that, apparently trivial as these details may be, their real importance is not so fully recognised as they deserve by some of us.

This seems to be, in some part, due to an impression which not uncommonly exists in the minds of some, that in the majority of cases of the kind we are now discussing, very little more is necessary than to instruct the patient to obtain some form of support for the veins, and to see that the bowels act with regularity and freedom.

Now it is only fair to admit that these simple instructions do include, in the abstract, a great deal of what is necessary in these cases. At the same time there are various details connected with the treatment thus advised in the several classes of varicosity which will repay careful attention.

I therefore propose to devote the present lecture to their consideration.

As I have already pointed out, there is every reason to believe that all cases of general or local varix, with the exception of the instances mentioned in Lecture I. under the head of 'Probable Causes,' are the outcome of congenital and often hereditary imperfection in the venous apparatus.

It is also fairly certain that in many individuals the imperfection is so slight as to have no harmful result, unless some unusual strain be thrown upon the faulty mechanism.

The commonest causes of this extra strain are constipation and suppressed or deficient menstruation.

With regard to the latter of these two causes, it is remarkable that the varicosity develops in a manner which is peculiar to this class of case, inasmuch as the affection shows itself, not by the appearance of an exaggerated, or even well-marked coarse varix of individual veins, but as a general tendency to varicosity throughout both thighs, in the small veins, as is shown by innumerable radiating and stellate vessels; the legs, at the same time, being somewhat œdematous and painful, but entirely free, excepting in the most advanced cases, from any apparent varicose disease.

In the more persistent of these cases the small veins are studded with minute cystic dilatations, not

larger, as a rule, than a pin's head, which are liable to burst in or under the skin, giving rise to an appearance of multiple bruises. On the other hand, when the development of the affection is due to constipation it invariably appears first in the leg in the form of well-marked coarse varicosity of large veins, the thigh becoming involved subsequently if the disease progresses. In passing, it is well to bear in mind the fact that although the varicosity associated with constipation is as a rule more or less confined to the left limb, it may also, especially if the liver be sluggish, appear simultaneously in both lower extremities, in which case piles will be nearly always present.

This is a point of some importance in the matter of treatment, as many patients will be found to consider a slight inclination to hæmorrhoids of much more consequence than the existence of varicose veins in the limbs below, however marked these may be.

There is no reason to doubt that in the earlier stages of these cases the discomfort, and indeed the manifest varicosity, may be removed by appropriate treatment of the amenorrhœa or constipation, or both of these conditions if, as often happens, they coexist.

It is also quite certain that any mechanical treatment will prove entirely futile so long as the bowels do not act with regularity and the menstrual function is in abeyance or deficient.

Cases in which relief of constipation is followed by a corresponding amount of comfort in the varicose limb are so common that it is unnecessary to narrate examples.

It may, however, be worth noting that, so far as drugs are concerned in the treatment of the inactive bowels, the relief afforded to the distended veins appears to be the greatest when the milder purgatives are used rather than those of a very drastic kind.

In my own experience, the most effectual remedy has been some combination of sulphur, and next to that in efficacy has been cascara. The watery purges have afforded far less relief.

In cases where the liver is sluggish it is hardly necessary to say that an occasional mercurial dose is absolutely necessary.

The other class of case, viz. that in which the menstrual function is at fault, has not, so far as I know, received much attention. I therefore venture to narrate the two examples which follow in illustration :—

Case 1.—A girl twenty years old menstruated naturally at the age of fifteen, and continued to do so regularly till she was seventeen. Then, without any apparent reason, there was a cessation of the 'period' altogether for five months. At the end of that time there was a very scanty flow. Subsequently

menstruation never occurred more often than once in two months, and on such occasions to a very slight extent only.

For two years before coming under my observation she had continually suffered from pain in both lower limbs, and the veins in both thighs became full and painful; both legs becoming at the same time sensitive, tender, and towards evening swollen.

Upon examination the veins in the leg were not manifestly affected, but both thighs were full of collections of small radiating varicose veins. There was no large varix of any kind, but in many of the small dilated vessels were minute cystic dilatations, the walls of which were so thin that they seemed on the point of bursting.

A month after I first saw the patient a profuse menstrual flow occurred, presumably as the result of treatment at the hands of the obstetric physician. Subsequently, after two rather scanty 'periods,' she became quite regular.

The re-establishment of the regular menstrual habit was followed almost directly by cessation of pain in the limbs. In five or six months the full dilated veins in the thigh became so shrunken as to be unnoticeable, and all tendency to œdema in the legs disappeared.

Case 2.—A married woman thirty-two years old, who had borne a child at the age of twenty-three with-

out trouble of any kind, and without a suspicion of the development of varicose disease, became very irregular in her menstrual arrangements two years after her confinement. From being merely irregular, menstruation became by degrees very deficient, occurring only once in two or three months or thereabouts. On one occasion there was a complete cessation for four months, although there was no reason to suspect pregnancy.

For three years prior to my seeing her there had been pain in both lower limbs and slight swelling of both legs. For two years the veins in both thighs had been full and prominent in the form of collections of small dark-coloured beaded vessels, over which, from time to time, appeared large bruises, which she had been told were due to the bursting of veins under the skin.

Upon examination, both legs were found to be slightly œdematous, painful, and tender, but showed no evidence of varicosity. Both thighs were covered with small dilated veins having many cystic dilatations upon them, similar to those described in the previous case.

On the inner side of the left thigh was a large blackish discoloration which appeared very probably to have been produced in the manner referred to, viz. by the bursting of one or more of the small cysts under the skin. On the opposite thigh, on its

outer surface, was a mark like a fading bruise. The patient was absolutely certain that these bruises were not due to any external injury. When I first saw her she had not menstruated for more than two months, and was habitually somewhat constipated.

A simple laxative of sulphur and tartrate of potash served to relieve the constipation, and three months later a very profuse menstrual flow occurred, which the patient thought was a miscarriage, although it seemed highly improbable that such was the case.

Subsequently, without having been placed under any particular form of treatment, she became quite regular in every way.

Upon this the œdema subsided, the pain disappeared, and the dilated veins in the thighs became almost imperceptible, although their return to the normal condition was not so complete as in the first case.

It is an interesting fact, and one worthy of note, that patients who when quite young suffer from the kind of varicosity illustrated by these cases, are peculiarly prone to develop general varicose disease of a pronounced type, in both lower limbs, during their first pregnancy, although the pregnancy may run a perfectly natural course and terminate in easy delivery.

As having some additional bearing upon this class

of case, it may be well to mention that the first symptoms of discomfort in the slighter cases of varicose disease not infrequently show themselves at or about the termination of the climacteric period; a point to which I do not remember having seen allusion made elsewhere.

The first essential, then, in the commencement of the treatment of all cases of varicose disease of the lower limbs, is clearly to bring about a healthy condition of the secretions generally, to secure above all things regularity in the action of the bowels, and to correct as far as possible any defect, if it exists, in the menstrual function.

In a few of the cases seen when the disease is in its earliest stage, little further treatment may be called for, as the discomfort may be so effectually relieved, and indeed the manifest varicosity sometimes so far removed, that the patients are indisposed to be troubled with any appliance, or elaborate treatment, even if such be advised.

When the pain is excessive, and in all cases in which œdema is present, much good may, of course, be derived from complete rest in the recumbent position. An equal amount of benefit may be obtained as a rule, excepting in the more advanced cases, by the elevation of the affected limb or limbs for short periods (say from half an hour to an hour in length) at definite intervals during the day.

This latter plan is most useful in slight cases, and especially as many patients will be found to consent to its adoption who would certainly decline to be entirely laid up.

If the relief thus obtained is insufficient or tardy, the disappearance of the œdema and pain may be greatly accelerated by the use of tepid douches over the elevated part, or by gentle friction with a well-oiled hand, in a direction passing from the toes towards the hip.

Four other points connected with the treatment of these cases may be conveniently considered here, viz. exercise, massage, electricity, and baths.

1. *Exercise.*—In all cases of uncomplicated varicosity, active exercise, if discreetly used, is good, and the advice so commonly given to the more wealthy class of patient—that walking, riding, &c., should be given up and only carriage 'exercise,' so called, be taken—is distinctly bad, unless, of course, there is some co-existing disease or complication, such as *morbus cordis*, which necessitates such a course.

It is necessary to bear in mind that a very large number of these patients have been of active habits, and that the very act of laying them up tends directly to dyspepsia, sluggish liver, and constipation—conditions above all others to be avoided. Added to this is the fact that there can be no doubt that properly

regulated exercise is distinctly beneficial to the varicose limbs.

If a good effect, however, is to result it is necessary —and this is the important point—that the exercise should constantly vary in character, the object being to bring about successive alterations in tension in the various groups of veins by the action of the surrounding muscles, and to avoid, as far as possible, throwing a continuous strain upon the same veins.

The reason that long-continued standing is so productive of discomfort in these cases is merely that persistent strain is thrown continuously upon the same vessels, in consequence of the limb remaining for a long time in a position which brings into continual action the same sets of muscles.

In a similar manner, active exercise of a monotonous kind, e.g. excessive bicycle-riding, in which the same measured movements are repeated constantly without variation, throws precisely the same pressure again and again upon the same groups of veins, thus directly tending to increase the varicose condition in certain definite directions. On the other hand, a patient suffering from commencing or pronounced varicosity, who is constantly varying his manner of exercising—for instance, by alternately riding and walking, rather than habitually confining himself to one or other of those plans exclusively —or who is in the habit, let us say, of walking

up and down hill rather than continually exercising on perfectly level ground, so distributes the strain successively over different groups of the defective veins that he is less liable to development of local exaggerations of varix, and thus avoids one condition at all events which often leads to painful complications.

There is, so far as I can tell, no doubt whatever that moderate exercise, conducted upon the lines just indicated, is in a certain number of cases not only productive of comfort, but may even in some degree arrest the progress of the disease.

It is scarcely needful to say that the existence of complications such as ulcer, eczema, veins distended almost to bursting, &c., may altogether negative the possibility of exercise.

I have, however, seen, in more than one case, œdema decrease after a course of irregular exercise, which had been obstinate, and indeed intractable, whilst the patient was almost completely laid upon his back.

It is rather curious, at first sight, that the benefit derived from the practice now being discussed is, *cæteris paribus*, more marked in persons of somewhat advanced age than in young subjects.

I have recently had under my care a gentleman, about sixty years old, who for many years had suffered from varicose veins, with troublesome œdema.

When I originally saw him he had been for months leading a life of absolute inaction, having been lying up for the greater part of each day, and taking only 'carriage exercise.' In spite of all kinds of supports, elastic and otherwise, any attempt at walking was followed by pain and increased swelling.

After a few weeks of perseverance, for short periods at a time, in irregular exercise, his condition was so much improved that the œdema, although to a slight extent present, was considerably less than before, and seldom caused pain unless the same form of exercise was persisted in for too long a time.

Although such a satisfactory result can hardly be expected in the *majority* of instances, it is certainly obtainable in some.

At the same time a mechanical support may be worn with advantage, and in most cases is essential.

2. *Massage.*—By this treatment the kind of exercise just alluded to can be obtained in a convenient manner, to the great advantage of patients who, by reason of their indolence, do not care to exert themselves, or who are precluded from so doing by the existence of local disease or general ill-health.

The benefit derivable from massage in many cases of varicosity, whether early or advanced, which are associated with obstinate or painful œdema, is most marked.

It is often extremely useful when the pain is too

great to allow of voluntary exercise being taken by any person who is not, from unavoidable circumstances, compelled to get about.

It is, however, not applicable in all cases, and must be practised with extreme care in cases where there is a tendency to eczema, or the distension of local collections of veins is very great, and especially in gouty subjects, in whom I have seen the massage process directly followed by thrombus. In anæmic subjects bruising is apt to follow the manipulations, however gentle these may be, under which circumstances the treatment must be at once suspended.

When thrombus of recent date is present it is hardly necessary to say that massage is entirely contra-indicated; indeed, I should not have mentioned this matter had there not come under my notice a case in which an accomplished 'masseuse' had been manipulating a varicose limb in which the popliteal vein was blocked by a thrombus not more than two days old.

In the majority of cases complicated with ulcers, in all cases of abscess, and in limbs which are very tender, massage is obviously to be avoided.

3. *Electricity.*—This may, of course, be combined either with massage or with the treatment by voluntary exercise, or in the earliest stages of the disease be used independently. I cannot say that in my experience any very positive good has followed. In some

patients, however, especially those who are at all neurotic, the crampy pain felt in the incipient stage of varicosity may be considerably modified by this treatment.

4. *Baths.*—In this connection the following case is of interest:—

A middle-aged man of a distinctly gouty habit suffered from slight varicosity in the right leg, which gave very little inconvenience, excepting that it made the wearing of a bandage necessary. Whilst in otherwise perfect health he went to his usual morning cold bath. Immediately upon putting his leg into the water he felt a sharp pain in the calf, and found a tender spot, which proved to be a thrombus.

The block disappeared in the ordinary way, and for a time the bath was used tepid instead of cold.

Ultimately it was determined to resume the use of the cold bath, but at the first attempt a similar block occurred in another vein.

Although I have heard of only one other instance of exactly the same kind, it is quite clear that the formation of these thrombi was due to something more than mere coincidence. The cases speak for themselves, and are worthy of being borne in mind.

We now come to the consideration of the methods for affording relief to discomfort by means of mechanical support for the varicose limbs.

The mechanical appliances ordinarily used for

this purpose may be roughly divided into two kinds: (I.) those which effect relief by localised pressure; (II.) those which produce the same result by general compression of the affected part.

The use of appliances which exert local pressure only is confined to the following conditions: (α) Varix affecting either single veins or isolated collections of veins. (β) Cystic dilatations, whether individual and isolated, or whether occurring in general varix and producing the sole discomfort, as they sometimes do in such cases, by becoming over-distended. (γ) A highly sensitive state of the limb, which may render the use of general pressure impracticable on account of the pain it produces. (δ) In the event of the wearing of complete stockings or bandages being negatived by the occurrence of eczema, pruritus, or other complications directly connected with the use of those contrivances.

In connection with the cases which are suitable for treatment by local pressure, it is of great importance to understand that a cure may be effected in some, and great benefit produced in others, by operating in one of the several ways which will be described in the succeeding lecture.

Methods of applying Local Pressure in Varix.

1. *Strapping.*—In many cases of discomfort due to distension of individual veins or circumscribed

masses of varicosity, the most successful plan of obtaining relief is by the old-fashioned method of placing strapping across the affected vessels in the following manner: The strapping, which should be stout, and strongly adhesive, is cut in strips about half an inch wide, and of a length equal to three-quarters the circumference of the limb at the point of application.

When the patient rises in the morning the requisite number of these strips are placed tightly across the axis of the vein, the centre of the strapping lying over the vessel; or in the case of a varicose mass the strapping is placed directly transverse to the longest diameter of the varix. Upon retiring to bed the strips are removed. In long veins, such as the saphena, and in elongated areas of varix, several strips are thus applied, at intervals, as a rule, of about one and a half or two inches.

In single cysts or small collections of varicose veins, a single piece of the strapping may be all that is necessary; in the former case, a small pad of felt or washleather may be with advantage placed between the cyst and the strapping, so forming a kind of truss.

The objections to this method are the following: (*a*) Although easily managed by any patient of ordinary intelligence, it is thought by many to be troublesome. (*b*) The marks left on the skin give an

appearance of uncleanliness. (*c*) In irritable skins, eczema, or sometimes small pustules, may be produced along the track of the strapping. (*d*) Wet as a rule so loosens the strips that they become useless.

At the same time, the actual relief obtainable by this plan is sometimes so marked that I have known a patient discard all other appliances in favour of it.

2. *Trusses, pads, &c.*—In some instances of local varicosity situated about the leg and ankle, the discomfort caused by distension of the veins can be relieved by such gentle pressure that nothing more is necessary than a flat pad of washleather, somewhat larger than the varix itself, which is worn inside a tightly fitting stocking, to which it may be fixed by a safety-pin. The stocking, it is hardly needful to say, must be suspended from the waist and not kept in position by means of garters.

If the pressure thus obtained is not sufficient, the most comfortable support is a slightly padded band of washleather, which surrounds the affected part of the limb, and is made to lace on the side opposite the varix.

The form of varix to which a truss is most commonly applied is that which occurs at the saphenous opening (*see* Lecture II.) The relief thus obtained is in some cases considerable; but generally the effect is *nil*, and occasionally the discomfort is distinctly increased by the truss. The only instances

in which the truss is perfectly satisfactory are those in which the varix is for the most part, if not entirely, 'subfascial'—the kind, in fact, which is least commonly associated with any symptoms of discomfort.

When the bulk of the varix is subcutaneous, the pressure of the truss often greatly increases the pain, by, I presume, compressing the dilated vessel against the margin of the rather rigid *fascia lata*.

In deciding as to the advisability of applying local pressure in these cases, it will be found as a matter of experience that if the discomfort felt by the patient is in any degree increased by outward rotation of the thigh, a truss will not only be useless but harmful.

In cases, however, in which pressure over the saphenous opening gives a feeling of comfort the best instrument to use is the ordinary French spring truss, with a very convex pad of ivory, boxwood, or vulcanite, which should be of about the same size as the prominent portion of the varix when the patient is in the standing position. Such a truss, if properly made, will keep in its place without any under-strap, &c.

In stout subjects, a truss having a hinged pad is sometimes more easily adaptable to the parts; but a thigh-strap is necessary to keep the pad in its proper position.

For the application of truss-like pressure in the leg and about the knee, several plans are available.

In the case of a local exaggeration of varix above or below the knee, a knee-cap of washleather, made to lace on the side opposite to that on which the varix is situated, and well padded over the part which corresponds to the varicose mass, is the most comfortable appliance.

In the leg, a very common source of trouble is a varicose condition of the long saphena and its branches, from the knee to the ankle, or even lower.

If a stocking or bandage cannot, for some reason, be worn, much comfort is obtainable by the use of a truss composed of a spiral arrangement of clock-spring, which takes a turn or two round the leg, ending above and below in a small flat pad; the upper pad being fitted to press upon the dilated saphena just below the knee, the lower one pressing on the vein a little above the ankle. If properly made, this truss keeps in position without any trouble; but it is rather difficult to get it fitted with sufficient accuracy.

Single cysts in the leg which give rise to pain from over-distension can usually be made comfortable by the pressure from a small pad fixed on a tightly fitting well-suspended stocking, by a small spring truss made after the fashion of a bangle, or by a strap of kid which buckles round the limb and is

provided with a pad which is adjusted over the cyst.

In addition to the fact which has been already mentioned, that nearly all the cases in which local pressure is useful are suitable for treatment by operation, it must be observed that relief is also obtainable, in most instances, by the ordinary complete bandage and stockings, unless the use of these is contra-indicated for some reason; the result being that local pressure will as a rule be required only when general pressure is intolerable.

Methods of applying General Support to the Varicose Limb.

The appliances used for this purpose may be roughly said to consist either of the following or of some modification or combination of them: bandages, stockings, leg-pieces, knee-caps, and thigh-pieces, which may in each instance be made of elastic or inelastic material as the requirements of the case indicate.

1. *Bandages.*—If properly used these are far superior to the elastic stockings ordinarily supplied by the instrument-maker, especially on this account, viz. that the pressure can be regulated from time to time in accordance with the demands of the affected limb. In many cases it will be found that not only

does the degree of pressure which is necessary for the support of a varicose limb vary from day to day, but that it varies at different times of the same day, so that the amount of pressure must be modified occasionally. This modification is more effectually attained by the reapplication of a bandage than by any other of the more expensive arrangements, in the form of laced stockings &c., which are made for the purpose.

An objection is sometimes raised by patients to the use of bandages on account of the supposed trouble in properly applying them; but in reality their adjustment is perfectly easy to the ordinary run of individuals. Moreover, if there is a little extra trouble sometimes in the management of the bandage, it is more than compensated by the relative additional comfort obtained.

In the slighter class of case, especially if the skin be at all irritable, by far the best bandage is the 'cotton-net,' which, although containing no elastic medium, like india-rubber, is, from the manner of its manufacture, just sufficiently resilient to give a little 'play' to the parts enveloped. It is also porous, and therefore cool. It further allows of exhalation through its interstices, which often prevents such complications arising as eczema, pruritus, &c. Finally, it is unaffected by wet or change of temperature, and is in every way cleanly.

In more advanced cases, when the pressure required is greater, nothing is equal in efficacy to the pure india-rubber ('Martin's') bandage, which is economical, cleanly, and, by reason of its elasticity, most manageable, as it adapts itself so accurately to the contour of the limb.

It is impervious to moisture, which, although a great advantage to patients who follow occupations entailing much exposure to wet, is often objectionable, inasmuch as no exhalation of any kind can take place through the india-rubber, which necessarily entails the confinement of all perspirations &c., and is not uncommonly productive of eczema and other complications in patients whose skins are irritable.

The ordinary woven elastic bandage is quite effectual when new, but does not adapt itself to the limb so accurately as the pure rubber.

It also soon wears out, rapidly perishes when exposed to wet, or if often washed; so that it is expensive, and generally not too cleanly.

In the application of all bandages in varicose limbs two points should receive particular attention:

(1) The bandage must not be too tightly applied at first. It is a very common mistake to bind the limb too tightly altogether. The amount of pressure as a rule required is very slight, so long as it is uniform.

(2) The bandage must be so adjusted that the

pressure is greatest on the foot, which should of course always be included, and gradually decrease towards the knee. The habit which some people have of making the last turn just below the knee the tightest—in order, as they suppose, to keep the bandage in position—is one of the commonest causes of the subsequent occurrence of pain, as it obstructs the circulation above and causes some swelling of the limb below under the loosest part of the bandage, which soon therefore becomes tight and causes distress. The result of this mismanagement often is that the bandage is discarded as being intolerable, when, if it had been properly arranged, much comfort might have been derived from its use.

The pure rubber bandage should never, excepting in those whose tissues are very insensitive to irritation, be worn next to the skin, but should be placed outside a closely fitting stocking (preferably silk). This is a good practical point to bear in mind. Many patients who are unable to wear this appliance actually in contact with the skin derive the greatest benefit from it when worn over the stocking.

For patients of the poorer class the Martin's bandage may be with advantage entirely relied upon, unless the irritability of the skin makes its use impossible.

With well-to-do people whose work or amusements entail exposure to wet it is equally suitable, and is

quite perfect for use during the day. In the evening, after the day's work or pleasure is over, a light, easy-fitting elastic stocking may be substituted with great comfort.

2. *Stockings—anklets—leg and thigh supports—knee-caps, elastic or otherwise.*—For the purpose of providing general support to the varicose limbs these are the appliances most commonly used. Theoretically, in all cases of varix in the leg in which a general support is necessary, the foot should be included in the appliance, at all events if that be of the elastic kind.

Practically, however, it will be found that a considerable number of patients derive more comfort from a support surrounding the leg only. Under those circumstances the material of which the support is made should not be elastic.

The number of persons who say that they are unable to bear the pressure of elastic stockings is quite curious. The reason of this intolerance is, in the vast majority of cases, either that the stockings are made altogether too tight, or that they are improperly fitted; a point which will be referred to presently.

In slight cases, especially if the skin is irritable, the most effectual way to commence the wearing of this kind of support is by using merely an ordinary tight silk stocking. Frequently this will be sufficient

in itself to produce the required pressure. If a more uniform and rather firmer support is necessary, a very thin silk *elastic* stocking, fitting rather loosely, may be worn. Subsequently, when the parts have become accustomed to elastic pressure, this thin elastic stocking may be replaced by one which is stouter and tighter. By such a plan a tolerance can often be brought about even in subjects with most irritable skins.

Generally, however, the whole question of tolerance on the part of the patient, and efficacy on the part of the stocking, depends upon the way in which the latter is made.

The main points to be borne in mind in this respect are those already mentioned in the description of the proper method of applying the elastic bandage.

(1) The pressure should be greatest at the foot, and gradually diminish towards the knee.

(2) On no account should the upper edge of the stocking fit more closely than the part below. This last is a common fault in the ordinary stocking supplied from the shops, the idea being that the tight upper edge should keep the appliance in its place; the result being that the patient is placed in the position of wearing an elastic stocking *with a garter at its upper end*—a condition naturally to be avoided. A properly made stocking will keep its

position without the constriction at the upper border, and is seldom, if ever, intolerable.

These remarks apply equally to all kinds of elastic supports, whether continuous or laced, and, so far as the arrangement of the pressure is concerned, also to every kind of inelastic appliance.

Of the supports which are composed entirely of elastic material, the most useful for ordinary purposes are the 'Woven' and the 'Spiral' forms.

The former are made of a continuous piece of woven elastic (cotton or silk), whilst the latter are made of long strips of silk elastic, which pass round the limb in spiral fashion (hence the name), the edges of the strips being stitched together, thus forming a somewhat bandage-like arrangement of a size and shape which accurately meet the requirements of the part.

For rough wear, and in cases where great pressure is requisite, the woven form is on the whole the best; but in other cases, where less pressure is necessary, or if the skin is over-sensitive, the spiral form is certainly better, since it generally can be made to fit more accurately, is cooler to wear, and less irritating; mainly, I fancy, because the line of stitching which connects the edges of the strip of material of which the support is made allows of a little ventilation and obviates the trouble which at

times arises from the confinement of perspiration in appliances which are less pervious.

Either of the above forms may be made as a continuous arrangement, to pull on and off like an ordinary stocking, for example, or may be constructed to lace from end to end, which is a superior plan, inasmuch as it affords an opportunity for altering the pressure as occasion may arise; at the same time it is more costly, and of course requires rather more time and trouble in adjusting.

As a compromise between the continuous and laced, a most useful contrivance is the 'Interrupted' stocking, which is merely the ordinary woven stocking, which, instead of being continuous from end to end, is interrupted by two vertical slits, on the inner or outer side of the leg, about two and a half or three inches in length, placed vertically one above the other, with an interval between them of three inches or thereabouts.

The edges of each of these openings are fitted for laces, which, as they are quite short, can be rapidly drawn tight or loosened without any trouble at all, since they need not be actually removed from the lace-holes.

When the stocking is first put on in the morning, the lower opening is laced quite tightly, the edges of the upper being left comparatively loose; later in the day, should discomfort arise from the pressure being too uniform in degree or direction, the lower

lace is loosened, the upper one being drawn tight. Thus the incidence of pressure is sufficiently modified to afford complete comfort in many instances.

Patients who are unable to tolerate the ordinary kinds of complete elastic supports can often wear this Interrupted stocking with ease.

Another convenient variety of elastic support is that which is only *partly* elastic.

Taking a stocking for example: the front is made of washleather, buckskin, felt, or, better, some stout *porous* inelastic material, the back being formed of elastic.

Such appliances must be made to lace from end to end, and are particularly comfortable, especially if the varicose condition is circumscribed, in which case the elastic portion must be so arranged that it will lie over the varix when the support is in use.

The elasticity in these particular contrivances is sometimes provided by an arrangement of small spiral springs, but there is no perceptible advantage in this modification, whilst it is more expensive than the silk elastic material commonly used.

A certain number of subjects are met with who cannot bear anything like elastic pressure, no matter how it may be applied.

In such patients the support may be composed of washleather, buckskin, or kid, fitted accurately to the affected part, and lacing from end to end.

For the leg this is a most comfortable plan, as, the materials being so thin, the foot can be included.

A legging of soft felt moulded carefully to the contour of the limb, fastening with straps and buckles, is sometimes worn with more comfort than almost anything else, but as the felt is necessarily rather thick, a foot-piece cannot be conveniently adapted for wear inside the boot; at the same time it is not so essential that the foot should be included in the inelastic form of appliance, which acts merely as a passive support, as it is in the elastic form, which exercises active pressure on the parts.

So far as the appliances ordinarily used, whether elastic or inelastic, for affording support to the thigh in cases of varix are concerned, they will, as a rule, be found very difficult to retain in position, and so troublesome that the majority of patients prefer to discard them altogether as nuisances which give no relief, at all proportionate to the trouble which is inseparably connected with their use.

The only thigh support which I have found really convenient is made in the form of very tightly fitting drawers of stout merino or thin elastic, continuous above with a light abdominal belt. It is, in fact, identical with the garment known at the better class of outfitters' as 'belt-drawers,' and if properly made it is a perfect as well as most comfortable arrange-

ment in cases of varix, not only in the thigh but of the whole limb.

Bearing in mind the difficulties connected with the wearing of the ordinary appliances for the upper portion of the lower limb, it is satisfactory to know that, in a large number of subjects who are not too old, the discomforts produced by varicose veins in the thigh can be entirely relieved by one or other of the operative measures which will be described in the next lecture.

LECTURE IV.

THE present lecture will be devoted to the consideration of the radical treatment of varicose veins by open operation, connected with which there are some points of practical interest of which I can find no mention elsewhere. This method of treatment, which, it is needless to say, is neither original nor novel, seeing that it was first practised centuries ago, has received but little encouragement, from surgeons generally, until the past few years, on account of the risks which were formerly inseparable from it.

The apprehension universally felt on this account, even quite recently, is sufficiently attested by the fact that I was consulted only a few weeks since by a strong and healthy gentleman, upon whom I have since operated with the usual success, who was, as late as 1882, most strongly advised, by two of the first opinions in London, on no account to allow some varicose veins from which he was suffering to be excised, because the chance of 'blood-poisoning' after the operation would be so great.

Fortunately, the recent advances in surgery, thanks to the better appreciation of the antiseptic system on

the one hand, and improved methods of operating on the other, have so revolutionised practice that any surgeon possessed of ordinary dexterity is now in a position to advocate, in appropriate cases, this radical treatment, as being more certain and far-reaching in its results than any other method, whilst it presents at the same time, under ordinary circumstances, no appreciable risk beyond that which is connected with the administration of the necessary anæsthetic and the making of a clean-cut wound through the skin.

In varicosity of the lower limbs the treatment by operation must of necessity be applicable to a comparatively small number only of the cases of this affection which come under the care of the ordinary practitioner, since, as I have often pointed out, the varicose veins are, in the majority of instances, so easily managed, with or without the aid of some of the various appliances to which I have before now called your attention, that the radical method, although quite justifiable, is generally not desired by the patients. Nevertheless, there occur both in hospital and private practice a fair number of cases in which so much benefit can be afforded by this radical treatment that the surgeon may with confidence recommend the operation, which, as I have already said, may, I fully believe, be practised without any risk worth serious mention if a due regard be paid to

surgical cleanliness and some small technical details. Further, even if it be conceded for a moment that there is associated with the treatment some slight risk, the advantages gained in discreetly selected cases altogether outweigh any possible danger connected with the operation.

As a general rule, the question of the radical treatment does not present itself in cases of varicosity limited to the leg, in consequence of the extreme ease with which the affected veins are managed when they do not extend above the knee; so that the symptoms which from time to time arise are not, if proper care be taken, of a sufficiently serious kind to lead a patient to submit to the discomfort of an operation. It is also necessary to bear in mind that *in the leg*, excepting in certain cases to be specified hereafter, the operation very rarely entirely removes the necessity for wearing some kind of support, although in many cases the use of appliances may be made more tolerable.

In varix involving both the leg and thigh the matter is altogether different. As I have already shown, the wearing above the knee of an apparatus of almost any kind, if it be effectual, is in most instances so inconvenient and troublesome that patients will not infrequently submit with alacrity to any treatment which offers a reasonable prospect of relief from the intolerable nuisance at times connected with the use of such appliances. It is satisfactory to know,

therefore, that by a simple operation, practically devoid of danger in any healthy subject, it is easy to remove in many of these cases all necessity for wearing any apparatus above the knee—an inestimable boon, especially with those to whom expense is an object and time of importance.

Apart, however, from the question of the relief from the necessity for the use of appliances in these cases, it is found, as a matter of experience, that many of the discomforts arising in varix of the leg are either entirely due to or much increased by the co-existence of varicose veins above the knee; and, further, that these discomforts are susceptible of great modification in many instances, and in a few can be completely removed, by the proper treatment of the affected veins of the thigh, especially when the disease involves more particularly the long saphena vein, or is associated with a circumscribed varix at the saphenous opening.

Operations Applicable.

Setting aside the various subcutaneous methods, which I do not propose to consider, as they may now be said to have entirely given place to the open method in the hands of most surgeons, the operations for the radical treatment of varicose veins may be divided into three kinds:—

1. Those which aim at mere obliteration of some of the affected veins at one or more points.

2. Those which produce a more extensive alteration, in cases of general varix of the limb, by the removal of large or small portions of the dilated vessels.

3. Those which in cases of local varicosity effect a 'cure' by the removal of the whole disease.

Technically, these operations, the first step in al of which is the formal exposure of the vein or veins by dissection, may be arranged in the four following classes:—

A. The application, at one or more points, of single ligatures around a vein, thus obtaining as many centres of obliteration as may seem desirable in any given case, and so diverting to some extent the current of the circulation, producing at the same time an alteration in the incidence of pressure in different parts of the limb.

This proceeding, which approaches the ordinary subcutaneous method more nearly than any other of the open operations, but is more certain in its result, is suitable in a large class of cases of extensive general varicosity associated with one or more of the following conditions: (1) intolerance of the use of appliances; (2) distress from excessive distension of the dilated vessels; (3) threatened bursting of thinned veins from over-distension; and (4) the co-existence

with the varicose condition, of intractable ulcers, eczema, and the like.

B. The division of a vein or veins between two ligatures.

This operation is applicable to the same class of cases as the foregoing, but is much superior to it, as not only is absolute certainty of obliteration ensured at the points of ligature, but, in consequence of the section of the veins, a certain amount of retraction of the divided vessels also occurs; a very important fact, since it gives entire relief to all pain and inconvenience which may be caused by the dragging, upon the parts above, of the heavy mass of full veins below. Hence the relief which follows this operation is certainly, as a rule, much greater than that obtained from the mere ligature of the vessels without division. This point, to which I can find no reference in the ordinary works on surgery, is particularly well seen in cases of circumscribed varix at the saphenous opening, in which, as I shall show later on, the affection often disappears after the division or removal of a portion of the long saphena vein in the thigh.

C. The removal from various parts of the varicose limb of short pieces of the affected veins, not exceeding one inch in length, each portion about to be excised having been previously included between two ligatures.

This method effects a similar result to operation *B*, but is probably more radical. It is particularly adapted to cases in which the varicosity, although excessive, is uniformly disposed so that no local exaggerations of varix offer themselves for extensive removal.

As many as six, eight, or even more of these short lengths of veins may be taken from one limb.

D. The formal removal by dissection of large portions of exaggerated varicosities in general varix.

All the ends obtainable by the two previous operations are better and more completely effected by this proceeding, which is, of course, also especially adapted for the complete cure of local varix of any kind, single or multiple cysts, solid tumours the results of ancient thrombi, phleboliths, &c.

E. The ligature of veins around large areas of exaggerated varix in general cases, or in local varicosities, with a view to so interrupting the blood supply as to cause a shrinking of the varicose mass.

I have ceased to practise this form of operation (1) on account of its uncertainty, and (2) because, while it is more uncertain, it is not less dangerous than the formal removal of the varix by dissection. The uncertainty depends upon the impossibility of making out which veins are really connected with the varicose mass. Upon this subject I can speak with some feeling, as I lost the confidence of a most

valuable patient by assuring him that I could cure a varix, of very moderate size, on the inner side of the knee, by this operation; but although I ligatured no less than five large veins, apparently leading to it, the varicosity itself was not affected in any way whatever. Again, I have mentioned a case in my first lecture in which a large varix lying directly upon the long saphena was in reality altogether independent of that vein, which would certainly have been ligatured by any surgeon practising this operation, entirely without any good effect. I have seen other cases of the same kind.

Details of the Operations.

On this head it is not needful to say much. The strictest precautions as to surgical cleanliness must, of course, be observed in all cases, and on no account should the packing of the part in a wet carbolic dressing for at least four hours before the operation be omitted, the limb having been previously cleansed with ether and soap. In the mere application of a ligature, as in operation *A*, the vein is simply exposed through a small incision, and isolated by gently insinuating an aneurism needle or eyed probe beneath it, by which a ligature is carried round the vessel. This ligature is ultimately tied tightly, and its ends, of course, cut short. In opera-

tion *B* the vein is exposed for an inch and a half, more or less, and two ligatures applied as before, with an interval of an inch or thereabouts between them. The intervening portion of the vessel is then divided with scalpel or scissors, care being taken that the vein is not caught up by forceps—a point which, at first sight, may appear trivial, but which is, in reality, of some consequence, since a bruise of the vein may result in extensive thrombus, a complication to be avoided, as it may prove serious, especially if by any chance the attempts to keep the wound aseptic should fail. No sutures are necessary in either of these operations, the careful application of the antiseptic dressing being all that is necessary. In the removal by dissection (operation *C*) of large areas of exaggerated varix in general cases, or isolated varicose masses &c., a single or crucial incision is made over the mass; the cellular tissue having been laid open, and the veins in some part exposed, the whole varix may be quickly laid bare by running a director over and around the dilated vessels; an occasional touch with the scalpel is necessary, but the use of the knife is best avoided as much as possible, as there is less danger of wounding any of the veins—a mishap which, although not in any way serious, gives rise to some bleeding and prolongs the operation. As many as possible of the veins running into the varix are now divided one by one

between double ligatures; the mass is then drawn out and removed, after any radicles which may have escaped division in the earlier part of the operation have been ligatured and divided. The complete exposure of the varix, at the commencement of this proceeding, is much facilitated by throwing the veins into full relief by tying a band around the limb above, sufficiently tightly to arrest the venous circulation to some extent. The margins of the wound, which are sometimes extremely thin, should be treated with as much delicacy as possible, being held, if necessary, by the fingers rather than forceps, to avoid bruising. The edges come together accurately, and are most conveniently sutured with chromic catgut, after all oozing from the surfaces has entirely ceased. The antiseptic dressing is finally applied, great care being taken to make equable and rather firm pressure, in order to secure early adhesion between the under-surface of the skin-flaps and the deeper parts—a point of much consequence, as the integrity of the skin-flaps, when very thin, without doubt solely depends upon this early union between the parts mentioned. As a rule, the wound requires very little attention after the first dressing, which need not generally be changed for a week, by which time the healing will have probably been completed. I have seen in my cases neither fever, suppuration, nor untoward symptom. There is, however, one

objection which a captious critic might make in connection with this operation—viz. that the final healing of the wound is sometimes rather tardy. Personally, I attach but little importance to this objection, since, so far as I have seen, even in the slowest cases the parts are sufficiently sound at the end of ten days, or at the most a fortnight, to allow the patient to get about. One word as to the best kind of ligature is necessary. Chromic catgut is, on the whole, the most suitable material for all of these operations excepting the first, in which, as it is important that the ligature should not dissolve too soon, tendon is probably better.

In order to properly estimate the value of the radical method of treating varicose veins, and to ascertain the class of case which is likely to derive the greatest benefit from one of the several operations mentioned, it is convenient to consider the treatment as (1) curative and (2) palliative.

1. *Curative.*—The cases in which a 'cure' in the true sense of the word (i.e. entire obliteration or removal of the disease) can be effected must necessarily be somewhat limited in number, since they comprise the following conditions only: (α) local and circumscribed varix, (β) single or multiple cystic dilations, (γ) solid tumours the result of ancient thrombi, or (δ) ordinary phleboliths.

A good instance of the first of these conditions was seen in a patient of mine, a railway-guard, who was in the Belgrave Ward, and from whom I removed a large mass of varicose veins situated at the inner side of the knee; the whole varix was confined to a tributary of the long saphena, which was itself quite uninvolved. The cure was complete, and the man now, some months after the operation, follows his ordinary occupation, no sign of recurrence having shown itself. I have already referred to another case of the same kind in which I removed fifteen inches of varicose veins from the calf of a man who has just recently returned to show himself without a trace of varicosity, seven months after the operation.

Of the second variety (cystic dilatation), I removed a good example from a girl who was in the Princess Ward; the cyst was a complete dilatation of the saphena just above the knee. The vein was exposed above and below, ligatured, and the tumour dissected out; it was about the size of a cherry. A second smaller dilatation existed lower down in the vein, but it disappeared spontaneously after the removal of the one above. This kind of cyst is most frequent in connection with the saphena vein, and is invariably developed near a valve. The pain to which these dilatations give rise when they become distended is sometimes very great; I have had to

remove several in private practice for this reason. In our museum there are some excellent specimens, especially one which was removed by Mr. Pick; it is as large as a walnut.

Of the solid tumours resulting from thrombi in these cysts, I dissected out a beautiful example from the leg of a gentleman forty years of age; it was said to have appeared suddenly, had existed for two months, was very painful, and as large as a filbert. It proved to be a venous dilatation, full of hard organising clot, evidently the result of sudden coagulation at a former date.

2. *Palliative.*—Cases in which the radical treatment may be applied for palliative purposes are fairly numerous, and although in none of these can anything more than partial relief be, with absolute justice, claimed as the result of the method, because the actual disease is not entirely removed or completely obliterated, still the effect on the symptoms in many instances is so marked that, for all ordinary purposes, a cure may be said to be effected; indeed, the benefit derived by some patients is so great that it is difficult to persuade them that an actual cure, in the true sense, has not been produced.

Amongst the conditions wherein the relief obtainable from operation may be safely anticipated to be sufficient to justify the recommendation of this treat-

ment, is that of general varicosity associated with some local excess of varix, or with distinct cystic dilatations. In many cases of extensive varicosity the whole of the serious discomfort experienced depends upon one or both of these conditions, which may be either in themselves painful, or by their presence interfere with the proper management of the varicose limb. Again, in similar cases, cysts, by repeated distension, increase until they are not only painful, but become so thin that they are liable to burst, and may so give rise to serious bleeding.

The removal of these local conditions, when practicable, either completely or in part, is clearly not only expedient, but in some instances really necessary. Even in cases of general varicosity, in which the disease appears to be uniformly distributed, when there is much pain, the relief obtained by the excision of portions of the affected veins in different parts of the limb is very remarkable. I have myself seen an amount of relief which was almost incredible obtained by the removal of considerable lengths of diseased veins from each leg and thigh in a case of double general varix.

As to the permanence of the relief in these palliated cases, it is difficult to give any very positive opinion, on account of the impossibility, as a rule, especially in hospital practice, of keeping the patients sufficiently long under observation to form a

thoroughly reliable judgment on this matter. That the relief, however, lasts for long periods is certain. I occasionally see, for example, patients upon whom I operated five years ago, in which the discomfort then relieved has shown no indication of recurrence. In the cases mentioned under the head of the 'curative' treatment, I believe the cure to be quite permanent.

Amongst the cases in which the radical treatment can be with justice considered palliative only are two conditions, which are of sufficient interest to merit separate consideration. One of these is the *circumscribed varix at the saphenous opening*; and the second is the '*creeping*' *thrombus*, to which I alluded in a former lecture.

I. *Varix at the saphenous opening.*—The effect of complete division, or, better, the removal of a considerable portion, of the varicose saphena vein in cases of this kind is remarkable, inasmuch as the operation is followed in many cases by a shrivelling of the varix at the saphenous opening. This rather curious fact, to which I have seen no allusion elsewhere, is well illustrated in the following three cases.

1. In 1885 I removed from the thigh of a gentleman about three inches of the long saphena vein, with a view to relieving some symptoms connected with extensive varix of the right limb. The relief

afforded was all that could be desired, and, in addition, a result for which I was not in the least prepared, a large varix at the saphenous opening almost entirely disappeared—a most gratifying occurrence, as that condition was associated with much inconvenience, which the use of a truss had not in any way modified. When the patient was seen not long since, the varix in question was hardly perceptible.

2. A man in the Belgrave Ward, sixty-one years of age, whose case I have mentioned before for a different reason, had a large varicose mass above the knee, and a varix as large as a pigeon's egg at the saphenous opening, with slight varicosity only of the long saphena vein itself. I removed the varicose mass at the knee and divided the saphena. The varix at the saphenous opening rapidly diminished, and when the patient was last seen, four months after the operation, could hardly be distinguished.

3. A young woman from whom I removed a cystic dilatation from the trunk of the saphena had also a well-marked varix at the saphenous opening, which three months after my operation was only just perceptible. I have seen other cases.

At first sight these results seem very peculiar, but in reality they are simple enough, and are easily explained in the following way: The existence of this varicose tumour at the saphenous opening depends, no doubt, originally upon dilatation of the proximal

end of the saphena and adjacent part of the femoral veins, produced as I have described in my second lecture; subsequently, however, its size is much increased by the constant dragging upon the varix by the heavy weight of the distended varicose saphena and its tributaries in the limb below, so that the walls of the tumour at the saphenous opening are being continually drawn down, with the result that the small amount of contractility that they may possess is altogether overcome. The division, or, as is preferable, the removal of a portion, of the long saphena liberates its proximal end and relieves it from this continual downward traction, the effect being that the cystic varix above contracts and to a great extent disappears, especially if it receives for a short time after the operation gentle support from an accurately fitting but very weak truss.

II. *Creeping thrombus.*—This condition is not altogether common. I have already mentioned a typical example, in which a patient in the course of several years has developed, in consequence of successive blockings, a thrombus which extends from the ankle to the middle of the thigh, and which must, if more blocks form (as is almost certain), sooner or later extend into the femoral vein. Now it seems to me that, as the coagulation always takes place upon the proximal end of the creeping thrombus, the rational treatment here is to separate this clot from the

proximal patent end of the vessel by dividing the saphena between two ligatures above the thrombus, and this I propose to do if the patient will consent. In cases in which the creeping thrombus is small, I feel sure that the proper treatment is, at a time when the whole thing is quiescent, to remove the thrombus, with the vessels of course containing it, and so do away with, as it were, the evil inclination to coagulation which is undoubtedly produced by the old clot, but which there is no real reason for supposing would necessarily occur in connection with the small new thrombus which may form as the result of the operation.

PLATES

DESCRIPTION OF PLATE I.

Fig. 1.—Extensive varicosity of right lower limb in a hospital patient aged sixty-one. For two years he had been unable to work, on account of the pain caused in the mass above the inner side of the knee, and in the varix at the saphenous opening, by any exertion.

The mass above the knee was dissected out on September 27, 1888, and was found to have no connection with the saphena, being entirely fed by veins coming from the deep parts of the thigh. The saphena above was also divided with a view to bringing about the subsidence of the varix at the saphenous opening.

The wound was healed soundly when dressed for the first time a week after the operation, with the exception of a small point at its upper end. By October 14 it was perfectly sound throughout.

Fig. 2.—The same limb three months after operation. There was no evidence of varix in the lower part of the thigh, and the tumour at the saphenous opening had shrivelled so much that it was imperceptible.

When last heard of, eight months after the operation, the man was working as a navvy.

This patient is the oldest subject upon whom I have operated for varix.

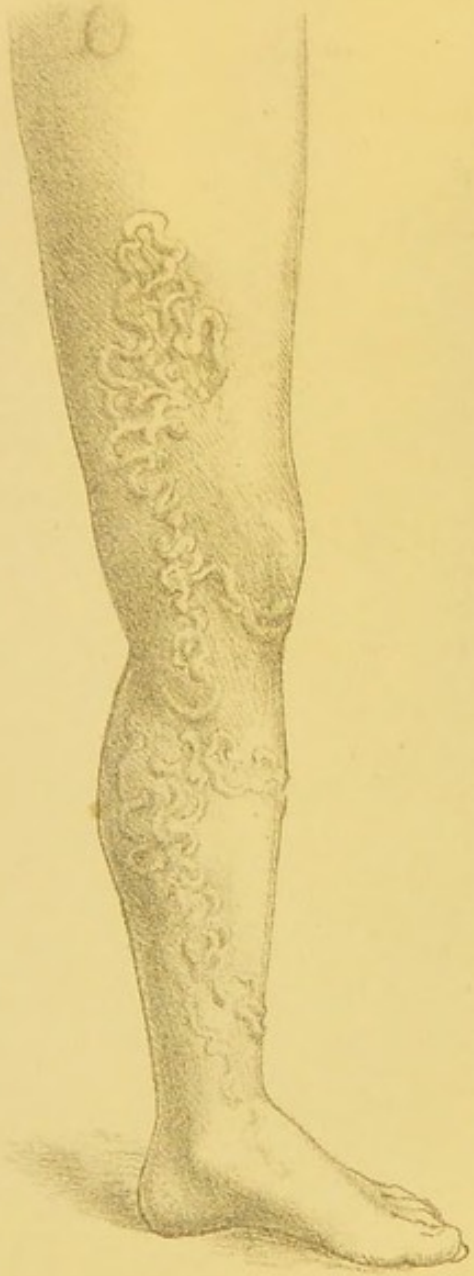

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Fig 1.

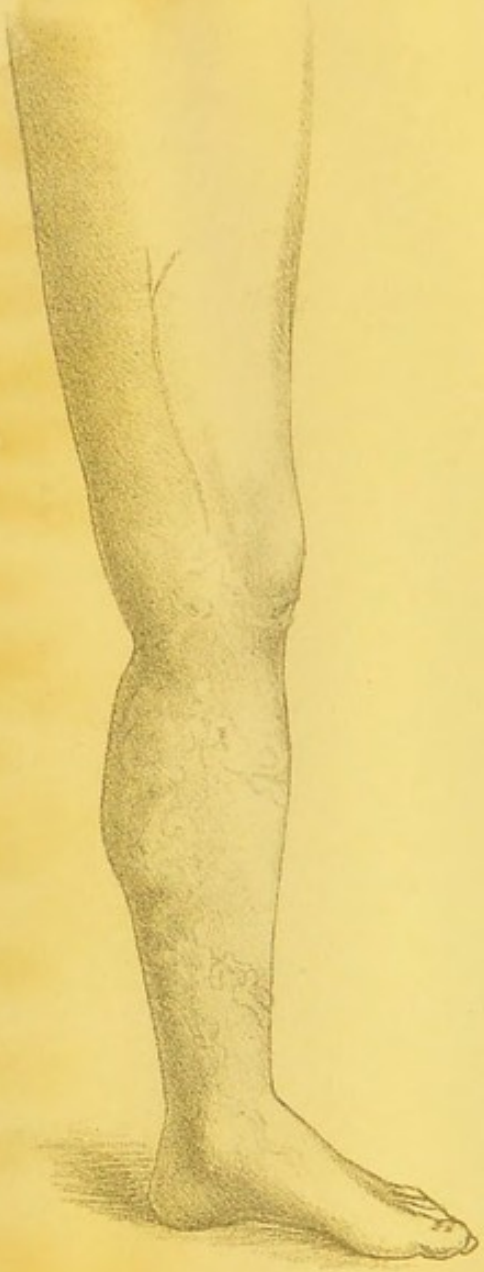

Fig. 2.

Danielsson & Co, lith.

DESCRIPTION OF PLATE II.

Fig. 1.—Circumscribed varix at inner side and rather below knee. The patient was a railway-guard, aged thirty-four, who suffered so much pain in the varix during his work, in spite of perseverance in the use of appliances, that he was on the point of giving up his occupation.

The affected veins were dissected out on November 22, 1888, and he left the hospital perfectly sound on December 23, the limb being in the condition shown in fig. 2.

He immediately resumed his work in entire comfort. When the patient was last seen, nine months after the operation, there was no sign of a recurrence of varicosity.

In this case the varicose mass was fed solely by veins coming from the popliteal region and inner side of the leg. The long saphena was not involved.

Plate II.

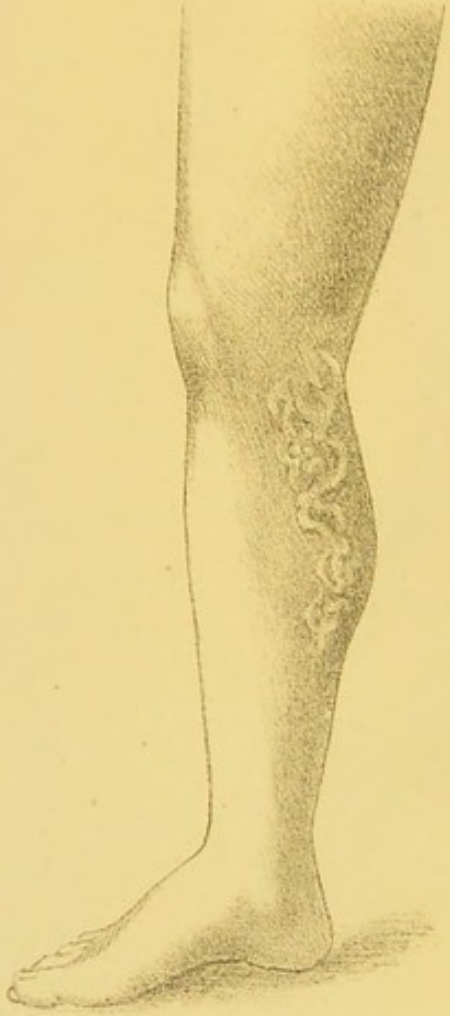

Fig 1.

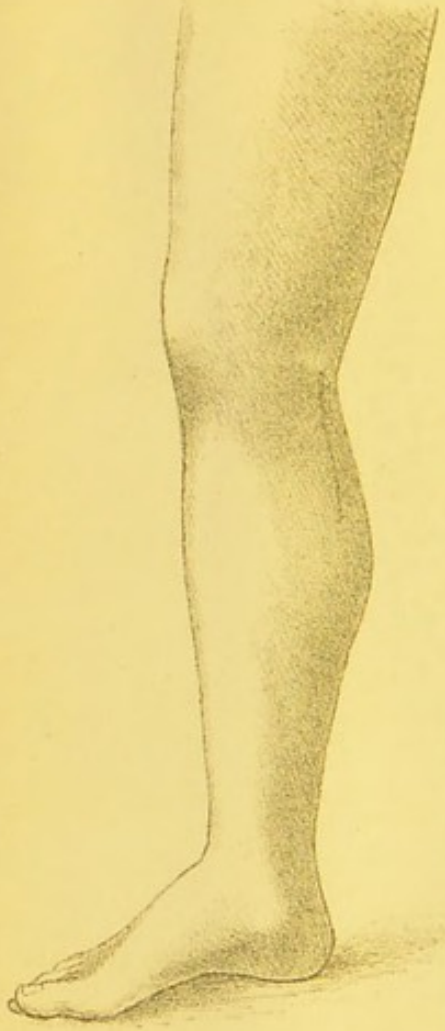

Fig 2.

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DESCRIPTION OF PLATE III.

Fig. 1.—Congenital circumscribed varix in calf of leg in a hospital patient aged 25. The man had been rejected as a recruit for the army on account of 'varicose veins.'

The mass was dissected out on October 4, 1888, fifteen inches of tortuous and pouched veins being removed.

The varix was limited to the external saphena, with the exception of two small vessels which passed into the deep parts, one on each side of the upper end of the tendo Achillis. The recovery was uninterrupted, and on October 24 he left the hospital with the limb in the state shown in fig. 2.

The patient was seen six months after the operation, when there was no sign of varix present, although he had been throwing considerable strain upon the limb in following the occupation of a gardener.

Spottiswoode & Co. Printers, New-street Square, London.

Plate III.

Fig. 1.

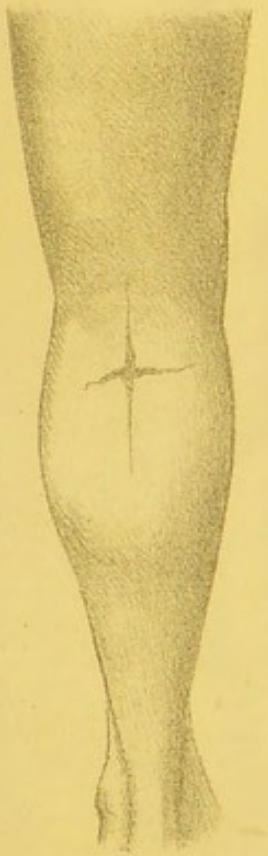

Fig. 2.

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