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VARICOSE VEINS

15

AND

VARICOSE ULCERS.

BY

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PRESENTED
by the
AUTHOR

LONDON:

HENRY RENSHAW, 356, STRAND.

1852.

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THIS ESSAY

Is Enscribed to

JOHN SIMON, ESQ., F.R.S.

ONE OF THE SURGICAL STAFF OF ST. THOMAS'S HOSPITAL;

LECTURER ON PATHOLOGY AT THAT HOSPITAL;

OFFICER OF HEALTH TO THE CITY OF LONDON,

ETC. ETC.

WITH THE MOST PROFOUND

RESPECT AND ESTEEM,

BY

THE AUTHOR.

THIS ESSAY

ON

JAMES SIMON, ESQ. F.R.S.

AND

THE

REMARKS

ON

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P R E F A C E.

THE rough sketch of this Essay was published in the *Medical Times* of 1850; subsequent experience and observation have enabled the Author to enlarge upon the details of the leading questions contained therein, and justify his more formally committing himself to the views then advanced.

When the correct pathology of a disease is arrived at, its treatment is comparatively an easy matter. This Essay is accordingly offered to the Profession *mainly* as an unpresuming

attempt to render the pathology of a series of diseased conditions, of every-day occurrence, less vague and inexact than it at present may be said to be.

17, *Stratford-place, Oxford-street,*
January, 1852.

ON
VARICOSE VEINS
AND
VARICOSE ULCERS.

SECTION I.

WITHOUT defined ideas of the general arrangement, structure, and functions of a part or organ, sound methods of treatment can neither be planned nor successfully followed.

It has been found necessary to preface the pathology and treatment of varicose veins, as set forth in the following pages, by a reference to some points in the anatomy and physiology of the superficial vascular apparatus of the limbs. For although the ample subcutaneous veins constitute so striking a feature in the outward aspect of the extremities, and offer themselves so palpably to the eye, that the artist has long since seized on them to add a life-likeness and

action to his representation of animated nature; nevertheless, physiologists have passed them over with a few exceedingly general remarks.

Those veins commonly classed as subcutaneous in the limbs, consist in reality of two sets. One comprises those which are supplementary to the deeply-seated vessels, and which occupy an important relation to them, to be hereafter spoken of. The other includes those especially belonging to the integuments; that is to say, to the skin, fat, and cellular tissue.

The former set—or supplemental veins—are distinguished by the great strength of their walls; they pursue a direct course towards the centre of circulation, lie close upon the aponeurotic investing membrane of the limb—and are bound down, or, as it were, woven on to it by a fibrous expansion of greater or less strength and extent.

The latter—the integumental veins—are remarkable for their thin semi-transparent walls; are of much smaller calibre, but are far more numerous, being spread over the whole surface; have frequent communication with each other, and lie almost immediately beneath the cutis, and, therefore, on a plane external to the first-named set, into which, however, they eventually pour their contents.

The integumental veins form a finely-meshed net-work immediately beneath the cutis; it must be understood, however, most distinctly, that this net-work is not composed of capillary vessels, properly so called. The diameter of the veins composing it varies,—some are a line wide or even more, others are not thicker than a coarse hair. This plexus may be best observed in the dead body when decomposition has reached that particular stage in which the epithelium is most easily removed in a sheet or layer; the fibrous cutis, after exposure in a dry atmosphere, loses its moisture, and imbibes oil from the fatty tissue beneath, becoming thus perfectly transparent, so as to discover the reticulated anastomosing system below. The amplitude of the venous plexus thus displayed, suggests the possibility of its subservience to some further purpose than the return of the blood from the integuments. Whilst it is separated from the external air merely by the dermic structures, its extent would tend to render it capable of being the means whereby the blood, under certain circumstances, might have considerable changes wrought in it.

By choosing for dissection a limb that is very œdematous, the relation between the two sets

of superficial vessels may be easily seen, since, in such a case, the skin is stretched as far as possible from the surface of the aponeurosis. The integumental veins rise with the skin, and are thus separated from the others, which are retained against the fascia lata by the fibrous expansion covering them.

The supplementary set of subcutaneous veins offer to the returning blood an unobstructed passage to the heart during the time the *venæ comites* are undergoing compression by the contracting muscles of the limb, and thus act as a safeguard against the contingency of congestion of the active organs of locomotion. One may compare these veins to the compensating adjustment of the chronometer—both having for their object a uniformity of performance under varying conditions.

The immediate interference with functional action, which follows the congestion of any other organ of the body, even though produced by temporary causes, so familiar to all as not to require illustration, naturally would lead us to imagine that the muscles of a limb which may instantaneously pass from a state of repose to one of active contraction, would have some special protection against the liability to congestion.

It has been asserted by physiologists that the compression of the veins by muscular contraction assists the onward flow of the venous current. If this be true, the instantaneous distention of the superficial veins of the limb following the contraction of its muscles, must seem to be, in some measure, paradoxical, since the increased determination of blood to the part would scarcely account for it. Compression of the deep veins would accelerate the transit of the blood they might contain at that precise moment of time; but it is quite clear that this same compression would immediately afterwards be converted into an opposing force. Were the contraction rhythmical, the result would of course be different; each vein, thus combined with muscles, under such circumstances would become an active agent in the circulation, instead of a passive one.

The notion intended to be conveyed is, not that the return of the blood from the limb, taken as a whole, is in any way interfered with by an active condition of the muscles, but that the circuit of the current is altered—namely, that it is diverted from the deep into the superficial veins, which vessels empty themselves into the main trunk at a point protected from muscular pressure.

The increased volume of blood thrown towards the superficial veins by muscular action, is well proved by directing a patient having one of the veins of the arm open for the abstraction of blood, to clench the fist, or grasp some object tightly with the hand. On the contraction of the muscles of the fore-arm necessary to effect this action, the issuing stream of blood is at once increased. In a thoroughbred horse fresh from a gallop, every superficial vein will be seen distended, the thinness of its skin allowing the distention of the veins to be apparent. Or, again, let a muscular person raise the forearm above his head, in a line with his body, so as to diminish, by gravitation, the quantity of blood contained in the vessels: by passing the hand gently along the arm, from the wrist upwards, the superficial veins are further cleared of their contents, and the course of these vessels becomes marked by a slightly depressed channel. Now let the fist be tightly clenched—the blood will be seen to fly with arrow-like swiftness towards the heart, through the collapsed trunks, and distend them to their former size.

The chief organ of touch—the hand—unless its circulation were maintained uniform, by means of this provision for the easy and unimpeded

return of the blood from it, would be continually liable to be rendered inefficient for its purposes. The nerves of touch are constantly employed in conveying information to the nervous centre, and thus mediate cause the appropriate muscular efforts to be made. Those actions which appear to be spontaneous, are really the result of the obedience of the muscles to the dictation of the nervous centre, influenced by the afferent nerves. It has been found that when the skin of the palmar surface of the hand has been destroyed, as by a burn, and has thereby lost its tactile power, the hand can clasp any object no longer than the eye continues to inform the nervous centre of the necessity for contraction of the flexor muscles. The importance of a properly-regulated vascular condition must be evident, when it is remembered that a congested state of the veins of the fingers would much interfere with the delicacy of touch by reacting upon the nervous apparatus, upon which that sense is dependent.

In respect of structure, the superficial veins of the limbs do not differ from the deep ones; they may be said to have three coats—an inner or serous, or epithelial, an outer or fibrous, and a middle or muscular. The inner essentially

resembles the corresponding coat in the arteries; the outer is composed almost entirely of the white fibrous tissue, the fibres passing round the vessel in all directions; the middle consists of two layers, the one next the serous coat being longitudinal, the other circular. There is reason to believe that this coat is really contractile, for on comparing some of its fibres with other fibres from the corresponding coat of an artery, the two structures were found to be identical. But although the middle coat consists of two layers, yet it is exceedingly thin, and can confer but slight power of contraction on the veins.

The external fibrous coat, however, is strong, and possesses, from the spiral arrangement of many of its fibres, a great degree of elasticity.

Dr. Norman Chevers, in the *Medical Gazette* for 1845, gives an elaborate account of the structure of the veins. The examinations made by the author do not confirm the existence of so definite an arrangement of the muscular coat as that described and figured by Dr. Chevers, though, on the essential point, namely, the fact of there being a longitudinal and circular set of fibres, they both agree.

The curious mechanism of the valves found

within the veins—so delicate as almost to escape observation—has a most important office in the economy of these vessels. The valves are formed by a reduplication of the serous lining over a framework of almost inextensible fibrous material, and are scattered over the length of the vein, the number varying in different subjects; they are generally placed in pairs, of a semi-ovoid shape, and so arranged as to obstruct any passage of the blood from the centre of circulation, while, from their extreme tenuity allowing of perfect apposition to the wall of the vein itself, they are capable of offering no impediment to a current running normally towards that centre.*

Dr. Volkmann has investigated, with literally mathematical precision, (*Medical Times*, 1851, p. 627, “Extracts from Foreign Journals,”) the

* To show the resistance the valves are capable of offering to fluid pressure, and their mode of action, the following experiment may be made. Take such a portion of the saphena vein as shall have, exactly at its lower extremity, a pair of valves, but no others throughout its length. Tie the opposite end on to the pipe of a syringe, and inject water. The opposed free edges of the valves will be seen to flap together, and the surface of each valve become convex, but no amount of ordinary force will suffice to cause either rupture of the tissues of which they are composed, or an escape of fluid.

relation between the velocity of the blood and the resistance offered by adhesion to the walls of the vessel. A consideration of the facts stated by him, gives an insight into the purpose of the extreme tenuity of the valves, and of their property of lying in such perfect apposition to the wall of the vein.

It is to be observed also, in connexion with the valves, that the coats of the veins are thinner immediately above the seat of each pair of valves. The walls of the vessels have from this circumstance a tendency, when a distending force is applied from within, to bulge at this point.

There is a belief extant that the valves serve to divide and support the column of blood, and thus protect the vein from undue pressure. That any support can be given to a *circulating* column of fluid by any such mechanism, is quite inconsistent with the laws of hydrostatics. The purpose of the valves appears rather to preserve the capillary system from the shock which would inevitably be communicated to it by retrograde venous currents. If there were no valves in the veins, a backward impulse would be transmitted over the whole

vascular system, and it is self-evident that an endless series of injurious effects would result; a shock would be echoed from every point of the capillary plexus connected with the vein in which such an interference with the natural direction of the current might occur. The mode in which this shock would take place, is to be explained in accordance with laws regulating fluid pressure, modified by the elasticity of the walls of the vessels.

Although there is an abstract similarity between the mechanism of the semilunar valves situated at the commencement of the two great arteries, springing from the heart, and the valves found in the veins, nevertheless, there is a wide difference in their purpose. It must be remembered that the blood travels in the arteries *per saltum*, while in the veins it runs in a continuous and equal current. The arterial semilunar valves have a certain part to play in every cycle of circulatory movements. They prevent the regurgitation of the column of blood just propelled from the ventricle, and thus enable the elasticity of the artery to react upon it and drive it forward. The valves of the veins have no analogous office; they stand rather as senti-

nels over the integrity of the capillary system, ready, on the instant, to arrest the prejudicial progress of a refluent impulse.

It is true there are certain veins destitute of valves, but it is suggested that the peculiar circumstances of the circulation in these trunks may explain why they are wanting.

For example : in the case of the large veins leading from the head, the internal jugular, the action of gravity, instead of assisting, as in the lower limbs, counteracts a retrograding pulse; the portal system is protected, by means of the liver, from any impulse communicated to the blood in the cava ; and a theory has also been lately advanced by M. Bernard, which if true will account also for the absence of valves from the renal veins.

When the return of the blood from the head is impeded, or rather, when a backward impulse is given to the venous column by a violent convulsive muscular action, such as coughing or retching, rupture of a vein of the conjunctiva is no uncommon occurrence ; an accident most probably the result of the unguarded condition of the encephalic veins.

The disposition which the walls of a vein have to fall together when not filled with blood, is to be

remarked, on account of the rapid and complete action of the valves insured thereby ; for when a vein is empty, or nearly so, and therefore collapsed, the free borders of opposite valves must be more or less in contact, and thus ready instantaneously to check a flow of blood in the wrong direction.

If the flaccidity of the veins be thus truly accounted for, and it is not simply the circumstance that, the force of the blood being less, canals of inferior strength only are required, we can easily understand how thickening of a vein is liable to be attended by mischievous consequences.

SECTION II.

IT is not easy to find a definition of varicosity, or, in other words, anatomically to translate the word varix in a manner altogether satisfactory.

The word varix, as formerly applied to a dilated vein, referred to the outward appearance only; but since the appearances actually represented by the word varix belong only to one particular condition of dilated veins, it is necessary either to change the word, or to add a new force to it; the latter course experience shows to be the better one.

Varicosity consists essentially in an enlargement, from a special cause, of the veins of a part, not coincident with either a healthy or unhealthy increased arterial supply, the capacity of the veins ceasing to bear the normal ratio to the capacity of the arteries.

The different forms of varicosity may be arranged under three heads:—

- I. Simple dilatation.
- II. Dilatation with attenuation of the walls of the vein.
- III. Dilatation accompanied by thickening and hardening of the walls of the vein.

In the first there is the fact of vessels enlarged and tortuous, but otherwise healthy.

In the second there is a deficiency of nutrition, or further, the occurrence of absorption.

In the third there is a complication, from the advent of inflammation, acute or subacute, according to circumstances.

M. Andral enumerates six varieties of dilatation to which the veins in general are liable.—(*Précis d'Anatomie Pathologique*, p. 400, vol. ii.)

Dr. Copland has classed varicosities under five heads.—(*Medical Gazette*, 1838, p. 837.)

With due deference to these authorities, the above arrangement is proposed in some measure to simplify the matter, in the belief that the other so-called varieties may be referred to certain stages of some one of the three given.

Arguing from certain instances, it must be admitted that, at first sight, even the three varieties given might seem to be merely stages of the same disease; but, nevertheless, it will

be found that the cases of varicose veins, taken generally, not only warrant, but require for their classification, some such arrangement.

It would be foreign to the object of these pages to discuss this question critically, because we have especially to deal with varicose veins as found in the lower limb, and to consider the relation the varicose state of vessels bears to a peculiar form of ulcer.

Dilatation of veins is produced by the pressure of the blood from within; and there are two distinct forms of pressure—if one may use the term—which act upon the vein. One is the force which has been given to the blood, to drive it forward,—the *vis a tergo*,—but which reacts on every point of the walls of the vessel; the other is the pressure the blood exerts in virtue of its properties in common with all other fluids.

The impetus *a tergo* may cause disease when there is an obstruction to the current of blood, either in the main trunk of the limb, or at the junction of the superficial with the main trunk.

The hydrostatic pressure may cause disease under two conditions:—1st, when the walls of the vein are weaker, or less supported than usual by the other structures; 2ndly, when the

veins have been over-employed, as occurs during too long continued exercise of the muscles of the limb.

The *vis a tergo* acts against an obstruction in all positions of the body ; the hydrostatic pressure ceases to act when the body is in a horizontal position.

But continuing with the circumstances of each form of varicosity. When a vein becomes subject to pressure beyond that which its original construction enables it to withstand, gradual yielding of its walls takes place ; but, under favourable conditions, Nature tends to neutralize the mischief she cannot obviate, by affording increased nourishment, and thus sustains the integrity of the vessel, that is to say, the nutrition of the vein keeps pace with its distention. This process is far different from the thickening, which has been looked upon by some writers on the subject as an effort of the "*vis medicatrix naturæ*," and which has been compared to the thickening of the muscular structure of the heart in cases of impediment at one or other of its outlets. The thickening of a vein is either the precursor or the companion of serious prejudice to the skin, and therefore cannot be regarded as an effort of a salutary character. There is

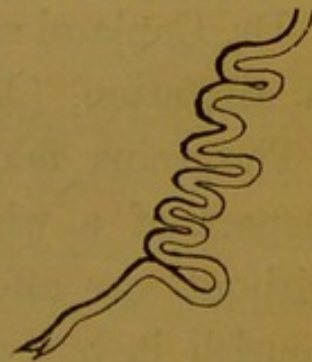
strictly no analogy whatever between the hypertrophy of the heart and the thickening of a varicose vein. When nature does attempt the reparation of a faulty frame, she works in an advantageous direction ; for example, the bony stay which forms in the concavity of a curved and rickety tibia, effectually, and with as little waste as is conceivable, gives strength exactly where it is required ; but since the thickening of a vein takes away one of its principal attributes, collapsability, and most probably thereby interferes with the delicate and perfect action of the valves ; and since accurate observation will show a thickened varicose vein to be always more difficult to deal with than a soft unthickened one, and very frequently, if not associated with, at least an indication of the imminent danger of further mischief, the incorrectness of the comparison can scarcely be doubted.

Indeed, one can scarcely admit even the existence of a special *vis medicatrix*. The organism obeys certain fixed and determinate laws ; and even the bony stay just referred to can no more be regarded as a special effort than the descent of the roots of a tree which has been accidentally sown on a comparatively arid and unfertile wall or mass of rock, to a more

propitious location, can be looked upon but as a process taking place in obedience to a certain otherwise latent property of the vegetable structure.

While the vein increases in diameter, it also lengthens and becomes tortuous, unless some disturbing cause interfere. Fluids press equally in all directions, and therefore the increase in the length of the veins must progress in a certain ratio to the increase in diameter, proportionate to the difference between the resisting forces offered respectively in each direction. The tortuosities are the natural result of the lengthening. They result from the accommodation of the stretched vessel to a space originally provided for one of a half or a third its length, as the case may be.

The accompanying cut is made from a drawing of one of the small veins lying obliquely across the leg, a little below the knee. It represents a length of two-and-a-half inches of the vessel, in which, it will be observed, no less than six reduplications have taken place.



Where the vein is bound on to the fascia

lata by a strong aponeurotic layer, it cannot become tortuous, for obvious reasons; and thus tortuosities are only found where this binding down does not obtain; it will presently be stated in what part of its course the saphena vein is least supported.

Generally speaking, the supplemental set of superficial veins first become varicose; when this abnormality arises from some obstacle to the return of the blood, and not from an inherent fault of the veins, it can hardly be looked upon as a condition of permanent disease; it then rather holds the place of a symptom, and generally subsides on the removal of the exciting cause. We every day see that the veins of the leg of a pregnant woman may become frightfully enlarged, yet, after confinement, scarcely exhibit a trace of their former state.

Dr. Copland says of the first, or simple form of dilatation, (*Medical Gazette*, 1838, p. 837): "The veins may be simply dilated either in respect of a whole vein or of portions of it, without any affection of the capillaries which nourish it, but more frequently with a state of chronic inflammation of its coats: most probably the dilatation is in consequence of inflammatory action, this state disappearing, but the

dilatation continuing." However, from the latter part of the above quotation, the preceding description will be seen essentially to differ, especially in respect of the *history* of this form of the affection.

Sometimes it happens that the special integumental set of veins become also affected with the simple form of disease ; a very characteristic appearance then presents itself, for the larger tortuosities are masked by an excessive abundance of smaller ones, superficial to them, and a condition exists, which has received from Mr. Critchett the title of "the spongy leg."—(*Lancet*, 1848, p. 601.)

There is an appearance to be observed, which seems to be simple varicosity on a small scale somewhat modified ; the almost capillary venous branches belonging exclusively to the integument having undergone change, the blood, instead of circulating through them, has apparently become stagnant, and has imparted a scarlet or purple stain to their walls. The rationale of this very common condition is not so easy to be made out ; it is most probably dependent upon a loss of contractile power in the coats of the vessel. It is most frequently to be found in persons having a delicate, transparent skin, and on the inside of the

thigh, immediately above the knee, where there is usually the greatest quantity of fat, the vessels being thereby farthest removed from any direct impulse to be derived from the force of the arterial current.

It seems as though these small veins had quietly resigned the function of transmitting the purple tide, and had retained their original contents as evidence of their former office. In these minute vessels the abnormal condition has not been of sufficient extent to occasion further injury: in the same way that a particle of foreign matter will often remain immediately beneath the skin without exciting irritation; whilst a small thorn, penetrating a little deeper, would cause considerable disturbance.

In the second form of varicosity—Dilatation with attenuation of the walls of the vein, where the nutrition does not keep pace with the distention—a condition exists which is equivalent to, but not precisely identical with, atrophy of the walls of the vein.

The pressure of the column of blood may, besides, produce that not unusual effect of pressure on the living textures, as exemplified in other parts of the body, viz., absorption; whence a breach of continuity with consequent hæmorrhage,

may ensue. Volkmann states that the veins are capable of resisting a force many times greater than it is possible they can ever be submitted to from within the body. He found that the jugular vein of a bullock was only to be burst by a pressure one hundred times greater than the force to which it normally would be subject. The process of absorption thus gives, like the traitor within the fortress, an advantage to the besieging force, the pressure, without which it would be unable to overcome the barriers to its destroying the integrity of the vein.

This latter process seldom or never takes place over a large surface of the vessel; it is found in action more frequently just above a valve, where it has been stated the vein is the most inclined to yield, or at the extreme convexity or knee of a tortuosity.

The cut annexed shows the bulging above a valve referred to. It represents a portion of the saphena vein about three or four inches above the knee of a male patient of about fifty years of age. The appearance might, at first sight, be taken for a simple tortuosity, but close



inspection would reveal its true nature. Dilatation with attenuation is but rarely found unassociated with the severer, or inflammatory variety of varicosity.

The most complicated and grave series of changes is presented by the third variety of varicosity. Here thickening and hardening of the vein are the most salient characteristics, and by it the results of subacute inflammation are well illustrated.

The stages of this form of the disease are as follows: 1st, distention; 2nd, inflammation and deposit of lymph in the walls of the vessel, involving the loss of the capability to collapse; 3rd, inflammation of the serous lining and injury to the valves, with the formation of clots; 4th, the extension of these latter processes to the minute radicles; and consequent upon this is the interference with the healthy nutrition of the integument, giving rise to the tendency to certain changes in the skin, varying in intensity between desquamative inflammation and ulceration. As before stated, in this third variety of varicose veins, we have a more or less active state of inflammation, and therefore the phenomena attendant are to be studied with that fact prominently in the mind's eye.

The formation of clots in varicose veins is a matter to be remarked, and has been variously explained. Sir B. Brodie says (*Lectures illustrative of various subjects in Pathology and Surgery*,) p. 165: "It is very remarkable that the blood in inflamed varicose veins coagulates, and they become choked up with coagulum. There seems something in an inflamed vein that is unfavourable to the fluidity of the blood."

Mr. Hodgson — (*Diseases of Arteries and Veins*) p. 541:—"The blood occasionally deposits strings of coagulum in varicose veins."

M. Cruveilhier — (*Anatomie Pathologique*, liv. xvi.)—"But if one point of the circumference undergoes a change of structure, it yields, and then the blood is detained in it, and a small spherical thin pouch is formed; in this the blood coagulates, adheres to its interior, loses its red colour, and in the centre of the pale fibrine, calcareous concretions are produced."

The opinion most generally held seems to be, that the clots are the natural consequence of a physical stagnation of the blood in the tortuosities. But blood in healthy vessels which are equally or even more tortuous, does not become stagnant, and therefore some more satisfactory

explanation must be looked for. The most probable origin of the clots is in the effusion of coagulable lymph from the inner surface of the vein ; the shreds of lymph thus formed either constitute the clots, or by, so to speak, entangling the blood, afford a nucleus for them ; and besides, the clots may subsequently grow by successive depositions of a similar nature to the one first thrown off. We know that in the fluid effused in inflamed serous cavities, flakes of lymph are nearly always present ; and we also know the blood has a tendency to deposit fibrine upon an extraneous body. Having in inflamed veins the conditions for providing the lymph shred, and also having blood apt to deposit additional matter, the explanation offered may perhaps be the more correct one.

There can be no doubt whatever but that the obstructive plug which sometimes forms from a smart attack of inflammation, is produced by the simultaneous and active pouring out of lymph from the whole circumference of a certain length of the vessel ; and therefore we might reasonably expect that a minor degree of the same process could but be attended by a minor result of the same nature.

We see that the two outer tunics evince, by

their increase in thickness, the result of subacute hyperæmia, whilst the inner coat becomes more opaque, and presents a corrugated or crumpled surface ; and instead of being perfectly smooth and glistening, it resembles the wrinkled pellicle that forms on the surface of drying oil paint. The most serious change occurs in the valves, the safeguard of the capillary apparatus ; they shrink, become ragged, and gradually disappear, their original site being only marked by very faint, whitish, semicircular lines. In bad cases of old standing, this destruction of the valves allows any impulse given to the blood in the vena cava to be transmitted throughout the whole length of the vein in the leg ; when the patient coughs, a backward pulse can be felt at the toe ; and where there is an ulcer, a shooting pain accompanies this shock.

The anatomical peculiarities of each saphena give characteristics peculiar to varicosity of either. When the internal trunk is diseased, evidence is found on the inner side of the foot, anterior to a line drawn from the inner ankle to the sole. When the external saphena is in fault, the blueness and tumefaction are chiefly to be observed on the outer side of the heel, behind and below the external malleolus, also

however, on the inner side of the heel; for the small veins of this part form a separate trunk, which passes obliquely over the tendo-Achillis, to join the external saphena.

It may not perhaps be superfluous shortly to recount a few points of the normal anatomy of the two saphena veins. The internal saphena commences at the inner extremity of the dorsal arch of the foot, passes over the front of the internal malleolus, and along the corresponding margin of the tibia, to a point somewhat behind the inner condyle of the femur; following the posterior border of the sartorius, it very gradually winds to the front of the thigh towards its upper third, and terminates by joining the femoral vein at the aperture in the fascia lata. So that in its course it lies in front of the ankle, behind the knee, and in front again at the upper third of the thigh. The external saphena commences at the corresponding extremity of the dorsal arch, passes behind the outer ankle to the back of the leg; running over the calf, it terminates by dipping through the fascia lata to join the main trunk lying beneath. The vein from the inner side of the heel joins it between three and four inches above the outer ankle.

The veins from the back of the thigh sweep upwards and inwards towards the inner side, to empty themselves by a pretty large trunk into the internal saphena near its termination; the superficial epigastric, as well as two other small superficial veins, join the same vessel by perforating the cribriform fascia. The superficial epigastric, by means of its anastomoses on the abdomen with other veins, unconnected with trunks, which are liable to pressure from within the abdomen, offers a passage for the blood when from any cause the inferior vena cava is obstructed, and is on this account deserving of especial notice. About four inches above, and to the same extent below the knee, the internal saphena is not at all tied down to the fascia lata, but is imbedded in the fatty cellular tissue abundant in this particular locality; the vein is thus protected from tension during the movements of the limb, but is at the same time left less supported.

We can now proceed to consider what are the general results of the different forms of varicosity. The simple variety of varicosity, in some cases, gives but slight inconvenience; however, it is not rare to find patients affected with it complain of frequent attacks of cramp, disagree-

able tinglings, and numbness, with occasional attacks of pain of a shooting description, after exercise, or at certain changes of the weather.

Some authors consider the cramp to be not infrequently the cause of the disease of the vein, and not the disease of the vein the cause of the cramp. One so invariably finds cramp associated with varicose veins of a severe character, which have arisen from causes clearly to be made out, that without altogether denying the possibility of very often repeated and very severe attacks of cramp being capable of producing varicose veins, one is quite justified in looking, in a vast majority of instances, at cramp of the muscles of the leg, as but one of the results of varicose veins.

It must not be forgotten, that however little obtrusive upon the notice of the patient the simply dilated veins may be, there is in them, always at hand, the raw material for a good deal of inconvenience and harm, if carelessness or mischance should involve them in an injury.

The bursting of a vein, as it is vulgarly called, in consequence of absorption of its walls, as occurs in the second variety of the disease, and which is the inevitable result, unless means be taken to prevent the accident, is attended with

profuse hæmorrhage, which may terminate fatally in a short time, if the vein be large, and the limb be allowed to remain in a dependent position, which, by the way, is by no means an impossible contingency, although fortunately patients generally become aware of the bleeding, and are able to adopt efficient means to avert so tragic an event. It is somewhat extraordinary that the hæmorrhage from giving way of the vein, has been looked upon as one of Nature's efforts at cure.

A dark purple spot about the size of a large pea, and rather bulged beyond the level of the skin, indicates the position of the most forward points of absorption. These spots, on being touched with the finger, yield immediately, and allow it to sink below. A number of these dark spots can often be noticed in the same subject down the course of the diseased vein.

A brown discoloration, with or without partial hardening; an inflammation of the surface of the skin, having an appearance somewhat resembling chronic eczema; œdema; and, lastly, ulceration, are the different results of the third or inflammatory variety of varicose veins, and have a most distinct gradation of intensity. It may at first sight appear strange that such a

train of mischief should be commenced by perhaps only a slight thickening of the vein; but in the matter of departures from normal structure, especially in the elements of vital organs, the mischief brought about resembles the impediment produced by a grain of sand at the axis of a delicately poised machine, or a small weight at the end of the long arm of a lever: the effect produced is apparently so disproportionate to the disturbing cause.

Brownish, copper-coloured patches, varying from the size of the palm of the hand to that of a shilling, with a scurfy desquamation of the cuticle, situated either in front of the shin-bone, or at the inner side of the middle of the leg, without any infiltration into the cellular membrane beneath, often accompany varicose veins, with which the inflammatory action has dealt gently. The discoloration has very much the appearance of a bruise, and probably the same cause—namely, injury to the capillaries—is common to both. The bruise is brought about by external violence; the discoloration from varicose veins by internal pressure. At any rate, the stain is due to the transudation of the colouring matter of the blood.

A similar change in the colour of the skin,

but of a more diffused character, attends inflammation of the surface of the skin—a state referred to by Sir B. Brodie, who says (p. 166, *op. cit.*):—“In old cases of varicose vein, you will frequently find the skin become affected with a chronic inflammation; that is, it will look red, and be very irritable and tender. Sometimes the cuticle is as it were abraded, and an ichorous discharge takes place from the red cutis. Occasionally the whole skin of the legs is in this condition.” The above so exactly describes the state of skin in question, that nothing more need be added for the purposes of identification, although it can hardly be said to be of frequent occurrence. This affection is very liable to be mistaken for a disease of the skin arising from constitutional causes, an error which may involve the subject of it in an endless and obviously futile series of “courses” of different potent medicines. Most probably this disease is determined by some peculiar inherent susceptibility of the cutaneous vessels, rendering them liable to an exalted condition of activity.

Œdema from varicose veins presents itself in two forms. In the one, the swelling notably increases towards the evening, after the patient

has been in an erect posture during the day ; the limb is soft and yielding to the touch, the enlargement in circumference being uniform ; the colour of the skin remains natural ; there is no increase of heat in the part, the exudation of serum being of a passive nature.

In the other, great pain, heat, dull redness, a heavy solid sensation communicated to the finger by the touch, and an uneven and irregular tumefaction, indicate an active sweating out of fluid from the capillaries ; the vessels not only yield to simple engorgement, but take up their allotted part in the process of inflammation. To quote again Sir B. Brodie's words, though with the intention of dissenting from his opinion — "It is the result of an inflammatory action in the cellular membrane." It is suggested that the mischief is rather confined to the small venous trunks ; from the vast extent of surface presented by the integumental plexus, one has no difficulty in accounting for any amount of infiltration.

A termination of this state of affairs is rather a curious one, and which has not hitherto been described. It seems as though

the effusion of lymph is followed by the same result as is sometimes observed in other localities,—the liver, for instance,—namely, by contraction. The integument appears tightened and contracted; it is hard and inelastic, like a cicatrix. It is very often extremely liable to attacks of severe pain. From the appearance, one is at once led to suppose there has been, at some time, an ulcer; but such is not found to be the case on inquiry. We must suppose that the inflammatory action stopped short of ulceration, and that the effused lymph has then slowly undergone the process indicated, to which it appears to be so prone.

One step further with inflammation, and there is set up a process, not of deposition, but of disintegration—an ulcer is established.

Mere congestion of the veins does not account for the lighting up of the ulcerative process, for we see venous congestion in other parts not followed by analogous ulceration—for instance, in cases of varicocele; and moreover, varicose vein of the simple kind may exist to a very great extent without the tendency to ulceration being manifested. The varicose ulcer has its pathology explained in the foregoing statements.

Professor Miller thus describes his view of the career of varicose veins (*Principles of Surgery*, page 616. Second Edition. 1850):—

“The limb beneath is liable to œdema, and its vital power as well as its ordinary function is more or less impaired. It is prone to assume the inflammatory process on its surface, and this action tends to ulceration.”

It is impossible to suppose that the minute venous radicles can be implicated in the manner described without the capillaries suffering from reaction upon them, and, therefore, without the nutrition of the tissues being interfered with. In some respects, varicose ulceration resembles ulceration dependent upon the deposition of tuberculous matter, or even something less decidedly morbid. Where there is the presence of tuberculous material, the phenomena are due not solely to the effort Nature is making to rid herself of it, taken in the light of a foreign body—but the process of nutrition of the part is modified.

If, for example, the every-day case of suppuration of a lymphatic gland, say in the neck, be taken, in which there has been tuberculous deposit, or which has been the subject of strumous inflammation: the skin over the gland

ulcerates; the cachectic gland is exposed, but does not, as soon as the pus has escaped, shoot forth healthy granulations; on the contrary, the surface exposed by the process of ulceration remains unhealed. The granulations that appear have a sickly existence, and then shrink and die. The ulcer remains, making little progress of either a favourable or unfavourable nature; perhaps it heals slightly over. The skin produced is never healthy so long as the thickening remains. It is always prone to ulcerate again and again on the slightest provocation. Until the scrofulous debility of the patient has been overcome by proper treatment, or until the unhealthy deposit is cast off, there exists no chance of a cure. In the varicose ulcer, instead of tuberculous deposit, there is the presence of lymph within and about the vessels; and dependent upon that abnormal state is the existence and persistence of the ulceration.

The varicose ulcer, viewed as the result of a more intense degree of the inflammatory process already existing in the tissue in which it occurs, may be easily conceived to be originated in a variety of ways. Nevertheless, considerable trouble appears to have been taken to give an accurate account of the precise commencement

of the ulcer. Practically, this is a matter of no moment whatever; while, viewed as a question of pathology, it may be said to require a different solution in almost every individual case.

A varicose ulcer may follow the giving way of a vein, or even a simple scratch. It sometimes begins as a black spot, sometimes as a whitish patch.

In respect of the diagnosis of a varicose ulcer, it may be said that ulcers in general may be characterized by the locality in which they are discovered, by their shape, the nature of their edges, the condition of the surrounding tissue, the vitality of the granulations and the quality of the secretion poured out, and by the odour exhaled. Thus an ulcer is suspected to be irritable from the scarlet hue of the surrounding skin, to be malignant from its everted margin, to be strumous from its general want of colour; and so on.

The varicose ulcer is always found below the knee. It is usually irregularly shaped, its edges are thickened, and not of a constant colour; the neighbouring tissues are indurated, leaden to the touch and eye. The granulations vary in appearance; sometimes of bright red, sometimes dull red, or dull red mixed with yellow; the

condition of the ulcer in this respect depending on the intensity of the inflammatory process, and upon its complicity with other affections of the general system.

The following notes of an examination of a case of old-standing varicose ulcer, will serve to indicate what are the changes in the tunics of the vessels and in the neighbouring tissues. The arteries of the limb were previously injected with the ordinary paint-material, the dissection having been made for the author by his friend, Mr. Thomas Bridgwater.

“From the saphenous opening to the knee the vein is simply dilated and thickened. Numerous small arteries are to be seen ramifying on its cellular coat, derived from the vessels of the integuments. Immediately below the knee the tortuosities commence, and are found abundantly from this point down as far as the upper margin of the ulcer, which is situated on the inner side, and a little below the middle of the leg. At the seat of the ulcer, the vein is found to lie in a bony channel, formed by the thickening of the periosteum and the deposit of bony matter on either side of it. Below the ulcer the vein is not tortuous, but is thickened, and its lining membrane is roughened. From the

knee to the upper margin of the ulcer, the vein is completely imbedded in indurated tissue, but to this the external coat of the vein is not so closely adherent as might have been expected, very gentle manipulation sufficing to rupture the connexions between them. The vein itself is freely supplied with twigs of artery from the vessels found in the groove in the thickened tissue. The branches communicating with the deep veins are very much dilated, being of about two or three times their usual diameter. They also have walls so thin as scarcely to bear the touch of the dissecting forceps. Throughout the whole length of the vessel, from the groin to the ankle, the valves are found atrophied—the proper veins of the integument are much thickened.”

On making a thin section of the cutis, and examining it by the microscope with a moderate power, the fibrous structure was seen completely infiltrated with lymph, so that it appeared as only a confused yellowish mass; the divided venous radicles appeared obstructed by brown-red clotted blood.

Acute inflammation of a vein, arising from the varicose condition, and terminating in the production of an obstructive plug of coagulable

lymph, is the means of bringing about a spontaneous cure, — a consummation not to be arrived at without intermediate suffering, and even danger. How far the inflammation may spread — to what extent visceral organs may become implicated, and what are the exciting causes of this particular form of attack, are interesting questions.

The inflammation is commenced, or immediately followed, by that series of phenomena which constitute what is called constitutional disturbance, — rigors, fever, and the like, — by severe pain at some particular part of the course of the vein, most frequently about a hand's breadth above and below the knee-joint, — dull redness and solid swelling along the line of the greatest tenderness, — considerable increase of the painful symptoms on attempting to use the limb. Over-exertion, external violence, as from long journeys on the saddle, exposure to cold and wet after parturition, are, in some instances, the evident proximate causes; but in certain cases the inflammation appears, as it were, spontaneously. Whether there may be a condition of system which would favour the development of erysipelas, under different circumstances; or whether the veins may share with

other parts the liability to become inflamed, from influences some of which we at present have not the means of detecting; or whether the trunk of the vein may be unusually sensitive to the irritation from the distention, is extremely difficult to say. When the inflammation restrains itself within bounds, the effusion of lymph from the entire circumference of the vein goes on to the extent of blocking up the passage through it; the primary cause of the inflammation, the pressure of the column of blood, is virtually withdrawn, the morbid action gradually subsides, and a cure of the varix is effected. Dr. Meigs (quoted into the *Medical Gazette*, p. 989, 1845), urges the necessity of carefully guarding against the accident in pregnant women; and instances a case in which a fatal result followed its occurrence. It may be here stated that there appears to be some sort of sympathy between the veins and the uterine vessels, for it not unfrequently occurs, in females having varicose veins, that during the menstrual period the varix becomes excessively painful. In one case, the exacerbation of pain was so intense as to prevent the patient from following her ordinary occupation.

SECTION III.

FROM the earliest period of surgery up to the present time, operative interference with the vein has been gradually falling into disuse. Extirpation, incision, puncture, tying, cutting through, cauterization, ligature with needles through and under, and lateral compression, have been successively advocated. In a surgical treatise published in 1650, (*The Works of that Famous Physitian, Dr. Alexander Read, 2nd Edition, London, 1650,*) it is advised:—"If a varicous ulcer be offered unto you, which contemneth ordinary meanes, my counsell is, that you take up the vein above and below, as you do the veines of the temples in inflaming eyes, and open it between the deligations, that the blood may be discharged out of it. This operation any one will admit if he be not too tender."

Even this comparatively gentle treatment, though practised many years afterwards, has

been abandoned, like its predecessors, excision and ustion—concerning which the author above quoted observes “it is not to be thought that any, in this our tender age, will admit either of these two operations.” To cast one’s eye to the other extreme of treatment, Mr. Vincent says, (*Observations on some of the points of Surgical Practice*, p. 222)—

“I am so fully impressed with the efficacy of friction for procuring the healthy state of veins, that all persons who have varix should not omit the flesh-brush, which will do more than any other contrivance to strengthen and restore veins.”

Without entering into a consideration of the several modes of treatment which have been already fully expounded in nearly all the standard surgical works, it will be sufficient to examine upon what principles effective treatment must be founded. We find that the most ancient method was bodily to remove the disordered vessel. Lately, imitating the spontaneous cure effected by the obstructive inflammation of the vein, surgeons have adopted a proceeding which brings about obliteration of the vessel at several points of its course, by the application of caustic externally, so that the inflammation excited

may extend through the integuments of the vein below ; or by the introduction of a needle underneath the vein, and compression of the vessel between this and a thread applied externally, after the fashion of a twisted suture. The inflammation caused by the presence of the foreign body (the needle) in the vicinity of the vein, produces adhesion of its walls at the point where they are kept in contact by the suture. The obstruction of the vessel cures the varix by removing the pressure exerted on its walls by the column of blood. It is the removal of this pressure, and not the abstract obliteration of the vein, which works the benefit ; therefore, by whatever means the pressure can be harmlessly removed, the disease may be cured. There are two circumstances to be taken into consideration. 1st. Although the obliteration of a vein is very seldom followed by results of an untoward character, yet it cannot be looked upon as a sure, safe, and convenient operation, and one which in all cases can be justifiably adopted. And 2nd ; often, a short time after the operation, the varicosity which it is intended to do away with re-establishes itself to its former extent.

This matter resolves itself into the question as to whether a certain amount of risk

shall or shall not be encountered, while other means, unattended with danger, remain untried.

Professor Miller says (*Principles of Surgery*, p. 616, Second Edition, 1850):—"And, again, let it be well understood that the risk by phlebitis, attendant on the simplest and best of these methods of radical cure, is not slight."

Speaking generally, the indications are clearly—to prevent further distention by counteracting or removing the pressure producing it; to reduce inflammation where it exists, and to promote the absorption of the inflammatory deposit in the different tissues, and thus to restore them to a healthy condition. The plan of treatment must therefore be modified to suit each class of cases.

It has been stated (page 16) that the pressure producing varicosity may be derived from one or both of two sources—namely, the momentum the blood has communicated to it through the arteries, reacting upon the walls of the vessel, its transit being impeded; and the property a column of fluid has of exerting a force proportionate to its perpendicular height.

Cases of varicose veins are therefore to be divided into two classes—first, the class in which

impediment to the transit of the blood exists, and constitutes the exciting cause,—and secondly, the class in which the disease is produced or continued by hydrostatic pressure.

When a gravid uterus, or other abdominal tumour, interferes with the current through the iliac veins, the deep as well as the superficial veins suffer; but the latter, being the least supported, most readily yield, and become varicose.

In this class of cases—namely, when there is hindrance to the return of the blood to the heart, there is being carried on a struggle between the impetus *a tergo* and the resisting obstruction, the brunt of which has to be borne by the veins; these not being calculated to withstand such a tax upon their strength, yield. In such cases, since the internal cause of the mischief cannot be removed, the only course is to cause the recumbent position to be maintained as much as circumstances will permit, and to offer external support by bandages and laced or elastic stockings.

There are a great variety of elastic stockings invented, which are admirably adapted for the purpose. The texture and material must, however, be suited to the peculiar tolerance of the

skin. In one patient, a strong elastic stocking of vulcanized india-rubber will give the greatest ease and comfort ; while, in another, the irritation caused by such an apparatus will prove insupportable. The cotton-web bandage, in such cases, is a substitute which must be had recourse to, and is found to be very serviceable in the treatment of varicose veins.

In the application of a bandage, of whatever description, the greatest nicety should be bestowed in maintaining an equable and constant pressure. Adhesive strapping is highly objectionable, for three prominent reasons: in the first place, it effectually prevents cutaneous transpiration ; in the second, it is apt to cut ; in the third, it, after a few days' wear, gives rise to a most unpleasant itching. However, under certain circumstances, such, for instance, as the patient's being imperatively called upon to stand during the greater part of the day, it must be employed, provided the other measures above alluded to fail.

There is a point, in the management of these cases, not hitherto attended to — the preservation of a free route through the superficial abdominal veins—especially the

epigastric, which form a channel of communication between the external iliac and the superior vena cava. Any cincture round the waist must prevent the economy from enjoying the advantage its wise construction provides for. Moreover, in the case of pregnancy, the great enlargement, towards the close of gestation, of the mammary veins, with which the epigastric anastomose, much facilitates this change in the circuit of the returning blood.

It is remarkable how rapidly and perfectly the veins recover themselves after confinement. It is not uncommon for a varix of the thickness of the middle finger, to entirely disappear in a few days, when the load on the deep vein has been taken off. However, it happens unfortunately in not a few instances that the veins remain permanently distended, and a varix is established.

The fact of varicosity arising from constriction at the juncture of the superficial with the deep vein, has been recorded by Dr. Herapath, (*Lancet*, August 12, 1848); and in one case, an operation, which consisted in dividing the fascia lata at the constricted point, was resorted to with the best result. He says,

“For my part, it has greatly surprised me that no one appears to have thought of such a cause or cure for varix.”

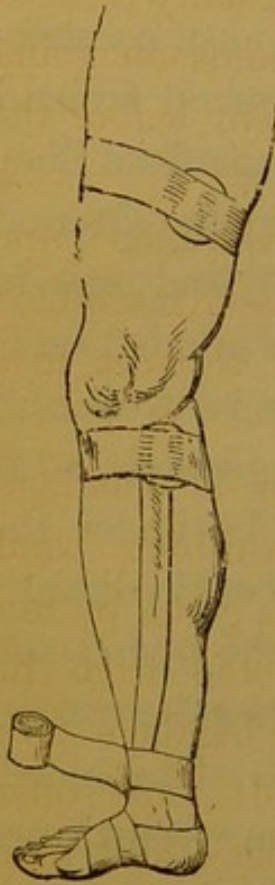
In respect of this question it may be urged, that the saphenous opening is so constructed that constriction there must be of the rarest occurrence. The nature of the aperture through which the posterior saphena passes to join the popliteal is, however, more likely to interfere with the permeability of the vein: an opinion founded on the repeated dissection of the parts concerned—but, however, advanced without the least intention of detracting from the great credit due to Dr. Herapath for diagnosing the cause of the disease in the case detailed by him, and for devising and putting into execution a means for its cure. Varix confined to the external saphena is not very rare, and may possibly, in certain cases, be due to a contracted aperture in the fascia lata.

Supposing constriction really to exist, so long as there remains a free course through the deep veins, it is not likely that, unless there be some very unusual debility in the structure of the superficial veins, much harm would accrue.

This question should not be left without a consideration of the diagnostic signs of constriction at the junction with the common femoral vein ; a varicose condition of the superficial iliac, pudic, and epigastric veins, while the external saphena remains healthy, should lead one to suspect an obstruction of the kind alluded to.

The direction of treatment must be to offer all the support possible to the yielding vessels, so as to place them as nearly as may be under the same conditions as the deep veins of the limb.

Varix, caused or *continued* by the hydrostatic pressure of the column of blood, must be treated on a principle altogether different. The blood, flowing in a continuous stream, constitutes a column, but by what vessels its pressure shall be supported is not predeterminate. The state of affairs is as follows: the blood has traversed certain channels, until these channels have become disordered, and incapable, without producing injurious results, of continuing their function ; other conduits, however, remain in a comparatively healthy state, but more circuitous or more deeply placed ; into these the current can be diverted by certain means.



If the walls of the vein be pressed against each other, no blood can pass either in an upward or downward direction, and the vein is as completely closed as though a ligature had been placed around it. By the application of pads, fitted with elastic bands, by which continuous compression may be maintained, all the advantages of what has been called the radical cure may be obtained, without any of the danger attendant on that proceeding.

The pads should be made of soft elastic wool, and the compressing-band must be between three and four inches broad.

Vulcanized india-rubber, one-twelfth of an inch thick, or a woven texture into which this substance is introduced, forms the best material for the construction of these bands, light buckles and straps being fitted for the purpose of regulating the pressure.

According to the nature of the case, the number and size of pads must be determined.

One placed just below the knee usually suffices. It is advisable to remove the bands on going to bed, taking care to replace them before the upright posture be reassumed.

A varix is, in fact, a hernia of the blood, and the method of treatment proposed resembles, in principle, the application of a truss to a hernia of the intestine.

Mr. Startin proposed a form of bandage, which consists of a spiral india-rubber band. The supposed *modus operandi* is given by him in the following paragraph, quoted from his paper on the construction of the bandage (*Medical Times*, p. 286, 1851):—"Its sole office being to supply artificially the place and functions of the imperfect and deficient valves, and thus divide the column of blood, as obtains in the normal condition of the limb."

The utility of the spiral band more properly depends upon its obstructing, at several points, the circulation through the vein, and for this object it is well adapted. The functions of the valves *cannot be imitated* by any apparatus, since these, as previously stated permit, the passage towards the heart, but instantaneously arrest a retrogressive pulse. One is justified, therefore, in assuming the principle of the spiral bandage,

and the circular one, as just described, to be *precisely identical*.

By thus relieving the trunk of the vein from the pressure, it is left under favourable conditions for restoration. Auxiliary support should of course be given to the vein by bandages and by elastic stockings. They do not, however, constitute an essential element in the treatment. However, whilst they can do no harm, they may, perchance, effect a vast deal of good.

If the column of blood be the cause of the varicosity, no amount of pressure short of that sufficient to obstruct the current through the vein, will prove useful. The first idea that strikes one not familiar with this mode of treatment, is, that there must of necessity be strangulation, followed by engorgement of the veins, and swelling of the limb, below the point of pressure. These are altogether imaginary consequences. The circulation is not impeded; it is merely turned from unhealthy into healthy channels.

Before determining upon the use of this treatment, it is an important precaution to examine the whole length of the trunk of the vein, so that a cause of obstruction in the deep trunk

may not escape detection. An example from practice illustrates the necessity of this.

A carpenter, aged fifty-two, one of the surgical patients of the Western Dispensary, was suffering from an ulcer situated on the outer side of the right leg, a little above the ankle. It had been first established by an abrasion refusing to heal. The skin was inflamed, being of a dusky-brown colour in some places, and purple in others, for a hand's-breadth round the leg. The veins above were seen to be varicose.

In the examination of the trunk of the vein in the thigh, it was found that not only was the saphena dilated, but every vein of the integument could be seen much enlarged.

On inquiry, it appeared that this state of veins had existed since the patient was three years old, when he had the bad luck to experience a fracture of the femur, which had, most probably, caused injury and obstruction of the femoral vein. At the age of eleven a musket-ball had traversed the outer side of the thigh; but the recovery from the wound thus caused, proved, nevertheless, most favourable.

Had not the vein been examined throughout, most probably a plan of treatment would have

been adopted which would not have been the most suitable.

The main cause of the disorder being taken away in the manner proposed, it remains to be considered what are the means best adapted to remove the state of chronic inflammation which may have been set up and continued by the distention of the vein. Leeches, mercurial ointment, and hot fomentation, are remedies of an active character. More gentle, but, when circumstances permit, equally serviceable agents, are the cold douche, and moderate friction.

To speak *seriatim* of each of these : Leeches, six, eight, or a dozen, placed along the course of the vein, almost invariably afford the greatest relief when there is a good deal of pain, accompanied by a diffused redness and swelling of the limb, or even without these latter symptoms of abnormal vascularity being apparent. Not only does the alleviation of the pain prove the means to be most beneficial, but when there is an ulcer, its altered aspect, after a day or so, bears testimony to the same fact.

When a vein is much thickened and hardened from the deposition of lymph by the inflammatory process, a narrow strip of lint,

covered with the mild mercurial ointment, having a long narrow compress placed over it, may be laid along the vein, and bandaged down with moderate firmness. Very hot fomentations should be applied only after the limb has rested in a horizontal position for some two or three hours, and, if steadily persevered in, will much promote absorption of any thickening.

Little need be said of the cold douche and friction; both gently stimulate, for the time, the local circulation, and produce an "alterative" effect. The time and frequency of their use must be determined by circumstances.

Acute inflammation of a varix, when not caused by violence, should direct especial attention to the general system of the patient, for reasons which may be deduced from what has been said of its pathology. Most generally there will be found a state of debility; and whilst local depletion may be called for, the powers of the constitution must be supported with tonics. Modern practice does not countenance that vigorous general depletion which formerly used to be resorted to on all occasions where the slightest inflammation of any kind could be suspected. Experience has

proved the wisdom of interfering less with the power of the system by the lancet and similar engines.

A patient of the Western Dispensary, belonging to the class of street stall-keepers, a young woman, whose veins always became very tortuous and dilated during gestation, exposed herself, a fortnight after her confinement, to wet and cold, whilst following her occupation. A plexus of the internal saphena, at the bend of the knee, became very painful, hard, red, and swollen; the pain shot upwards towards the groin, and downwards along the trunk of the vessel, which, by the way, instead of taking its usual course, ran obliquely across the front of the tibia; the attack was accompanied with constitutional disturbance of so severe a character, that for the first two days she was not able to leave her house to apply for medical aid; at the date of her application, she had all the symptoms of one suffering from inflammation of a low form. The treatment consisted in the application of leeches and hot fomentations, followed by mercurial ointment, to the inflamed part; whilst decoction of bark, with small doses of carbonate of ammonia, for internal

exhibition, were ordered, for the support of the system, the pulse being very frequent, soft, and weak.

The following interesting case occurred in the practice of Mr. Warren Fincham, of Spring Gardens, to whom the author is indebted for the account of it. The patient, a lady aged sixty-four, was first seen on November the 9th. The internal saphena vein of the right leg was swollen and tender for about two-thirds of its extent above the knee, and the skin over it was red. Pulse quick, surface hot, the look and countenance distressed. No history of a blow or over-exertion could be learned. The patient was very weak. Eight leeches having been previously applied, hot fomentations were ordered, and a gentle purge administered.

On the 11th, cough having come on, some ammonia and compound tincture of camphor were prescribed.

By the 17th the cough was worse; the febrile symptoms continued. On examination of the chest, the lungs appeared gorged, and there was much crepitus of the small kind, like that in the pneumonia of fever or erysipelas. No dulness, however, over any spot. Ordered, a blister to the

chest, and stimulus in the form of wine and brandy.

On the 18th, in consequence of great weakness and profuse sweats, quinine was ordered.

On the 19th, the swelling over the vein was somewhat less, and from that date it gradually subsided.

After another blister to the chest on the 27th, the cough became better, the lungs less choked ; and with much food and stimulus, the patient gradually gained strength.

On December the 15th, a soft elastic cotton bandage was applied over the vein, and by the 29th, recovery was complete, the vein being obliterated and painless.

The superficial inflammatory action of the skin, (resembling chronic eczema,) œdema, and ulceration, attendant upon a varicose vein, must be attacked mainly through the vein. In proportion to restoration of the vein, so is the diminution in severity of each of the above-named consequences of varicosity. As a general rule, the less the processes of reparation are interfered with, the better. It may, however, be necessary to stimulate the surface of the sore. When such is the case, sulphate-of-zinc wash,

or the red-precipitate ointment, is as convenient and effective as can be wished for.

The fashion, for several years, has been to "strap and bandage" all ulcers of the inferior extremity, as though compression, *per se*, were a specific against ulceration, apart from its curing the inflammation, which originated and continues the ulcer.

It should be remembered that, on applying strapping over an ulcer, the discharge is confined, and that, moreover, excessive suffering is often produced. If the pressure is to have an obstructive power over the veins, the tension of the strapping must be much greater than the inflamed, unhealthy, and irritable edges and surface of the sore can comfortably support. When, however, the ulcer has healed, moderately firm compression by strapping will much facilitate the absorption of the effused lymph, and induce a healthy condition in the integument.

The cure of varicose ulceration is sometimes rendered more complicated by the cotemporaneous existence of some disorder of the general system, as a gouty diathesis, or suppression of menstruation. Whenever the inflammatory action

in the ulcer runs high, the discharge being very copious, and the swelling of the limb considerable, with great pain and tenderness, something beyond the local cause should be searched after. It is scarcely possible to give diagnosis for these cases at once, but the prominence of the symptoms enumerated would justify suspicion of more or less constitutional disorder. On the discovery of such general disorder, it is almost imperative to defer topical measures, to *lay the patient up*, and to treat the inward affection; any other than this course is very liable to lead to disappointment and loss of time.

The healing of a sore of old standing has been known to be followed by ill effects, supposed to arise from the suppression of the discharge of some hurtful element from the blood, and it has been found requisite to form an issue in another part of the body, so as to establish a counterbalancing outlet. It is therefore important to have some sort of guide as to the sores which may with impunity be cured, and those which are best left pretty much alone. So far as the experience and observation of the author enable him to determine, the following

appears to be near the truth :—In those patients who are the subjects of skin eruptions on *various parts* of the body, and in whom the powers of the nervous system are shaky or imperfect, it is dangerous entirely to heal an old sore.

THE END.

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