Observations on the treatment of varicose veins : with description of an instrument employed for their division / by J.M. Ferrall.

OBSERVATIONS

ON THE

TREATMENT

OF

VARICOSE VEINS,

WITH

DESCRIPTION OF AN INSTRUMENT EMPLOYED FOR THEIR DIVISION.

BY

J. M. FERRALL, Esq. M.R.I.A.

MEMBER OF THE ROYAL COLLEGE OF SURGEONS IN IRELAND, AND SURGEON TO ST. VINCENT'S HOSPITAL.

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OBSERVATIONS,

&c. &c.

We are occasionally consulted on account of the pain or inconvenience arising from a varicose enlargement of the branches of the saphena. A considerable variety is observed as regards the degree of suffering, the constitution of the individual, and the probable cause of this sometimes dangerous affection; a corresponding difference of management is required, in order to avoid incurring more serious evils, while we aim at the removal of the distress, for which we are requested to advise.

Thus, in one case the complaint may consist of simple enlargement of the superficial veins, in one or more clusters, occupying the calf of the leg or instep, accompanied by a sense of distension, and some degree of difficulty in using the limb; or the principal annoyance to the patient may perhaps arise

from the deformity occasioned by the bulk of the distended veins. This case is met with in younger subjects, and the disease has not been of long standing. In another case we shall find, that, in addition to a more general distension of the veins, there is an œdematous condition of the limb; the integuments about the ankle are discoloured; they have a brownish or dusky-red hue scarcely altering on pressure, and are either covered by a branny cuticle, or exude a watery fluid of an acrid nature, which heats and excoriates the neighbouring skin. A third shall perhaps present little or no discolouration of the integuments; but we shall find, on one spot a crust or scab, which, we are told, falls off, and is renewed from time to time. The spot is peculiarly painful, and is surrounded by an inflammatory blush. This case is not uncommon in pregnant women, but is also met with in men. It is a case in which hemorrhage occasionally occurs.

The formation of aa ulcer is another change by which our treatment will necessarily be influenced. An accidental injury to the integuments of a varicose limb may degenerate into an ulcer, otherwise the disease may exist for an indefinite period without any breach of surface. Some degree of œdema is of ten found to precede this occurrence. The outline of the malleoli is obscured; a few of the points from which the exudation escapes become perceptibly enlarged: they coalesce by degrees, and a small ulcer, gene-

rally about the inner ankle, is produced. The tension of the skin and the resistance of these bony projections, would seem to determine the situation of the opening, although it occasionally occurs at a little distance above them. Another mode by which I have observed ulceration to occur, is the formation of a minute abscess beneath the skin. This breaks, and according to the mode in which it is treated, degenerates into a sore at once, or forms a scab, which, if rubbed off, is succeeded by others which protect a fistulous orifice in the skin, communicating with the little cavity beneath. In the former case, the ulceration commences in the skin, which is more extensively diseased, and the ulcer thus produced is difficult to heal. In the latter, the breach of surface is consequent on the formation of a minute abscess, from inflammation of the cellular membrane in front of the distended vein; and the morbid state of the integuments is limited to the immediate neighbourhood of the opening. The first is met with in persons of unhealthy habits, generally past the meridian of life, and is often connected with a morbid condition of the more deep-seated vessels of the limb. The second may occur in a better constitution, when the parts are subjected to the inconvenience of the erect position for many hours in the day. It is often observed in the varix of pregnancy, in which case I have known the ulcer to heal during the period of puerperal confinement.

It is not my intention to engage in a discussion of the causes, remote or proximate, of varix of the saphena. There are not data to justify conclusions of any real value. My object is to remark upon the modifications of treatment applicable to some varieties, local as well as constitutional, which present themselves in the complaint. One or two observations, however, are admissable, because they seem necessary to be borne in mind in considering the means of cure.

Among the assigned causes, preternatural weakness of the coats of the veins,—rupture of the valves during violent exertion,—and a diseased state of the deep-seated veins, have been, in succession, named. The latter was mentioned by Mr. Abernethy in his earlier lectures, and, for many reasons, deserves to be considered with respect.

With regard to the first—namely, "preternatural weakness of their coats," it may be observed, that the condition in which we find those vessels in disease, is clearly one of hypertrophy and not weakness. Not only is their calibre enlarged, but the thickness of their coats is considerably augmented, and the increased nutrition of the tube is further evident in its actual elongation. The second cause conjectured, "rupture of the valves," may very possibly occur during violent exertion, when respiration is for a time suspended, and some delay is occasioned to the current in the venous trunks. But it is quite possi-

ble to conceive the production of varix without any injury to the valvular structure of the parts. There is no class of vessels more yielding, perhaps, than veins: their power of adapting themselves to circumstances is evident in the great varieties of fulness and shrinking occurring in the same individual, during the different states of exercise or rest, heat or cold, plethora or the wasting of disease. Bichat dismissed the question of the relative area of the arterial and venous systems, as altogether futile, because, he remarked, whatever might be observed of the arteries, the contents of the veins were every moment subject to change. Under violent exertion, then, it is easy to conceive that those vessels should admit of distension to a degree, which would frustrate the office of the valves, by opening a space, the dimensions of which would be considerably greater than the sum of their area in the healthy state. A habit of this kind would possibly occasion a process of nutrition to be set up in order to enable the veins to embrace and support the increased volume of blood,—increase of diameter follows naturally from the augmentation of their contents, but increased thickness of the parietes would appear to be essential to the circulation in the part. It has been asserted that the circulation in varicose veins is slower than in other parts. The force with which the blood is projected from them when they are opened by ulceration or wound, would however

indicate a very active movement of their contents. It has also been said that the temperature of the limb was under the ordinary standard: I can only say, that I have not seen any case of varix where the heat of the integuments covering the veins was not two or three degrees higher than that of the thigh near the groin. The habits and occupations of persons most commonly the subjects of this disease, would certainly induce a belief, that muscular exertion in a standing position, is a common cause of its production. I am aware of more than two or three persons who labour under scrotal hernia, nearly coeval in its history with the appearance of the varix. Whether the third cause assigned, namely, disease of the deep-seated trunks, be a frequent source of enlargement of the superficial veins, I have no doubt that it occasionally accompanies this affection, and that, as will be presently seen, the evidence of the former change is, in those instances, sufficiently clear in the history of the complaint.

What is of more consequence, however, in practice, is, that in some instances, it is very much a local disease, the health being, in other respects remarkably good; while in others, there is such evidence of disturbance in the functions of distant parts, as to justify a reasonable suspicion of their connexion.

I have remarked, that the habitual congestion of varix, more especially if accompanied by œdema,

is often co-existent with a state of the thoracic organs, very susceptible of disturbance from any change in the condition of the disease. In such cases there is some degree of dyspnæa and disposition to cough on exertion. Slight exposure to cold produces the symptoms of catarrh, which, in winter, is generally troublesome, and takes the usual course; but in finer weather may go off in a few days, without any, or, at most, with a trifling expectoration.

What is very important to observe, however, is, an irregularity of the pulse occasionally found in connexion with these symptoms, and the striking similarity in such cases, in the history of the commencement of the complaint.

Some will call the disease with which they had been affected, erysipelas, or attribute it to accident; others will call it rheumatism: but they will generally agree in this, that they were at one period confined with inflammation and swelling of one or both legs, accompanied by more or less of fever; that the swelling persisted after the fever was removed; and that on resuming the erect posture, the superficial veins progressively increased in size.

The following is a remarkable instance of this description, and the subject of it a very intelligent observer of his own case.

Mr. ——, an eminent solicitor, was attacked in ——, 1826, after exposure to rain, by acute pain

in one hip. He instantly ordered a hip bath, and while seated in it, the pain quitted its first position, and attacked the knee and leg. The next day both limbs were enormously swollen; in a day or two this was followed by high fever and delirium, and an erysipelatous inflammation had engaged the integuments. From this state he slowly recovered, and then, first, perceived the veins of both legs enlarged.

Their present condition is as follows: the integuments in front of the tibia, and over the instep and heel, are a deep brown colour, with purple discolorations intermingled; both are permanent on pressure; a furfuraceous covering is observable behind both inner ancles, giving an unsound feel and appearance to the skin. The branches of the saphena are varicose, and run in grooves formed by the general œdema of the legs; across the spine of each tibia there is one large projecting vessel. About the inside of the calf of the left leg, there is a coil of the veins more prominent than the rest.

He is fat and strong; his pulse about 84, with an intermission at irregular intervals; there is no *bruit* perceptible at the heart; both sound and impulse are moderate. He is subject to oppression at the chest, and is occasionally affected with catarrh. About two months ago, just after breakfast, he was seized, while speaking to a client, with complete loss of recollection, retaining, however,

some consciousness of his situation ; this state lasted about twenty minutes. He took an absorbent lozenge, and was very soon quite restored. He attributed the attack to having eaten calf's head at dinner the day before.

The following case, though differing in some respects, has a general resemblance to the former. It is extracted from the case-book of the hospital.

Michael Carberry, a carpenter, œtat. 64, registered as an extern patient June 27, 1832. He has an ulcer of an irregular figure, with white raised edges, just above the outer ankle on each leg. The integuments are deep brown. A constant discharge of watery fluid is oozing from the skin about the ankles and instep. The branches of the saphena are varicose at both sides. On the left, a large cluster is visible on the dorsum of the foot, another on the calf of the leg, and the trunk of the vein is enlarged and projecting as high as the point below the groin, where it naturally disappears. He has a large scrotal hernia at this side. On both sides of the abdomen the epigastric veins are large and tortuous.

About three years ago, some bricks fell on his legs ; they swelled " till they were larger than his thighs ;" this was soon followed by ulcers. A year and a half since the ulcers healed, when his breathing became oppressed, and he had severe cough. This state continued for about four months, when the ulcers " broke out again within a day of each

other, and his cough got better at once." At present his breathing is short on going up stairs; there is *rale sonore* through the bronchial tubes. His pulse is about 82, very unequal in point of force, and intermitting every three or four beats. I could not discover any evidence of disease about the heart. The same result was obtained by Dr. Corrigan, who examined him with a good deal of care.

As I have not yet had an opportunity of ascertaining the structural alterations which belong to the foregoing history and external signs, I shall content myself with simply stating what I have observed. It may not be improper to allude here to the somewhat analogous cases contained in a very interesting paper read by Sir Henry Halford at the April meeting of the London College of Physicians.

The first is that of "the late Earl of Liverpool, who laboured for years under swelling of the left leg and thigh, with a varicose state of the veins from the ankle to the groin." The extraordinary state of his pulse was what attracted Sir Henry's notice. It used to beat but forty-four pulsations in a minute, a circumstance which induced Sir Astley Cooper ingeniously to surmise that the external iliac vein of the side affected was obliterated. And this proved to be precisely the fact upon examination of his lordship's body after death. The left external iliac vein

was impervious for several inches; and, what is more, the corresponding vein of the opposite side was the seat of ossification. Sir Henry Halford thought it not improbable that the apoplectic seizure which Lord Liverpool suffered a year before his death was owing to the obstruction thus produced. About four ounces of serous fluid was found effused into an unnatural cavity in the head. His speech had failed him almost entirely after the attack. Epileptic fits at intervals supervened, and it was in one of these that he expired.

Another case related by Sir Henry Halford occurred in the person of an "officer of high military reputation." The patient had been ill of an inflammatory affection of the chest, which was in course of treatment when he began to complain of acute pain about the liver. This again was followed by a new complaint—a deep-seated pain in the left groin. Sixteen leeches were applied; but, on the following day the leg and thigh were considerably swollen; some knots were felt in the course of the veins, and the lymphatics were manifested by red streaks. Leeches were applied three several times; but, though the anguish was allayed, the limb has ever since continued somewhat swollen. The only thing Sir Henry regards as serious in this officer's case is a notable intermission of the pulse, which he cannot help looking on with suspicion. Sir Henry concludes by suggesting whether it would not be worth the labour,

on the part of practitioners, to trace the connexion (if there were any) between the irregular intermitting pulse of declining life, and some past unheeded inflammation of an important vein, occasioning an obliteration of its channel." *

The connexion between the pulmonary and general venous systems is too obvious, even in health, to escape observation in practice. The respiration is scarcely interrupted when the veins of the neck begin to be distended with blood; and this effect is felt, more or less, in that system of vessels all over the body. During operations, when hemorrhage from the veins is obstinate, M. Dupuytren desires the patient to perform two or three full respirations, when the bleeding ceases at once. M. Sabatier thus speaks on this important point in operative surgery:—

"C'est dans les malades eux-mêmes qu'il faut rechercher la cause des hémorragies veineuses; l'ecoulement du sang noir, depend beaucoup plûs des efforts qu'ils font, que du volume des veines divisées. Les sujets suspendent en effet, pendant l'operation, les mouvements respiratoires; ils se roidissent contre la douleur; le sang ne pouvant traverser le poumon s'arrête dans les veines caves; il distend ces vaisseaux ainsi que ceux qui s'y dégorgent, et ne trouve bientôt plus pour s'échapper que les veines

* Medical Gazette, May 5, 1832.

ouvertes. Il serait peu convenable de procéder à la ligature de celles-ci, car a mesure qu'on en lie, le sang se fait jour par un plus grand nombre d'autres moins considerables. Le moyen le plus rationnel, et celui que réussit le plus sûrement consiste a faire respirer le malade a fin de rétablir la circulation veineuse. A peine les poumons se sont-ils dilatés une ou deux fois que l'hémorragie s'arrête, prête à se renouveller avec violence si le malade recommence ses efforts."*

In order to avoid plethora of the pulmonary system, I have been accustomed to direct some mild, cooling aperient previous to and during the application of bandages to the affected limb, enjoining, at the same time, a moderate system of diet, and lessening the quantity of animal food. In persons, not actually labouring under severe thoracic affections, this precaution has been found sufficient to secure them against any constitutional disturbance, as a consequence of throwing into the circulation a quantity of blood equal to the previous contents of the varicose swellings, or of the reduction of the œdema of the limb. After some time, when the constitution is otherwise sound, a balance appears to be established, and the diminished volume of the lower extremities occasions no embarrassment of the ordinary functions of life.

* Sabatier, Med. Operatoire, tom. i. p. 80.

Pregnancy is another state in which even the simplest mode of treating the disease should be adopted with a considerable degree of caution. The occurrence of varix during pregnancy is not confined to the poorer classes, although comparatively less frequent amongst those whose circumstances permit them to enjoy a tolerable share of rest. Females endure the inconvenience of varicose swellings with patience, because they expect to be relieved at the period of confinement. When the pain is so urgent as to render them feverish, a moderate bleeding from the arm is generally sufficient to procure relief. A roller then applied very gently, enables them to bear the erect position and exercise as much as is conducive to the general health. Tight bandaging, however, is always unsafe. M. Chaussier relates the case of a cook who became pregnant on two or three occassions. Each time she was informed of her condition towards the second month by a varicose state of the veins of her legs. She compressed the veins by a bandage, and on each occasion abortion quickly followed.* I have not, myself, witnessed any such consequence as that related by M. Chaussier, but I know a lady who is obliged to lie on a sofa during pregnancy, on account of varicose swellings of the veins. She has been very prudently prohibited

* Archives genérales, Fevrier, 1825.

the use of a bandage by her accoucheur, because it is invariably followed by hypogastric pains and a sense of oppression, for which she was obliged on one occasion to lose blood from the arm.

The local treatment of varix has for its object, either simply to lessen the pain endured in the part, whether ulcerated or not, and enable the patient to bear the erect position and employ the limb; or else to obliterate the distended vessels and direct the blood into collateral and deep-seated vessels in the course of the circulation.

The former or palliative mode generally consists in the well regulated support of a bandage applied as equally as possible from the instep to the knee. Various modes of bandaging have been devised; the laced stocking, the caoutchouc roller, the plaster and calico bandages, are those from which we may select. Whoever will take the trouble of examining his patient a few days after the application of the laced stocking, will find, that the motion of the ankle-joint has thrown it into wrinkles across the instep and heel, causing some degree of irritation of the skin; or else the patient has, in order to lessen the pain, permitted the apparatus to become slackened at that part, and the swelling has consequently returned. Indeed, it is obvious, from the difference in the shape of the parts in the flexed and extended positions of the foot, that the same enclosure cannot adapt itself with precision to both.

Much ingenuity has been exercised by artists in order to fit the parts exactly, and yet no apparatus is so often thrown aside. I know one gentleman who, after suffering a great deal, has succeeded in saving the skin of his foot from irritation, by lining the laced stocking about the ankle and instep with French cotton wadding, which is renewed from time to time, when the pressure has rendered it hard. The caoutchouc bandage appears to be too yielding to afford any very efficient support; and if drawn so tightly as to overcome its yielding property, it becomes too narrow, and it sits less comfortably than a common roller. The flannel or calico bandage requires to be re-applied every day; and to prevent displacement, it is necessary to have the folds stitched to each other at different points along the leg. After all there is an inequality of support, which defeats the object of the application.

Having tried them all, the bandage I employ with most confidence, is that composed of straps of soap plaster about an inch and half broad, applied with a very moderate pressure, in the manner advised by Mr. Baynton for the indolent ulcer. I have seen more relief afforded from the pain, heat, and distension, by this mode, than by any other included in the palliative treatment. When ulcers are present, the management is nearly the same; the straps immediately covering the ulcers should

be removed every day, the remainder perhaps once a-week.

The pressure of a bandage will frequently alter the irritable condition of the parts, and altogether remove the pain; but it may happen that another action of an inflammatory nature may be set up, accompanied by tension, pain, and a considerable degree of fever. Mr. Travers treated a case of varix of the saphena by straps of adhesive plaster; the pressure succeeded in obliterating the vein, but the symptoms ran high, and required leeches, fomentations, and "active antiphlogistic treatment" for their removal. A similar train of symptoms occurred in a case of spontaneous obliteration of varix of the saphena and spermatic veins.*

The treatment of varicose ulcers should be conducted with the same regard to the possibility of irritation. The adhesive straps will often diminish their morbid sensibility in an astonishing degree. Stimulating applications are always dangerous, and may rouse them into inflammation, which is readily transmitted to the venous tubes with which they are connected.

An elderly man was admitted into the Richmond Hospital in the month of April, 1820, under the care of the late Mr. Todd, on account of a vari-

* Cooper and Traver's Essays, vol. i.

cose ulcer just above the inner ankle. Before he was seen by this gentleman, a junior dresser sprinkled the sore with red precipitate, and over this applied a compress and bandage. The man passed a restless night. The integuments round the ulcer were painful and inflamed next morning, and he complained of tenderness up the limb. Rigors, low fever, with brown tongue, followed in succession, and he died after a lapse of eleven days. On examination, the saphena and iliac veins presented the usual appearance of phlebitis terminating in suppuration.

Independent of local mischief, experience will have taught the practitioner to regard the age of the patient, the state of the organs important to life, and other circumstances of the constitution at the time, before he decides on the propriety of even attempting a cure.

In advanced age the resources of the constitution are limited ; its actions are confined to a few ordinary efforts, and its power of accommodating itself to circumstances is already nearly gone. It must not be disturbed in the performance of its functions, and the very diseases to which it is accustomed, are meddled with at the risk of life. The older physicians considered discharges of any kind, catarrhal, hœmorrhoidal, cutaneous, or that from ulcers, as constitutional, when they had con-

tinued for a certain length of time, and the general health had not appeared to suffer from their presence.

I have known many persons, with whom the least diminution of an habitual discharge was presently followed by feelings of impaired health, and occasionally by actual mischief. The following case may not be uninteresting, as exhibiting this alternation in a remarkable degree. It is given in a condensed form, from notes made during the attendance.

Lady R——, at the age of 79, had bronchitis in 1829, and was so ill that her recovery was despaired of. She had cold extremities, intermitting pulse, great dyspnœa, and difficulty of expectoration. Wine given freely, and the appearance of an eruption on the legs, saved her for the time. The expectoration which then occurred became habitual, and the eruption, which was generally of a pustular character, continued till the period of her death in 1831.

On one or two occasions the discharge from her legs diminished, and then the cough became hard and the breathing frequent and oppressed; but when the discharge from the limbs re-appeared, the bronchial affection subsided to its ordinary state. She was seized at length in 1831, by the catarrhal influenza prevalent at the time. It began with rigors and such a degree of collapse as nearly anni-

hilated her. The legs literally "dried up" at once, the discharge ceased, and they became cold and livid. The usual symptoms of the influenza set in with great violence. Under the most persevering attention of her friends the heat of the limbs was restored, and the stage of mucous secretion in the bronchial membrane was attained; but she sank, literally from inability to expectorate.

I have at this moment under observation, an elderly gentleman, who has succeeded, for the second time in twelve months, in nearly healing two ulcers, one on each inner ankle, connected with a varicose enlargement of the veins, of long standing, and he is already beginning to complain of suffocation on going up stairs, annoying cough, and occasional vertigo, during which he is frequently blind for two or three seconds.

In whatever way we explain the connection, it is matter of observation that those habitual discharges become included in the arrangements of the system, and in some measure a part of its economy.

The hæmorrhage from varicose veins, though always alarming, is rarely attended by a fatal result. The blood issues with considerable force, the loss is therefore sudden, and early syncope generally arrests the discharge. Where the constitution has been previously weakened by ill health from any cause, or in persons of originally delicate frame,

such an accident is always formidable. In fact, death has more than once occurred in consequence of the hæmorrhage from varicose veins. Bleeding may take place from some point in a varicose ulcer, in consequence of increased action in the parts, and the ulceration engaging a neighbouring vein. I have also seen it happen from the fistulous orifice before described, when the scab had been, by some accident, removed. This is the most frequent form of hæmorrhage in pregnant women.

In March last, I was requested to see a lady who was literally blanched from the loss of blood, which issued from a varicose vein. She was a large, fat woman, in the sixth month of pregnancy; she had been standing for more than an hour at an auction, and suffered considerably from the heat and distension of the limb. On coming home she was tempted, by the itching, to rub the part with her nails, in doing which she removed a small crust covering a prominent point of the swelling. After many ineffectual attempts to arrest the jet of blood by binding a handkerchief about the leg, she sent for aid. When I arrived, I found the limb had been firmly bandaged, and the bleeding had been suppressed; but she suffered such severe pain that she insisted on its being examined again, although she dreaded the flow of blood. On removing the bandage and compress, the blood issued again in a very small stream, but with considerable force.

I placed the limb in a position with the heel higher than the knee, and kept the point of my finger upon the orifice, leaving the remainder of the leg exposed to the air. After a minute or two, the finger was gently removed, and a minute dossil of lint was laid on the point, supported by a light compress, and a roller applied, with a very gentle degree of pressure. She had no more trouble from the accident, except that she adopted the recumbent position during the remaining three months before her confinement.

The hemorrhage from wounds may be troublesome, either immediately, or after a period of eight or ten days from the occurence of the accident, if the parts are kept in a state of irritation, when the slough is coming away. One of the most troublesome cases of venous hemorrhage I ever saw, was of the latter description. The indication in such cases is to lessen the volume of blood in the limb, by a suitable position; to promote the formation of a clot by a minute dossil of lint, applied to the point from which the blood has escaped; and if a clot has been already formed, to adopt means likely to remove every source of irritation by which it might be disturbed. The application of any very firm degree of pressure has appeared to defeat the object in most cases of venous, as well as arterial hemorrhage.

The frequent recurrence of bleeding from a par-

ticular cluster of veins, or such a degree of pain as would render the limb nearly useless, while the bandage might be forbidden by the extreme irritability of the parts, have induced surgeons to look for other, and more decisive modes, of removing the disease.

Amongst these, the actual cautery, although formerly recommended by Celsus, is now only practised by the native practitioners in India. The potential cautery, as it is called, has been even recently advocated by Mr. Mayo, who applies the potassa fusa, made into a paste with soap: it has not, I believe, been employed in this country. Indeed it is not a very prepossessing mode of treatment: an ulcer is opened by an eschar, with the design of exciting adhesive inflammation about the veins, but with the chance, from the uncertain nature of the application, of the inflammation becoming diffused along the course of the vessels themselves.

With a view to avoid an extensive operation, which, like incision of the cluster, occasioned a large and painful wound, Sir Everard Home conceived the plan of tying the trunk of the saphena; but the result is, on the whole, unfavourable to its continuance. The saphena has been tied, and many patients recovered, but the fatal cases are already too numerous to admit of its repetition.

The success of the ligature, applied to an artery, should never have suggested a similar operation on

a venous trunk. There is no analogy between the prospects in the two cases. In the one, the lining membrane is fairly cut, and the injured parts are unloaded, as in a common wound: in the other, the inner coat is strangled and contused, without the possibility of the congestion being relieved by any effusion from the part itself.

M. Delpech has lately tried a new mode of obliterating the spermatic veins in a state of varix: the vessels are insulated by a strip of amadou, which is retained without any ligature for three or four days, till the adhesive inflammation is established. It appears to have succeeded in the spermatic veins, but, I believe, has not yet been tried on the saphena. In one case, the amadou became buried in the wound, and alarming peritonitis ensued.*

Other operations on the trunk of the saphena have had their trial: it has been simply divided—a portion of its length has been excised—and again, two ligatures has been applied, and the intervening portion cut across; but fatal phlebitis every now and then occurred. In fine, Sir Astly Cooper's valuable warnings, on this subject, must have paramount weight with every one who is not utterly insensible to the lessons of experience.

It would appear, then, that every mode by which the trunk of the saphena has been attempted to be

* Memorial des Hôpitaux dur Midi, No. 24. Dublin Jour., vol. i. p. 102.

obliterated, is liable to the disastrous consequences of phlebitis.

On this acconnt, Mr. Brodie devised and practised the operation of dividing the cluster of varicose veins themselves, with the precaution of making the external wound small, and at some little distance from the vessels. He was led to try this plan, from the consideration, that he had not observed wounds of the leg to be followed, in any instance, by venous inflammation; although, from the frequency of varix in the subjects of hospital treatment, it was more than probable that many of such accidents had occurred in persons afflicted with the complaint. He was further stengthened in his opinion of its safety, by the fact, that such a train of symptoms had not been observed to follow the operations on hemorrhoidal tumours, by ligature or excision. He punctures the integuments near the dilated cluster, and passes the instrument across the vessels, between them and the skin, with a flat surface opposed to each, till it reaches a point beyond them: the cutting edge is then turned towards the veins, which are divided quite through in the act of withdrawing the knife. When the wound is united the vessels are no longer discernible : the bulk of the limb is diminished, and if ulcers had existed, they are found in progress to being healed. The painful states of either cluster or ulcers have subsided, and, with the aid of some days' rest, and adequate support

of the parts by a bandage, the patient has regained the use of his limb.

After the test of some years trial, it is reasonable to inquire whether this operation has been ever followed by consequences of so serious a nature as have occasionally attended its predecessors. As far as I have heard or observed, no fatal issue has ever succeeded to its performance. There is one circumstance, however, which occasionally interrupts the favourable order of occurrences in the progress to cure; that is suppuration along the track of the wound. Mr. Brodie relates two or three instances where inflammation of the cellular membrane took place, producing pain and tenderness of the limb, and a slight degree of fever, and the healing being affected afterwards "by the more tedious process of suppuration and granulation."*

Mr. Carmichael, who has performed this operation more frequently, I believe, than any surgeon in this country, has published an interesting detail of cases treated according to Mr. Brodie's plan, with success. In some of these, however, notwithstanding every precaution, suppuration occurred in the course of the wound.†

Although no more serious accident has, to my

* Med. Chir. Transactions, vol. vii. p. 202.

† Trans. College of Physicians, vol. ii.

knowledge, ever followed this operation, I think the surgeon will find it impossible to divest his mind of some degree of anxiety about the result, when abscess occurs in the vicinity of parts predisposed to a dangerous form of inflammatory disease. Between the years 1824 and 1829, I had occasion to perform this operation four times. In three of these suppuration occurred; and this event was always accompanied by some degree of tenderness about the wound.

If the success of operations on the arteries is known to depend very much on avoiding any unnecessary disturbance of the cellular membrane about the vessel, the importance of this rule, as regards the veins, will not be diminished, when we consider that a greater proportion of that tissue enters into the structure of the latter class of vessels; that it has been traced into the composition of their lining membrane itself; and further, when we recollect the facility with which disease of the cellular tissue is propagated, in every direction, from a single point, when the constitution is inclined to diffusive inflammation.

Reflecting on the steps of the operation, it was easy to see that some degree of laceration of the cellular membrane was unavoidable in the act of turning the instrument, before the division of the vessels was commenced, and I remember having experienced some difficulty in passing the bistoury

in front of the veins, and occasionally feeling it bend under the force necessary to make it reach the desired point.

Mr. Brodie's bistoury is two inches and a quarter long in the blade, curved, or, as cutlers term it, sabre-shaped, the back diminishing in breadth as it approaches the point. Now, the length of the instrument, compared with its other dimensions, occasions an unsteadiness of movement, in consequence of the axis of the point not being in direct line with that of the remainder of the blade. A degree of force is, therefore, required, which threatens a sudden plunge through the integuments, and this is often only prevented by passing the fingers of the left hand along the skin, and guiding it in its course.

Suppose the point to have reached its destination, the blade is next to be turned, and here occurs the objection to its curved or sabre shape. If it be turned in such a manner that the portion of the blade near the handle shall lie fairly on the wound, the point will be found to protrude the integuments awkwardly, and, in describing the segment of a circle, will necessarily break up a corresponding extent of the cellular tissue about the vein. If, on the other hand, the point be depressed, so as to prevent its protrusion, the lower end of the blade will be found to have stretched the integuments at the place where the knife was made to enter, and some de-

gree of pain and contusion have been produced. I, therefore, had an instrument made of the size and shape exhibited in the annexed drawing; a little shorter than the other, the back straight, and having about a quarter of an inch of its length, near the point, made as thin as possible, without being a cutting edge. With this I found much less difficulty in passing across the veins, the force employed being conveyed in a direct line from the handle to the point; its passage being, at the same time, facilitated by the thinness of the back of the blade at its extremity.

In turning the cutting edge toward the veins, I found that the distension of the integuments and cellular tissue was equally divided along the track of the knife; since it described, in turning, a portion of a circle, the radius of which was merely as the breadth of its narrow blade. In withdrawing it through the wound, very little force, indeed, is required for the division of the veins; the elasticity of the skin being nearly sufficient for that purpose. Whenever the fascia behind the vessels is heard to yield under the knife, it is quite obvious that more force has been employed than is consistent with the hope of avoiding the process of suppuration. In order that no greater degree of action should be set up than is necessary to a quiet union of the parts, I have been accustomed to confine the patient to bed he day previous to the operation, during which in-

terval, some mild cooling medicine is directed, and a reduced diet substituted for his usual fare. The advantage of this preparation in the case of aneurism is also available here. The circulation is calmed, more particularly in the lower extremities, where it is most essential to promote repose.

Previous to the operation itself, the limb is surrounded by straps of soap-plaster, nearly as high as the situation of the cluster, and a roller is pressed in the same course ready to be continued up the limb, when the division is complete. The object of this step is to lessen the flow of blood through the tortuous vessels, and consequently their distension and irritation below the point of incision, when the current is interrupted. The outline of the cluster is sufficiently marked by the column descending from the vein above.

As the knife is withdrawn from the wound, it is followed by a gush of blood, which is projected with considerable force. Generally speaking, it is prudent to allow a moderate quantity to come away—measured, of course, by the strength and condition of the patient. The escape of this portion of blood is attended with the good effects of allowing the vessels to collapse or be compressed, and, at the same time, lessening the plethora of the system, and the tendency to inflammatory action in the wound.

A compress sufficiently large to cover the group of veins, is then laid on the part, and the roller, pre-

viously moistened with some evaporating lotion, is continued up the limb. When the foregoing precautions have been adopted, a much lighter degree of pressure is sufficient to maintain the contact of the parts, and the pain usually suffered after the operation is lessened in a remarkable degree.

The patient is then laid quietly in bed, and the limb placed on a pillow with the heel higher than the knee. Some degree of faintness is usually experienced, but the horizontal posture is generally sufficient for its removal. Very little attention is now required beyond what would occur to any Surgeon of common prudence: the parts are kept cool and moist; the patient is not allowed to disturb them by assuming the erect position even for a moment; and as the diet is still light and moderate, medicine is scarcely required.

In general, it is prudent to change the compress on the second or third day. It is found, as after bleeding at the arm, coloured by the blood, and if the parts have not been kept sufficient moist, stiff and unpleasant to the parts. In changing the dressing, great caution is necessary to avoid any disturbance of the wound.

Should the parts be, as I have always found them, united, it will be right to continue the adhesive straps as high as the ham, and then the bandage may be altogether removed. The limb will be thus kept much cooler and more comfortable to the pa-

tient, and the evaporating lotion may be still employed as before.

About the fifth day it is generally necessary to renew the straps of plaster, on account of the diminished bulk of the limb. Should we have to treat ulcers, it is only necessary to cut off a corresponding portion of the plaster every day, and replace it by a dressing of the same kind. A few days will generally suffice to heal an ulcer of moderate size.

Within the last two years I have performed this operation three times, and in none of these instances was matter formed, or did any inconvenience follow beyond the first smarting of the wound. Where distension has been prevented by the means already pointed out, and no more parts have been wounded than was necessary to fulfil the indications of the plan, I think I may say, that the pain was of shorter duration than I had previously remarked.

I have not allowed the patient to leave his bed under a period of ten days at least, and this restriction is not complained of in cases that really require the operation. The adhesive straps are then renewed about once a week, supported on the outside by a very thin light roller; with this assistance the patients have been enabled to resume their accustomed habits, without any reccurrence of the complaint from the same source.

With respect to the safety of this operation, I

should say, that where the case admits of treatment at all—where nothing in the constitution or the state of other organs forbids our interference with this unequal distribution of the blood, and where the operation is conducted in the manner above described, I have no reason, from experience, to think, that any untoward consequences are likely to arise. With regard to the permanent advantages of the plan, I would not be understood to affirm, that it is capable of removing the disposition to varix, or prevent the swelling of the veins in other parts of the limb, in persons otherwise disposed to the complaint. But if the indication be, to obliterate a particular cluster of veins, which happen to be the seat of pain, or tend to keep up a condition of ulcers unfavourable to the process of healing I have found it, as Mr. Broodie asserts, a speedy and efficacious method of accomplishing our object.

THE END.