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RADICAL CURE OF VARICOCELE.

HENRY LEE.

BY THE SAME AUTHOR.

ON INFLAMMATION OF THE VEINS AND
PURULENT DEPOSITS.

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ON THE
RADICAL CURE OF VARICOCELE

BY

SUBCUTANEOUS INCISION.

Read before the Medical Society of London.

By HENRY LEE,

SURGEON TO KING'S COLLEGE HOSPITAL; SENIOR SURGEON TO THE
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PREFACE.

THE mode of operating for the obliteration of varicose veins, to which the following pages refer, has now been in use during a period of seven years. It has been adopted with certain modifications by some of the most distinguished surgeons of the day, and the results obtained have occasionally appeared in various periodicals. No separate account of the operation has, however, yet been published; and it has therefore been my object in the following pages to give such an account of the mode of performing it, and of its results, as the time allowed for reading a paper before the Medical Society of London would permit.

H. L.

9, SAVILE ROW, W.

March, 1860.



ON VARICOCELE.

THE term Varicocele might with propriety be applied to a swelling caused by dilated veins in any part of the body ; but common usage has restricted the name to an enlargement and dilatation of the veins of the spermatic chord. As the method which I adopt of obliterating varicose veins, when such a course is considered desirable, is essentially the same in every part of the body, a short general account of this method may with propriety be given as an introduction to its particular application to the spermatic veins. In the year 1816, Sir B. Brodie published a paper in the “Medical and Chirurgical Transactions,” in which he advocated the subcutaneous division of varicose veins. In that paper the advantages of the subcutaneous mode of operating are clearly pointed out. But “the experience of the surgeons of that day had established the fact, that the mechanical injury of the trunk of one of the large veins was liable to be followed by inflammation, and a fever of a very serious character ; and that the occasional occurrence of these symptoms after ligature, or even a simple division of the vena

saphena, had occasioned surgeons to be cautious in performing these operations.”

In some cases Sir B. Brodie applied the caustic potash so as to make a slough of the skin and veins beneath it, but he found the relief which the patient experienced from the cure of the varix to have afforded but an inadequate compensation for the pain to which he was subjected by the use of the caustic, and the inconvenience arising from the tedious healing of the ulcer which remained after the separation of the slough.

In other cases Sir B. Brodie made an incision with a scalpel through the varix and the skin over it. This destroyed the varix as completely as it was destroyed by the caustic, and was found to be preferable to the use of the caustic, as the operation occasioned less pain, and as the wound was cicatrized in a much shorter space of time.

After performing this operation in several instances, Sir B. Brodie adopted the plan of dividing the varicose vessels without dividing the skin; the wound of the internal parts was thus placed under the most favourable circumstances for being healed, and the patient avoided the more tedious process of the cicatrization of a wound in the skin. In this improved operation, it was found that the patient experienced pain which was occasionally severe, but this subsided in the course of a short time. There was always hæmorrhage, which would have been profuse if neglected, but which was readily stopped

by a moderate pressure, made by means of a compress, and bandage carefully applied; after this operation it was recommended that the patient should be kept in bed for four or five days. In every case in which this operation had been performed, at the period in which the paper was written, it was followed by the obliteration of the varix. Sometimes no vestige of the divided veins could be afterwards distinguished; at other times they remained for a certain period full of coagulum, which was gradually absorbed. This was supposed to depend upon the greater or less degree of pressure, which was used after the subcutaneous division of the vein, and the nicety with which that pressure was applied.

The difference between dividing a varicose vein by subcutaneous incision and dividing it together with the skin covering it, Sir B. Brodie observes, "corresponds to that which exists between a simple and compound fracture."

Now, in this mode of performing the operation, great as its advantages appear to be over those previously in use, there is no adequate provision against hæmorrhage from the divided vessels on the one hand, nor, on the other, against the absorption, through the open mouths of the veins, of the products of decomposition, or of other changes to which the stagnant blood is liable. It is quite true that even when such morbid actions do take place in the blood of an injured vein, the

effects may be circumscribed by the unassisted powers of nature. The vessel may be closed so that no absorption through its canal can take place, and thus the disease may be localized.

In like manner an artery, when divided, may cease to bleed spontaneously, but nevertheless surgeons are very unwilling to leave the result in such instances to the unassisted powers of nature. In one case, as in the other, that which may possibly or probably be induced by natural causes, may with certainty be effected by artificial means; the veins, like the arteries, may be safely and efficiently closed. When provision is not made against their remaining open, accidents in one instance as in the other may occur; and accordingly we find that even as early as the date of Sir B. Brodie's paper, two or three cases of inflammation of the adipose and cellular membrane had taken place (even with the improved mode of operation), producing pain and tenderness of the limb, and a slight degree of fever. In these cases "the wound failed to become united by first intention." In two other instances the operation was followed by an attack of erysipelas. With regard to operations on the vena saphena major, the experience was still less favourable. We are informed in a subsequent lecture, published by Sir B. Brodie, that "Sir Everard Home recommended the application of a ligature, where the veins of the leg were varicose, to the vena saphena. The skin was divided, a silver needle armed with a liga-

ture was passed under the vein, and the vein tied. In many instances at first no ill consequences ensued, but by and by a private patient of Sir Everard Home became affected with venous inflammation, and died. The same thing occurred in another patient. There were two women on whom the operation was performed, on each of whom venous inflammation, attended by typhoid symptoms, supervened: fortunately they did not die, but they had a very narrow escape. The operation was performed by other surgeons, and in their hands also it was found that every now and then venous inflammation was brought on, which ended fatally. The operation was then generally abandoned."

Mr. Abernethy was of opinion that it was the ligature of the veins that produced the inflammation, but that they might be divided with impunity. Acting upon this idea, Sir B. Brodie cut across the saphena vein and applied a compress. Sir B. Brodie informs us, with characteristic candour, that in one case in which he performed this operation "the patient had venous inflammation, attended with very severe typhoid symptoms, and died within four days after the operation. Since then, no operation has been performed on the vena saphena, either by ligature or in any other way." *

Having been convinced by observation and experiment, that the serious symptoms which occasionally arose after operations on veins depended

* Lectures on Pathology and Surgery, p. 185.

upon the admission of diseased secretions, or the products of decomposition into the circulating blood, I determined to try a new method of performing these operations. In the year 1853, I adopted the plan, before dividing the vein, of placing a needle under the vessels, both above and below the part to be divided. Ligatures in the form 8 were then passed round the ends of the needles and over the vein. These were allowed to remain for a couple of days, and at the expiration of this time the blood was usually coagulated in the vein, which could be felt as a round cord on either side of, and between the needles. The vein was now divided by subcutaneous incision, and two days later the needles were removed. At the expiration of three or four more days, union by the first intention had completely taken place, and the patient was allowed to go about his usual occupation. But here I am bound to state, that in one of my first operations I was not so successful as I could have wished. In this case some very severe local and constitutional symptoms supervened, and I had reason to believe that an abscess had formed in the saphena vein, where it had been transfixed by one of the needles. Upon consideration, the cause of the mischief became apparent; the needle had traversed the vein instead of being made to pass fairly under it. The consequence was, that its cavity was not obliterated. The blood changed in character, or mixed with the morbid secretions from surrounding parts, may have

found its way between the needle, and one side of the vein, into the general circulation.

The following may be given as an example of the effects of this mode of performing subcutaneous section of varicose veins, when due care is used to prevent the accident I have mentioned.

CASE I.

Henry McKnight, æt. 40, single, a private in the 64th regiment, came under my care, in King's College Hospital, on the 18th of February, 1857.

About five years previously he found the left saphena vein begin to swell, in consequence as he supposed of heavy marching. He did not, however, come under medical treatment until six months before his admission into King's College Hospital. He was then admitted into Fort Pitt Hospital, and ordered an elastic stocking. Six weeks later, the varicose condition of the veins continuing, he was discharged from the army as unfit for further service. Having lost his occupation, it became of much importance to him to be cured. When he came to King's College Hospital, a tumour of the saphena vein presented itself over the internal condyle of the femur, about the size of a chesnut. This was covered by very thin integuments, and a fear had often been expressed that it would burst.

On the 21st of February two needles were passed under the dilated vein below the knee, and under a dilated branch on the outside of the leg, respec-

tively. On the 25th the vein was divided subcutaneously between the needles in both situations.

On the 27th the needles were withdrawn, and on the following day he was able to get up, union by first intention having taken place. The object of this first operation was to obliterate the branches before the trunk of the saphena vein was interfered with. This having been accomplished, on the 9th of March three needles were placed under the varicose saphena vein, and on the 11th this vessel was subcutaneously divided in two places, between the needles. The needles were withdrawn on the 13th. This patient left the hospital on the 30th, the swelling in the course of the vein being quite firm, and the vein having been completely obliterated.*

In this mode of performing the operation, the obliteration of the vein is secured by a coagulum being formed in it before it is divided. But it is evident that the same object can be attained by needles introduced under the vein, with proper care, even when no coagulum exists. When this is accomplished, there is no necessity to wait until the vein is obstructed by coagulum before performing the operation of subcutaneous section; and accordingly, at the suggestion of my colleague, Mr. Bowman, I have now on many occasions divided

* In several instances, sailors have been sent to me by Dr. Clarke from the Royal Navy rendezvous, Tower-hill, who had been rejected as unfit for duty, and who, after having this operation performed, were received within a few days or weeks into the navy.

the vein immediately after the introduction of the needles. The small quantity of blood situated between the needles at the time of the operation is allowed to escape, the sides of the vein fall together, and the whole heals by first intention,—at least, it has done so in all the cases upon which I have operated. But even should suppuration occur at the seat of the wound, the vein being closed above and below, no morbid secretion can find its way into the circulation.

CASE II.

H. B. was admitted into King's College Hospital on the 22nd of August, 1857, with varicose veins of the right leg. Branches of dilated veins were situated about the ankle, in the calf of the leg, and on the inside of the thigh.

On the same day two needles were placed under a single vein, situated immediately below the knee, and a ligature applied round their extremities.

The vein was then divided by subcutaneous section; a pad of lint was applied over the course of the vein, and retained in its position by a strap of adhesive plaister. The needles were removed on the 26th, and the pad of lint was continued. There was now scarcely any pain, tenderness, or swelling about the parts: general health unimpaired.

On the 2nd of September he left the hospital. There was then some general thickening in the line of the subcutaneous incision. The vein was here to

all appearances perfectly obliterated. There was no tenderness nor pain in any part of the leg.

The operation which I have advocated has, with various modifications, now been performed a great number of times by different surgeons, and, as far as I know, no serious symptoms have supervened, where due care has been taken that the sides of the vein should be brought together without being injured by the needles.

It is sometimes difficult to be sure that the needles introduced pass fairly under the vein, but this object may, in the great majority of cases, be certainly obtained by a little manœuvre. The vein is first pressed out of its bed with the finger, and the needle is then introduced, so that its point may fall into the bed of the displaced vein. The needle being then left at rest the vein is allowed to regain its natural position, and in so doing it rolls over the point of the needle. The vein is then pressed with the finger in the opposite direction towards the head of the needle, and its point may be brought out without danger of injuring the vessel.

When a needle is passed in this way fairly behind a vein, and left there for two or three days only, it is almost impossible that it should excite any mischief in the interior of the vessel, while the pressure it exerts effectually prevents either hæmorrhage or absorption.

In operating upon large veins, it is a point of

primary importance that the needles should always pass fairly behind them; for if they transfix the vessels, an interval may be left between the needle and the side of the vein farthest removed from the surface. Independently of the chance of exciting inflammation by puncturing the coats of the vessel, the channel may then not be completely closed, and a passage to the general circulation may be left for any morbid product that may be present.

The case is, however, different with regard to small veins: when a needle pierces one of these, its small cavity must necessarily be very nearly, if not quite, obliterated. The same care therefore is not necessary in operating upon veins of a small size. Clusters of varicose veins in the legs may, for instance, be pierced by a needle, and tied with impunity. If a '8' ligature is placed round the ends of the needle, the small veins which may happen to be punctured, are subsequently as completely closed as if the needle had been made to pass under them.

After the introduction of this operation for varicose veins in the lower extremities, it was not long before an opportunity presented itself of treating the varicose veins of the spermatic chord in the same manner. It was evident, in this case, that it would be impossible to avoid puncturing the veins occasionally when the needles were introduced, but from the comparatively small size of these, no danger was apprehended; nor has any evil, as far as I am aware, resulted.

CASE III.

The first case in which I performed this operation was admitted into the Lock Hospital. The needles were first introduced between the dilated veins and the vas deferens, and the '8' ligature applied not very tightly over their ends. When they had remained sufficiently long to induce me to believe that the blood was coagulated in the vessels, a thin knife was introduced, also between the vas deferens and the veins, and the whole cluster divided towards the skin. The ends of the needles were cut close off with a pair of nippers. This circumstance is particularly mentioned, in order that the little inconvenience to which it led may be in future prevented. When it became necessary to remove the needles, it was found convenient to divide the ligatures. The skin of the scrotum which had previously been puckered up, regained something of its original position, and covered the ends of one of the needles, which had subsequently to be removed by a small incision through the scrotum. The divided veins in this case remained obliterated for several months, during which the patient remained under observation.

As in the case of the larger veins, so with regard to the spermatic veins, the division may be effected at the same time as the needles are introduced, or an interval of two or three days may be allowed to intervene, during which the blood may coagulate in the vessels. From a comparative trial of both plans,

I am induced to prefer the latter. It is true that this necessitates two operations, if operations they can be called, instead of one; and may keep the patient in bed a day or two longer: but then the security against hæmorrhage is greater. Where we have a cluster of veins to deal with, it is very probable that some of the small branches, divided by the knife, may communicate with others not included between the needles and ligature; and, under these circumstances, it is *à priori* probable that a division of the veins at the same time that the needles are introduced, might be followed by some amount of hæmorrhage into the cellular tissue. This, in fact, has happened in some cases where the plan has been adopted. The method of allowing the blood to coagulate in the veins before these are divided, affords, on the other hand, an adequate security against hæmorrhage from any collateral branch.

The operation for the radical cure of varicocele is briefly as follows:—

The patient usually takes a little chloroform—sufficient to render him, for a moment, comparatively careless with regard to pain, but never sufficient to render him in any degree insensible. The scrotum, on the side of the varicocele, is then taken between the fingers and thumb, and the vessels allowed to glide one by one out of the hand. Presently the vas deferens will escape, and may always be known by its peculiar hardness. As soon as this is separated

from the other vessels, a needle may be introduced opposite the point of the thumb, and made to pass through the scrotum to the point of the fingers. The needle thus introduced, passes between the vas deferens and a bundle of spermatic veins; a figure of '8' ligature is then passed, not very tightly, round the ends of the needle, and tied; the point of the needle may then be cut off. The same thing is repeated, either half an inch or an inch lower down, or higher up, and the patient goes to bed. If the ligature is not drawn tight, he generally suffers very little pain.

On the third day, or at such an interval as may be necessary, indicated by the resistance afforded by the affected veins, the scrotum is held as before; and so soon as the vas deferens escapes from between the finger and thumb, a very thin knife is introduced, with its edge directed upward or downward. This passes, like the needles, between the vas deferens and the dilated veins. The edge of the knife is then turned forward, and the cluster of veins divided towards the skin. In doing this, it is convenient to place the fleshy part of the thumb of the right hand over the veins, in order to prevent them yielding before the knife. When the knife is introduced, care should be taken that it is not passed below more veins than are included in the ligatures.

A little blood sometimes flows out of the wound made by the knife, but this in general amounts to a very insignificant quantity.

Another interval of a couple of days now takes place, and then the ligature over the needles is cut through. The end of each needle is cut short off, and the remainder drawn out with a pair of forceps. A day or two after this, the patient may get up and resume his usual occupation; some swelling is left on the points of division, but this very soon subsides into a firm knot, which involves all the divided branches, and effectually prevents them from again becoming enlarged.

With nervous patients, where it may be desirable to complete the operation at once, the division of the veins may be made immediately after the introduction of the needles. Some slight hæmorrhage into the cellular tissue will occasionally follow, and may by distending the parts around the ligature give some pain, but it in no way interferes with the ultimate favourable termination of the case.

The following are instances in which the veins were divided immediately after the introduction of the needles:—

CASE IV.

J. A., æt. 22, single, was admitted into King's College Hospital December 3rd, 1858. He stated that about the age of 14 he began to experience inconvenience on the left side of the scrotum, and a sense of great weakness in the left testicle. More recently he has experienced pain in the same

situations, and for two months past has in consequence been a patient at St. Thomas's Hospital. Upon examination the spermatic veins on the left side were much enlarged, and tender to the touch. The swelling completely disappeared when he was in the recumbent position.

On the 15th, two needles were introduced three quarters of an inch apart beneath the enlarged veins, care being taken not to include the vas deferens. A very thin sharp knife was then introduced underneath the veins and between the needles, and the whole cluster of veins was divided towards the surface: very little hæmorrhage followed.

December 18th.—Considerable swelling of the scrotum had taken place. The needles were removed on the fourth day.

20th.—Feels much better; pulse perfectly quiet; swelling in a great degree subsided.

24th.—Feels quite well; pulse 60; some thickening around the divided spermatic vessels.

31st.—Some thickening remains in the line of the incision. The swelling above and below this has entirely subsided. Feels quite well, and entirely free from pain. To leave the Hospital to-morrow morning.

1859, January 13th.—Came to report himself, feeling free from any inconvenience.

17th.—Again presented himself with a letter of thanks for his cure. The veins appeared quite consolidated in the line of incision.

CASE V.

An officer left his regiment in India and came to this country under a medical certificate, for the purpose of being cured of a varicocele. The operation was done as in the preceding case. The needles were removed upon the fourth day. There was no constitutional disturbance whatever. The scrotum was discoloured, in consequence of some blood which had become extravasated. This gentleman got up on the sixth day, and left town on the twelfth day after the operation. I have reason to believe that his recovery was quite satisfactory.

CASE VI.

A gentleman had suffered for years with pain and a sense of weight after exercise, in consequence of a cluster of varicose veins connected with the left spermatic chord. He came to town for the purpose of being relieved, and the operation was performed in the usual manner, the division of the veins being effected immediately after the introduction of the needles. During the following night he experienced pain and was restless. Upon examination, it appeared that some effusion of blood had taken place between the ligatures, and had distended the skin, so that these had become very tight. The pain subsided during the day. There was no constitutional disturbance. On the fourth day the needles were removed, and on the seventh day the patient was down stairs.

The last two cases are given in order to illustrate the inconveniences which may arise when the veins are divided at the same time that the needles are introduced; but these inconveniences, as far as I have seen, have in no way interfered with the ultimate result of the operation. The plan of dividing a varicocele subcutaneously with the precautions above mentioned has many advantages over other modes of operating. It is attended with no ulceration, suppuration, nor constitutional disturbance. The veins are consolidated under the skin by simple union, or by adhesive inflammation. There is no risk of hæmorrhage, nor of purulent absorption. The patient suffers ordinarily very little pain, and is confined to his bed a comparatively very short space of time.