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APPLICATION OF THE BUTTON SUTURE

TO THE

TREATMENT OF VARICOSE DILATATION OF VEINS.

By N. Bozeman M.D.
(New Orleans M. J. 1860)

VARIX, scarcely need I say, has engaged the attention of surgeons since the time of Hippocrates to the present day. There are, indeed, many living surgeons, whose names I could mention, commencing with those of Sir Benjamin Brodie and Velpeau, who have paid special attention to the subject, and who, as is well known, have presented it in all its bearings. Had I the time and inclination, it would be interesting to set forth the views of these eminent teachers, as to the causes and pathology of this disease, before entering upon the treatment; but as this part of the subject is treated so fully in every systematic work upon surgery, I shall pass on to the latter, with the object of offering a few practical remarks in reference to the employment of silver ligatures.

In calling attention to this principle of treatment, which, so far as I know, has not been done heretofore, I appeal only to a few results, based upon my own experience.

Let us, then, first inquire, what are the objects of an operation in the *radical treatment* of varix; and what the dangers attending such an operation?

The treatment, according to the best authors upon the subject, is divided into *palliative* and *radical*. Every one knows in what consists

the former. The latter, which has for its object the obliteration of the affected vein or veins, is generally, and very justly, too, viewed with great circumspection, because the operation, though simple in its execution, is liable to be followed by consequences sometimes highly disastrous to life. Phlegmons, erysipelas, purulent abscess, phlebitis, etc., are not uncommon results, and we are always taught to consider well the chances of their occurring, before deciding on any operative procedure.

Various have been the plans suggested of attacking the vein, as best suited to the end in question, and least liable to the dangers above stated ; namely, acupuncture, incision, transfixion, compression, section, resection, actual and potential cautery, simple ligature, twisted suture, etc. All these methods have had their advocates, and their advantages pointed out. While some have long since fallen into merited neglect, others have been maintained in practice, and are the established procedures of the day. Of the latter, I may mention the subcutaneous section of the vein, the simple ligature, the twisted suture, and the potential cautery.

Without stopping now to inquire into the claims of these several methods, which are familiar to all, I come at once to the object of our remarks ; namely, the adoption of the silver ligature or button suture method.

The idea of the above plan of treatment occurred to me several years ago, knowing, as I did, from experience, how little irritation followed the use of silver sutures. The ill-consequences of the operation usually had recourse to, I thought, might be obviated by this means to a very great extent, and the life of the patient thereby be less endangered. It was not, however, until the early part of last year that I adopted this principle of practice.

The three following cases I adduce in support of my views :

CASE 1.—I state this case from recollection, my notes having been mislaid. The subject was a negress, the mother of six or eight children, aged about fifty, and of rather delicate constitution. She stated that the enlarged condition of the veins of one of her legs had existed for several years, and now and then, especially after standing any considerable time, she suffered much pain from their distension, which would frequently force her to take her bed.

Upon examination, I found the saphena interna, and a few of its branches above the ankle, the seat of the difficulty. The dilatation

of the vein extended as far up as the middle of the thigh. At a point just below the knee, the vein was very large and tortuous. There had never been any ulcer of the leg. The skin was very smooth, and showed no indications whatever of disease.

All the palliative means had been tried effectually, but with no permanent good. The radical treatment, therefore, was the only alternative left me. In deciding, now, upon a plan, I determined to employ the silver ligature at a few points, and see what the result would be. Accordingly, after due preparation of the system, the operation was performed.

For the operation, the patient was placed upon her back, and the ligatures of a suitable length then introduced with a curved needle. (I prefer a needle with a short curve, held in a *porte aiguille*.) I entered the point of the needle through the skin as far in front of the vein as I could, to allow of its being carried beneath the latter, and out at a corresponding point in the skin. It was my intention, at first, to completely encircle the vein, and in that way to have the two ends of the wire to pass through one opening in the skin; but this I found to be entirely unnecessary. The narrow bridge of skin intervening between the two perforations, as above introduced, is not at all in the way of effecting constriction of the vein.

The ligatures, five or six in number, having been introduced, I next tied the ends of each over a couple of pieces of bougie, in the same manner recommended by Mr. Erichsen in his use of the silk ligature. I was not pleased, however, with this arrangement. I found that I could not tie the wire sufficiently tight to insure occlusion of the vein, without the risk of breaking it. I arranged all of them in this way, however, and put the patient to bed. The after treatment consisted in quietude, elevation of the limb, light diet, etc.

The patient went on remarkably well—had little or no fever. The swelling and pain around the several points of the ligatures were very slight. On the ninth day, I removed the ligatures; found the most of them quite loose, and the bits of bougie, over which their ends had been tied, almost ready to fall out of place, thus showing that the vein was cut through. The skin on which the bits of bougie rested was ulcerated at several points, which I had occasion to regret. The patient was kept in bed several days longer, and then allowed to get up. The hardness, now, along the course of the vein, as far up as the ligatures had been used, proved pretty con-

clusively that consolidation had taken place. After being up for some time, the patient expressed herself greatly relieved, and desired to have the cure completed, which I promised to do, should she be troubled again.

CASE 2.—Jane, a colored girl, aged about thirty-four, the mother of four children, large and stout, was sent to me the 21st of September last, for the purpose of treating her for an ulcer on her right leg. She stated that she first became pregnant in her sixteenth year, and that just before confinement the veins of her right leg became enormously enlarged. After labor, says she had "milk leg," from which she did not recover for several months. The veins in this leg remained large. Two years afterwards she became pregnant the second time, when the veins in this leg again increased very much in size, and caused great inconvenience. After the birth of her child they diminished somewhat in size, but still caused some annoyance, especially after standing a long time. Soon after this she received a slight scratch on the front part of her leg, three or four inches above the ankle. This resulted in the formation of an ulcer, which, after attaining a considerable size, gave rise to profuse bleeding. This ulcer went on increasing in size for five or six years. A physician, then, after a long time, succeeded in healing it up, but it remained so but a little while. She says that, as soon as she began to walk about again, the newly-formed skin gave way, resulting directly in an ulcer as large as ever. In this condition she remained until sent to me.

Upon examination, I found the ulcer situated as above stated, and half the size of my hand. The whole leg was very much swollen, and apparently all the superficial veins were dilated. The main trunks of the saphena interna and externa, were quite large and tortuous. The former, just below the knee, was so large and tortuous that its course could not be traced. Above this it was not so tortuous, but largely dilated nearly up to the saphenous opening. With this condition of things I thought of nothing short of the radical treatment. As a preparatory step to this, however, I determined to reduce the swelling of the leg, and to cure the ulcer, if possible. The patient was accordingly placed upon her back, and the limb bandaged up to her groin, twice a day. The ulcer was dressed with the following salve at the same time :

R. Pulv. Rhei. ℥i. Pulv. Opii, gr. x. Ung. Cetacei, ℥i. M.

Under this treatment the swelling rapidly diminished, and in the course of three weeks the ulcer was completely cicatrized.

The patient I now considered in a good condition for an operation on the veins. I determined to limit my procedure only to the largest ones below the knee, reserving the saphena interna, above this point, for a subsequent operation. Five silver ligatures were accordingly introduced, as in the preceding case, they being principally applied to the saphena interna. This being done, I next proceeded to adjust them. Being dissatisfied with the bougie arrangement in the preceding case, owing to the ulceration of the skin occasioned by it, I determined to effect adjustment this time on our button suture principle, in order to ascertain the result. With this view, the two ends of each wire, commencing with the lowest, were now put together and passed through the hole of our *suture-adjuster*.* These being firmly held between the thumb and forefinger of the left hand, the instrument was slid down upon them until complete constriction of the vein was effected. All the others were arranged in like manner. This being done, a disk of lead, with a hole through its center, was put on the wires and slid down to its place. Upon this a shot was next slid down. This now being grasped by a pair of forceps, and held firmly against the plate of lead, the requisite amount of force for the constriction of the vein was then applied to the ligature, and thus secured by compressing the shot upon it. The ends of the wire were next cut off close to the shot, which completed the operation. The patient was then put to bed, the limb elevated, and quietude enjoined. The case progressed well; no fever occurred, and there was but little swelling or pain. Some of the sutures I removed on the eighth, and the remainder on the ninth day after the operation. The patient was kept quiet a few days longer, and then allowed to get up. There appeared now to be pretty general consolidation of the veins upon the front and inner side of the leg. The large bunch just below the knee was quite hard. The patient, after going about for several weeks, experienced so little inconvenience from the enlarged veins remaining, that I concluded not to perform another operation for the present. It has now been about seven months since the operation, and the greater part of the time this woman has been employed as cook, washer, and ironer, using no laced stocking or bandage.

* Gross' System of Surgery, vol. ii, fig. 568, p. 1047.

A few days ago I made an examination of the affected limb, and found it the same size of the other. The cicatrix appeared firm, not showing the least indication of breaking at any point. There are a few branches of the saphena externa, and the trunk of the saphena interna, above the knee, still dilated. It is my purpose to operate again upon the case, and complete the cure.

CASE 3.—Elias Smith, plasterer, aged nineteen, of medium stature, and rather sparely built, was sent to me in February last, by my friend Dr. J. C. Batchelor, of this city, to have his leg examined, with a view to an operation. He stated that, ever since he could recollect, there had been an enlarged condition of the vein on the inside of his right leg, and of late it seemed to be increasing in size. He said that it gave him no pain now, or inconvenience, but he feared it would, and ultimately might force him to give up his trade.

Upon examination, I found that it was the saphena interna which was involved, the dilatation extending from the ankle nearly to its passage through the fascia lata. At a point just below the knee the dilatation was greatest, and here the vein was also very tortuous. Having considered the case in all its bearings, I took the view that the man was a laborer, his occupation requiring him to be almost constantly upon his feet, thereby increasing the difficulty, and that, if the disease could be radically cured, now was the time to attempt it. Everything favored a satisfactory result. Accordingly, after such preparation of the system as was necessary, I proceeded to perform the operation, in the presence of Dr. Batchelor, Dr. Frazier, of Arkansas ; Dr. Gilmore, of Mississippi, and several medical students.

The two preceding cases, it will be recollected, were operated upon in the recumbent position. This patient I placed in the erect—and I now greatly prefer this position, for the reason the vein is distended, and the needle can be entered and carried around it with more facility. I introduced five ligatures, two below, one opposite, and two above the knee. This was easily and quickly done. The patient was now made to lie down, in order that the vein might be emptied of as much blood as possible before adjusting the ligatures. The lowest one was arranged first, and the others, then, in regular succession. The disk of lead and shot were next slid down and secured, as in the preceding case.

After-treatment the same as heretofore pointed out. The patient

had no fever. On the seventh day I removed two of the sutures, and on the ninth the remainder. On the fourteenth day after the operation the patient went to work, experiencing no inconvenience from it whatever.

I examined this case a few days ago, it being nearly three months after the operation, and I was astonished to find that the obliterated vein had so nearly disappeared. It could be seen only at one point, just below the knee, and here it felt perfectly hard, and was quite movable beneath the skin. The consolidation had extended entirely up to the saphenous opening. The result could not have been more satisfactory.

Varicocele.—Being so well pleased with my first application of the silver ligature to enlarged veins of the leg, I felt very anxious to make a trial of it in varicocele, believing that it would have advantages over the ordinary methods pursued.

It was not long before an opportunity offered. A gentleman of Donaldsonville, in this State, aged about thirty, consulted me in reference to the disease in question, which he said he had had since he was fourteen years old. An examination proved his statement, as to the existence of the disease, to be correct. It was, as is almost always the case, on the left side. Associated with it was an enormous elongation of the scrotum. It hung down, especially on the left side, nearly to the middle of the thigh. An operation, therefore, not only for the varicocele, but for retrenchment of the scrotum, was called for, which I performed in the order mentioned. That for the varicocele was performed upon the button suture principle, the ligature being introduced in the same manner recommended by Prof. Gross, in the use of the silk *cord*.* In this way the veins were completely encircled, and both ends of the wire left hanging out at the same opening in the skin. The ligature was next adjusted, and the button and shot secured as in the second and third cases of varices. The patient was now put to bed, and the scrotum raised up and supported with a suspensory bandage. Cold water dressings ordered. There was the usual amount of swelling below the seat of constriction, and on the fifth or sixth day considerable pain. On the seventh day the suture apparatus was removed, when consolidation of the veins appeared to be complete. After a few days the patient was allowed to get up. The next thing was to retrench the scrotum,

* *Op. cit.*, vol. ii, p. 956.

which, after the patient began to walk about, was as long as ever. This operation was performed in the usual way, only a couple of small arteries requiring to be tied. The edges of the wound were brought together by a number of interrupted silver sutures. The patient was then put to bed, and the parts supported by means of a suspensory bandage. Cold water dressings directed.

A day or two afterwards, hæmorrhage took place from a small artery, and before it could be controlled the patient lost a considerable amount of blood. Excepting this, he got along remarkably well. On the seventh day I removed the sutures, when union of the parts appeared complete, excepting at one point, where the edges of the wound had not been closely approximated. This filled up in a few days, however, by the granulating process, and the patient was then discharged cured.

I examined this case a few weeks ago, it being about eight months after the operation, and the condition of the parts could not have been more favorable. The veins all appeared to be completely occluded, and reduced to mere threads. Our patient expressed himself entirely relieved of his former troubles.

Remarks.—Although the cure was not completed in the first two cases of varix, still the result of our operation proved itself, I think, sufficiently successful to establish the superior advantages of silver ligatures over the ordinary methods recommended.

The result of our third case could not have been more satisfactory. It is needless to comment on the result of the operation in the case of varicocele. Suffice it to say, it could not have been more satisfactory. The advantages of the button suture principle, in the treatment of the diseases of which we are speaking, may be thus briefly stated :

1st. The innocuousness of the silver wire.

2d. The protection afforded by the button against undue pressure upon the skin in front of the vein.

3d. The facility of adjusting the apparatus, and the great power given the surgeon over the vein, without risk of the wire breaking, as by tying.

4th. The certainty with which the vein or veins can be cut in two, and their occlusion effected, with evidently less risk of the dangers in the usual modes of operation.