

strictures in highly irritable urethrae, which admitted the passage of a No. 4 and No. 6 catheter respectively, but resented further dilatation, which always set up constitutional disturbance. One case was admitted with complete retention; and hot bath, chloroform, opiate enemata, and the evacuation of the bladder by the aspirator, having failed to obtain the introduction of any instrument through the stricture, urethrotomy was resorted to. The last case in which I operated came under none of these heads. He was a man aged 46, who had suffered from spasmodic stricture for five or six years. He was a highly nervous subject and a thorough hypochondriac. Attention to his diet and general health, and the occasional passing of a catheter after a few days' rest in bed, gave only temporary relief. If I attempted to introduce an instrument when going round the wards with my class, I never succeeded; but on returning to him alone half an hour afterwards, I could pass No. 12. Thinking that, by opening the urethra in the perinæum and allowing the urine to drain away for a week or two, I should give the irritable urethra a complete rest, and so permanently relieve the spasm, I consulted my colleagues on the case; and, as they all fully concurred in my hopes of the good to be anticipated from such a course, I performed perineal section, freely dividing the membranous portion of the canal throughout its extent, and, having introduced a full sized catheter, withdrew it again, and did not reintroduce it for ten days. This case is still under treatment, but hitherto there seems to be every prospect of a favourable result. Whenever the catheter has been left in in this case, even for four or five hours, a severe urethral rigor, with sudden rise of temperature, has taken place, and that since, as well as before, the operation, sufficiently showing the sensitive condition of the part; and showing also, I think, not only the insufficiency, but the inappropriateness, of treatment in this instance by dilatation alone.

I have now only to refer to the case in which an untoward effect followed the operation, and which was not discovered until six months afterwards.

The patient was a young tradesman, aged 25, who consulted me for a tight and somewhat oblique stricture seated at the junction between the spongy and membranous portions of the canal. No metal instrument would pass, but after many trials I passed a soft *cathetère à boule*, first a No. 3, and at subsequent sittings Nos. 4 and 5. Beyond this point I made no advance; and in addition to the unyielding character of the stricture and its obliquity, the urethra was so exquisitely sensitive, that every time the instrument was used, though with the most gentle manipulation and without ever causing bleeding, the patient was in pain for twenty-four hours or more after it. I therefore resolved on dividing the stricture, and, accordingly, performed perineal section, in the manner above detailed, in September 1875. The bulb was notched, and the anterior half of the membranous portion was divided in the middle line. The stricture was cleanly divided, and the probe-gorget having been used to dilate the posterior portion, a full-sized silver catheter was carried along it into the bladder and retained for thirty hours only. After this, it was introduced every second day for a fortnight, then twice a week for a fortnight more, when he went into the country; but visited me once in a week or ten days to have the instrument passed. The perineal wound closed at the end of three weeks after operation, and he never had a bad symptom nor failed to pass his urine in a good stream. Six months afterwards, he married; and in April 1876, he came to me complaining that he had no satisfaction *in coitu*. The act was completed, but there was no ejaculatory power. The seminal discharge was emitted (or, as he expressed it, "oozed out"), without any sensation of propulsion. I imagined that this was due to recontraction of the canal, but found no difficulty in passing a bougie, and he afterwards passed urine, without assistance, in a good stream. I encouraged him to hope that he would regain the power in time, and recommended him to abstain from sexual intercourse for a while; but several months later, he returned with the same story, and more downcast than before, because there was no promise of his marriage becoming fruitful. Now, what had happened? Was it the division of the fibres of the accelerator muscle? This would have been the explanation which would probably occur to one at first. But is this muscle the real agent of ejaculation? According to Professor Küss of Strasburg it is not; or, at any rate, only in a secondary degree. That physiologist says: "At the moment that the sperm is poured into the prostatic portion, this portion of the canal is isolated from the bladder, on account of the turgescence of the *verumontanum*, which is, during erection, in contact with the anterior wall (as shown by Kobelt); and we all know that micturition is impossible during the state of erection. On the other hand, the efferent ducts of the vesiculæ seminales, incorrectly called "ejaculatory ducts" open *in front of and at each side of the verumontanum*; so that the sperm readily passes into the prostatic urethra, which it fills up, but it can go no farther, because at this moment the urethral sphincter (called Wilson's muscle)

contracts and obliterates the membranous portion. The fluid, therefore, accumulates in the straight part of the canal between these two points under high pressure. But the sphincter muscle cannot long maintain its contraction; it relaxes, and immediately the seminal fluid is ejaculated with force due to the sudden relief of the pressure, while the rhythmical character of the emission is due to alternate contraction and relaxation of Wilson's muscle; though doubtless, also, the contact of the seminal fluid with the mucous surface influences the intermittent and tetanic contraction of the urethral sphincter." (Küss.)

It appears to me, therefore, that in the case related above, the loss of ejaculatory power is more probably the result of injury to Wilson's muscle, or the nerves supplying it, either by division or distension, than to injury of the bulb or the bulbo-cavernosus muscle, generally called the ejaculator seminis. Whichever be the true explanation, it appears singular that this result should not be more frequently heard of after perineal section.

ON INTERNAL URETHROTOMY.*

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WITHIN the past few years, the operation of internal urethrotomy has occupied much attention in this country; the principles of the procedure have been more clearly established and better carried out, great improvements have been effected in the instruments used, and I think it may be safely predicted that internal urethrotomy will, in the future, attain that position to which it is justly entitled.

I would firstly remark that I consider most urethral strictures are best treated by gradual dilatation, carried out by means of soft instruments; that an operation is but seldom called for, and ought, as a rule, to be only resorted to after milder measures have failed. I would also observe that, pathologically, there is no evidence to prove that a stricture can be cured; but practically all strictures are curable, provided an instrument is occasionally passed at regular intervals for life.

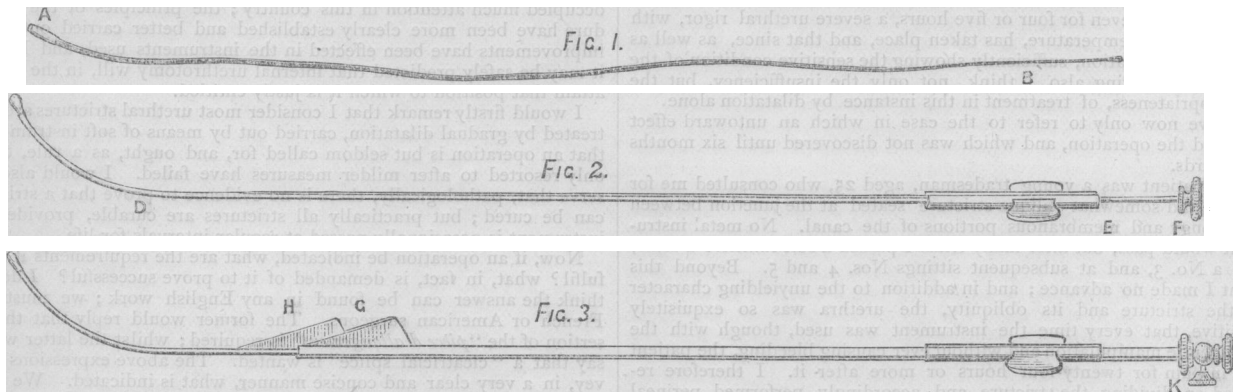
Now, if an operation be indicated, what are the requirements it must fulfil? what, in fact, is demanded of it to prove successful? I do not think the answer can be found in any English work; we must ask French or American surgeons. The former would reply that the insertion of the "*pièce d'allongement*" is required; whilst the latter would say that a "cicatrical splice" is wanted. The above expressions convey, in a very clear and concise manner, what is indicated. We have to enlarge the contracted urethra by letting into it a splice of new tissue, which is of a necessity cicatrical. We know that cicatrices are endowed with varying powers of contraction; those, for instance, which result from the clean cut of a surgeon's knife shrink but little, whereas those following lacerations contract greatly. Hence, therefore, a cicatrix made by a clean incision possesses the minimum amount of contraction, whilst that following a laceration has the maximum degree; and, inasmuch as we want a cicatrix which will contract as little as possible, we must choose a cutting operation, and not a tearing one, like the so-called "immediate dilatation".

Let us not forget these two following important surgical facts, which we constantly see, and which vividly show the relative results of cutting and laceration. When a surgeon incises the healthy urethra of a man, in the operation of lithotomy, no stricture follows when the wound is healed; but if the same man had been kicked in the perinæum and his urethra torn, a stricture of the worst description would have ensued. Hence our choice is limited to cutting operations. Now, there are three forms of urethrotomy—external, subcutaneous, and internal. The external I regard as a severe procedure, which ought to be very rarely required; the subcutaneous is only adapted for cases where there is but a single stricture; whilst internal division can deal with any number of strictures; and, as it is a procedure which is attended with but little risk to life, it must be regarded as our stock operation for stricture. In what cases would I operate? If the stricture be non-dilatable, or, if dilatable, it contract again as fast as it is stretched; or if there were numerous fistulæ combined with a tough stricture; or if the process of gradual dilatation were attended with great pain or constitutional disturbance; or, lastly, if continuous dilatation had failed. It may also be premised that penile strictures and those of traumatic origin are not usually amenable to dilatation, and require to be cut. Having determined on internal urethrotomy, shall we divide the stricture from before backwards, or from behind forwards? The answer to this question has divided surgeons into opposite camps, and acrimonious discussions have taken place. As both parties have obtained good results, they have

* Read in the Section of Surgery at the Annual Meeting of the British Medical Association in Manchester, August 1877.

each attributed them to the particular method they have employed. I would venture to say that, in the hands of a skilful operator, equally good results will follow either method, but that the division from behind forwards requires a great deal more skill and care than the other, in order to determine the length of the incision, for it is not always so easy to judge where it shall end. The cutting operations may be of two kinds. Firstly, scarification. In this operation, a number of notches or small cuts are made into the stricture, but not through it, for they are not extensive enough for that. The instrument which makes the cuts is called a scarificator, and usually has two, three, or even four small blades. Secondly, internal urethrotomy, in which the stricture is completely divided at one cut by an instrument named an urethrotome, which generally has but one blade. There is a very great difference in the results of the two operations. The scarificator merely notches the stricture sufficiently to allow itself to pass through, whereas the blade of the urethrotome cuts the stricture in two, and permits of the passage of a vastly larger instrument than itself, for the simple reason that, the stricture having been completely divided, there is no longer any resistance. At one time, scarification was much employed in France; but it has, I think, been almost completely abandoned, as the results obtained by it were of a very fleeting character. It has been almost unanimously and emphatically laid down by French and American surgeons that, to obtain a good result, a stricture must either be torn through or cut through; and, as the former operation does not

of the stricture, and so prevented their division. I have removed the button on the blade, and protected the urethra from injury by encasing the knife, H (see fig. 3) in a double sheath, G. The peculiarity of my double sheath is, that it runs outside the staff in telescopic fashion, and not inside it, as in the urethrotomes of Sédillot and Gouley. By this modification, the calibre of the staff is not increased in bulk, whereas it is greatly strengthened by the stem attached to the sheath embracing it. The sheath also represents the surgeon's finger in the urethra; for it feels for the obstruction, tells him where it begins; and, when he thinks he has divided the stricture, it assures him of the fact or otherwise. Lastly, it makes the parts tense for us when we stretch the penis forcibly upwards towards the handle of the urethrotome. I have had the end of the staff of the urethrotome tunnelled like Dr. Gouley's, so that the instrument can either be slipped over a fine filiform bougie introduced into the bladder, or it can be screwed on to the "bougie conductrice", A B (see fig. 1), and made to follow it into the bladder. The groove in my staff stops at D (see fig. 2), two inches from the end; so that, when the urethrotome is in the bladder, the curved non-grooved extremity is in the prostate and bladder. Inasmuch as there is never any stricture in the prostate, there is no object in carrying the groove to the end of the staff, as it is in the urethrotomes of Sédillot, Gouley, and Maisonneuve. The conducting bougie A B, fig. 1, is of great value; for in some cases it is impossible to introduce the urethrotome, not because the stricture is so tight, but because the passage is so tor-



fulfil the requirements I have alluded to, it only remains for us to cut completely through the contraction with the urethrotome.

An enormous number of urethrotomes have been invented, and many of them have, I think, earned the late Professor Syme's condemnation, that they were "terrible engines of war". Until a few years ago, Civiale's urethrotome was, perhaps, more used than any other for dividing from behind forwards, and Maisonneuve's for cutting from before backwards: the latter instrument has been considerably improved. A good urethrotome ought to fulfil the following indications. 1. It should, when introduced, declare with certainty whether it be in the bladder or not. No urethrotome ought to be used which does not do this, for much discredit has been unjustly brought on internal urethrotomy by surgeons employing instruments which did not prove where they had gone to. Hence, false passages, and even the rectum, have been divided instead of the stricture. 2. The knife should not wound the healthy urethra. 3. The staff of the urethrotome should be very slender, so that it can be passed through very tight, narrow, non-dilatable strictures. 4. The instrument should not only tell where the incision is to begin, but where it is to end.

Now I believe that the urethrotome, as modified and improved by Sédillot, Gouley, and myself, fulfils all the above requirements. In Maisonneuve's instrument, the groove in the staff extended through its entire length, so that the knife went into the bladder, which was unnecessary; and, as the slit was usually blocked up by blood or mucus, and hence the withdrawal of the urine, which formed no part of the operation, could not be effected. The groove in my staff is filled with a closely fitting stylet (E F, fig. 2), so that, when the wire is taken out, urine will flow if the instrument be really in the bladder. Maisonneuve thought he had protected the healthy urethra from possible injury when he put a metal knob or button on the apex of his triangular blade. *Post mortem* examinations made in Paris and New York demonstrated that with his knife the healthy urethra might be cut in numerous places undesignedly. In one instance, the mucous membrane of the canal was cut in its entire longitudinal axis. Then, again, this knob on the blade pushed away some of the outlying fibres

of the stricture, and so prevented their division. I have removed the button on the blade, and protected the urethra from injury by encasing the knife, H (see fig. 3) in a double sheath, G. The peculiarity of my double sheath is, that it runs outside the staff in telescopic fashion, and not inside it, as in the urethrotomes of Sédillot and Gouley. By this modification, the calibre of the staff is not increased in bulk, whereas it is greatly strengthened by the stem attached to the sheath embracing it. The sheath also represents the surgeon's finger in the urethra; for it feels for the obstruction, tells him where it begins; and, when he thinks he has divided the stricture, it assures him of the fact or otherwise. Lastly, it makes the parts tense for us when we stretch the penis forcibly upwards towards the handle of the urethrotome. I have had the end of the staff of the urethrotome tunnelled like Dr. Gouley's, so that the instrument can either be slipped over a fine filiform bougie introduced into the bladder, or it can be screwed on to the "bougie conductrice", A B (see fig. 1), and made to follow it into the bladder. The groove in my staff stops at D (see fig. 2), two inches from the end; so that, when the urethrotome is in the bladder, the curved non-grooved extremity is in the prostate and bladder. Inasmuch as there is never any stricture in the prostate, there is no object in carrying the groove to the end of the staff, as it is in the urethrotomes of Sédillot, Gouley, and Maisonneuve. The conducting bougie A B, fig. 1, is of great value; for in some cases it is impossible to introduce the urethrotome, not because the stricture is so tight, but because the passage is so tor-

uous. If, however, the bougie be first passed, and the staff of the urethrotome be screwed on to it, it will follow the former into the bladder. This procedure must be conducted very slowly, otherwise the bougie may be doubled up if the urethrotome be pushed too quickly after it. When the instrument is apparently in the bladder, I withdraw the stylet E F (see fig. 2) to verify its position. If urine flow, I operate; if it do not, I withdraw the urethrotome and try again another day. Supposing, however, that the urine escapes, I stand on the right of the patient, and take the knife enclosed in its double sheath, and, protruding the former a little, I insert it into the groove of the staff, and immediately slip the double sheath *over* and *outside* the staff. I then withdraw the knife within the sheath, and, clutching hold of the penis just behind the gland, I draw it forcibly towards the handle of the urethrotome, which is held by an assistant standing opposite me; and with the right hand push the stem of the sheathed knife slowly down the urethra till it arrives at the obstruction, against which I keep it steadily pressed. By these two manœuvres, I have ensured that the stricture is made perfectly tense, so that it can be cleanly and completely divided. I now protrude the knife for half an inch, knowing that that is the minimum cut required to divide even a ring-stricture not thicker than a thread. The knife is then withdrawn into its sheath, which is pushed forwards to see if the stricture be completely divided or not. If it be not, the process is repeated, each cut being half-an-inch long, till everything is cut. I generally divide the strictured urethra in the roof, as I think that is the best situation, for the bulb is thereby avoided. If the surgeon prefer, however, to cut the floor of the canal, all he has to do, when he has passed the staff of the urethrotome, is to reverse the instrument, so that its point is turned behind the prostate, as in lithotripsy. The urethrotome can be made with a lateral or inferior blade, if desired. As soon as I have ascertained that the canal is perfectly free from one end to the other, I withdraw the instrument and introduce a No. 25 silver catheter, for the purpose of demonstrating that the urethra has been restored to its normal calibre and to completely empty the patient's bladder. By ensuring that the bladder is empty, the patient can go for some four or six

hours without wanting to make water, by which time the wound will be covered with a firm clot, and the pain in micturition be considerably diminished. I do not leave any catheter in the bladder after the operation, and I allow the patient to pass his urine naturally. I believe I was the first surgeon in this country to dispense with the use of the catheter after the operation. If there be one practice more persistently insisted on than another in English surgical works, it is that of the necessity of the use of the catheter after urethrotomy, the instrument to be either left in the bladder or else employed to draw off the patient's urine; and the writers point out the disastrous consequences which will take place, in the shape of abscess, fistula, or infiltration of urine, if the practice be not observed. To Dr. Gouley of New York belongs the credit of having shown the utter groundlessness of the surgeon's fears.

After the operation, I am in no hurry to commence the passing of instruments, usually waiting till the fourth day, and not introducing them oftener than twice a week. At the end of ten days, I begin to teach the patient how to pass a catheter for himself, and order him to do so every Saturday night till further orders. By passing a large No. 25 bougie or catheter several times after the operation, the insertion of a good "cicatrical splice" is guaranteed.

Now as to results. I have operated in all on thirty-three cases, all of them of the worst description, and for that reason relegated to the operation, without a single death. In one instance, the urethra was so indurated in its entire length that I left in a catheter after the operation, to set up urethritis, and so lessen the thickening. The inflammation was, however, more than I desired; and abscess, followed by fistula, ensued. The case ultimately got quite well. In one case only had I troublesome bleeding. It proceeded from the meatus, which I had divided, and was a hint to me for the future not to cut the meatus at the same time as the stricture, but several days before. As a rule, not more than about a dessertspoonful of blood escapes either at or after the operation. Secondary hæmorrhage I have never seen. Rigors occurred in about two-thirds of my cases. I look upon them as entirely nervous and of no importance. It is stated in books that rigors are due to the passage of the urine over the wound. This, however, cannot be the correct explanation; for, unless pyæmic, they are never seen after lithotomy or external urethrotomy. I look upon rigors after internal urethrotomy as caused by the sudden stretching of the nerves in the wound through the distension of the canal by the urine. In three of my earlier cases, I had to repeat the operation, as my incisions had not been sufficiently free. I am sure that every one who performs the operation will be pleased with the soft supple cicatrix which follows it, so different from the rough, tough, irregular cicatrix which forms the so-called "immediate treatment", which is neither more nor less than absolute laceration, not always of the tough stricture, but sometimes of the unoffending healthy urethra, where, as elsewhere, "the weaker goes to the wall".

Now for statistics. I think they will be found to be eminently satisfactory, and will carry conviction. They are the largest, I believe, which have ever been placed before the profession, and show what internal urethrotomy can accomplish. No other operation for stricture with which I am acquainted can produce such favourable results. I consider that no operation can be performed on the urethra without a certain amount of risk; but how slight that risk is you will immediately see. I find by examination that the operation has been performed by six surgeons in London, Paris, Mobile, and New York, one thousand and ninety-five times, with but ten deaths; and there would probably have been two deaths less had it not been for the crowded state of the wards in the Neckar Hospital during the Commune.

In conclusion, gentlemen, let me say that the deductions drawn from the experience of a solitary surgeon may be misleading, but that the conclusions which must be arrived at from the overwhelming mass of figures which I have placed before you loudly proclaim that the operation of internal urethrotomy claims your consideration and demands your support.

NEW MODE OF TREATING VARICOCELE.

I find the following simple procedure an efficient method of treating varicocele. Pass a long and strong hare-lip pin between the veins and the scrotal walls, bringing the point of the pin close beneath, but not through, the scrotum; then make the point retrace its course, but passing now behind the veins, until it emerges near the puncture through which it entered. In a word, by employing that form of acupuncture known in the Aberdeen School as the method of retroclusion, a varicocele may be effectually compressed and the veins obliterated.

S. MESSENGER BRADLEY, Manchester.

HISTORY OF OVARIOTOMY IN ITALY.

By T. SPENCER WELLS, F.R.C.S.,
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I HAVE just received from Dr. Peruzzi of Lugo a pamphlet upon my practice of ovariotomy. This pamphlet, which is a reprint of articles in the ninth volume of the *Raccogliatore Medico*, consists in great part of a translation of one of my lectures, published in the BRITISH MEDICAL JOURNAL of December 15th, 1877. It also contains so very cordial a recognition of the effects of my work upon Italian surgery, that I should have received it with silent gratification, if it had not also contained a correction of an historical error into which I had fallen, but which I now hasten to acknowledge and correct.

In my work on *Diseases of the Ovaries*, there is a chapter on the Rise and Progress of Ovariotomy. At page 314, the following sentence may be found: "In Italy, the first successful ovariotomy was performed by Professor Landi of Pisa, in September 1868; the second by Professor Peruzzi of Lugo, in 1869; the third by Dr. Marzolo of Padua, in July 1871." On page 313, I had stated that Professor Vanzetti, the distinguished Italian surgeon, had performed the first ovariotomy in Russia in 1846. My work was published in 1872; and Dr. Peruzzi is not unnaturally surprised that I did not allude to a case by Emiliani of Faenza, in 1815, which had been published in 1843 in the *Bulletino delle Scienze Mediche di Bologna*, and had been again brought to light by Dr. Peruzzi himself, in the form of a letter to M. Boinet, entitled "*Aperçu Historique sur l'Origine et les Progrès de l'Ovariectomie en Italie*".

As this letter appeared in *L'Ipocratico di Forlì* in 1869, I should certainly have noticed it in 1872, if I had seen it. I now see it for the first time, in pamphlet form, reprinted from *L'Ipocratico*.

The author shows that, so long ago as 1752, Dr. Tazioni Tozzetti, in a published *Selection of Medical Observations*, had not (as supposed by Boinet) proposed to extirpate a diseased ovary, but only discussed the question of tapping and palliative treatment. So Morgagni, in 1761, admitted that ovariotomy might be considered in cases where the cyst was not adherent and the pedicle single and slender. Peruzzi goes on to quote from Monteggia in 1814, and Sacchi in 1832, sentences to prove that these surgeons were theoretically in favour of ovariotomy. These will not much interest your readers; but the account of the case of Emiliani, in 1815, is very remarkable.

Dr. Gaetano Emiliani of Faenza was a provincial surgeon. A married woman, twenty-six years of age, mother of three children, while nursing her third child, lifted a heavy pan of water, resting the edge of the pan against the lower part of the abdomen. There was no immediate suffering, but the next night she was awakened by acute pain in the left iliac region, which continued during the next day. Dr. Brunetti was called, and "discovered at the seat of pain a tumour almost isolated in the cavity, without any alteration externally, very painful to the touch". Four months passed without much relief, and the patient suspected pregnancy. In two months, with a great loss of blood, she passed a very large mole ("*una assai voluminosa mole*"); uterine discharge continuing for twenty-five days. Dr. Emiliani was called in, and found his patient feverish, with evening exacerbations; the tumour, a hard circumscribed spheroid, indolent to the touch, but the seat of occasional spasmodic pain. The diagnosis was "scirrhus condition of the ovary and tendency to carcinoma", and the only hope, extirpation. The proposal was approved by Brunetti, who, with a phlebotomist, assisted at the operation, which I describe in the words of the son of the operator, who first published the account of the case.

"My father divided the common integument along the linea alba for about two inches and a half, divided the subjacent muscles and the peritoneum very carefully, and exposed the left ovary, which was recognised by its position, form, connections, although enlarged beyond all ordinary degrees, scirrhus, superiorly covered by small vesicles, from which a foetid ichor ran, and adhering by its whole inferior part to the colon; around, some varicose vessels were observed. The ordinary connections and the unusual adhesions were promptly separated, and the arterial twigs were tied one after another as they were divided. The blood lost was calculated at less than half a pound. The lips of the wound were united by one suture."

The after-treatment appears surprising in these days—rigid diet, bleeding repeated on the following day, tartar emetic, and lemonade. But recovery was complete; menstruation reappeared; and a year after the operation twins were born, which both died after a few hours. Five other children were born after these, two of whom, with their mother, the patient, were alive and well when the report of this case