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ON

VAGINAL LITHOTOMY.

BY

J. H. AVELING, M.D., SHEFFIELD.

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NATURE has two ways of ridding the female bladder of stones. She either dilates the urethra and expels them through it, or establishes an opening in the vesico-vaginal septum and allows them to fall into the vagina. Instances of the former are numerous, but cases in which the latter has occurred are, comparatively speaking, rare.¹

An opening in the vesico-vaginal septum may be caused by a stone in the bladder in two ways, either by *ulceration*, resulting from the constant contact of the calculus; or by *sloughing*, following prolonged pressure received between the foetal head and the stone during labour.

Cases in which the former has occurred have been

¹ M. Caumont relates a case in which the stone ulcerated through the abdominal integuments.

recorded by Fabricius Hildanus,¹ Sir Astley Cooper,² and Sir Benjamin C. Brodie;³ and others in which the latter has happened have been met with by Guillemeau,⁴ Willoughby,⁵ Smellie,⁶ Ryan,⁷ Gosset,⁸ Erichsen,⁹ I. Baker Brown,¹⁰ &c.

But neither of these processes seems to have primarily suggested the vaginal method of performing lithotomy in the female. The ease with which stones may be cut down upon and extracted from the bladder, while in a prolapsed condition, seems rather to have first prompted the operation. It was first put into practice in the latter part of the sixteenth century by Rousset¹¹ who incised the prolapsed bladder of a woman aged sixty-eight, and extracted eleven stones. It was afterwards performed by Ruysch¹² in 1681, who was the first to bring the lips of the wound together, which he succeeded in doing by passing a band of lead round the prolapsed tumour. Tolet¹³ also extracted six stones from a prolapsed bladder in this way; and the operation was repeated by Barlow¹⁴ in this country, in 1814, when he extracted ten stones, the wound healing in two months.

But although this simple kind of vaginal lithotomy was the first to be performed, the real prototype of the operation now practised was adopted only a few years later; for Fabricius Hildanus having met with a case in which a calculus had partly ulcerated its way through into the

¹ 'Opera Omnia,' 1646. Cent. I, Obs. lxxviii. Cent. III, Obs. lxxix.

² 'Lectures on Lithotomy, Lancet,' 1824, p. 697.

³ 'Lectures on Diseases of the Urinary Organs,' 1835, p. 321.

⁴ 'Midwifery,' 1642, Book II, chap. xi, p. 148.

⁵ 'Country Midwife's Opusculum,' p. 305.

⁶ 'Cases in Midwifery,' Collection XI, No. I, Case 2.

⁷ 'Manual of Midwifery,' 1841, p. 305.

⁸ 'Lancet,' November 29th, 1834.

⁹ 'Medical Times and Gazette,' Jan. 5th, 1856.

¹⁰ 'Surgical Diseases of Women,' 1861, p. 141.

¹¹ Velpeau, 'Médecine Opératoire,' 1839, vol. iv, p. 600.

¹² 'Observationes Anatomico-Chirurgicæ, No. 1.

¹³ 'Journal des Savans,' 1700.

¹⁴ 'Essays on Surgery and Midwifery,' 1822, p. 132.

vagina, on July 18th, 1598, enlarged the opening with a knife, and extracted a stone of the size of a hen's egg, without force, hæmorrhage, or pain; and obtained a perfect cure by the following after-treatment. Inunction of the abdomen and groins with oil of roses, &c.; a pessary of tow soaked in white of egg placed in the vagina; injections for three days of plantain water and oil of almonds to the seat of pain, and by daily washing out the bladder with a decoction of nine sorts of herbs and honey.

The success which attended this timely assistance of a natural effort induced Hildanus to propose the following mode of operating; and to any one who would know why he does so, he replies, "*Causa lector benevole est, quod natura ipsa viam et quàm ratione operatio instituenda esset, mihi monstravit.*" A curved scoop is first to be introduced through the urethra into the bladder, and having found the stone, the handle is to be raised to the pubis and the stone brought forward, so as to protrude into the vagina. With a knife, sharp only at the point, the stone is then to be cut down upon and extracted through the incision by a pair of curved forceps, the patient being placed in the ordinary lithotomy position. He fully appreciates the difficulty of healing the wound, but says that one produced by a cutting instrument is much more likely to heal than one which is the result of ulceration.

This operation was proposed and published early in the seventeenth century. It is remarkable that about the same time the two other steps required to render the operation perfect were also proposed. Fabricius ab Aquapendente¹ advocated the use of metallic sutures in preference to sutures of thread, because the former were smooth and polished, and neither eat their way into the flesh, ulcerated out, stretched, broke, nor rotted; and Roonhuyse² proposed the plan of bringing together the lips of openings in the vesico-vaginal septum by means of sutures. Is it not marvellous that for

¹ '*Opera Chirurgica*,' 1648. '*Med. Times*,' Jan. 22nd, 1859.

² '*Heebkonstige Anmerkingen*,' Amst., 1663.

two long centuries these facts should have been read and re-read, and yet that no mind should have shown itself to be in possession of that little amount of synthetical power which would have made its owner most famous, and would have saved many a poor woman from a life of suffering!

It is not impossible that the progress of vaginal lithotomy may have been impeded by the aphorism of Hippocrates, which says that a severe wound of the bladder is deadly, for we find, only ninety years ago, Bromfield¹ commenting upon the two cases of Hildanus as follows: "In these cases (stones ulcerating through into the vagina) the perforation was so gradually effected, that sphacelation of the whole bladder did not follow; but it would be extremely different, I should imagine, had a wound been made in the membranous part of the bladder, and the same afterwards torn and contused by the passing of a very large stone; and I dare say, that respect will still be paid to the divine Hippocrates, and that no one will wound the body of the bladder intentionally in performing the operation of lithotomy." But although vaginal lithotomy was not brought to perfection as rapidly as it might have been, still the operation never seems to have been lost sight of. Improvements from time to time were suggested—a notable one was introduced in the latter part of the last century by Mery, who, instead of the scoop of Hildanus, proposed the use of a grooved staff upon which he cut instead of the stone. Other modifications were also introduced, until at length the operation assumed the form so well described by Chelius,² and still more fully by Velpeau.³ Each operator, however, had his own way of performing it. Some would not use the gorget to depress the posterior wall of the vagina, but introduced the knife flat upon the finger, and then turning up the edge made the incision upon the staff. Some held the staff during the time of making the incision,

¹ 'Chirurgical Observations,' 1773, vol. ii, p. 283.

² 'System of Surgery,' (South's,) vol. ii, p. 621.

³ 'Médecine Opératoire,' vol. iv, p. 601.

others held the gorget. Some made the incision from before backward, others in the opposite direction. Some divided a portion of the urethra, others avoided it with the greatest care. Some made the incision straight, others oblique. But all these variations had little effect upon the ultimate result. Do what they might, the dreaded fistula would occur: wonderfully seldom, however, if it be true that it only happened once in four times, as Velpeau states; and greatly at variance with the opinion of one of our first surgeons, who writes: "This operation is necessarily followed by a vesico-vaginal fistula, which will be required to be closed by a subsequent plastic operation."¹ Unfortunately they were not able to see that the secret of success did not lie in the mode of operating. Hildanus was as successful as Clémot. Up to the point of the extraction of the stone the operation was practically perfect. It was in the treatment of the wound that surgeons, for two centuries, continued to be at fault.

On the 24th of January, 1833, Mr. Gosset,² a surgeon in London, performed vaginal lithotomy upon a woman, aged forty-five, and extracted a large stone, by enlarging with a bistoury a fistulous opening which already existed in the vesico-vaginal septum. On the 19th of May of the same year incontinence of urine continuing, he performed that operation for vesico-vaginal fistula, using metallic sutures, which not only cured his patient, but rendered his name for ever celebrated in the annals of surgery. This case was the harbinger of the operation now performed, and we in England cannot be too proud of the fact. But in lauding our own countryman, let us not forget the honour due to Dr. Sims. It is only by the reiteration of a blow that the desired effect can sometimes be produced, and to him we are indebted for that last good stroke which has rung through the whole civilised world, and has been the means of forcing upon the attention of the profession the ready and

¹ 'Eriksen's Surgery,' 1861, p. 1039.

² 'Lancet,' November 29th, 1834.

true method of curing one of the most loathsome and miserable of all complaints.

The following is a list (doubtless a very imperfect one) of the number of times vaginal lithotomy has been performed, together with the names of the operators or recorders of the cases, from the latter part of the sixteenth century up to the present time.

FOREIGN.					BRITISH.				
Rousset	.	.	.	1	Gooch	.	.	.	3
Ruysh	.	.	.	1	Denman	.	.	.	2
Hildanus	.	.	.	1	Barlow	.	.	.	1
Bussière	.	.	.	1	Gosset	.	.	.	1
Tolet	.	.	.	1	Erichsen	.	.	.	1
Faure	.	.	.	1	Ferguson	.	.	.	1
Clémot	.	.	.	3	Lane	.	.	.	1
Flauber	.	.	.	4	Lyon	.	.	.	1
Rigal	.	.	.	2	Overend	.	.	.	1
Philippe	.	.	.	1					
Castara	.	.	.	1					
Lagouache	.	.	.	1					
Macario	.	.	.	1					
Lavielle	.	.	.	1					
Rigal, Junior	.	.	.	1					
Sims	.	.	.	1					
				<hr/>					<hr/>
				22					12

Total 34.

To this list I have the gratification of adding one more case, the success of which I hope will be sufficient excuse for troubling the Society with its details. Mrs. D—, æt. sixty-three, the wife of a clergyman, was first troubled with a constant desire to pass water in the latter part of 1861. Walking soon became painful, and after it blood was sometimes passed. Latterly the urine would only flow while the patient was on her back.

Having detected a stone I endeavoured to measure its size with a lithotrite, but failed in consequence of the

intense pain produced. Two or three similar attempts were made, but without success. Very little urine could be retained in the bladder, and its extreme irritability caused it to contract upon the instrument. The patient was troubled with flatulence, which increased her sufferings greatly; in fact, three days before the operation I was called up in the night, and had to administer chloroform before the pain could be subdued.

November 23rd, finding the patient's strength failing I determined to perform vaginal lithotomy; Drs. Elam, Jackson, and Keeling, kindly giving me their able assistance. Chloroform having been administered, the patient was placed on her back in the usual lithotomy position. Bozeman's speculum was introduced, and held in position by an assistant. Skey's staff, slightly modified, was next passed into the bladder, and given to another assistant, who pressed the handle backwards so as to cause the vesicovaginal septum to bulge into the vagina. A long lithotomy knife was then thrust directly down into the groove of the staff, and an incision one and a quarter inch in length made, commencing one and a half inch posterior to the meatus urinarius. The staff was then withdrawn, and a pair of curved forceps introduced into the bladder, from which a small, rough stone was easily extracted. At this point there was a little delay, caused by sickness, and during each effort of vomiting the wound was seen to gape widely, and a quantity of dark venous blood to flow forth.

The bladder having been well syringed out with warm water, four sutures of silver wire, No. 28 gauge, were introduced, by means of a curved tubular needle, a quarter of an inch apart. Having adjusted them, eight or ten gilt beads were placed over the ends of each suture, and run down to the lips of the wound. These were kept in their proper position by perforated shots also passed over the ends of the sutures and tightened upon them by a pair of strong forceps. The ends of the sutures were then clipped off close to the shots and the speculum withdrawn. The whole operation, including the time lost during the vomiting, lasted twenty-three minutes.

The patient having been carried to bed, a No. 9 flexible catheter was introduced and kept constantly in the bladder. In the evening it became blocked by a small clot of blood, and had to be removed. On reintroducing it, it was found that three ounces of urine had accumulated. The patient was for the first two days much troubled with sickness, which could only be controlled by iced water, or ice itself.

26th.—During a severe pain, caused by flatulence, a quantity of urine was forced out by the sides of the catheter, and not knowing that it had taken this course, I had some fear that the sutures had given way, but no such accident had occurred, and the patient from that time went on without a bad symptom.

30th.—Seven days after the operation the wound was examined and found to be completely healed. The shots were clipped off, the beads removed, and the sutures allowed to separate.

December 3rd.—The sutures were withdrawn, and the patient allowed to retain her urine for an hour. This time was gradually increased up to the 6th, when she was allowed to pass her water naturally.

4th.—When called in the morning was found up, and washing herself, and said that she never felt better in her life.

Medical treatment.—During the first twenty-four hours three grains of opium were given by the mouth. After this a grain of the aqueous extract was administered night and morning in a quarter of a pint of strong beef-tea in the form of an enema. The urine was kept alkaline or neutral by small doses of the bicarbonate of potash. On the eighth day the bowels were freely moved by a castor oil enema. There was never any fever to contend with, and the pulse never exceeded 90.

Position of the patient.—During the operation the supine position was chosen, in consequence of its favouring the extraction of the stone. When the patient is thus placed the stone has been observed sometimes to fall by its own

weight into the vagina directly the incision has been made. During the whole time of the catheter being retained in the bladder, the patient preferred, and was allowed to lie upon her back. All soreness was obviated by the use of a water cushion.

Method of fastening the sutures.—In this case it will be noticed that the operation was conducted in the ordinary way, with the exception of the manner in which the sutures were secured. It would not be fair, perhaps, to say that it was in consequence of this modification that the wound healed more rapidly than in any other case I have yet met with; but at all events it may be confidently stated that the method has not a retarding effect upon the healing process. There are, however, two objections to the use of the gilt beads. 1st. Unless great care be taken, much time may be lost in placing them over the ends of the sutures. 2nd. In removing them the last bead is so imbedded in the tissues that it is difficult to reach and take off. This rising of the lips of the wound has always been a source of difficulty in the removal of sutures, more especially if they are simply twisted, as is the practice most usually adopted now. Professor Simpson, in speaking of the removal of this kind of suture, says: “When simple stitches are used without any button or splint in the manner now recommended by Dr. Sims, great care is needed to cut through the wire in the loop; for each suture is usually sunk deep into the tissues, and if the projecting twisted portion be removed, the part that remains will get more imbedded, and its removal will be rendered difficult.”¹

To obviate this difficulty the gilt bead plan was adopted, and as has been seen with perfect success; but to do away with the two objections mentioned, I propose in future instead of the beads, that a fine coil of wire should be used. And finding the difficulty of either writing or speaking of anything without a name, to avoid the repetition of lengthened descriptions I shall call the contrivance a “coil-clamp.”

The coil-clamp may be easily made in the following way.

¹ ‘Medical Times and Gazette,’ Jan. 8th, 1859.

Having obtained a moderately large pin, wind a piece of No. 28 wire round it, each coil touching the other, until you have a piece of the required length; slip it off the pin, and cut off the portion at each end which is not closely coiled. A shot may be perforated with a stout needle or by means of a small instrument I have had made for the purpose, and you have then all that is required.

In using the coil-clamp, the suture should first be adjusted either by the fingers or by a perforated or forked adjuster. The coil should then be passed over the ends of the suture, and run down to the lips of the wound. It may now be retained in its position either by tightening a perforated shot upon the suture, or still more simply, if the wound can easily be got at, by turning the ends of the suture down over the sides of the coil. If the shot is used the suture should be cut off close to it, if however the ends are merely turned back, a portion about the eighth of an inch should be left. The advantages to be derived from the use of the coil-clamp are as follows:

1. The ends of the suture are brought together more evenly than by the method of twisting.

2. Sutures of thicker wire may be used, which are less liable than finer ones to cut their way out.

3. The lips of the wound may be approximated with any degree of tightness. If a suture is drawn too tight, it destroys the vitality of the portion it encloses, and quickly ulcerates out.

4. The ends of the suture are effectually and easily secured.

5. All knots, contortions, and prickly points are avoided, and nothing but a round and unirritating surface is left in contact with the vaginal walls.

6. The coil being made of flexible wire may be bent into any form, and adapted to the surface upon which it has to lie.

7. The removal of the suture is most easily effected. By a simple clip of the scissors across any part of the coil, the ends of the suture are at once set at liberty, and of sufficient

length to enable the operator to bend them back and withdraw them, with the least amount of disturbance to the newly-formed cicatrix.¹

Mortality of vaginal lithotomy.—Out of the thirty-five cases of vaginal lithotomy which I have been able to meet with, death has only followed in one (Mr. Erichsen's), and in this case it cannot be properly said to have been caused by the operation. M. Velpeau remarks that the consequences of vaginal lithotomy are very simple. No artery of any size is wounded, the peritoneum is too far off to run the least risk, and the cellular tissue of the vesico-vaginal septum is too dense to allow of the infiltration of urine. In short, vaginal lithotomy may be now looked upon as an established operation; for even the chance of vesico-vaginal fistula occurring can be no longer urged as an obstacle. There can be little doubt but that for the future when lithotomy has to be performed on the female, the vaginal method will be the one invariably adopted. It will, however, never be an operation widely practised, for no one must undertake it who is not also ready to treat a vesico-vaginal fistula should it occur, and the number of assistants and instruments, and the extreme delicacy of the manipulations, necessary for the proper performance of this operation will doubtless deter many. But although vesical calculi can be safely and successfully removed by vaginal lithotomy, still in some cases where the stone is small and friable, it ought never to supplant the more simple processes of dilatation and crushing. Yet in every case, where, owing to the age of the patient, the size of the stone &c., there exists the least apprehension of incontinence resulting, there can be little doubt as to which of the operations should be selected.

Relations of vaginal lithotomy to midwifery.—If a large calculus is discovered in the bladder of a pregnant woman, what is to be done? Is it to be left alone, with the hope that, when labour comes on, the medical man may arrive in

¹ Operators who use silver wire should be careful to get it pure. The standard silver wire sold by instrument makers is much less flexible than that made of virgin silver.

time to push it, if possible, above the brim before the child's head has entered the pelvis; or is it to be removed? M. Philippe,¹ of Reims, extracted by the vaginal method from a pregnant female, a stone weighing nine ounces. Deschamps² also performed lithotomy upon a pregnant female, and Mr. Henry Thomas,³ of this town, performed the same operation upon a woman four and a half months advanced; all of which cases were successful. The testimony of facts seems, then, to be in favour of the removal of the stone should it be detected during pregnancy, for the woeful consequences of a calculus coming down before the child's head during labour may be learnt from the seven authors mentioned in the early part of this paper. One of the cases, however, there referred to has never been published, and as it is I believe the first British case of the kind on record, I take this opportunity of making it known. The patient, whose maiden name was Uvedale, was the wife of Sir Edward Griffin, knight, of Brabroke, Northamptonshire. The medical attendant was Dr. Percival Willoughby, of Derby, who relates the case as follows:—"I was desired, and sent for by a lady, anno 1640, that, in her travaile, was disquieted with some unusuall and inward paines in the birth-place, and would not endure to put down her throwes.

"The head came first, but the ignorant midwife, not knowing how to assist her, let the child stick at the neck and shoulders after that the head was in the world.

"The ladie's paines were augmented. Shee called mee to help her, but the midwife would have had mee put by, and said that my lady must stay God's time and pleasure. I put the midwife aside, and finding the child's head in the world, I assured her that she was but ignorant in midwifery.

"I slid my finger under the child's armpit, and nudging the child on one side, and drawing withall, the lady was immediately delivered.

¹ Velpeau, 'Médecine Operatoire.'

² 'Traité de l'Oper. de la Taille,' tome iv, p. 9.

³ 'Lancet,' Sep. 29th, 1838.

“ Shee was well for three or foure dayes, then shee began to bee sorely pained, and to have an ill and unsavoury smell in her privy parts, and could not hold her water.

“ Small greeety stones, in the time of her travailing, were fallen downe into the neck of her bladder before the child had entered the bones. These stones were the cause of the augmenting of her sufferings, and the child’s head and body, as it passed, pressed on these stones. The vagina uteri was hurt and bruised, soreness followed in the flesh, and a large piece rotted and separated in the neck of the bladder, and the stones came away wrapped in ye flesh and skins.

“ She recovered in part after long time, with some sufferings, and has had many children after this mishap, but never afterwards could hold her water. I was all the time with her during her cure, and I greatly pitied her good husband.”¹

There is still one other question bearing upon this subject. If a stone be forced down before the fœtal head during labour, what is to be done? I am indebted to my friend, Mr. Henry Jackson, for the details of the following interesting case, in which, notwithstanding this unpromising state of matters, labour was completed without any unpleasant consequences.

CASE.—Mrs. B—, the mother of a large family.—In the last confinement but one, a difficulty occurred in the passing of the child, but as it was delivered nothing more was said of the obstacle. In about eighteen months she again was confined, this time with convulsions, and the medical attendant found a hard body immediately in advance of the fœtal head, considerably obstructing its descent. Labour,

¹ The ‘Country Midwife’s Opusculum,’ or ‘Vade Mecum,’ p. 305. A well written MS. volume of nearly 460 pages, now in my possession, and full of most curious matter. Denman had seen it, and has quoted from it in his ‘Introduction to Midwifery.’ Dr. Willoughby was the son of Sir Percival Willoughby, a B.A. of Oxford, and an Extra Licentiate of the Royal College of Physicians, of London (see Dr. Munk’s work).

however, was effected, and the next day she was seen by another medical practitioner, who diagnosed calculus in the urethra. After several months of suffering, the patient allowed Mr. Overend, of this town, to cut down upon the stone and remove it by the vagina. Pledgets of dry lint were frequently introduced into the vagina, and the wound healed in three weeks without the use of the catheter, which could not be borne. The stone, which is nearly spherical, measures four and a half inches in circumference.

But although in this remarkable case the calculus had only the effect of delaying labour, it would scarcely be safe to calculate on such a happy termination in every case. In six of the seven cases already alluded to, vesico-vaginal fistulæ resulted; and in the other, in which craniotomy was resorted to, "great irritation of the bladder followed, and the woman sank into a feeble state."

These facts seem to point most urgently to the necessity of interference in all cases in which labour is found to be obstructed by calculi. What the character of the interference should be, must depend upon the peculiarities of each case. If the head can be easily raised, the stone may perhaps be pushed up and retained above the brim, and the labour allowed to proceed in the natural way. If the stone be small and in the urethra, it may in some cases, perhaps, be extracted with or without dilatation; but in those cases in which the stone is large, the head well down, and the pains strong, vaginal lithotomy is the only proper resource, and the sooner it is practised the better. This course of treatment will be found recommended in the works of Drs. Denman,¹ David D. Davis,² and Fleetwood Churchill.³

¹ 'Introduction to Midwifery,' 1832, p. 254.

² 'Obstetric Medicine,' 1836, p. 884.

³ 'Theory and Practice of Midwifery,' 1850, p. 228.

