A CASE
OF
VESICAL CALCULUS
OF UNUSUAL SIZE
REMOVED BY THE RECTO-VESICAL OPERATION.

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THE recto-vesical operation, though frequently performed by Continental surgeons for the removal of vesical calculi, appears to have been but little resorted to in this country, the lateral method having proved so successful in the hands of British surgeons as to have led to its almost universal adoption in cases where lithotomy is deemed advisable. But cases of a complicated nature occasionally present themselves which justify departure from the ordinary rule of practice. A remarkable instance of this kind, I believe, recently came under my own notice, in which, for reasons to be hereafter stated, I considered the recto-vesical operation especially applicable.

James H—, æt. 21, was admitted into the Manchester Royal Infirmary, September, 1858, under the care of Dr.

Roberts, labouring under great irritation of the bladder. He was forthwith sounded, and a large stone discovered.

Previous history.—The patient, a weaver by trade, and a native of Royton, when five years of age had a severe attack of smallpox, on his recovery from which symptoms of stone made their appearance. His urinary discharges were subject to sudden and frequent intermissions, showed occasionally appearances of blood, and were followed by a stinging pain. These evidences of calculous disease continued with varying intensity, but did not affect his general health until about two years ago, when his disorder assumed a more serious aspect. He now began to lose both flesh and strength. Micturition became very frequent, the urine constantly more or less mixed with blood, and a white, opaque sediment, which he had long observed in the urine, more abundant, and its odour more offensive.

State on admission.—Emaciated almost to a skeleton, he was unable to leave his bed, and suffered from a constant desire to empty the bladder, micturition taking place almost every quarter of an hour, accompanied with intense pain in the loins and lower part of the belly. The patient is small in stature and stolid in temperament.

The chest and abdomen, on examination, were found to be quite free from disease, and all the symptoms to have reference to the urinary apparatus. The urine was charged to a great extent with pus, which, on standing, formed a thick, white, viscid sediment. It was ammoniacal even within the bladder, and a very considerable quantity of albumen was precipitated by boiling and the addition of nitric acid.

I was invited by Dr. Roberts to see the case, with a view to transferring it to the surgical wards; but operative procedures seemed to be out of the question, until we could relieve the hectic fever and the great debility under which the patient was labouring. It was decided that he should be kept in bed, and have nutritious diet, with eight ounces of wine daily; and that our efforts should be directed to allay the irritation of the mucous coat of the bladder. With

this view the bicarbonate of potash, with opium and large dilution of water, was prescribed. At first the desire to make water was intensified, and micturition rendered more frequent by the increased flow of urine, but in three days the beneficial results of the treatment began to show themselves, and a few days later a considerable improvement was visible. The patient was now able to retain his water for an hour and a half, and, instead of only voiding about a spoonful at a time, could hold half a teacupful in the bladder. The urine, however, still continued albuminous, purulent, and ammoniacal; but, in a month, the patient's strength had so much improved that the question of operation had to be entertained.

Judging from the long period of sixteen years during which the stone had been growing, the grave effects it was producing on the health of the patient, and from the more certain evidence of examination by the sound and the finger introduced into the rectum, I was convinced that the concretion was of large dimensions. The bladder had become so contracted from long inflammation, that only two or three ounces of fluid could be injected into it; the general health was still most precarious; and, to crown the embarrassment, there was still a copious deposit of albumen in the urine. The question that suggested itself was the following: Did this indicate degeneration of the kidneys? If so, any thought of operation must be renounced. To the solution of this difficulty the microscope now afforded valuable assistance, and by this instrument the urine was repeatedly examined to discover whether any fibrinous casts of the uriniferous tubes were present; none, however, were found, nor any reliable indications of renal epithelium. And, on an accurate comparison of the quantity of pus and blood in the urine with the amount of albumen precipitated by nitric acid and heat, we arrived at the conclusion, that the albumen came from no higher source than the bladder itself, and was simply deposited from the liquor puris, and the small quantity of blood always present in the urine.

As the kidneys were considered not to be implicated, an operation was determined upon. For this purpose, the patient was removed to the surgical wards. Wine and nutritious diet were given, and for medicine tincture of hyoscyamus with infusion of buchu. By this means his improved state was maintained; but as no further amelioration could be anticipated as long as the stone remained in the bladder, the calculus was removed by the recto-vesical section on the 17th of December.

Operation.—Chloroform having been administered, the patient was secured as for the lateral operation. As much warm water as possible (about half a teacupful) was injected into the bladder. A scalpel guarded by the finger was then introduced into the rectum, and the sphincter and lower part of the anus completely divided in the direction of the raphe. The staff was now felt for, and the urethra having been opened anteriorly to the prostatic portion, the scalpel was pushed forward along the groove towards the bladder. The finger having been carried into the bladder, and the stone felt, the staff was withdrawn. As was suspected, the calculus proved to be of large dimensions. Accordingly the wound in the prostate was enlarged on its urethral surface with a probe-pointed hernia-knife. By means of the finger the rest of the prostate and neck of the bladder were sufficiently dilated to admit of a pair of forceps. The stone lay sunk in the base of the bladder, stretching its elongated form from the openings of the ureters to the neck of the bladder. On the introduction of the forceps it was found to be impossible to grasp with them so large a stone, as the contracted and indurated state of the bladder prevented the divergence of the blades. A scoop was therefore substituted, but with no better success. The stone could not be dislodged from its original position, having so imbedded itself at the base of the bladder in the mucous membrane, that it felt as if it were encysted. Finding it difficult to lay hold of the calculus in the usual way, I had the screw of a straight-bladed forceps removed, that the blades could be separately introduced, one over and the other below the

stone. The handles being then brought together, and the screw re-inserted, the calculus was grasped and slowly extracted; the operation occupying from ten minutes to a quarter of an hour. Scarcely any hæmorrhage supervened, nor did there appear to be much bruising or stretching of the soft parts. Some fragments were next removed from the rectum, and the bladder well washed out.

The calculus has a rough, uneven surface, irregularly oval, and measures eight inches in circumference in one direction and seven in the other, having a diameter of two and a quarter inches, and being three and a third inches long. It weighs four ounces, six drachms, and twenty-five grains. A section shows that it consists principally of triple and earthy phosphates, in which is imbedded at one extremity a small, round, alternating calculus, about three quarters of an inch in diameter, consisting of lithic acid and oxalate of lime. *See Plate VII.*

At the close of the day of operation the patient was found quiet and comfortable. There were no symptoms of shock; pulse under 100. The bowels had been thoroughly cleaned out before the operation, and opium was now administered to restrain their action and keep the parts quiescent.

December 18th.—Doing well; pulse 90; no signs of undue febrile excitement. Has a long pillow under the knees. All the urine dribbles through the anus. The visible parts of the wound healthy. Ordered, milk diet and four ounces of wine daily.

20th.—Pulse 96; tongue clean and moist; free from pain; appetite good; took a pint of bread and milk for breakfast; felt some desire to go to stool, and was therefore ordered to take food of a highly nutritious character, but in moderate quantities.

22d.—Progressing very satisfactorily; pulse 88. All the urine still passing by the rectum; feels at times as if some would come by the urethra.

27th.—Bowels moved for the first time on the 24th, seven days after the operation, and without the aid of medicine; no incontinence of fæces.

29th.—Bowels moved for the second time this morning; feels an increased desire to pass through the urethra the urine, which still comes away solely per rectum.

31st.—This morning passed about half a cupful of urine by the urethra; bowels moved daily; no incontinence of fæces. All the symptoms favorable.

January 5th, 1859.—Since last report has progressed without a bad symptom; passes water about every two hours by the urethra, and for some time afterwards no urine escapes per rectum. Improves strikingly in appearance, and has lost much of his listless indifference; is gaining flesh.

28th.—The greatest part of the urine now comes by the urethra, and for several days none has passed by the anus, except when the bowels have been moved. An important improvement is perceptible in the character of the urine, which is no longer alkaline and ammoniacal on emission, although on standing it speedily becomes so, as might have been expected from the quantity of pus still remaining. The pus is considerably diminished, and the albumen apparently in the same proportion.

February 18th.—The fistulous communication between the urethra and rectum examined to-day. It is about a quarter of an inch in length, and appears to be situated in the membranous portion. An unsuccessful attempt made to apply the electric cautery, the apparatus not being in working order. The edges were therefore touched with the nitrate of silver.

23d.—The urine contains but little albumen or pus; now gets up daily; strength increasing; wine discontinued, beer substituted. The electric cautery successfully applied to the edges of the fistula, which had slightly diminished in size since last examination.

March 27th.—Still a small quantity of urine passes by the rectum. In other respects appears quite well. The urine now free from pus and albumen. The rectum examined; the fistula barely perceptible; the sound could not be touched through it, but there was felt a small depression

on the rectal mucous surface. To this the electric cautery was applied.

April 5th.—The urine comes almost exclusively by the urethra. Only a few drops pass by the anus during micturition, and of these the patient is quite unconscious, except when feeling with the finger. Is in excellent health, and rapidly gaining weight. Experiences no inconvenience from the operation, and goes about all day assisting the nurses in the wards.

28th.—No signs of the fistula having made their appearance during the last fortnight, he was to-day discharged, *cured*.

Remarks.—From the details of this case, it will be seen that a more unfavorable one for operative interference could scarcely have been conceived. The patient emaciated and debilitated to the very lowest degree; the urine highly purulent, albuminous, and ammoniacal; and the bladder, besides enclosing a calculus of unusual dimensions, in a highly irritable state, and, from disease of its coats, permanently contracted. A careful examination, however, of the urine, led to the belief that none of these symptoms could be traced to the kidneys, for the morphological elements usually accompanying degeneration or disease of these organs were not discoverable. Taking into account the extensive disease of the bladder, of which there was abundant evidence, the apparently large size of the calculus, and the unsatisfactory state of the patient's general health, I was led to consider the rectal operation as the least likely to be attended with fatal results.

Of the several methods of lithotomy, the lateral is undoubtedly the safest where the stone is of moderate dimensions, and as such cases are by far the most numerous, it is seldom necessary to resort to any other operation. The success principally depends on limiting the incision of the prostatic portion of the urethra to its anterior part, which, in the majority of instances, need not be extended, as the greater portion of this structure readily yields to moderate and steadily increased dilatation. Lithotomists have en-

deavoured to determine the precise extent of incision which may be made with comparative safety: thus, Liston recommends that it should not exceed seven or eight lines, others suggest an inch; but, as the prostate varies in size at different ages, I believe it would be a safer rule not to make the incision larger in the first instance than will allow of the introduction of the finger, trusting to dilatation of the remaining portion, which, with slight extension of the incision on the urethral surface of this body, may be readily effected to such an extent as will admit, in the adult, of the extraction of a stone of about an inch and a half in diameter. Beyond this the operation becomes questionable, for a larger calculus cannot, as a general rule, be extracted without extending the wound through the prostate, and occasioning great violence to the neck of the bladder and neighbouring structures. The patient's life thus becomes endangered, either from hæmorrhage consequent on injury to the plexus of vessels which surround the neck of the bladder, and now probably enlarged from disease, or from urinary infiltration into the cellular tissue, or from shock arising from a protracted operation. And, should the patient escape these risks, he may possibly be left with an incurable fistula caused by the sloughing which may arise from the contused and lacerated condition of the soft parts. It has been thought that these dangers might be avoided by breaking up the stone through the wound previously to its extraction; but there is so much difficulty in removing the fragments without injury to the surrounding structures, that it is doubtful if such a proceeding should be resorted to, except in cases where the size of the calculus has not been ascertained before the operation.

It was fortunate that, in the case above mentioned, the indurated and contracted state of the bladder led me to regard it as an unfavorable one for the high operation, for had this mode been attempted, even if the cavity of the bladder had been safely reached, the operation would have been a very tedious and embarrassing one, as the calculus was impacted in the lower part of the pelvis, and possibly

the attempt to extract it might have been a failure, as in a similar case recorded by M. Blandin.

It is unnecessary to dwell on the bilateral operation, a plan now almost entirely exploded, on account of the unfavorable results which have followed its practice, even in the hands of its great advocate, Dupuytren, and other surgeons.¹

There remained, therefore, only the recto-vesical operation. Several objections have been raised against this method, but the most formidable one is the danger of superinducing an incurable and distressing fistulous communication between the bladder and the rectum. This is not so common a sequel to the operation as is generally supposed, for, according to the statistics of seventy-four cases given by Bourguery,² on the authority of Dupuytren, only twelve had fistulas. And in considering this objection, it must be borne in mind that the operation is only *here* recommended where the calculus is of large dimensions, in which case the lateral method (supposing him to escape the dangers of that operation) would expose the patient to equal risk of a fistula from sloughing of the surrounding soft parts.

The other objections—viz., that injury to the vasa deferentia might lead to impotence, that the wound and irritation of the rectum might cause irritative fever, and that recovery is slow—are in some measure counterbalanced by the absence of hæmorrhage, the bladder being reached through the least vascular parts; by the improbability of urinary infiltration, on account of the small amount of cellular tissue involved; by the facility with which a large calculus can be extracted through the wound without tearing or bruising the soft parts; and by the slight degree of shock usually attending this mode of operation. Further,

¹ 'Mémoire sur une manière nouvelle de pratiquer l'opération de la pierre,' Paris, 1836.

² 'Traité complet de l'anatomie de l'homme,' vol. vii, p. 281, Paris, 1844.

some of these objections may be obviated in the operation. The proposal of M. Sanson to make the incision into the body of the bladder beyond its neck, has the advantage of preventing injury to the vasa deferentia, but increases the liability to fistula, and that of the worst form, because the communication between the rectum and bladder is direct. This is to a certain extent obviated by making the incision through the neck and prostate, as suggested by Vacca Berlinghieri, the valve-like protrusion of the wall of the intestine cut into below preventing the fæces from passing through the wound, in which case, if a fistula should remain, it will probably only be urinary. But even this may be frequently prevented by not extending the incision through the neck of the bladder, which, I believe, is seldom required, the obstacle to the extraction of large calculi by the lateral method existing more in the surrounding structures than in the prostate, which readily yields to steady and cautious dilatation when in a normal condition.¹ In the case now related, there was abundant proof of this; indeed, a calculus of much larger dimensions than the one described, could have been extracted without difficulty by the same incision.

Amongst the other interesting features in the above case, I would call attention to the slight constitutional disturbance which followed the operation, a circumstance which has been dwelt upon by the advocates of the recto-vesical method, and which it is important to remember, as we sometimes meet with examples in elderly persons suffering from calculus, where, though the stone is not large, so many complications exist, as to render it doubtful whether the lateral operation might not prove fatal, whilst this method could be resorted to with less risk, as a means, if not of a curative, at least of a palliative, character.

¹ Although I have described the operation under the term recto-vesical, it is seen from the description of the case that it would be more appropriately called *recto-urethral*.