A CLINICAL LECTURE ON SUPRAPUBIC CYSTOTOMY.

Delivered at the Manchester Royal Infirmary.

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THERE were recently at the same time in my wards six patients suffering from disease of the bladder upon whom suprapubic cystotomy had been performed, and I propose to make some remarks on this method of treatment, as the cases illustrate very aptly the chief conditions in which the operation of opening the bladder from above the pubes is indicated.

A question which is often asked is this, What are the reasons which lead you to open the bladder from above the pubes, and, in cases of stone especially, why do you now so often select the suprapubic in preference to the perineal or lateral operation?

Of the six patients, four were suffering from stone, one from tumour of the bladder, and one from chronic cystitis accompanied by hæmaturia, three of the four conditions which most commonly call for the performance of the suprapubic operation. The other condition—prostatic retention of urine—I brought under your notice in a former lecture, and illustrated by several cases in which the bladder had been opened from above the pubes, and the retention relieved, either by simple drainage, or by removal of a portion of the prostate gland (prostatectomy), so that I shall not further refer to it this morning.

STONE.

The first case was a man, aged 70, sent by Dr. Jennings, of Haslingden, who had detected the presence of a calculus on sounding the bladder. He was also suffering from evidences of marked hypertrophy of the prostate, considerable obstruction being encountered at the neck of the bladder on attempts to introduce any instrument, the calculi (of which more than one could be felt) lying in a depression behind the enlarged gland. Though the patient's age and general condition were not at all favourable for any operative interference, as he suffered from a feeble action of the heart which was much dilated, and as he was also extremely lethargic, with a tendency to drowsiness, suggesting the presence of some renal complication, it was decided to remove the calculi, and the suprapubic method was selected for the following reasons.

The extreme enlargement of the prostate would probably have been an obstacle to the successful performance of lithotripsy, the calculi lying in a deep post-prostatic pouch, in which it would not have been an easy matter to have seized and crushed them. For the same reason, it would have been difficult to have made sure of removing all the fragments of the calculi after they had been crushed by washing out the bladder.

The frequent introduction of the lithotrite, and especially of the evacuating tube, would have irritated and probably caused considerable injury to the prostate.

From the character of the clear ring obtained on sounding the bladder, and from the acid reaction of the urine, the calculi were evidently of a hard nature, either uric acid or oxalate of lime. Lithotripsy would therefore have necessitated a prolonged operation, and in all probability would have been followed by considerable shock, which in the patient's feeble condition—and especially if, as was suspected, there was renal disease—would very likely have been followed by a serious, if not by a fatal result.

The large size of the prostate was also somewhat opposed to lateral lithotomy, for as simply sounding the bladder had been followed by free prostatic hæmorrhage, a considerable division of the gland, such as the perineal operation would have involved, might have been accompanied by bleeding, which in the patient's weak condition would have been very prejudicial.

Suprapubic lithotomy was free from all these objections, for an opening above the pubes affords direct access to a post-prostatic pouch without any injury to the prostate itself, the incision being made through unimportant structures, and the operation being as a rule attended by little loss of blood. Moreover, there is no chance of fragments of calculi being left behind, and the operation, if rapidly performed, is accompanied by much less shock than a procedure like lithotripsy, which, when complicated by an enlarged prostate, always takes a considerable time.

The bladder was accordingly opened from above the pubes, and eight uric acid calculi, three of which each measured an inch in diameter, were removed from a deep pouch behind the prostate, which was greatly enlarged, the intravesical projection forming a mass the size of an orange. The operation was well borne by the patient, who was sitting up in the ward on the fourth day. Though his convalescence was retarded by an attack of bronchitis, to which he was liable, and though he suffered occasionally from somewhat severe attacks of cardiac dyspnoea, he quite recovered from the effects of the operation, and after the sixth week walked out each afternoon in the grounds of the hospital, enjoying a pipe. On the fifty-first day after the performance of the operation, the suprapubic wound having quite closed, and arrangements having been made for him to return to his home in the country in the course of a day or two, he was all at once seized with urgent dyspnoea, and death took place very suddenly from simple failure of the heart's action.

In the second case the conditions were very similar, the patient being a male, aged 60 years, also suffering from considerable enlargement of the prostate gland, from whose bladder two years and a-half previously I had removed several uric acid calculi by lithotripsy. Sounding the bladder was somewhat difficult on account of the obstruction caused by the prostate, which had enlarged very considerably since the previous operation, but in a depression behind it two calculi were felt, which from the ringing character of the click obtained on sounding, and from the acid reaction of the urine, were evidently of a hard nature.

For reasons identical with those in the preceding case, and also because the mere examination of the bladder had been followed by a sharp attack of prostatic bleeding, as well as by a rigor and a rise of temperature to 103°, it was decided to perform suprapubic lithotomy. The bladder was accordingly opened from above the pubes, and two uric acid calculi, each an inch in diameter, were removed from a deep pouch behind a huge intravesical enlargement of the prostate. The patient made an uninterrupted recovery from the operation, which was not followed by any elevation of temperature, and left the hospital at the end of the seventh week.

The third case was that of a boy, aged 11 years, who was admitted with the usual symptoms of stone, the urine being slightly alkaline and containing a little pus. From the clear ring obtained on sounding the calculus was judged to be of a hard nature, and, on measuring with a lithotrite, it was found to be just over 1 inch in diameter. In this instance I was rather inclined to perform lithotripsy, this method of treating calculi having been recently adopted in children with great success. As, however, the boy was of a nervous, excitable temperament, and as he did not bear at all well the mere introduction of a soft catheter in order to wash out the bladder with the object of correcting the cystitis previous to a crushing operation, it was decided to perform suprapubic lithotomy. The bladder was accordingly opened from above the pubes, and a uric acid calculus, $1\frac{1}{4} \times \frac{1}{4}$ inch was extracted without any difficulty. He made a rapid recovery from the operation, being up on the tenth day, and the opening in the bladder being closed on the twelfth day, for after that date all the urine was passed by the natural route.

In the fourth case, the patient was a man, aged 58 years, suffering from stone and also from enlargement of the prostate gland. In this instance an attempt was first made to perform lithotripsy, this operation being selected in preference to suprapubic lithotomy for the following reasons: The patient was a publican, and of somewhat intemperate habits; he was extremely stout, weighing 18 stone, and a few years previously had been under treatment for some time at the hospital suffering from jaundice. His habits

and his extreme stoutness, therefore, rendered him a very unfavourable subject for any cutting operation. On exploring the bladder under chloroform, it was found that the prostate was enlarged, though apparently not to a sufficient extent to interfere with the performance of lithotripsy. Several calculi were felt, the largest as measured with a lithotrite being 1 inch in diameter. From the character of the sound produced on striking the stones, and from the fact that the urine was strongly alkaline and purulent, it was judged that the calculi were mainly phosphatic, and therefore well adapted for crushing. The exploration of the bladder was not followed by any rigor or rise of temperature, as in the second case, so it was probable that the kidneys were in a fairly healthy condition. The state of the urine having been improved by washing out the bladder daily for a fortnight, lithotripsy was attempted; but the introduction of the instruments was attended by so much difficulty that it was thought better to proceed at once to perform suprapubic lithotomy. The bladder was therefore opened forthwith from above the pubes, and fifteen phosphatic calculi were extracted, the only difficulty encountered being the great depth at which the viscus lay from the surface owing to the presence of a subcutaneous layer of fat at least 3 inches in thickness. Though the wound was somewhat slow in healing owing to the extreme stoutness of the patient, he left the hospital at the end of eight weeks, the urine being passed by the natural route.

While the preceding cases were under treatment, a fifth patient, a male, aged 20 years, was admitted, also suffering from calculus vesicæ. In this instance lithotripsy was performed, as the urine was quite healthy and the stone was of small size, measuring only half an inch in diameter. It was easily crushed, and the patient left the hospital at the end of a week.

TUMOUR OF BLADDER.

The fifth case was that of a woman, aged 45, who had suffered from intermittent hæmaturia, at times very profuse, for about two years. Her medical attendant, Dr. De Jong, suspecting the presence of a vesical tumour, asked me to explore the bladder with him, and upon making a digital examination *per urethram*, under chloroform, a large growth was felt springing from the left and posterior walls, to which it was attached by a broad base. The patient was admitted into the infirmary, and the growth, which was of soft consistence, not infiltrating the bladder wall, was readily removed through a suprapubic opening. A microscopical examination showed it to be of the nature of a papilloma. She made a rapid recovery from the operation, the wound being closed at the end of a month, and she left the hospital a fortnight later, there having been no recurrence of the hæmaturia.

Of 26 cases in which I have now performed suprapubic cystotomy, this is the only instance in which the patient has been of the female sex, all the calculi and tumours of the bladder occurring in females, which have previously been under my care, having been capable of removal through the dilated urethra. In this instance the suprapubic operation was selected on account of the large size of the tumour and its broad base of attachment, to which it would have been difficult to have gained access *per urethram*.

CYSTITIS.

The sixth case was that of a man, aged 49, sent by Dr. Dixon, of Preston, suffering from chronic cystitis accompanied by hæmaturia, for which no cause could be found. For about six months he had been troubled with pain and increased frequency in micturition, the urine being alkaline in reaction, always containing pus, and very frequently small quantities of blood. There was no history or evidence of tuberculosis, and as a stone could not be detected, and the cystitis after a prolonged trial resisted the ordinary treatment, it was resolved to explore the bladder from above the pubes, this route being selected in preference to the perineal, for in addition to a digital, it allows one also to make a visual examination of the interior of the bladder. The advantage of this method was well illustrated in the present case, for on exploring with the finger through the suprapubic opening, nothing could be detected beyond a slightly roughened condition of the mucous membrane, most marked on the pos-

terior wall. On looking into the viscus, however, through the suprapubic wound, after its interior had been dried with sponges, a small opening was seen on the posterior wall which led into a pouch or diverticulum about an inch in depth. The mucous membrane round the opening was for some distance thickened and puckered, evidently as the result of cicatrization after old ulceration, while in its immediate neighbourhood there were several patches of recent ulceration, from which blood could be seen to ooze. The pouch on exploration with a sound having been found empty, the bleeding points were touched with the actual cautery, introduced through the suprapubic wound. The subsequent treatment consisted in washing out the bladder daily, a tube being retained in the suprapubic opening for a longer period than usual, in the hope that by keeping the viscus in a state of rest, the cicatrization of the ulcers would be promoted. The patient left the hospital at the end of the ninth week, the wound being closed, and he was able to retain his water for two hours at a time, no trace of blood having been seen in the urine since the operation.

As in a lecture last session I described to you the method of performing suprapubic cystotomy, I need not do so again this morning, but I will merely remind you that the success of the operation depends in a large measure upon the after-treatment, namely, keeping the wound and the urine in an aseptic condition. This can be effected by dusting the wound with boric acid, and by frequently washing out the bladder either with boric or perchloride of mercury lotion. A method of irrigating the bladder, which has been found to answer very satisfactorily in my last ten cases, is to introduce the nozzle of a Higginson's syringe into the urethra, and then to wash out the bladder *per urethram*. By this method of "urethral irrigation," which is practised daily until the wound has healed, a current of lotion is passed right through the bladder, entering at its base and leaving at the suprapubic opening, so that it is washed out very effectually.

THE MORPHOLOGY, ORIGIN, AND EVOLUTION OF FUNCTION OF THE PITUITARY BODY, AND ITS RELATION TO THE CENTRAL NERVOUS SYSTEM.¹

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THE pituitary body occupies the position the pineal body once did. The latter was even supposed to be the seat of the soul (Descartes), the pathway of a gullet (Owen, de Blainville), etc., till De Graaf and Spencer in 1886 showed its true significance.

My researches were commenced March, 1891. The material used was a large number of specimens, living and preserved, of larval and young amphioxus, larval and adult ascidians (oikopleura, salpa, pyrosoma), young and adult balanoglossus, ammocetes and adult petromyzon, various fishes, and larval and adult amphibians. I have made further studies more recently on fetal and young kittens, and the pituitary organs of the rabbit, rat, monkey, and man to elucidate points which arose from the work with the lower forms (see Zoological Tree, p. 55).

Authors who had hitherto studied the pituitary body began from myxine upwards, for example, Müller, *Virch. Arch.*, 1871, and others in his footsteps. Many clues were thus lost which only the investigation of the earliest, and especially acraniate vertebrates, could afford. Real light is thrown only by the investigation of ammocetes (larval petromyzon) and lower forms, for these evidence a twofold function of the pituitary, and explain its twofold structure, for even in the highest mammals and man it has a twofold structure, and represents a double organ.

¹ Abstract of a paper read in the Section of Pathology at the Annual Meeting of the British Medical Association held at Newcastle, August 4th, 1893.