A RECENT SERIES OF ONE HUNDRED CASES OF OPERATION FOR STONE IN THE BLADDER WITHOUT A DEATH.

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My work on litholapaxy,¹ published about the middle of last year, though having special reference to 128 cases of that operation performed by me prior to 1886, brought down the record of my operations for stone, 321 in number, by all methods, to the end of 1885. Since that time—that is to say, between January 1st, 1886, and August 5th, 1887—it has fallen to my lot to have operated on 100 cases of stone in the bladder without a death. In the present paper I propose giving some particulars of these cases, and indicating the methods by which such a satisfactory result has been attained. I will, however, to commence with, disarm literary criticism by stating that I do not aim at a complete or finished paper on the subject. My object is rather to present to the reader a series of somewhat disjointed jottings, involving practical observations and deductions from my practice in the subject dealt with during the period over which these cases extend. The paper may, in fact, be regarded as supplementary to previous papers of mine on litholapaxy, published from time to time.

Amongst the hundred operations for stone in the bladder under review, there were:

Litholapaxies in adult males ...	61
Litholapaxies in male children...	16
Lithotomies in male children ...	22
Suprapubic cystotomy in a male ...	1

Total ... 100

I may as well add that these were the only cases of stone in the bladder which came under my observation during the period referred to, with the exception of one lad, the subject of a large calculus, who was much exhausted from the disease as well as from sympathetic diarrhoea. For the treatment of the latter complaint he was kept in hospital, my intention being to eventually perform suprapubic cystotomy, as the stone was very large. He left hospital, however, before he was sufficiently recovered to permit of my operating, promising to return again. I mention these facts merely to show that there was no selection of my cases. In addition to these 100 cases of stone in the bladder, there were 4 of urethral calculus requiring urethrotomy, all of which did well.

In accordance with the custom I have hitherto adopted, I have thought it advisable to show in tabular form some of the chief characteristics of the 77 cases which were the subjects of litholapaxy, and a second table is added, showing particulars of 23 cases of lithotomy.

From the former table it will be seen, as already indicated, that litholapaxy was undertaken in 16 instances in males below puberty, their ages varying from 3½ to 15 years. I have now to acknowledge a very considerable modification in the position hitherto assumed by me in my writings regarding litholapaxy in male children. I have heretofore advocated lithotomy in such patients in preference to litholapaxy. I based my opposition to the latter operation in male children, partly on what would now seem to have been, to a large extent, a theoretical objection, namely, the undeveloped condition of the genito-urinary organs, but mainly on the ground that lithotomy has always been recognised as a comparatively successful operation in children, the enormous mortality that took place after the operation being due to its fatal results in adults, and that litholapaxy would never prove so successful an operation. I was much impressed, however, by the results announced by Dr. Keegan in his two able and interesting papers, published in the *Indian Medical Gazette* in June and September, 1885, in consequence of which I at once decided on giving the operation a trial in male children. I accordingly ordered the necessary instruments from England, which did not arrive till June, 1886. Owing to my being at the time in medical charge of the sanatorium of Mussoorie, in the Himalayan Hills, I had very little opportunity of putting the operation to the test, but since December last I have had ample opportunities of testing it. Since the receipt of the necessary instruments I have had 37 male children, or lads

under 16 years, under my care suffering from stone, and in 16 of these I performed litholapaxy with complete success. I have attempted litholapaxy in one and all of these 37, that is to say, I have started with the intention of performing this operation if found feasible, and it was not till I had failed to pass a lithotrite, or satisfied myself by measurement of the urethra, after slitting the meatus in most instances, that my smallest lithotrite would not pass, that I abandoned the idea of proceeding with the operation, and performed lithotomy instead. The proportion of cases in which litholapaxy was not feasible is large, but this, I presume, was due to the fact that, with the exception of two lads, aged respectively 14 and 15 years, in whom the calculi were large, a majority of the children were very young. At any rate, the figures represent the result of an anxious effort to perform litholapaxy in every possible case with the instruments at hand (lithotrites No. 7 and 8 at the angle, less in the stem), and I have no doubt that when the smaller lithotrites (which I have since ordered) arrive, I shall be able to perform the operation in a larger proportion of cases.

Table showing particulars of 23 Lithotomy Operations.

Serial Number.	Date of Operation.	Age.	Sex.	Caste.	Number of days in Hospital.	Weight of Calculus.	Variety of Calculus.	Duration of Disease.	Result.
1	June 6, 1886	3½	M	M	12	oz. 2 drs. grs. 15	Uric	1½ years	Successful
2	September 16	5	"	H	19	—	"	1 year	"
3	December 6	6	"	M	16	3 40	"	3 years	"
4	" 12	5	"	H	47	1 8	Oxalate	1 year	"
5	" 16	4	"	M	20	— 10	Phosphate	4 months	"
6	" 22	5	"	H	16	1 30	Uric	1 year	"
7	" 26	4	"	"	16	3 30	"	2 years	"
8	Jan. 9, 1887	14	"	"	39	6 30	"	2 "	"
9	" 25	15	"	M	40	1 4	"	6 "	"
10	February 24	5	"	H	26	1 20	Phosphate	1 year	"
11	March 7	5	"	"	11	1 35	Uric	1 "	"
12	April 20	4	"	M	14	— 5	"	2 years	"
13	" 23	4	"	"	9	1 30	"	1½ "	"
14	May 11	2½	"	H	20	1 —	"	1½ "	"
15	" 12	7	"	"	14	— 50	"	1½ "	"
16	" 22	3½	"	"	14	— 25	"	1 year	"
17	" 27	4	"	M	11	— 35	"	3 "	"
18	June 2	3	"	H	12	— 45	"	3-months	"
19	" 2	2½	"	"	17	1 15	"	6 "	"
20	" 8	2½	"	"	11	1 10	"	1 year	"
21	" 23	1½	"	"	12	— 12	"	3 months	"
22	" 24	16	"	"	44	6 35	Phosphate	2 years	"
23	" 26	2½	"	"	15	— 25	Uric	1 year	"

* Suprapubic cystotomy.

I shall now give in detail some cases of litholapaxy in children.

CASE 13.—This was my first litholapaxy in a male child. A Hindu lad, aged 11 years, suffering from symptoms of stone for two years, was admitted into the Moradabad Civil Hospital on December 9th, 1886, in very bad health, extremely thin and weak. Chloroform administered, when a stone was felt on sounding. The meatus being narrow was slightly incised, when a No. 8 lithotrite passed easily into the bladder. The stone was at once caught and crushed into fine *débris*, which was extracted through a No. 8 cannula by the aspirator. Only one introduction of the instruments was necessary. The *débris* (uric) weighed 6 grains, and the operation only lasted five minutes. Next day the child was running about quite well, passing water without pain. He was kept under observation till the 18th, when he was discharged cured, though he might with impunity have left the day after the operation. I was much struck by the facility with which the operation was performed, as well as by the rapidity of the recovery.

CASE 15.—December 12th, 1886, Dewarka, a Hindu lad, aged 10 years, suffering from stone for four years. Anæsthetised, and meatus cut, when No. 8 lithotrite passed easily. Stone, which was uric, reduced to fine *débris*, and washed out through a No. 12 cannula, which passed easily; weight of *débris* 30 grains; operation lasted three minutes only. Patient was quite well next day, and discharged on the 15th.

CASE 20.—A lad, aged 14, suffering from stone for one year, admitted December 21st, 1886. Lithotrite No. 8 passed easily after slitting the meatus slightly, and stone grasped at once by the long axis. Calculus very hard, so that I was afraid of breaking the lithotrite; I therefore let go the stone, and grasped it again by its short axis, when it gave way, and was gradually pulverised. Cannula No. 10

¹ The Modern Treatment of Stone in the Bladder by Litholapaxy. London: Messrs. J. and A. Churchill. 1886.

passed easily. Three introductions of the instruments were necessary before the whole of the *débris*, which weighed 92 grains, was disposed of. Time, fifteen minutes. Discharged cured on December 25th.

CASE 30.—Mangli, aged 10 years, suffering from symptoms of stone for five years, admitted January 23rd, 1887. Anæsthetised, and meatus slit, when No. 8 lithotrite passed. Instruments thrice introduced. Cannula No. 10 used. *Débris* of stone, which was uric, weighed 3 drachms and 10 grains. Time, 37 minutes. Discharged cured January 27th.

CASE 46.—April 11th, 1887. Pertab, aged 7 years, suffering from stone one year. Anæsthetised, and meatus slit. Though No. 9 sound passed easily, some force was necessary to introduce No. 7 lithotrite, penis being dragged over it. First two inches of urethra narrow; beyond this instrument passed easily. Cannula No. 8 used. The stone was uric, and weighed 30 grains. Time, twenty minutes. Next day the urine passed with some difficulty, and there was much swelling of the prepuce and glans, the former being very cedematous; considerable fever present. Lead lotion applied to penis on lint. On the 13th the symptoms were worse, the urine passing in drops; but next day they began to subside, and had completely vanished by the 26th, when the boy was discharged, cured.

CASE 50.—Sumer Singh, aged 6½ years, admitted with symptoms of stone on May 4th. Chloroform given, and meatus, which was very narrow, admitting a No. 3 sound only, cut. A No. 8 lithotrite was then passed with ease, and a small uric acid stone, the *débris* of which weighed 10 grains, crushed and evacuated through a cannula, No. 10. The time occupied was seven minutes. The operation was performed with the greatest ease. Next day the child was passing water without pain, and running about. Discharged, cured, May 7th.

CASE 58.—Gheesa, a boy, aged 3½ years, admitted May 25th, with stone, which had existed three months. Anæsthetised, and meatus incised, when a No. 12 sound passed with ease. Then No. 7 lithotrite was introduced, the stone, weight 14 grains, crushed, and the *débris* removed through a No. 8 cannula, the operation lasting five minutes only. There was not the least difficulty in performing litholapaxy in this little child, who was quite well next day, though kept under observation till June 1st.

I have thought it advisable to record the above few cases somewhat in detail to illustrate the manner in which litholapaxy is performed in male children, as the operation is, as it were, still *sub judice* in these little patients. The following are the chief points that have struck me in connection with the practice of the operation in male children:

(1) That the capacity of the urethra in patients of the same age varies much more in children than in adults. For instance, Case 58 above recorded presented a marked contrast with that of a boy (lithotomy No. 16) of the same age, 3½ years, admitted three days before, in which the longest sound that would pass, after cutting the meatus, was No. 4; and I have frequently verified the same thing in other cases. This is a point to which Dr. Keegan has already called attention.

(2) That when the urethra in children is capacious, litholapaxy may be performed with facility and safety. But the operation is, necessarily, a much more delicate one than in the adult. I do not think a surgeon would be at all justified in attempting the operation in a child till he had had some experience of it in the adult.

(3) In children the operation is, for the same size of stone, a much more tedious one than in the adult, owing to the small size of the instrument used, and the consequent necessity to grind the calculus into very fine *débris* before it will pass through the cannula.

(4) There is more danger of a fragment of stone being left behind than in the adult. The stream passing through the small cannulae used has not the same force as in the large cannulae employed in the adult. The fragments are not, therefore, carried with the same certainty towards the eye of the cannula from the various parts of the bladder, and do not give out the diagnostic clicking sound so clearly. It is, therefore, necessary to institute a very careful search by pumping in water and exhausting it, with the eye of the cannula turned in various directions, before the instruments are finally withdrawn. In the hands of a careful and experienced surgeon there is little chance of a fragment being left behind.

(5) I find that in children, after the meatus has been cut, the first two inches of the urethra is, as a rule, the narrowest and most difficult part through which to pass the lithotrite; whereas in adults the difficulty, when one occurs, lies generally at the triangular ligament.

(6) When the instruments are a tight fit for the urethra at first, and there is occasion to introduce them more than once during the operation, there may be some difficulty in their re-introduction, owing

to the congestion which takes place in the urethral mucous membrane near the meatus. I have noticed this to a much slighter extent in young adults, never in old patients.

(7) I have frequently experienced a difficulty—in fact, an impossibility—in introducing a No. 7 or 8 lithotrite in a child, when a No. 9 or 10 polished steel sound or cannula passed with ease. This is due to the curvature of the instrument, the curve of the lithotrite approaching more towards a right angle than that of the others. I have also imagined that the penis in the child is more bound down to the pubic arch than in the adult, so that it is not so free to accommodate itself to the curve of the lithotrite in being drawn over it during the introduction of the latter.

(8) The meatus in children is extremely small, and almost invariably requires to be slightly slit before passing the instruments. The incision should be on the floor.

(9) The unfavourable symptoms that supervened in Case 46, above recorded in detail, were due to the force used in passing the lithotrite; and similar symptoms occurred in Case 68. These symptoms were such as to cause me a good deal of anxiety, and entailed the patients remaining in hospital fifteen and twelve days respectively. Though they both turned out well in the end, they have taught me a lesson that I shall not soon forget, namely, never to use force in the introduction of a lithotrite. In my desire to push the new operation amongst children as far as possible, I was rashly led into using some force to pass the lithotrite, when I should have abandoned the idea of performing litholapaxy in favour of lithotomy.

Such, then, are my experiences and impressions of litholapaxy in male children. As is known, I have hitherto advocated lithotomy in preference to litholapaxy in such cases; but one must advance with the times, and no amount of foregone theoretical conclusions can withstand or prevail against the practical reality of accomplished facts. I have had no cause, certainly, in my own practice, to abandon lithotomy in children for litholapaxy, having now performed 165 lithotomies in children or lads below 16 years without a death. But, notwithstanding this success, having now tried litholapaxy in 16 male children, I have no hesitation in pronouncing it a safe and justifiable operation in children in suitable cases; and it possesses the two great advantages, as pointed out by Dr. Keegan, of rapidity of cure and avoidance of a cutting operation, both of which considerations, and particularly the latter, will go far towards popularising the operation amongst the natives of this country.

Having thus disposed of litholapaxy in the child, I will now deal with some interesting features in some of the adult cases comprised in the list. Amongst the 100 cases of stone which are the text of this paper there were 62 adults; and it is a significant fact, as illustrating the universality with which this operation may be applied in the adult, that, with the exception of one case, in which suprapubic cystotomy was performed, they were one and all treated by litholapaxy successfully. The average age of the adult patients was 44 years, nearly; and the average weight of the calculi 197 grains. Mr. Cadge, in his article on Lithotripsy in Heath's *Dictionary of Surgery*, in a very flattering notice of my work, points out the very large average weight of stone removed in my first 108 cases of litholapaxy in the adult—namely, 317 grains. The reduction in the average weight of stone in the cases now under consideration I attribute to the fact that the patients presented themselves at an earlier period of the disease, as also to the diagnosis of several small calculi of a few grains each by the aspirator and cannula, which before this method of diagnosis was introduced would have passed undetected; these latter tend to lower the average weight a good deal. There is no fact which proves so conclusively as the fact that patients come for operation at an early stage of the disease the increasing popularity of litholapaxy amongst the natives of India. In fact, so little dread have the natives of this part of the country now of the operation that it is a matter of almost daily experience to find patients presenting themselves in hospital announcing that they are suffering from stone, when in reality they are suffering from some other disease of the genito-urinary organs; whereas in the olden days of the cutting operation a patient rarely in the first instance suggested that he had stone.

The calculus in all instances was removed at one sitting, to which fact I attribute largely the success that resulted. I am now in the habit of crushing much more of the stone at each introduction of the lithotrite than in my earlier cases, so that in calculi of moderate size the whole is pulverised, as a rule, before the instrument is withdrawn.

Amongst these 61 cases of litholapaxy there were 3 complicated with stricture of the urethra, and several with enlargement of the prostate. There were also 3 cases of large stone, that is, of two ounces and upwards. As in my work on *Litholapaxy*, I have devoted special chapters

to the management of these complications, and given illustrated cases in detail, I do not deem it necessary to refer further to these complications here.

The new method of diagnosis of small calculi, first brought to the notice of the profession by me—I mean that by aid of the aspirator and cannula—was the means of bringing to light four minute calculi after the sound had failed to detect them. I am tempted to give details of one of these.

CASE 64.—A Hindu, aged 45, admitted June 3rd, 1887, with symptoms of stone, which had existed one month. A careful search was made by sounds of various kinds, but no stone could be detected. I then introduced a No. 16 cannula, and applied the aspirator, when, on pumping in water and exhausting it again, the click of a small calculus was at once heard against the eye of the cannula. The case was reserved for operation next day, to permit of my friend, Surgeon-Major R. Drury, Army Medical Staff, being present. Next day, again, Dr. Drury and myself tried to detect the stone by the sound, but to no effect. The aspirator and cannula, however, brought its presence to light at once. The lithotrite was introduced, the stone crushed, and the debris removed, the whole proceeding lasting less than two minutes. The debris weighed 12 grains. Dr. Drury expressed himself as much pleased at this method of detecting small calculi. Next day the patient was discharged cured, and presented himself for inspection to Dr. Drury.

The hereditary tendency to stone was well exemplified in Cases 22 and 56, which occurred in private practice. In the former, that of a native gentleman, aged 45, who had come a long distance for the operation, I removed a uric stone, weighing 96 grains, on December 24th, 1886. On May 17th following I removed a uric calculus, weighing 50 grains, from his father, aged 82. The latter, though suffering from enlarged prostate, was walking about quite well next day.

The average time spent in hospital, or under treatment in case of private practice, by the litholapaxy cases was a little less than five days. Illustrative of the rapidity of cure in some cases, I will give details of the following:

CASE 37.—A Hindu, aged 38, admitted March 2nd, with symptoms of stone which had existed six months. Next day, in presence of Surgeon-General W. Walker, I performed litholapaxy, removing a phosphatic stone, weighing 155 grains, in eleven minutes. There was not a trace of blood throughout the operation. The patient was perfectly well next day, and walked to present himself for inspection at Dr. Walker's house, a mile away.

In Case 61 a complication arose during the operation which I had not hitherto experienced—that of persistent priapism—so I may as well record details.

Fig. 1.

CASE 61.—A man aged 24, suffering from stone for five years, greatly emaciated. On passing a sound, a large calculus was detected. Litholapaxy was performed on May 27th. The lithotrite had to be five times introduced before the fragments were finally disposed of. Weight of debris, 2 ounces and 1 drachm; time occupied, forty-five minutes. This case was very troublesome, as persistent priapism continued the whole time the patient was under chloroform; so that the instruments were with difficulty introduced. There was much bleeding from the urethra, which made me anxious. Still not a bad symptom supervened, and the man was perfectly well in four days.

I will conclude my remarks on litholapaxy with a few words on the best form of lithotrite. In my work, *The Modern Treatment of Stone by Litholapaxy*, page 13, I have pointed out the great beauty and utility in practice of the handle and locking action of Bigelow's lithotrite, but have had to remark on the defective construction of the blades, in the fact that they are not fenestrated, and in this respect decidedly inferior to the latest patterns by Thompson and Weiss. I

therein advocated a lithotrite combining the best features of both, namely, the handle and locking action of the former with the blades of the latter. Soon after these remarks were made I received from Weiss a lithotrite specially built for me on the above lines, and represented in the annexed woodcuts. The lithotrite received was one of medium size—No. 14 at the angle and 11 at the stem—capable of

Fig. 2.

crushing almost any stone up to two ounces in weight. To show how generally applicable this instrument is, I may mention that, though I have had many lithotrites of all shapes and sizes by me, I have used it, and it alone, in 55 out of the 59 adults on whom I have performed litholapaxy since its receipt. To hospitals that cannot afford, or individuals who do not care to invest in, more than one lithotrite for general use in the adult, I would unhesitatingly recommend this instrument. This is the best and handiest pattern of lithotrite I have ever worked with. In Bigelow's own lithotrite the female blade is not fenestrated—a decided defect. From Fig. 1 it will be seen that the blades of this modified instrument are completely fenestrated, the male blade passing right through the female blade, so that, when closed, their under surfaces are flush with each other, and thus all fear of impaction of fragments avoided. I have now abandoned all but fully fenestrated lithotrites in my practice. I will go so far as to say that any other kind is now unnecessary and unjustifiable, and that part of the odium of the old operation of lithotrity still adheres to the modern one of litholapaxy, in consequence of the impaction of fragments which takes place sometimes owing to the continued use of non-fenestrated blades. I can conceive no circumstances in which the work formerly assigned to these non-fenestrated lithotrites cannot be better done by the fully fenestrated ones of the present day.

As the chief object of this paper is to illustrate the wide extent to which litholapaxy may be practised in patients of all ages, my remarks on lithotomy shall be brief. Suprapubic cystotomy, with the improvements of recent times, as expressed by "Petersen's operation," is now engaging the attention of the profession; and, as it is desirable that all cases should be recorded, I make no apology for giving the details of the following case.

A Hindu male, aged 16 years, admitted to the Moradabad Civil Hospital June 5th, 1887, with symptoms of stone, which had existed three or four years. Micturition extremely painful, and urine mixed with pus and blood. Patient extremely thin and weak; can neither walk nor even stand up; suffering from diarrhoea and fever. On passing the sound I struck, at the neck of the bladder, what I regarded as a large phosphatic stone, but by no manipulation could I pass a sound into the bladder. By the rectum the stone was felt to have a transverse ridge, and was estimated to be about 2½ ounces in weight. As the patient was rickety (a hunchback), with narrow, deformed pelvis, and the stone blocked the urethral passage, I determined on suprapubic lithotomy for his relief. The patient was placed under preliminary treatment. On my return from a short holiday on June 23rd, I found him much improved, and operated next day, my brother surgeon, S. F. Freyer, M.D., Medical Staff (*en route* up country from the Burmah war) being present. The patient had previously been thoroughly washed and the pubes shaved, and the hypogastrium covered by lint saturated with corrosive sublimate solution. Chloroform being given, the urine was drawn off by a soft catheter, and the bladder washed out by a boracic acid solution. The catheter being left *in situ*, Petersen's india rubber bag was introduced

into the rectum with ease, and then dilated by ten or twelve ounces of water. This being done, the bladder was slowly distended by the injection of six ounces of boracic acid solution through the catheter, which was then withdrawn, and a piece of soft elastic tubing tied round the root of the penis. The soft catheter had been left in to avoid difficulty in its introduction when the rectum was distended; and I think this a good plan to follow. The hypogastrium was now bulging, showing the outline of the distended bladder. An incision

Table showing Particulars of 77 Litholapaxy Operations.

Serial Number.	Date of Operation.	Age.	Sex.	Caste.	Number of Days in Hospital.	Number of Sitzings.	Number of Times Lithotrite was Introduced.	Size of Cannula.	Weight of Calculus.			Variety of Calculus.	Time Occupied by Operation.	Duration of Disease.	Result.
									ozs.	drs.	grs.				
1	February 25, 1886	60	M	M	2	1	1	14	—	—	20	Uric	5	2 years	Successful.
2	March 23	35	"	H	3	1	1	16	—	—	32	"	6	3 "	"
3	" 27	36	"	"	4	1	2	16	—	—	35	"	10	2 "	"
4	April 2	26	"	"	4	1	0	16	—	—	5	"	1	2 months	"
5	" 23	40	"	"	3	1	1	16	—	—	30	"	3	3 years	"
6	May 8	70	"	M	3	1	1	18	—	2	30	"	12	2 "	"
7	June 4	20	"	H	3	1	4	18	1	6	—	Uric and oxalate of lime	25	7 "	"
8	August 23	50	"	"	10	1	3	18	2	—	—	Uric	30	20 "	"
9	November 8	43	"	"	7	1	1	14	—	—	12	"	4	1 year	"
10	" 26	20	"	"	7	1	3	16	—	4	30	Phosphate	20	6 months	"
11	" 28	55	"	M	5	1	3	16	—	3	6	"	8	1 year	"
12	December 1	50	"	H	4	1	2	18	—	3	18	"	4	1 "	"
13	" 9	11	"	"	4	1	1	8	—	—	6	Uric	5	2 years	"
14	" 10	27	"	M	5	1	2	16	—	2	48	"	9	4 "	"
15	" 12	10	"	H	2	1	1	12	—	—	30	"	3	4 "	"
16	" 15	60	"	"	6	1	3	18	1	—	46	"	30	3 "	"
17	" 16	65	"	"	7	1	1	18	—	2	6	Phosphate	3	1 year	"
18	" 20	50	"	"	4	1	4	18	—	6	50	Uric and oxalate	25	3 years	"
19	" 20	45	"	"	6	1	1	12	—	—	36	Uric	5	2 "	"
20	" 21	14	"	"	4	1	8	10	—	1	12	"	15	1 year	"
21	" 24	22	"	"	9	1	2	16	—	5	2	"	20	4 years	"
22	" 24	45	"	"	3	1	1	18	—	1	36	"	7	1½ year	"
23	" 27	65	"	"	1	1	0	14	—	—	3	"	1	15 days	"
24	" 29	65	"	"	11	1	2	14	—	7	24	Phosphate	10	1 year	"
25	" 30	50	"	"	6	1	1	18	—	—	45	Uric	8	1 "	"
26	January 3, 1887	40	"	"	3	1	1	14	—	1	6	"	5	6 months	"
27	" 4	65	"	M	5	1	1	16	—	1	30	Phosphate	5	6 "	"
28	" 10	45	"	H	—	1	0	14	—	—	4	Uric	1	15 days	"
29	" 15	70	"	"	6	1	1	18	—	2	—	"	8	1 year	"
30	" 23	10	"	"	4	1	3	10	—	3	10	"	97	5 years	"
31	" 28	26	"	"	4	1	1	16	—	3	6	"	10	2 "	"
32	" 28	19	"	"	3	1	1	16	—	3	2	"	1	1 month	"
33	February 12	16	"	"	6	1	1	14	—	1	45	"	12	1 year	"
34	" 12	18	"	M	12	1	3	16	—	6	30	Phosphate	18	2 years	"
35	" 14	15	"	H	4	1	2	14	—	2	5	"	10	1 year	"
36	" 19	50	"	M	9	1	2	16	—	5	40	Uric	9	1½ "	"
37	March 3	38	"	H	2	1	1	16	—	2	35	Phosphate	11	6 months	"
38	" 12	40	"	"	7	1	3	18	—	4	45	Uric	30	1½ year	"
39	" 18	35	"	"	2	1	3	14	—	4	20	Uric and oxalate	25	1 year	"
40	" 15	19	"	"	6	1	3	18	—	4	40	Phosphate	16	4 years	"
41	" 30	65	"	"	5	1	2	16	—	6	38	Uric and oxalate	20	2½ "	"
42	" 23	20	"	M	5	1	2	16	—	3	23	Oxalate	10	1 year	"
43	" 28	65	"	H	5	1	1	14	—	—	25	Phosphate	5	6 months	"
44	" 31	9	"	"	4	1	1	10	—	2	25	Uric	22	2 years	"
45	April 8	40	"	"	7	1	1	10	—	—	8	"	8	3 months	"
46	" 11	7	"	"	15	1	3	9	—	—	20	"	20	1 year	"
47	" 20	55	"	"	3	1	1	16	—	—	38	Phosphate	8	2 years	"
48	May 2	18	"	"	5	1	2	14	—	2	50	"	12	7 "	"
49	" 2	70	"	M	3	1	1	18	—	1	55	Uric	10	6 months	"
50	" 4	6½	"	H	3	1	1	10	—	—	10	"	7	3 years	"
51	" 7	40	"	"	2	1	0	16	—	—	11	"	2	8 months	"
52	" 9	24	"	"	0	1	0	12	—	—	2	"	1	4 "	"
53	" 11	70	"	M	5	1	2	16	—	—	50	"	8	3 years	"
54	" 13	35	"	"	5	1	2	14	—	1	5	"	9	1 year	"
55	" 15	27	"	"	2	1	0	16	—	—	3	"	2	1 "	"
56	" 17	82	"	H	2	1	2	16	—	—	50	"	5	4 months	"
57	" 21	60	"	"	8	1	2	16	—	4	45	"	12	4 years	"
58	" 25	3½	"	"	5	1	1	8	—	—	14	"	5	3 months	"
59	" 27	7	"	"	3	1	1	10	—	—	14	Phosphate	5	8 "	"
60	" 27	60	"	"	4	1	1	16	—	—	45	Uric	16	6 "	"
61	" 27	24	"	"	4	1	1	14	2	1	—	"	45	5 years	"
62	" 28	40	"	"	3	1	1	16	—	—	26	"	8	6 months	"
63	" 30	10	"	M	3	1	1	10	—	—	22	"	5	1 year	"
64	June 4	45	"	H	1	1	1	16	—	—	12	"	2	1 month	"
65	" 8	40	"	"	3	1	2	18	—	1	37	Oxalate	18	3 years	"
66	" 10	65	"	"	2	1	1	16	—	1	30	Uric	3	2 "	"
67	" 24	35	"	"	4	1	3	16	—	5	10	"	20	2 "	"
68	" 27	5	"	"	12	1	1	16	—	—	27	"	12	1 year	"
69	" 29	30	"	M	5	1	1	16	—	—	8	"	2	6 months	"
70	July 6	55	"	H	2	1	1	16	—	4	15	"	2	0 "	"
71	" 6	30	"	M	10	1	7	14	2	4	—	"	45	2 years	"
72	" 7	65	"	H	9	1	3	16	—	5	40	Phosphate	19	1 year	"
73	" 9	5	"	"	2	1	1	8	—	1	25	Uric and phosphate	15	2 years	"
74	" 17	4	"	"	3	1	1	8	—	—	30	Uric	5	1 year	"
75	" 18	35	"	"	6	1	2	16	—	5	35	"	15	1½ "	"
76	" 31	10	"	"	3	1	2	10	—	2	16	"	10	2 years	"
77	August 5	10	"	"	5	1	3	10	—	4	30	Uric and oxalate	18	3 "	"

three inches long was now made in the median line from the pubic bones upwards, and then by careful dissection the bladder was reached. The peritoneum was not seen throughout, and there was no bleeding of any consequence. The fundus of the bladder was then transfixed by a sharp tenaculum, and an opening one inch long made by its side, in a vertical direction, when the boracic solution welled out. The opening in the bladder was then enlarged by tearing its walls in a

vertical direction by the two forefingers. This process was attended by considerable oozing of blood, which was eventually controlled by pressure of a sponge.

The stone was now felt to be of an irregular shape, consisting of three portions—one finger-like, projecting up behind the symphysis and almost through the wound; a second crossing the base of the bladder transversely; and a third projecting forward into the prostatic

urethra. The upright portion, on being caught between the two forefingers, separated from the main portion, and was extracted. Lithotomy forceps were then introduced through the wound, and the main portion grasped, but crumbled between the blades on attempting to extract it. Further examination by the finger showed that the lower portion was held in position between the distended rectum and the symphysis pubis, so that it could not be extracted. The rectal bag was, therefore, partially emptied, when the main portion was loosened, caught and extracted. The mortar-like *débris* that remained was got rid of by repeated injections of boracic solution from a large syringe through the wound. It is wonderful the tenacity with which *débris* of this kind, embedded in clot, adheres to the walls of the bladder, and great care is necessary to remove every particle of it. Finally, a soft catheter was passed through the urethra, and a stream of lotion injected through it and out through the wound. The catheter was tied in, and a thick piece of drainage-tube placed in the wound. The upper part of the abdominal wound was brought together by a deep suture, and the whole dressed loosely by lint steeped in corrosive sublimate solution. The *débris* weighed about an ounce. The shape of the stone and its peculiar position had deceived me as to its size. The urine flowed by the catheter and wound till the second day after the operation, when the catheter was removed, after which it passed altogether by the wound. The abdominal suture soon gave way, and for a few days the margins of the wound were unhealthy—covered by phosphates and superficial slough. Iodoform dressing was used, and the wound soon presented a healthy appearance. The patient also suffered much from diarrhoea. On July 9th he began to pass urine by the urethra; on the 21st it passed wholly in this way. On August 7th the wound had completely healed, and the patient was discharged in excellent health.

Though I have had Petersen's rectal bags by me for some three years, this is the first occasion on which I have had to use one, preferring to remove by litholapaxy calculi as large as 3 ounces in weight. From the fact that I have had recourse to suprapubic cystotomy only once amongst these 100 cases of stone, it may be gathered that I have little sympathy with that recent movement which would relegate to this operation cases of small stone in the bladder. The recent improvements in the method of performing suprapubic cystotomy have, undoubtedly, rendered it more simple and probably more safe; but I look on the operation as a necessary evil, to be had recourse to only in cases of very large stone, or those presenting unusual difficulties, in which neither litholapaxy nor lateral lithotomy can be employed. Amongst recent literature on the subject of stone, I know of none in which more sound views are enunciated regarding the choice of an operation for stone in the bladder than in Mr. Cadge's Lectures, delivered at the Royal College of Surgeons of England, June, 1886.

HYDROCELE IN THE FEMALE.

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HYDROCELE in the female may occur in one of two situations—hydrocele of the femoral canal, or hydrocele of the canal of Nuck. That of the femoral canal is a process of peritoneum projected from the general peritoneal cavity, and not a hydrocele of a femoral sac, where the communication with the peritoneum is shut off by either intestine or omentum becoming adherent to the mouth of the sac. That of the canal of Nuck is a process of peritoneum which accompanies the round ligament downwards, and extends from the groin to the labium, and which may remain more or less pervious in adult life, and even in some cases has an infinitesimally small opening communicating with the peritoneal cavity. Hydrocele of the femoral canal is more rare than that of the canal of Nuck, and both the cases reported by Mr. Anderson, of Nottingham, and by Dr. Hirst, are of the latter variety, as also are the two cases read before the New York Clinical Society by Dr. Wright, and reported in the *New York Medical Journal*.

Several of these cases have at different times come under my notice in the out-patient room of the Soho Hospital. One case of hydrocele of the femoral canal was reported in the *Lancet* of April 5th, 1879; and two cases—one of hydrocele of the femoral canal and one of hydrocele of the canal of Nuck—were reported in the *Lancet* of March 7th, 1885. The accompanying woodcut, representing the last of these cases, is one which I had taken for the new edition of my work on this subject which I am now preparing.

Since reporting these last two cases I have had some six or eight others, and therefore I have not looked upon them as such great

rarities as I at one time thought them to be. They are probably not so frequently met with at a general hospital as at a special one, and undoubtedly are often overlooked or treated as ruptures.

These cases are most liable to be mistaken for an irreducible hernia, and, when inflamed, for strangulated hernia. The application of a truss has been in such cases a means towards cure; but, if the fluid had been first evacuated by tapping, the pad or truss would have fitted more accurately, and the cure been more rapid and more certain.

The diagnosis of these cases is not easy; the difficulty of examining them by transmitted light is great. An ordinary stethoscope is the best instrument to use for the purpose; but with this care must be taken, as it is very easy to direct the vision against the inner side of the tube, and not directly to its opposite end. An absence of impulse on coughing, and sometimes fluctuation, are other diagnostic signs; but that of transparency by transmitted light is the only trustworthy one. In doubtful cases the diagnosis can easily be settled by the hypodermic needle. The fluid contained in both varieties is pale yellow or straw-coloured serum.

Tapping, when adopted, should be done at the patient's home, so that subsequent rest in the horizontal position may be maintained. The walls of the cyst should be thoroughly manipulated—that is, rubbed one upon the other; and pressure kept up by means of a truss, or by pad and bandage. This will in some cases effect a cure, but in others I have been compelled to resort to injection of iodine, which is usually successful.

I have hastily selected the following cases from amongst my out-patient letters:

1. S.B., aged 34, married. Hydrocele of canal of Nuck, right side; noticed only four months; transparent by transmitted light. The patient stated that it was larger some days than others, and sometimes disappeared entirely. Fluctuating; no impulse on coughing. Right inguinal truss ordered.

2. M.J., aged 41, married. Hydrocele of canal of Nuck. Twelve months ago she strained her left groin in reaching a clothes-line, since which time the lump had been gradually increasing in size. Too small for transparency by transmitted light. Fluctuating. Clear fluid when punctured by hypodermic needle. Left inguinal truss ordered.

3. J.P., aged 35, a single woman. Hydrocele of canal of Nuck, right side; present seven years. Never wore a truss. No impulse on cough, and translucent by transmitted light. Fluctuating. No alteration in size, either on rising in the morning or on going to bed in the evening. Punctured and canary-coloured fluid came away.

September 18th. Tapped, and rather more than half a pint of serum drawn off. A few glands found after evacuation of fluid. Cyst-wall manipulated, and ice-bag kept on for some hours. Inguinal truss subsequently worn. Three days after it commenced to refill, and on October 2nd it was large, but smaller than it originally was. She was subsequently admitted into hospital, and the cyst was retapped and injected with iodine. Ice-bag kept on for forty-eight hours. Left the hospital cured, wearing an inguinal truss.

This patient, I heard, had no reaccumulation of fluid in the cyst, but subsequently died very suddenly from strangulated hernia (!)