

Now I believe that this stitching, although I have done it in my own operations, may be dispensed with altogether where the button is used. That this will save much time is obvious. In my last case the operation had lasted seventeen minutes before this stage had been completed, the whole procedure lasting thirty-six minutes. From what I have seen in the last two cases I have operated on I believe that all that is necessary is to make a small hole in the meso-colon and draw the posterior wall of the stomach through it to a sufficient extent to give room for the insertion of the metal button. When the latter has been placed in position it will prevent the stomach from slipping back through the slit in the meso-colon and there will therefore be no reason for stitching the latter to the stomach. There might be some fear perhaps that the funnel of the stomach-wall thus made might be strangled by the edges of the hole in the meso-colon did we not know that under similar conditions where the stomach is drawn out through small apertures in the most recent operations for gastrostomy no strangulation takes place. In my first posterior gastro-enterostomy, though the stomach-wall was tightly grasped by the hole behind the button, no evil result followed and the button was passed on the fourteenth day, the patient making a perfect recovery. In my last case of the posterior operation done with the same button I stitched the stomach to the meso-colon. But though the patient made an uneventful recovery and the button was passed on the twelfth day I could see that I had lost at least ten minutes in putting in stitches in a very inaccessible part which might have been avoided. Everything which gets rid of the necessity of stitching within the abdomen appears to me to deserve a very careful consideration as a means of saving time and the irritation of manipulation.

In conclusion, I may say that I was struck with the very small amount of general disturbance produced by the posterior operations as contrasted with a much larger number of anterior gastro-enterostomies which I have done. The operation in every way left a very favourable impression on my mind. And if further experience shows that it can be done in a still shorter time and with equally rapid and satisfactory recovery we may hope that many sufferers may be relieved at a much earlier stage of their ailments than has hitherto been the case. The cases are briefly as follows.

CASE 1.—A patient, aged fifty years, was sent to me by Mr. Smith of Tavistock with a history that he had just arrived from Italy. He had been a healthy man until some six or eight months before, when he began to suffer from dyspeptic symptoms accompanied by pain and great dilatation of the stomach. Some seven years before he had had somewhat similar symptoms but had recovered and become very stout, weighing usually about 15 st. The last attack was followed by rapid emaciation, so that when I saw him he only weighed 10 st. 8 lb. He had been treated by careful dieting and washing out of the stomach daily and under this treatment the dilatation of the organ disappeared but with increasing weakness. No tumour could be made out. In the uncertainty as to diagnosis an exploratory operation was done on Aug. 27th, 1898, in which I discovered a hard, thickened pylorus, possibly cicatricial, but presumably carcinomatous. I turned up the colon, made an opening in the transverse meso-colon, and united the stomach through this to the first part of the jejunum about 18 in. from its origin. Murphy's button was used, as above described. The patient bore the operation, which lasted fifty minutes, well. He was troubled for the first two or three days by regurgitation of bile from the mouth. After this he had no trouble and soon began to put on flesh at the rate of 3 lb. every two days. He left the nursing home looking well and very cheerful, having passed the button on the fourteenth day.

CASE 2.—A man, aged forty-eight years, was admitted into University College Hospital in the last week of September, 1898. He was much emaciated and suffered severely from pain and dilatation of the stomach and there was a tumour to be felt in the pyloric region. Here I did the operation of posterior gastro-enterostomy precisely as in the previous case but more rapidly, finishing it completely in thirty-six minutes. The stenosis was undoubtedly cancerous. The patient was none the worse for the operation, was fed from the first, and soon began to put on flesh rapidly. He had no bad symptom of any kind and returned home on Oct. 26th, 1898, without any of his old pain and eating ordinary food. The button was passed on the twelfth day.

A FURTHER CONTRIBUTION TO THE SURGERY OF STONE IN THE BLADDER,

BASED ON A RECENT SERIES OF CASES IN HOSPITAL AND PRIVATE PRACTICE.

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FROM time to time I have passed under notice¹ and compared with my own experience various processes which have in recent years been employed in the treatment of stone in the bladder and have endeavoured to illustrate their applicability to individual cases in practice. The record of additional cases which forms part of this paper will enable me to offer some further remarks on various points still open to consideration. The cases here referred to have all been operated upon by me either in hospital or private practice during the interval of 1890-97 and include every instance thus dealt with during this period. It will be convenient to divide my subject-matter into three parts: (1) a tabulated record of all my operations during the period referred to, with special reference to litholapaxy as the procedure now generally adopted; (2) observations relative to the prevention and treatment of recurring stone; and (3) some remarks on certain operations for stone in the bladder which may be regarded as supplementary to litholapaxy.

I.—A TABULATED RECORD OF OPERATIONS DURING THE PERIOD 1890-97, WITH SPECIAL REFERENCE TO LITHOLAPAXY AS THE PROCEDURE NOW GENERALLY ADOPTED.

To proceed with my first division it will be seen on reference to the table of cases that it comprises 101 litholapaxies, 3 perineal lithotrities by my method, 2 suprapubic lithotomies, and 4 median lithotomies, making a total of 110 persons operated upon.

Litholapaxy.—Since 1878, when I was in Boston and spent some time with Bigelow watching his earlier operations by this process, which he was then developing, I have continued to practise it, using with but slight modifications the appliances which I showed for the first time in England at the annual meeting of the British Medical Association in 1878² on my return from the United States. No more striking testimony to the completeness of Bigelow's work could be found than the fact that the instruments of his day, after a lapse of over twenty years, have undergone no important change. It is rare to find an invention so perfect in its initiation as this in all its details. On reference to the table of cases it will be seen that 6 of the 101 litholapaxies terminated fatally. 1. A man, aged sixty-five years (No. 6), who was operated upon successfully on the first occasion, died on the third day after the repeated operation which was performed thirteen months subsequently. The kidneys were extensively involved in suppurative nephritis. The stone was a phosphatic one weighing close upon 2 oz. The repetition of the operation had clearly been delayed too long. 2. A man, aged sixty years (No. 13), died on the twenty-eighth day after operation from chronic suppurative nephritis and syncope. 3. A man, aged seventy-two years (No. 32), died on the sixth day after operation from pelvic cellulitis probably due to suppuration within a vesical sac or pouch. 4. A man, aged fifty-four years (No. 70), who was operated upon successfully on the first occasion, died after a similar operation repeated fifteen months subsequently from suppurative nephritis caused by a chronic urethral stricture which had gradually contracted. Had on the second occasion a perineal lithotripsy with division of the stricture and drainage of the bladder and ureters been practised he would have had a better chance of recovery. The patient derived so much relief from the first operation that he wished it repeated on precisely the same lines. 5. A man, aged sixty-two years (No. 88), died on

¹ Observations on Lithotomy, Lithotripsy, and the Early Detection of Stone in the Bladder (Churchill, 1883). Surgical Disorders of the Urinary Organs (4th Edition, Churchill, 1893). Diseases of the Bladder in Twentieth Century Practice of Medicine (Wood and Co., New York, vol. i., 1895).

² Brit. Med. Jour., vol. ii., 1878

the tenth day after operation from extensive suppurative nephritis consequent on a urethral stricture of some years' standing. He was much exhausted from many weeks' travelling under painful circumstances. 6. The remaining fatal case was that of a man, aged seventy-six years (No. 92). He died on the twenty-ninth day after what promised to be a very successful operation. A large urate stone was crushed and evacuated, the dried fragments of which weighed 975 gr. The prostate was much enlarged. The calculus had previously caused him great pain and the operation afforded complete relief from this. He died from senile decay. Of the 101 different persons included in the table and who were submitted to litholapaxy 23 were known to have one or more recurrences for which I treated them on subsequent occasions. One man (No. 17), I heard, had a second stone successfully removed by another surgeon by a suprapubic cystotomy about twelve months after my operation. In these 23 persons who had recurrence of stone after crushing I repeated litholapaxy once in 13 of them, twice in 2, thrice in 1, four times in 1, five times in 1, six times in 1, nine times in 2, and ten times in 2, making a total of 174 litholapaxies in 101 individuals with six deaths as previously detailed. In several of the repeated operations the proceeding resolved itself into occasionally removing from the bladder calculous concretions with the aid of the lithotrite and aspirator, much on the same principle as the dentist removes tartar which has collected about the irregularities of the teeth. These occurred for the most part in elderly men with atonic bladders who were more or less dependent on their catheters and possessed but little power of voluntary expulsion. To submit these cases to a cutting operation for the purpose of removing the concretions and draining the bladder could not be recommended, as during the intervals, sometimes extending over many months, they enjoyed fair, and even active, health. For instance, in case No. 1 the patient, whom I first operated upon early in 1890 and upon whom I have repeated the operation nine times, is alive and well, and though not in robust health leads as comfortable a life as most people do at seventy-one years of age who are dependent upon the catheter. No. 3, operated on in 1890, followed by two recurrences at about three months' interval each, has had no recurrence since 1891, and is now again leading an active professional life. No. 4 had the operation repeated six times, but has had no recurrence since 1893. He is now eighty-seven years of age and is in good health. No. 44 has had nine recurrences. He is in excellent health, though he has recently had another operation after a previous two years' interval. I have since divided both his vasa and I think it likely that he will be no further troubled either with stone or prostatic symptoms. These cases were all unfitted for any other procedure. In none of them have the patients hitherto shown any signs of kidney complication.

As in records by other surgeons which have been recently published, the mortality connected with all these proceedings has been reduced to so small a percentage as to assimilate them in this respect to those which we are accustomed to speak of as minor or non-fatal operations. The period of convalescence has also been considerably lessened. In both of these important respects there has been generally a remarkable diminution during the last twenty-five years of the present century.

The stones noted in the table both as to composition and weight include all the commoner varieties of calculi and one cystin (No. 96). The collected and dry fragments of the 101 primary litholapaxies were found to weigh 13,413 gr., or an average weight of over 2 dr. removed from each patient. The largest calculus in this litholapaxy series was a urate (No. 64) which weighed 1200 gr. In the 73 operations undertaken for recurring calculi the fragments removed varied from about 20 gr. in weight to over 2 oz. These calculi were for the most part phosphatic. The youngest patient operated upon (No. 73) was a boy four years of age. A urate calculus weighing about 15 gr. which had caused several acute attacks of retention of urine, was pushed back into the bladder and then crushed and evacuated. He was well and about on the following day. In the same way a cystin calculus was removed from a boy five years of age (No. 96).

A urethral stricture complicated several of the cases of litholapaxy (Nos. 12, 23, 26, 54, 55, 70, 84, and 88). Urethral stricture, as several of these cases show, offers no obstacle in the way of litholapaxy provided the kidneys are fairly sound and have not commenced to suppurate. When the latter has taken place litholapaxy can only be undertaken

with a considerable degree of risk. This complication proved fatal in cases No. 70 and No. 88. Where stricture is of that degree of tightness or of previous duration as to render suppurative nephritis imminent or actual, perineal lithotripsy, with division of the stricture and subsequent drainage, is far safer. Case No. 104 of the series is another illustration of this. This patient had been treated for stricture for over a year before I sounded him and found a large stone in addition. Litholapaxy would probably have been fatal in not providing drainage for the suppurating bladder, ureters, and kidneys. Perineal lithotripsy was selected and since the operation, over four years ago, he has enjoyed excellent health, and has had no recurrence either of stone or of stricture. In 2 of the cases (No. 33 and No. 100) the stone was embedded within the area of the prostatic urethra. In one instance it was seen with the cystoscope. With a sound aided by my finger in the rectum in both cases the stone was freed, pushed back into the bladder, and crushed.

In looking over the table of cases which accompanies this paper it will not be difficult to recognise that prostatic hypertrophy and the conditions associated with it most frequently co-exist with stone recurrence. I shall therefore pass on to the second part of my paper and proceed to offer some observations relative to the prevention and treatment of vesical stone when met with under these circumstances.

II.—OBSERVATIONS RELATIVE TO THE PREVENTION AND TREATMENT OF STONE RECURRING AFTER OPERATION.

It is only in connexion with the surgical treatment of stone in the bladder when complicated with prostatic enlargement and the vesical conditions associated with this that it becomes necessary to offer any special remarks in reference to stone recurrences after operation. Litholapaxy or crushing when practised on the child or the young adult under normal structural conditions is so rarely followed by the re-formation of stone as hardly to require notice. It happened only once in this series under the latter circumstances (No. 17) and this was probably due not directly to bladder causes, but to a fresh descent from the kidney, as also occurred in a second instance (No. 33). The remaining recurrences and a large proportion of the entire number of litholapaxies were associated with this particular form of urinary obstruction. There is nothing very remarkable in this when we remember that, excluding three or four young persons about or below puberty, the average age of the patients was over sixty-two years. Nor is it difficult to understand why this should be. The enlarged prostate not only often renders the act of complete micturition mechanically difficult and impossible, but it furnishes favourable local conditions for the growth of stones which, having descended from the kidney, are thus detained there. Under such circumstances the male bladder may not inaptly be regarded as a bedding-out ground for renal calculi. Many instances in this series served to illustrate this and to show how gravel and calculi which were formerly expelled naturally ceased to be so as soon as the prostatic age had been reached. And what applies to kidney calculi and concreted crystals is equally true of other foreign bodies which a chronically-inflamed bladder is apt to contain. That an incomplete removal of the debris after a crushing operation may be responsible for some recurrences there can be no doubt, but not, I believe, to the same extent as some are disposed to consider. A red urate or a black oxalate stone is sometimes supplanted by a pure white phosphate. More than one recurring calculus which I have removed had a fixed origin on the rough cicatrix of a previous suprapubic cystotomy; two were formed on centres furnished by the remains of silk sutures employed in the latter operations, and others undoubtedly have had their origin on nuclei provided by shreds and sloughs from an inflamed bladder. Further, the sacs and pouches of bladders distorted in this way by prostatic obstruction furnish hiding places for debris which are almost inaccessible. In view of such obstacles and to prevent recurrence taking place much importance must be attached to the thorough clearance of the bladder in the first instance, to the subsequent management of the case after it has left the hands of the operator, and to such measures as have for their object bringing about shrinking or atrophy of the enlarged gland.

The lithotrites employed should be capable of rapidly and completely breaking up the stone without pounding it too much into such masses as a pestle and mortar produces. The jaws of the lithotrite whilst protected should be able to

TABULAR STATEMENT OF CASES OF PRIMARY STONE IN THE BLADDER TREATED BY LITHOLAPAXY (1890-97).

No.	Age.	Days under treatment.	Stone.		Result.	Condition of			Recurrence or not.
			Composition.	Weight.		Bladder.	Prostate.	Urine.	
				Gr.					
1	63	19	Uric, Phosphatic.	15	Good.	Pouched.	Large.	Alkaline.	Recurrence.
2	61	23	Phosphatic.	150	"	"	"	Ammoniacal.	—
3	59	10	"	120	"	"	"	"	Recurrence.
4	79	19	"	53	"	Cystitis.	"	"	"
5	64	18	Uric.	80	"	Normal.	Normal.	Normal.	—
6	65	20	Uric, Phosphatic.	86	"	Cystitis.	Large.	Ammoniacal.	Recurrence.
7	74	10	Phosphatic.	130	"	Pouched.	"	Alkaline.	"
8	68	7	Uric, phosphatic.	65	"	"	"	"	—
9	57	5	Uric.	16	"	Normal.	"	Normal.	—
10	64	8	Phosphatic.	64	"	"	"	Ammoniacal.	—
11	55	6	Uric.	55	"	"	Normal.	Normal.	—
12	56	10	"	12	"	"	"	"	—
13	60	28	Phosphatic.	30	Death.	Pouched.	Large.	Ammoniacal.	—
14	60	15	"	600	Good.	"	"	"	Recurrence.
15	71	18	Uric, phosphatic.	200	"	"	"	"	—
16	61	6	Phosphatic.	180	"	"	"	Purulent.	Recurrence.
17	20	8	Uric.	60	"	Normal.	Normal.	Sanguineous.	—
18	66	7	"	150	"	Pouched.	Large.	Normal.	—
19	53	6	Uric, oxalate.	120	"	Normal.	Normal.	"	—
20	56	8	Uric.	86	"	"	"	"	—
21	75	12	"	120	"	"	Large.	"	—
22	68	18	Phosphatic.	84	"	"	"	Purulent.	—
23	31	30	"	74	"	"	Normal.	Alkaline.	—
24	64	11	Uric, phosphatic.	189	"	"	Large.	Purulent.	—
25	69	7	Phosphatic.	24	"	Pouched.	"	Ammoniacal.	—
26	43	7	"	26	"	"	Normal.	"	—
27	41	16	Uric, phosphatic.	34	"	Normal.	"	"	—
28	45	9	Oxalate.	8	"	"	"	"	—
29	64	9	Uric.	65	"	"	Large.	Albuminous.	Recurrence.
30	67	5	Phosphatic.	25	"	Pouched.	"	Ammoniacal.	—
31	70	6	"	30	"	"	"	Sanguineous.	—
32	72	6	Uric, phosphatic.	100	Death.	"	"	Ammoniacal.	—
33	46	8	Oxalate.	30	Good.	"	"	Purulent.	Recurrence.
34	66	14	Phosphatic.	240	"	"	"	Normal.	—
35	69	16	Uric.	228	"	Normal.	"	Purulent.	—
36	39	8	Oxalate, phosphatic.	31	"	"	Normal.	Normal.	—
37	76	14	Phosphatic.	65	"	Pouched.	Large.	Ammoniacal.	Recurrence.
38	58	8	Uric, phosphatic.	120	"	"	Normal.	Normal.	—
39	54	9	Uric.	69	"	Normal.	"	"	—
40	61	7	"	68	"	Pouched.	Large.	"	—
41	65	15	"	180	"	Normal.	"	"	Recurrence.
42	65	7	"	190	"	Pouched.	"	"	—
43	67	7	Phosphatic.	20	"	Normal.	Normal.	Ammoniacal.	—
44	72	3	"	83	"	Pouched.	Large.	"	Recurrence.
45	64	12	Uric.	182	"	Normal.	Normal.	Albuminous.	—
46	69	9	"	130	"	"	Large.	Normal.	—
47	74	15	Phosphatic.	20	"	Cystitis.	"	Ammoniacal.	Recurrence.
48	73	14	Uric.	80	"	Pouched.	"	Alkaline.	—
49	64	10	"	40	"	Normal.	"	Normal.	—
50	68	18	"	182	"	"	"	"	—
51	65	7	"	80	"	Pouched.	"	Ammoniacal.	—
52	64	6	Oxalate.	13	"	Normal.	"	Normal.	—
53	62	10	Uric.	120	"	"	Normal.	"	Recurrence.
54	62	13	Phosphatic.	95	"	Cystitis.	Large.	Ammoniacal.	—
55	47	6	"	80	"	"	Normal.	"	—
56	73	4	Uric, phosphatic.	80	"	Pouched.	Large.	"	Recurrence.
57	69	7	Uric.	125	"	"	"	Purulent.	—
58	62	22	"	91	"	Normal.	Normal.	Albuminous.	—
59	66	14	Uric, phosphatic.	143	"	Pouched.	Large.	Purulent.	—
60	74	6	Phosphatic.	335	"	"	"	"	Recurrence.
61	60	13	Uric, phosphatic.	76	"	Normal.	"	Normal.	—
62	64	3	Uric.	12	"	"	"	"	—
63	65	10	Phosphatic.	240	"	Cystitis.	"	Ammoniacal.	—
64	75	12	Uric.	1200	"	Normal.	"	Purulent.	—
65	62	17	"	91	"	"	"	Albuminous.	Recurrence.

TABULAR STATEMENT OF CASES OF PRIMARY STONE IN THE BLADDER TREATED BY LITHOLAPAXY (1890-97)—(Continued).

No.	Age.	Days under treatment.	Stone.		Result.	Condition of			Recurrence or not.
			Composition.	Weight.		Bladder.	Prostate.	Urine.	
				Gr.					
66	73	23	Uric.	100	Good.	Pouched.	Large.	Albuminous.	—
67	71	14	Uric, Phosphatic.	600	"	Normal.	"	Alkaline.	Recurrence.
68	25	10	"	18	"	"	Normal.	Normal.	—
69	56	14	Oxalate.	240	"	"	"	Purulent.	—
70	54	18	Phosphatic.	120	"	Pouched.	"	"	Recurrence.
71	59	10	"	336	"	"	Large.	"	"
72	74	2	Uric, oxalate.	120	"	"	"	"	—
73	4	1	"	15	"	Normal.	Normal.	Highly acid.	—
74	67	16	Uric.	240	"	Contracted.	"	Normal.	—
75	70	6	"	90	"	Pouched.	"	Purulent.	—
76	61	8	Uric, phosphatic.	15	"	Normal.	"	Normal.	Recurrence.
77	35	9	Phosphatic.	33	"	"	"	Purulent.	—
78	52	17	Oxalate.	416	"	"	"	Oxaluria.	—
79	38	20	Phosphatic.	57	"	Phosphatic.	Nil.	Alkaline.	—
80	54	17	"	65	"	Cystitis.	Large.	Ammoniacal.	Recurrence.
81	45	10	Oxalate.	273	"	Contracted.	Normal.	Normal.	—
82	64	10	Oxalate, phosphatic.	150	"	Cystitis.	Large.	Alkaline.	—
83	30	7	Uric.	76	"	Normal.	Normal.	Normal.	—
84	56	7	Phosphatic.	320	"	Cystitis.	"	Alkaline.	—
85	67	9	Uric, phosphatic.	120	"	Pouched.	Large.	Purulent.	—
86	60	4	Phosphatic.	30	"	"	Normal.	"	—
87	72	6	Uric.	120	"	"	Large.	Normal.	—
88	62	10	Uric, phosphatic.	244	Death.	"	"	Ammoniacal.	—
89	84	10	Phosphatic.	23	Good.	"	"	"	—
90	56	5	Uric.	180	"	Normal.	Normal.	Normal.	—
91	74	6	Uric, phosphatic.	11	"	Pouched.	Large.	Ammoniacal.	—
92	76	29	"	975	Death.	"	"	"	—
93	69	13	Uric.	385	Good.	Normal.	"	Albuminous.	—
94	65	11	Phosphatic.	20	"	Pouched.	"	Purulent.	—
95	69	15	"	21	"	Normal.	"	Normal.	—
96	5	18	Cystin.	150	"	"	Normal.	Purulent.	—
97	60	8	Uric.	191	"	Pouched.	Large.	"	—
98	66	9	Phosphatic.	26	"	"	"	Ammoniacal.	—
99	75	17	"	34	"	"	"	"	—
100	34	9	Uric.	10	"	Normal.	"	Normal.	—
101	31	8	Oxalate.	15	"	"	"	"	—

Cases treated by Perineal Lithotripsy (1890-97).

102	49	19	Uric, phosphatic.	430	Good.	Contracted.	Normal.	Ammoniacal.	—
103	52	31	"	1446	"	Cystitis.	Spastic.	"	—
104	56	56	"	480	"	"	Normal.	"	—

Cases treated by Suprapubic Lithotomy (1890-97).

105	56	55	Uric.	308	Good.	Normal.	Normal.	{ Puro-san- } { guineous. }	—
106	35	32	"	900	"	"	"	Sanguineous.	—

Cases treated by Median Lithotomy and Drainage (1890-97).

107	44	20	Phosphatic.	24	Good.	Cystitis.	Normal.	Ammoniacal.	—
108	41	61	"	85	"	Pouched.	"	Purulent.	—
109	25	23	"	23	"	Normal.	"	"	—
110	55	30	"	18	"	Pouched.	"	Ammoniacal.	—

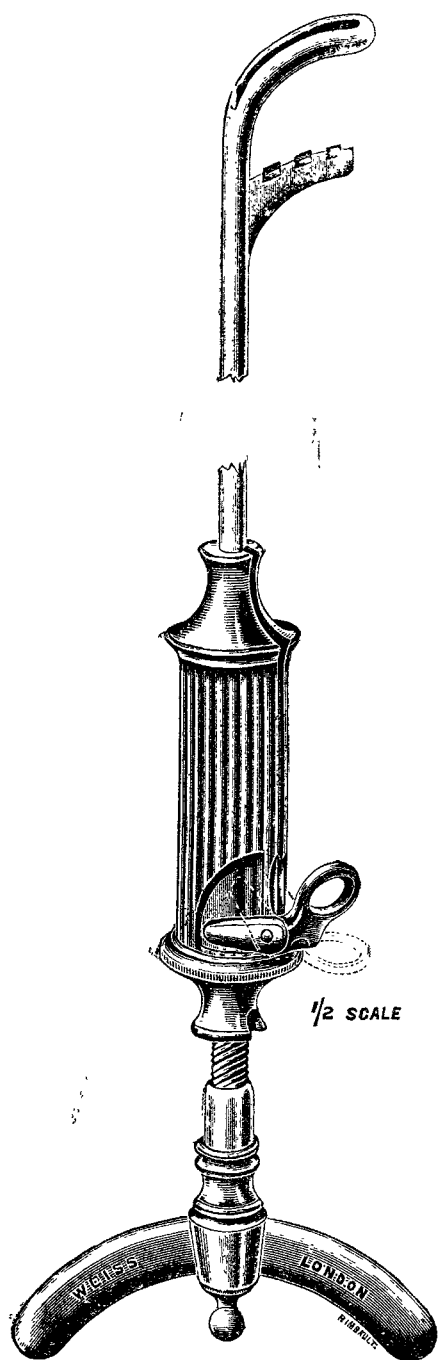
REMARKS.

Case 6: Operation repeated 13 months afterwards; death. Case 9: Prostate subsided after removal of stone. Case 12: Urethral stricture dilated. Case 13: Advanced kidney disease. Case 14: Pouch seen with cystoscope. Case 16: Diabetic. Case 17: Suprapubic cystotomy a year subsequently; recovery. Case 18: Double vasectomy subsequently for enlarged prostate; good result. Case 23: Urethral stricture treated by dilatation. Case 26: Urethral stricture. Case 32: A suppurating sacculæ and pelvic cellulitis caused death. Case 33: Stone sacculated in prostate pushed back and crushed; shrinkage of prostate; recurrence due to fresh descent from kidney. Case 48: Paralysed. Case 54: Tight stricture: (1) internal urethrotomy and (2) litholapaxy. Case 55: Internal urethrotomy for stricture 13 months previously; nucleus of stone a bougie of ol. theobrom. Case 56: Single vasectomy for enlarged prostate on recurrence. Case 60: Double vasectomy for enlarged prostate. Case 66: Very small and contracted bladder with a pouch; double vasectomy. Case 69: Pelvis much distorted by old spinal caries. Case 70: Chronic stricture of urethra; litholapaxy repeated 15 months after; death; suppurative nephritis. Case 71: Double vasectomy for large prostate. Case 73: Impacted stone causing retention; pushed back and crushed. Case 74: Suffered much from chronic bronchitic asthma. Case 78: Complicated with large hydrocele. Case 79: Mucous membrane encrusted with phosphates. Case 81: Incontinence of urine for 3 years previously and constantly wearing a urinal; power of bladder completely restored after operation. Case 84: Chronic urethral stricture. Case 88: Complicated with old stricture and suppurative nephritis. Case 92: Much relieved by operation; death from senile decay; urine specific gravity 1008. Case 94: Double vasectomy for enlarged prostate. Case 100: Prostatic stone pushed into bladder and crushed; shrinkage of prostate. Case 101: Stone seen with cystoscope in orifice of left ureter. Case 102: Lithotripsy attempted, but perineal lithotomy substituted. Case 104: Chronic urethral stricture; pyelitis; division of stricture. Case 106: A villous growth was also suspected, but not discovered. Case 110: A stricture necessitated division and drainage. Note.—All the cases were those of male patients except No. 79, which occurred in a female.

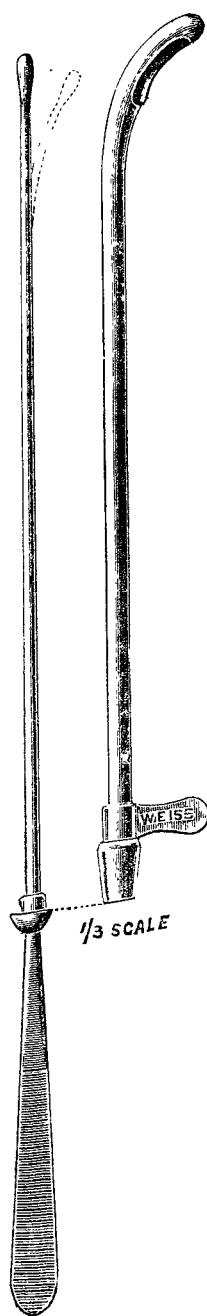
cut up stones such as the phosphates, which though soft and friable are apt when mixed with the mucus from the bladder to run into tough pultaceous pieces which may readily be left behind and form nuclei for further concretions. Hence the powerful fenestrated lithotrites are, as a rule, to be preferred. For use with large stones the lithotrite last made for me (Fig. 1) by Messrs. Weiss and Son has proved a most

FIG. 1.

FIG. 2.



The lithotrite.



The aspirating catheter and stylet.

admirable pattern. It will be seen that to save the hand a cross-bar has been fitted to it instead of a wheel and a short lever worked by the thumb, in place of the old button, by which the sliding movement is converted into the screw when the stone is seized. It must, however, not be forgotten that the former adaptation greatly increases the power which can be brought to bear upon the instrument. A cautious operator will consequently be chary how he utilises his maximum force. Nor must the aspirators and catheters used for withdrawing the broken fragments from the bladder be less efficient. In this series of cases I have continued to use Mr. Morgan's aspirator. My colleague Mr. Freyer has recently described one which is extremely simple and is readily charged with water. The opening or eye in the evacuating catheter should be large and bevelled (Fig. 2) and a probe stylet should be at hand in case of impaction.

In cases complicated with prostatic enlargement and where the patient is, as is often the case, more or less dependent upon the catheter, the bladder should be attended to for some time after the operation. Sufficient importance is not attached to this point. If these cases were carefully looked after for three or four months after the operation, recurrences would be far less frequent. At least once a week the

bladder should be washed out with the metal catheter and aspirator, as used in connexion with the operation, in addition to such irrigation and catheterism as the patient can himself employ when necessary. I have also had some large-eyed flexible catheters made to fit these aspirators. The latter are sometimes useful where there are sacs or pouches. The aggregation and growth of calculous matter in the bladder may thus often be prevented. I recently saw a boy, aged four years, who had many of the symptoms of stone. I sounded him under ether but could not find one. I then washed out his bladder with an aspirator catheter as just described and removed quite a quantity of large urate crystals with complete relief to the patient. It was, as Mr. Braine remarked at the time, "a good stone spoilt." Free crystals remaining in the bladder are not an infrequent cause of various irritations and reflexes in young subjects.

The effect of silver nitrate as a local application in cases of chronic cystitis with prostatic enlargement where there is a tendency to produce phosphatic concretion is well known. I remember a case some years ago which bears importantly upon this practice. It was that of an elderly man who when suffering from residual urine broke a gum-elastic catheter whilst passing it and left several inches of it in his bladder. His general condition was such that no immediate steps could be taken to remove it and it was therefore advised that the bladder should be washed out twice a day with a weak solution of silver nitrate. This was done and ten days afterwards the patient allowed me to extract the broken portion entire with a smooth-bladed lithotrite. What struck me on doing so as remarkable was that neither on the piece of catheter nor within the bladder was there any sign of phosphatic concretion. I presume that the action of the nitrate, as with other salts which may be artificially introduced into the bladder, prevented molecular coalescence taking place, as the urine was alkaline and offensive during the ten days the catheter remained in the bladder.

In the third place, my series of cases furnishes examples (Nos. 18, 56, 60, 66, 71, and 94) where vasectomy was employed with the view of bringing about shrinkage of the prostate. It appeared to do good in all these instances, (1) in rendering access to and from the bladder easier both as to micturition and the use of catheters, and (2) in getting rid of that slimy mucus, not unlike birdlime, which clings so tenaciously to the bottom of vessels in which it is allowed to settle. Vasectomy was resorted to under these circumstances in instances where in addition to the recurrence of the stone serious symptoms of prostatic obstruction existed. The stone having been removed in the usual way by the lithotrite and aspirator, one vas was resected in the way described in my Bradshaw lecture³ and seven days afterwards the remaining one was treated in the same manner, about an inch of each tube being taken away. The small wound usually heals under a collodion dressing in forty-eight hours.

I have never had occasion to resort to castration in connexion with my stone operations, as I think that a trial should first be made of vasectomy before so serious an operation is proceeded with. I have, however, recorded one instance in my Bradshaw lecture (where I have discussed this subject at some length), in which I know excellent results followed castration in a case of recurring stone with urgent and increasing symptoms of prostatic obstruction. In the instances of vasectomy just referred to no recurrence of stone has yet occurred to my knowledge and there has been a general improvement in the symptoms connected with the enlarged gland which co-existed. I think a further experience and a still more extended period of observation will warrant me in concluding that the diminishing number of recurrences in this series was due not entirely to any additional pains taken in the first instance in the removal of the stone, but partly also to the use for some time after of the evacuating catheter and wash-bottle and to the employment of vasectomy on recurrence, in suitable cases, where there was much prostatic enlargement, which practices I have more recently adopted. I will now proceed to the third and concluding portion of my subject.

III.—SOME OPERATIONS WHICH MAY BE REGARDED AS ALTERNATIVES OF LITHOLAPAXY.

In the last nine cases of stone in the bladder arranged in this series (No. 102 to No. 110) it was thought necessary to employ some form of incision to facilitate the removal of the

³ THE LANCET, Dec. 12th, 1896.

calculus, either entire or by first breaking it. The selection of one or other of these proceedings had reference mainly to conditions or complications outside the mere presence of a stone, as in no instance was the latter itself deemed to be beyond the reach of litholapaxy. In every instance recovery was complete and, so far as I know, permanent. The average age of these nine individuals was about forty-six years, whilst in the previous series of litholapaxies the average was about sixty-two years. In 3 of these cases perineal lithotripsy on the lines I have elsewhere described was selected; in 2 suprapubic lithotomy or the high operation was practised; whilst in the remaining 4 the boutonnière or median operation was employed as providing for the extraction of the stone and the subsequent drainage of the bladder, the latter being the main consideration. A few words will be devoted to noting the special advantages connected with the several proceedings and their application to some of the cases selected.

Perineal lithotripsy.—The chief reason for selecting this mode of dealing with the stone in the three patients (No. 102 to No. 104) may be very briefly stated. It was essentially a mechanical one, having reference in the first instance to an extremely contracted and thickened bladder, where after trial it was found impossible to use the lithotrite with safety in such a limited area; in the second instance to an unusually rigid or fibrous prostate which rendered the introduction of the short curved lithotrite exceptionally difficult; and in the third instance to a very strictured urethra. The patient in the third case had previously undergone an internal urethrotomy and two divulsions by Holt's method by other surgeons and the canal was structurally unfitted for the instruments used in crushing operations. Further, as will be readily understood, suppurative nephritis was impending if not already in existence. The patient made a good recovery. In these three cases, in addition to the special features I have mentioned the stones were large and hard, weighing respectively 430 gr., 1446 gr., and 480 gr. In one of the patients (No. 103) who was submitted to perineal lithotomy in 1893, nine months afterwards he had an attack of cystitis which threatened to become chronic. As this would probably have led to a recurrence I opened and drained the bladder from the perineum for ten days. This speedily cured the cystitis. I hear that the patient continues to have excellent health and has had no return of the stone. In a previous series of cases in two instances I drained the bladder by a median perineal puncture and drainage-tube where some weeks after lithotripsy the urine remained purulent and chronic cystitis continued. In both of these the independent drainage, apart from and subsequently to the removal of the stone, acted beneficially and certainly appeared to complete the cure. In neither of these patients did recurrence take place, though before the drainage was employed it looked as if this was most likely to happen.

The chief points in favour of the selection of perineal lithotripsy appear to be these: (1) it enables the operator to crush and evacuate large stones in a short space of time; (2) it is attended with a very small risk to life as compared with other operations, such as lateral or suprapubic lithotomy, and is well adapted to old and feeble subjects when for any reason crushing is inadmissible; (3) it permits the operator to wash out the bladder and any pouches connected with it more effectually than by the urethra, as the route is shorter and the evacuating catheters employed are of much larger calibre; (4) the surgeon can usually ascertain, either by exploration with the finger or by the introduction of forceps into the bladder, that the viscus is cleared of all débris; (5) it enables the surgeon to deal with certain forms of prostatic outgrowth and obstruction complicated with atony of the bladder in such a way as to secure not only the removal of stone, but the restoration of the function of micturition; and (6) by the subsequent introduction and temporary retention of a soft rubber drainage-tube states of cystitis due to the retention of urine in pouches and depressions in the bladder wall are either entirely cured or are permanently improved. To lock up unhealthy ammoniacal urine after a lithotripsy in a bladder which cannot properly empty itself is to court the formation or recurrence of a phosphatic stone. Hence it is well suited to some cases of recurrent calculus. I have never known the wound to remain unhealed except in those instances where for some reason or other it has been desired to construct a low-level urethra.

Supra-pubic lithotomy.—This was successfully practised in two instances (No. 105 and No. 106). In both, from the pain and the frequency and duration of the hæmorrhage,

growth was also suspected but not discovered. The bleeding was so free and was so readily excited that the cystoscope afforded no assistance, and I thought it better to remove the stones in such a way as to enable me to directly explore the interior of the bladder. No cause for the bleeding other than the calculus was discovered. It is seldom that the latter occasions so much hæmorrhage. The stones weighed respectively 308 gr. and 900 gr.

I am not much in favour of this method in removing large calculi from elderly males. In younger persons it is much safer and there is less objection to it. The mortality is considerable, as shown by Guyon, in males over fifty years of age. The cicatrix which is left in the bladder sometimes greatly interferes with complete micturition and in 2 instances a rough scar was shown on exploration as forming a holding-ground for phosphatic concretion. In one of these instances the scar has been excised with advantage.

Median perineal lithotomy with bladder drainage.—In 4 instances (No. 107 to No. 110) this simple operation was practised for the removal of small stones which were incidental to chronically inflamed and suppurating bladders. The bladder was subsequently drained for varying periods on the same principle as is sometimes utilised in the case of chronic abscesses, a satisfactory result being obtained in each instance.

Nitrous oxide gas and ether were the anæsthetics usually employed throughout the whole series of operations and nothing occurred to make me alter the favourable opinion I have expressed as to this method of producing insensibility. In elderly and debilitated persons with weak hearts the stimulating effect of the ether in improving the circulation was often most marked; nor were any casualties noted in connexion either with the instruments used or the parts operated upon. No serious hæmorrhage was encountered where incisions were necessary and after the litholapaxies it was rare to find the urine tinged with blood forty-eight hours after the operation. Any cystitis which was present at the time of operation usually rapidly subsided after the removal of the stone and no trouble with elevations in temperature, rigors, or fever complicated recovery.

As to sounding for stone I would repeat what I have often said. I much prefer that the stone should be removed where this is practicable on the occasion when it is first detected by the sound and the diagnosis is made. This practice predominated in this series, as the more I see of stone in the bladder the more I recognise the utility of this precaution, particularly in the case of elderly males. Where the prostate is large stones grow up like mushrooms in the pouch-like space between the large prostate and the back of the bladder and make, as it were, nests for themselves. Where there are two or three they often become fitted to each other like tessellated tiles, and if this arrangement is accidentally and suddenly disturbed most acute cystitis is apt to follow. Most of us know how much discomfort a displaced piece of tartar will cause in the mouth until it is completely removed. Even when they are delicately and lightly touched with the sound the stones may get out of gear with their bed, and if urine finds its way underneath them to some unaccustomed spot an acute cystitis may be aroused in the interval between the detection of the stone with the sound and its removal by the lithotrite. In one patient (No. 41) this actually happened and made a simple operation a serious one, as I had to crush and remove the stone seven days after sounding in the presence of a most acute inflammation which otherwise, I am sure, would have proved fatal. He had, as I anticipated, a recurrence and I removed a small phosphatic stone eight months afterwards (in March, 1894). He has since enjoyed excellent health and has had no recurrence. The process of sounding, however skilfully performed, is certainly not an agreeable one and is best accomplished under an anæsthetic. Fewer stones would escape detection and consequently be sooner removed if this was a more general practice. The cystoscope has in several instances been of much service in clearing up doubtful points—for example, in determining the presence and position of pouches or sacs and whether urine derived certain changes observable in it from either, and from which, kidney or from sources below these organs. In one case of encysted calculus (No. 100) not only was the stone seen but its removal was facilitated by exact knowledge as to its location. In another case (No. 101) the cystoscope clearly showed the impaction of a stone in the orifice of one of the ureters.

In conclusion, this series of cases may serve to illustrate—

(1) conditions under which the surgical treatment of stone in the bladder, in the adult male particularly, have to be undertaken, at all events in this country; and (2) various operations which may be selected for its cure or relief. Of course, the relative proportions of the latter to each other will vary in some degree, and it is only reasonable that this should be expected. I well remember some years ago, when "lithotomy *versus* lithotripsy" was a burning question, being present as a junior at a consultation where after the diagnosis of stone in the bladder had been made the operating surgeon in charge asked the opinion of his senior colleague, a man possessed of much common-sense and surgical experience, as to whether crushing the stone or cutting should be practised. "Whichever you can do best," was the prompt but somewhat curt reply. Lithotomy was selected and the patient made an excellent recovery. I doubt if at that time crushing had been resorted to whether the case would have terminated equally well. Where the pathological conditions were so equally balanced I do not think a better answer could have been given.

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**GENERAL PARALYSIS OF THE INSANE:
AN ATTEMPT TO ASCERTAIN ITS
AVERAGE DURATION AT THE
PRESENT DAY.**

BY JAMES ADAM,

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PERHAPS there are no cases which come under treatment in the various institutions for the insane throughout the country which excite more interest or attract greater attention than those of the prevalent disease known as general paralysis. I use the word prevalent because it is found so in and near large centres of population, although in districts more sparsely populated it may be more rarely met with. Often obscure in its earlier manifestations, there usually no longer exists any doubt as to the actual character of the malady as it presents itself in these institutions, for by the time the case reaches them it has developed at least some of its typical and unmistakable features. So much has been already written by competent writers on the subject of general paralysis that there is little or nothing left to add regarding its general characteristics and it would not accord with the object held in view by the writer of this article were he to attempt to do so. It may therefore suffice for the present purpose to allude to four stages through which the disease commonly passes and to remark in passing that the duration of those various stages differs much in different cases; that the disease occurs more frequently in males than in females; and that when it does occur in the female sex the symptoms, especially the mental symptoms, differ from those in the male sex.

The first stage which calls for notice is the period of onset during which the patient, with his malady more or less unrecognised, is usually resident in his own home, goes about, or attempts to go about, his daily avocations and still remains a free agent, brooking no control, squandering his money recklessly, and being immoral to his heart's content. The importance of a correct diagnosis being made at this stage is evident, so that proper steps may be taken for care and treatment with as little delay as possible. But these steps are too often, almost of necessity, delayed until much and irretrievable mischief is done.

Then follows the second stage, during which, the disease having fully developed itself, removal to an asylum becomes imperative, and it is usually in this stage that the patient is first seen in such an institution and for the first time becomes subject to carefully and accurately recorded statistics. There is, I think, little doubt that much may be done by treatment during this second stage to favour arrest or possible cure. The value of such arrest or cure if brought about goes without saying, for not a few of those affected by general paralysis are persons of property, and a successful and just disposition of property may be accomplished at such a period.

In favourable cases a third stage sooner or later sets in—a stage of arrest of the disease, during which the patient

becomes quiescent and docile and gains flesh. He also regains much of his lost mental power and coherence and self-control return. In some cases he even wholly recovers, there being well-authenticated instances, as recorded below, not only of recovery from well-marked general paralysis but of successful resumption of business, and this even in the busy heart of the metropolis itself.

The fourth stage needs little comment. Utter helplessness is usually ushered in by epileptoid or apoplectiform seizures, and as a rule such seizures are continued or are frequently repeated until exhaustion or coma mercifully closes the scene.

Having thus described the stages through which this strange malady usually passes I will now endeavour to ascertain as nearly as possible the average length of time occupied in passing through them. It will, I think, be found practically that duration is governed by that stage which I have described as the third or arrest stage, for without this the average duration would be infinitely shorter than it even now is. General paralysis of the insane would, in fact, nearly always be a rapidly fatal disease if it ran its course without interruption. A question is not infrequently addressed to the medical practitioner by the guardians or relatives of general paralytics as to the probable duration of the disease after its existence has been ascertained. The question is usually answered by the aid of the general belief that on an average general paralysis of the insane runs its course and terminates in death within two years. My experience for several years has led me to doubt the accuracy of this assumed average, for I have seen so many cases of prolonged arrest, and more than one of recovery, as to suggest the possibility of a general modification of the disease having taken place, rendering it more amenable to treatment. On the other hand, this prolongation may be accounted for by the fact that the experience of later years has been among the more educated classes, and education generally exercises a modifying influence in all the varieties of mental disorder. Be that as it may, I resolved to make the attempt to verify or to rectify if necessary the old-standing estimate of duration and as a first step addressed questions on the subject to the superintendents of all institutions for the care of the insane in England. I was favoured by numerous replies, for which I beg here to express my thanks, and although they are not quite complete the figures so obtained are valuable and enable an approximate estimate at least to be given, which appears to be not far removed from what would prove to be the complete facts of the case. In framing these figures difficulties, of course, presented themselves, not the least of which were the vagueness attending the inception of the disease and the incorrectness or unreliability of the data received with the patients at the various institutions at the time of admission. Moreover, the early symptoms of general paralysis are not always easily recognisable. There are also the wandering cases, which may or may not be recognised or taken notice of at all until a late stage of the disease. The returns obtained were from 26 county asylums, 16 private asylums, 6 lunatic hospitals, 2 military and naval hospitals, and 4 borough asylums. The returns extended over the past ten years, which accounts for the smallness of the returns from the borough asylums, some of which have only recently been called into existence. The following figures give the results arrived at:—

Table showing approximately the Average Duration of General Paralysis (in Male Patients only) in Institutions for the Insane in England, with the Age at Death.

Institutions.	Average duration of disease.		Average age at death.	
	Years.	Months.	Years.	Months.
County asylums	1	10	42	6
Private asylums	2	6	46	0
Lunatic hospitals	1	7	44	0
Military and naval hospitals ...	1	11	37	5
City and borough asylums	1	8	46	6

Thus the correctness of the stated old-standing average is practically verified by the present figures, taken as a whole, although it would appear that the educated and well-to-do