ON LITHOTRITY AT A SINGLE SITTING; WITH
A RECORD OF FORTY-EIGHT CASES.*

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I PROPOSE to consider the method of removing vesical calculus of considerable size by crushing it, and removing the *débris* from the bladder at a single sitting.

Let me first make a very brief allusion to the title here employed to designate the operation thus described.

The first time a stone was systematically crushed by instruments within the bladder, so that the fragments might be expelled naturally through the urethra, and thus a cutting operation be avoided, was, as most of us know, in 1824, by Civiale of Paris. He named the process lithotrity, in contradistinction to lithotomy—crushing the stone, instead of cutting for the stone. The distinction is broad and clear.

Since that time, lithotomy, the outcome of centuries of experience and study, has not materially changed. The new operation, lithotrity, has been greatly modified during fifty or sixty years of practice, and is doubtless still on its way to perfection. It consisted, first, in perforating the stone with a drill, afterwards in crushing it; and, a little later, the *débris* were washed out, instead of being left to nature to expel. But the essential characteristic of the operation, as the name implies, has always been, and still is, the mechanical disintegration of the stone; this is the necessary preliminary to the removal of *débris*, which is a secondary process. These things being so, I believe you will feel with me that it is only logically consistent for us, while it renders only simple justice to the originator, to speak of the process still as lithotrity, and not to exchange this for any other term, so long as the primary element in the proceeding is still the crushing of the stone.

These remarks, however, bring me to a recent and important modification of the operation, proposed by a distinguished American surgeon, Professor Bigelow. Everybody now knows that he has advocated the practice of removing a stone of large size—however large, indeed, it may be—at one sitting, instead of by several, as had hitherto been the practice in such cases. Small stones, as a rule, and exceptionally stones of medium size, had long before this been so dealt with. But, in order to accomplish his idea, it became necessary, if not to use more powerful lithotrites, at least to use a larger evacuating catheter, and a more powerful aspirator than heretofore. The real change, the new principle in his teaching, is not necessarily associated with the use of the mechanical appliances which he proposed to employ, some of which, perhaps, it is not easy to regard as improvements. The value of his proposal—if it be valuable—consists in something higher than the form of an instrument, viz., in the enunciation of a principle; and an estimate of this can only be determined by the results of a large experience of its application to practice. My aim in this short memoir is to present a humble contribution towards elucidating the inquiry.

Bigelow's principle may be thus epitomised. Granted that much disturbance is produced by a prolonged sitting to crush a large and hard stone, less mischief will arise to the bladder thereby, provided all the fragments are removed, than by devoting three or four shorter but separate sittings to the work; since the presence of fragments in the bladder for a few days injures it more than the single prolonged operation.

The enunciation of this axiom threw light on a point of practice which I had myself long ago observed, and on several occasions had called special attention to. It is this: that, when cystitis occurs in the course of lithotrity, the most advantageous way of dealing with it is, not to treat the patient by the usual remedies for cystitis, but, without delay, to crush the remainder of the stone, and remove the whole by aspiration at once. This proceeding I have found very successful, and had strongly urged its adoption both at home and abroad, long before Professor Bigelow's proposal was announced. I name this merely to show a certain corroboration of his views from my antecedent experience, and not with the least idea of laying the slightest claim to forestall my American *confrère*. It was this conviction of mine, however, relative to the effect of removing fragments, which prepared me at once to believe that the principle of Bigelow's proposal would almost certainly prove to be well grounded. Hence I instantly closed with it, and tested it without delay; only the instruments which he had proposed, I could not accept—could not, indeed, as an old expert in such matters, do other than object to. I commenced "the one-sitting" system accordingly, now about a year and a half ago, and have, during

a period of fifteen months, operated by it on 48 adult males with calculi of various sizes; the specimens are all here for your inspection, as well as the instruments employed. But, during the same period, I have also operated on 8 other male adults: on 6 by lateral lithotomy, and on 2 by multiple crushing of four and five sittings respectively, for reasons to be stated.

The particulars of 35 of the 48 "one-sitting" cases referred to, are recorded in the third edition of my work on *Lithotomy and Lithotrity*, which appeared about two months ago (see pp. 190-3). Since it went to press, I have had 13 more cases, making the 48, and with them two deaths, one of which is not fairly chargeable to the operation; but I have accepted both, and there have been no others. The details of all these cases, with references to those medical friends with whom I saw them in consultation, and who are acquainted with the results, are supplied in a schedule here, which I hand to our president, as time does not admit of my reading them.

Among the six cases of lateral lithotomy, there was only one death, a gentleman aged 74, whom I cut with my friend Mr. Goolden, at Maidenhead; the rest are living. Lastly, there are two exceptional cases of large calculus treated by multiple sittings, which are briefly as follows.

1. A Portuguese gentleman, aged 53, who came to me from Lisbon, where repeated attempts to remove his stone had been made. Ether was administered by Mr. Clover, who desired, as the lungs were emphysematous, not to prolong anaesthesia unduly. I removed, by lithotrite and aspirator, no less than 780 grains of hard calculus, mixed uric acid and phosphates, by five sittings in seventeen days.

March 10th, in 18 minutes, and removing 230 grains.

" 15th "	15 "	" "	248 "
" 19th "	10 "	" "	136 "
" 23rd "	8 "	" "	98 "
" 27th "	8 "	" "	75 "

780 "

This stone was, therefore, nearly two ounces in weight. Mr. Henry Smith of King's College was present at every sitting; the patient never had any fever, and made a rapid and excellent recovery.

2. A gentleman, aged 68, with a large oxalate of lime calculus. He was feeble, or I should have cut him, for he had a close undilatable urethra, a large prostate, and a bladder not very easy to work in. I therefore dealt with him as with the preceding cases, removing no less than 640 grains in four sittings. This is the largest oxalate of lime calculus I have ever attacked with the lithotrite; and it was a test for the light but powerful instrument which I have here, and the form of which particularly adapts it to deal with a large hard stone, without becoming clogged. He was brought to me by Dr. Harris of London, who, with Mr. Furner of Brighton, was present at each of the sittings. I saw him only three days ago, for the purpose of verifying his condition, which is extremely good.*

The total, then, of my adult male cases during this period of fifteen months, is fifty-six cases, with three deaths; two being cases of single-sitting lithotrity, and one of lateral lithotomy; a result which, I think, may be regarded as satisfactory. Such a number is, in my opinion, by no means sufficient to decide this question, but it may be taken as a contribution in that direction. The result indicates—and I may further add, that the general well-doing of the cases strengthens the indication—that the new proposal diminishes somewhat the risk, and leaves the bladder generally in a better condition afterwards. This latter result, however, is certainly not always to be reckoned on as an invariable one.

I need hardly say, that the cases of fifty-six individuals so recently treated, might furnish much interesting and instructive material for communication, but our prescribed limits forbid the attempt. I have, therefore, drawn up a few short and practical deductions, as the result of my experience in relation to the choice of operations for stone at present available.

1. It is more than ever important to diagnose carefully, before operating, the size and, if practicable—as it mostly is—the nature of the stone; so that the means employed to remove it may correspond thereto; for, when the stone is small or of medium size, as it is in the vast majority of cases, it is not only unwise, but dangerous, to employ large and unwieldy instruments to remove it. Small instruments are far easier to manipulate than large ones, and do less damage in the bladder and urethra. The latter should never be used, unless the work to be done renders them necessary; and this can only happen in a few exceptional cases. The adoption of the one-sitting principle does not

* Read in the Section of Surgery at the Annual Meeting of the British Medical Association in Cambridge.

* I have seen this patient (November 1880), and he has not a single bad symptom of any kind; he enjoys excellent health, and is walking five miles a day.

in the least degree render necessary the employment of any special form or kind of lithotrite and aspirator, but demands, for its most perfect development, the use of instruments best adapted for each individual case.

2. There is no doubt that a practised hand, thoroughly familiar with the details of lithotomy, is more necessary to the success of an operation which is to be completed at a single sitting, *where the stone is hard and not small*, than to that of an operation which consists of several sittings. In other words, the removal of a large hard stone at a single sitting is a more difficult proceeding, and demands more experience and facility in operating, than the old method of submitting the stone to several trials.

3. Speaking with caution, it appears to me that at present we are not justified in attempting to remove all stones by crushing, and certainly not by any one system of crushing. The new method renders lithotomy safer than before for stones already generally assigned to that process, and extends the crushing operation to some which are larger than those hitherto so operated on. But I still regard lateral lithotomy as an admirable procedure, not only for hard stones—say of about two ounces weight and upwards, as a rough general estimate—but also for smaller ones, in some cases where the urethra is not very large, or other circumstances seem to indicate it. And, in connection with such exceptional circumstances, it is not improbable that the high or supra-pubic operation may be occasionally preferable. I have myself performed it twice when the lateral operation was inapplicable.

Further, I cannot doubt that many men, whose experience is necessarily small, would cut for a hard stone, weighing an ounce, more safely than they would crush it at a single sitting. Great and irretrievable damage may be easily inflicted by large lithotrites and evacuators in unpractised hands. For two of the fifty lithotomy cases I preferred multiple sittings, for the reasons given; and I strongly advise the exercise of an independent judgment in every case, and not the pursuit of any routine without reference to the very varied circumstances which calculus disease so largely presents.

The results of Bigelow's method in my hands has, thus far, been to give me a proportion of only six cases of lithotomy in fifty-six male adult cases, or one lithotomy to nearly nine lithotrity; whereas, taking my total of now nearly seven hundred cases, the proportion was about one lithotomy to five and a half lithotrity. And the result of those six cases of my present fifty-six, in which I rejected the crushing operation and performed lithotomy, is admirable; five at this moment enjoying good health—a condition which I believe would have been quite unattainable for those particular patients by any form of lithotrity. I think I am entitled to regard these facts as affording important illustration of the necessity for employing different modes of operating, and for the exercise of a sound judgment in selecting the most appropriate method for each individual case.

Cases of Lithotomy at one Sitting, continued from List of thirty-five Cases just published in last Edition of Lithotomy and Lithotrity.

CASE XXXVI.—A gentleman, aged 71. May 24th, 1880. Uric acid with phosphates, 76 grains; in seven minutes. Brought by Dr. Charles Mott of Walton, who was present at the operation. He had a large prostate, did not empty the bladder, and was taught to use a catheter twice a day. An excellent recovery.

CASE XXXVII.—A gentleman, aged 61. May 19th, 1880. Uric acid, weighing 78 grains. Mr. Furner of Brighton present. A somewhat slow but good recovery.

CASE XXXVIII.—A gentleman, aged 70. May 29th, 1880. Phosphatic, weighing 184 grains. He was seen by Mr. Lund of Manchester. He came to me greatly broken in health, with severe symptoms, which I at first regarded as chiefly renal, and did not suspect to be complicated with calculus. Finding one subsequently, I thought it right to remove it at one sitting; and this much relieved him; but he slowly sank about five weeks afterwards, with advanced pyelitis, dilated ureters, and purulent deposits in the kidney.

CASE XXXIX.—A gentleman, aged 67, from Hamburg. June 3rd, 1880. Uric acid and oxalate, weighing 142 grains. Mr. Lund of Manchester was present. He made a good recovery. He had some enlargement of the prostate, did not quite empty his bladder, and learned to do so with a catheter every night.

CASE XL.—A gentleman, aged 50. June 21st, 1880. Chiefly phosphatic, with little uric acid, weighing 105 grains. Dr. Harker of Lancaster, and Dr. Carpenter of New York, were present. He made a good recovery.

CASE XLI.—A gentleman, aged 70. June 21st, 1880. Weak physically and mentally, with a very large prostate, so that the calculus could only be seized with reversed blades. Uric acid, weighing 80 grains. Brought to me by Dr. Harker of Lancaster. There was at

first no ground for anxiety; but in a few days he had fever and an attack of bronchitis, of which he died on July 5th.

CASE XLII.—A gentleman, aged 68. June 26th, 1880. Uric acid calculus, weighing 76 grains. Sent to me by Dr. James McCulloch of Dumfries. Made a rather slow recovery, from persisting chronic cystitis.

CASE XLIII.—A gentleman, aged 72. July 3rd, 1880. A phosphatic calculus, weighing 78 grains. Dr. Bainbridge of London, who brought him to me, and Dr. Weir of New York, were present. He had long passed all his urine by catheter from enlarged prostate, and of late with distressing frequency. He is now, four weeks afterwards, enjoying freedom from all pain. Clear urine, and retains it four hours.

CASE XLIV.—A gentleman, aged 77. July 10th, 1880. Uric acid, weighing 265 grains; in eighteen minutes. Professor Humphry of Cambridge was present. He is making an excellent recovery.

CASE XLV.—A gentleman, aged 46. July 10th, 1880. Uric acid, weighing 96 grains. Sent to me by Dr. Wynn Thomas of Birmingham. Professor Humphry of Cambridge was present. He has had a good deal of irritation; but it is gradually subsiding, and has, indeed, almost disappeared.

CASE XLVI.—A gentleman, aged 79, retired medical man. July 14th, 1880. Has passed no urine except by catheter for three years, from enlarged prostate. Phosphatic, weighing 128 grains. Mr. Ed-dowes of Shrewsbury was present. A rapid recovery.

CASE XLVII.—A gentleman, aged 29. August 5th, 1880. Small oxalate of lime. Brought me by Mr. Furber of Kensington, who, with Dr. Joseph Warren of Boston and Mr. F. S. Edwards of Bartholomew's School, was present. He is already nearly well.

CASE XLVIII.—A gentleman, aged 55. August 9th, 1880. Uric acid. Brought to me by Mr. Harris of Mildenhall, who, with Dr. J. Warren, was present at the operation.

Six Cases in which Lateral Lithotomy was performed during the Period in which the "One-Sitting" Lithotomy was adopted as the Rule.

514. May 9th, 1879. A gentleman, aged 74. With Mr. Goolden of Maidenhead. Death.

533. February 11th, 1880. An Irish gentleman, aged 62. With Dr. G. Johnson of London. Successful.

539. May 21st, 1880. A gentleman from New Zealand, aged 33. Seen with Mr. Christopher Heath and others. Successful.

542. June 1st, 1880. An Irish gentleman, aged 52, sent to me by Dr. Thompson of Belfast. Successful.

5. June 10th, 1880. A gentleman, aged 58, sent to me by Mr. Curgenven of Derby. Successful.

July 13th, 1880. A gentleman, aged 62, brought to me by Dr. Bright of Forest Hill. Successful.

Two Cases of Multiple Lithotrity: one of four, the other of five sittings; one in March, one in April; described in the paper; successful.

[I think it right to say that, since the date of the last case (August 9th), I have operated on seventeen more cases by the "one-sitting system", and that there has not been a single death. Three very bad cases have been treated during the same period by lateral lithotomy, of which two have died.]

SHAM SPAYING.—The operation to perform, or pretending to perform, an operation, recently adopted by Herr Israel for the cure of hysteria, under the name of "sham spaying" (*Scheincestration*) turns out to be not so successful as was supposed. A patient who had undergone the somewhat farcical proceeding of a make believe, under anæsthetics, extirpation of both ovaries, has lately come under the care of Professor Hegar, to whom she has confessed that the vomiting and other symptoms were not relieved by the "operation"; but that she concealed the fact that they remained, and that they are, indeed, now as severe as before. Dr. Hegar has examined her, and finds a general perimetritis, which he considers to be the cause of her troubles. He says that it is not a matter of surprise that a sham operation has failed to relieve symptoms resulting from definite pathological conditions. As the case had been published as an example of the successful psychological effect of a sham operation upon the hysterical mind, it is interesting to find that it did not have its supposed effect. Professor Hegar, who believes in the efficacy of spaying in certain forms of dysmenorrhœa, has declined to accede to the request of the patient to extirpate, in real earnest, her ovaries, and bring discredit thereby on what he regards as an operation with a future before it, and full of blessings (*Segensreich*).