

The importance of the post-prostatic (or trigonal) pouch in the surgery of vesical calculus : illustrated by several cases / by G. Buckston Browne.

Contributors

Browne, G. Buckston 1850-1945.
Royal College of Surgeons of England

Publication/Creation

London : John Bale & Sons, 1891.

Persistent URL

<https://wellcomecollection.org/works/rbcqaw7v>

Provider

Royal College of Surgeons

License and attribution

This material has been provided by This material has been provided by The Royal College of Surgeons of England. The original may be consulted at The Royal College of Surgeons of England. where the originals may be consulted. This work has been identified as being free of known restrictions under copyright law, including all related and neighbouring rights and is being made available under the Creative Commons, Public Domain Mark.

You can copy, modify, distribute and perform the work, even for commercial purposes, without asking permission.



Wellcome Collection
183 Euston Road
London NW1 2BE UK
T +44 (0)20 7611 8722
E library@wellcomecollection.org
<https://wellcomecollection.org>

4.
The Importance of the
Post-Prostatic (or Trigonal) Pouch in the
Surgery of Vesical Calculus,

Illustrated by several Cases.

BY

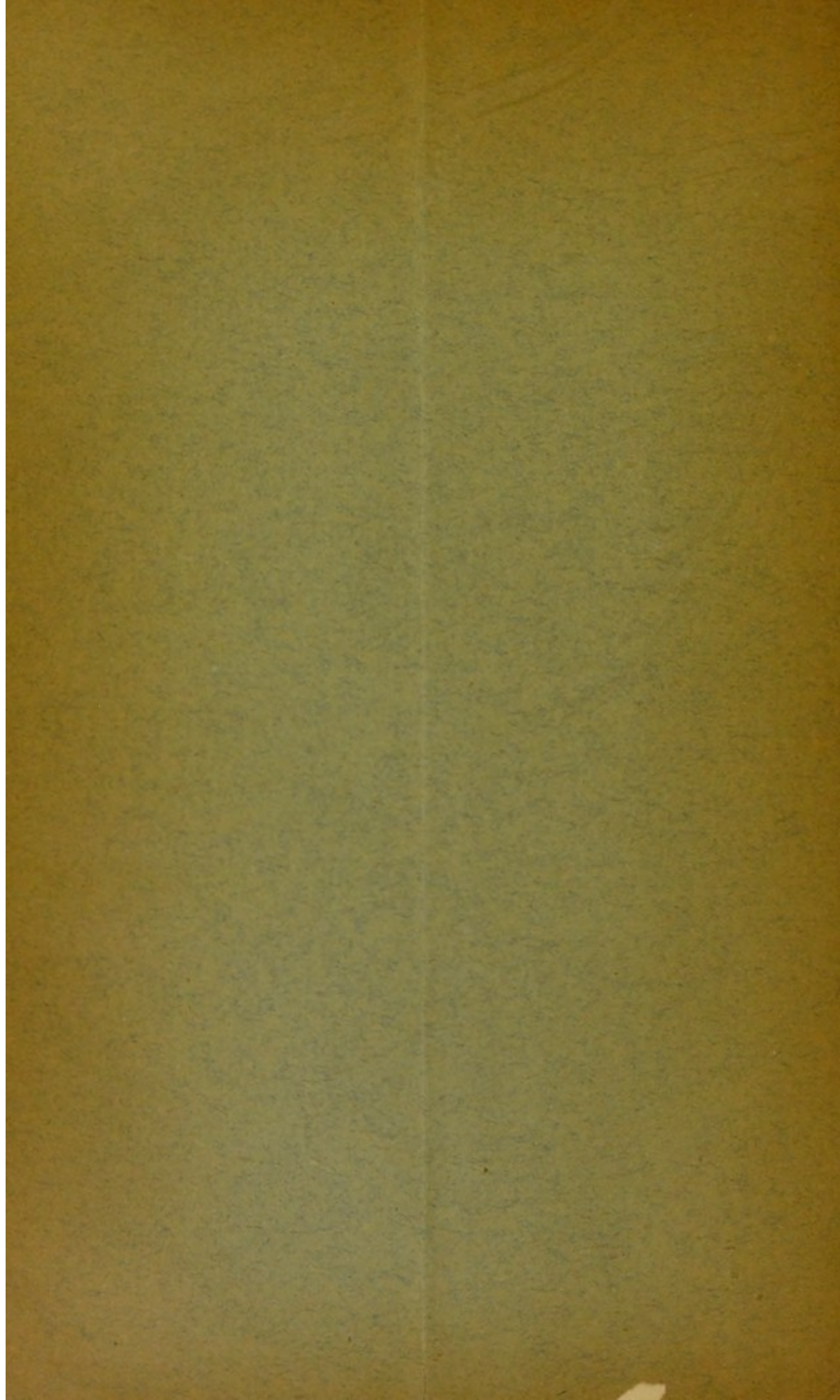
G. BUCKSTON BROWNE.

*A Paper read before the Medical Society of London, April 13th, 1891
and Reprinted from "The Lancet" of April 18th and 25th.*

London :

JOHN BALE & SONS,
87-89, GREAT TITCHFIELD STREET, OXFORD STREET, W.

1891.





THE IMPORTANCE OF THE POST-PROSTATIC
(OR TRIGONAL) POUCH IN THE SURGERY
OF VESICAL CALCULUS, ILLUSTRATED
BY SEVERAL CASES.¹

By G. BUCKSTON BROWNE.

THE surgery of vesical calculus may be considered under two heads : first, the finding of the stone, and secondly, its removal. Errors in sounding for stone have perhaps attracted more attention than mistakes in the diagnosis of any other surgical malady, and the best way of removing a stone from the bladder is even still a frequent matter for argument and difference of opinion. The chief cause of all this difficulty in diagnosis and difference of opinion as regards the method of removal is the fact that the bladder is not always a simple sac, but sometimes has pouches, pockets, or sacculi opening out of its general cavity, in which stones may lie, and escape the diagnostician's sound or the lithotrite, tube, or forceps of the operator. All this is simple enough and known to every surgeon, but the fact that vesical sacculi are of very different kinds is not universally known or appreciated, and great error is caused by speaking loosely of pouched or sacculated bladders, as if all the pouches of a bladder were alike. Bladder pouches may be divided into three varieties : 1. There is the well-recognised sacculus which we may call the ordinary sacculus, consisting of a protrusion of mucous

¹ A paper read before the Medical Society of London, April 13th, and reprinted from *The Lancet* of April 18th and 25th, 1891.

membrane between the muscular fibres of the bladder. Such sacculi are found in the upper part, at the side, and in the floor of the bladder; and where this is covered with peritoneum, they, too, are covered by the same membrane.

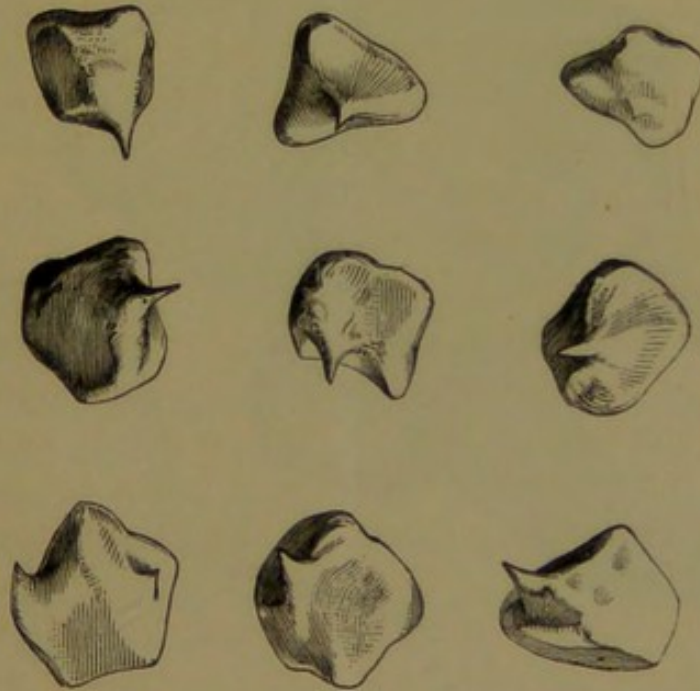
2. A pouch often forms behind the trigone—*i.e.*, behind a line drawn between the vesical orifices of the ureters. It is part of the general cavity of the bladder, but is sometimes deep enough to make the discovery of a stone lying within difficult. This may be called the post-trigonal pouch.

3. There is a post-prostatic or trigonal pouch to which I would particularly draw attention, because I believe it has hitherto received little notice, and because I think it is the chief cause of error in searching for stone and of imperfection in its removal, whether by the lithotrite or by the knife. The post-prostatic pouch is often of extraordinary depth. If the patient be supposed to be lying down, it may be said to consist of the trigone of the bladder, pushed down between the enlarged and projecting prostate in front and a thickened and firm inter-ureteral ridge behind. Where there is much intra-vesical prostatic projection, the pouch may literally be roofed over by this prostatic outgrowth. Calculi in this pouch cause much pain, since the trigone of the bladder has a larger nervous supply than any other portion. Lying as the pouch does in front of and below the orifices of the ureters, it is a perfectly contrived trap for the catching and retention of renal calculi upon their entrance into the bladder, and it will readily be seen how favourably the stones are there placed for growth. That they do lie there and grow into extraordinary shapes is shown by several of the stones about to be described. The object of this paper is to put forward the following two propositions for consideration, and to relate illustrative cases. 1. That, owing to the post-prostatic pouch, vesical calculus is often difficult to detect in cases of enlarged prostate, and that, if the pouch be deep it may be absolutely impossible to find the stone by any instrument passed in through the urethra. 2. That, owing to the occasional depth of the post-prostatic pouch, lithotripsy is sometimes

an impracticable operation, since it is mechanically impossible to evacuate the bladder of all *débris* by urethral instrumentation.

CASE 1.—D. T——, aged sixty-eight, seen with Dr. Whittle of Brighton, July 1886. For seven years all urine by catheter; urine very fetid. By rectum, prostate found very large. A tight urethral stricture at five inches from meatus; urethra nine inches long. Owing to the stricture, catheterism very difficult. I therefore performed internal urethrotomy. After this no difficulty; passed Nos. 13 and

FIG. 1.



Nine calculi, each bearing a spike, probably the result of friction from being closely packed together in a post-prostatic pouch.

14 with ease.—February 14th, 1887: Patient complains of a pricking pain at the mouth of the bladder; worse when he rides. Sounded him and found a small stone.—February 19th: Lithotrity; a most tedious operation. It seemed that as soon as one calculus was crushed and cleared out the tube and aspirator would suck out another stone from some sac or pocket, for immediately after the *débris* were withdrawn a stone would rattle against the end of the tube, rendering the reintroduction of the lithotrite necessary.

This was repeated over and over again, and I entered in my notes at the time that the bladder must be sacculated. All went well, however, and in July 1888, I sounded the patient and found nothing. I saw nothing more of him for twelve months, when on June 3rd, 1889, he came up with symptoms which induced me to sound him again, and a stone was found. On June 8th, finding much difficulty in the introduction of instruments, owing to the stricture, and thinking from the sensation my sound gave me when in

FIG. 2. and FIG. 3.

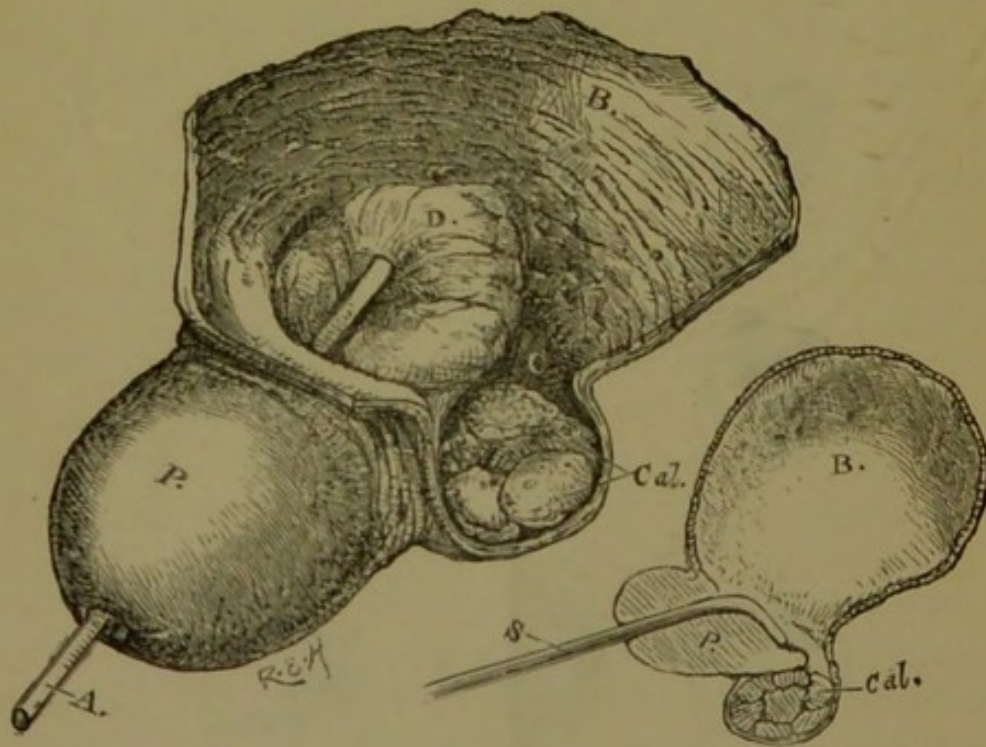


FIG. 2.—A. Piece of bougie showing course of prostatic urethra. B. Bladder wall, behind the inter-ureteral ridge (C). Cal. The nine spicate calculi in post-prostatic pouch. D. The intravesical prostatic growth. P. The prostate.

FIG. 3.—Partly diagrammatic to show how in this case a lithotrite (S) introduced through the urethra failed to reach the calculi.

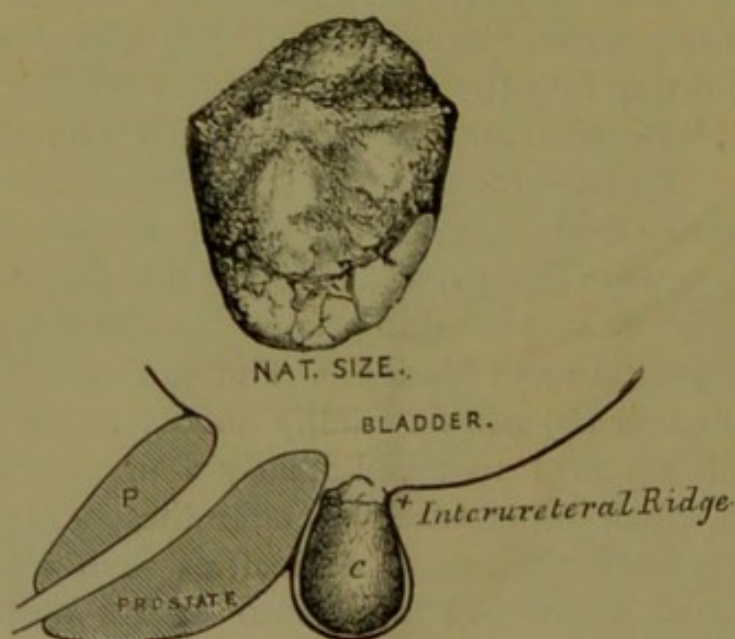
contact with the stone that it was not a case of calculus free in the cavity of the bladder, I determined to open the bladder above the pubes and found a large intra-vesical prostatic lobe, and below it a pouch almost entirely cut off from the cavity of the bladder, and packed with stones. They were removed one by one, nine altogether, and each

bore one curious spike. These spikes, well shown in the engraving (Fig. 1), may simply have resulted from friction, but of this I am not perfectly satisfied. The wound was healed in a fortnight, and on July 12th the patient went home, passing his catheter every five hours, and entirely free from pain. During the summer he walked and rode, and swam in the sea. On July 30th he wrote: "Never better for years. Can cross my legs now, which I could not before, and can sit in any position." On September 13th he came up to London in a dying condition. He had had a long swim, which had been followed by a rigor and severe left renal colic. He died next day, and on the 15th I made a *post-mortem* examination. The prostate was found projecting into the bladder, as already described, and under it there was an enormous pouch containing one calculus. This calculus was round, had no spike, and was entirely unlike those removed by the supra-pubic operation. Both ureters were dilated, and the left kidney was full of large calculi. It was breaking down into abscess. Fig. 2 shows the prostate and bladder. The prostatic projection into the bladder (D) will be readily noted; under it lie the nine calculi, which I removed nearly four months before death, but which are replaced to make the engraving complete. It will be seen what difficulties such a case must present, owing to the size and depth of the post-prostatic pouch, both to the surgeon sounding for stone and to the lithotritist. It is also conceivable that lateral perineal lithotomy would not have rid the bladder entirely of its calculous contents. There are many cases well known where experienced surgeons have left calculi in the bladder after the lateral operation, and probably such a condition as the one described has often been the cause. Supra-pubic cystotomy here was perfectly successful; the calculus found in the pouch after death had come down from the kidney quite recently, and corresponded exactly with the other stones found in the left kidney.

CASE 2.—W. O——, aged sixty-eight. Before this patient came to me he had undergone five operations of lithotrity

during a period of less than two years, obtaining little, if any, relief. He was suffering greatly. I opened the bladder above the pubes, found a stone firmly fixed in a post-prostatic pouch, and took it out with a spoon exactly as one would take out half an egg from an egg-cup. The patient was entirely relieved, and made a good recovery. Fig. 4 represents the stone, which was phosphatic, and underneath the engraving shows the relations of this calculus to the bladder and prostate. The stone presented by a small surface in the bladder, and lay in a pouch which was

FIG. 4.



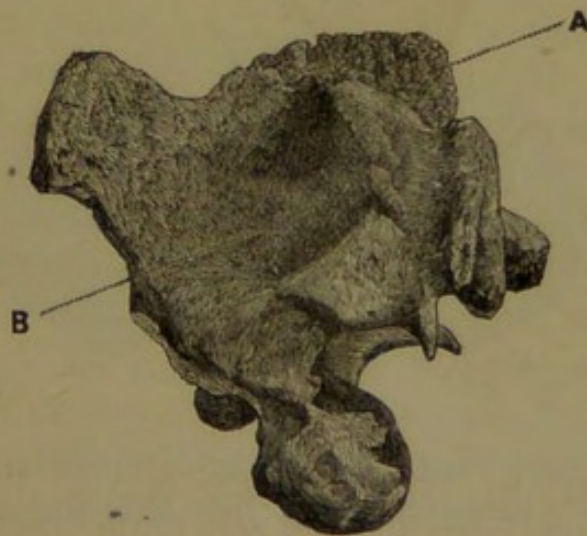
not deep enough to make the detection of the stone difficult by a sound introduced through the urethra, but was sufficiently deep to make successful lithotrity impossible.

The following case, however, is still more remarkable, for while it illustrates the entire futility of lithotrity when the calculus is in a deep post-prostatic pouch, the stone is the most unusual one I have ever seen, and is really a cast of the pouch, showing all its irregularities.

CASE 3.—The patient was aged ninety-four. Some years ago he had been subjected to an operation of lithotrity, and more recently he had again undergone that operation. On both occasions the operators had been men

of the greatest eminence. Since the last operation he had suffered considerably, and there were now present all the signs of calculus. The effort of rising from his chair brought on violent vesical spasm. Driving and walking were impossible on account of the pain they caused. I told him that he had stone, and begged him to take an anæsthetic and to give me leave to remove the calculus by any means which I might find best at the time of operation, saying that his previous experience of the operation of lithotrity showed that the case was not an ordinary one, but that probably there was some abnormal calculous condition present. Nothing, however, would induce him to undergo another operation, and in three months he died. Upon *post-mortem* examination the remarkable stone shown in Fig. 5 was removed from behind the prostate. The rough

FIG. 5.

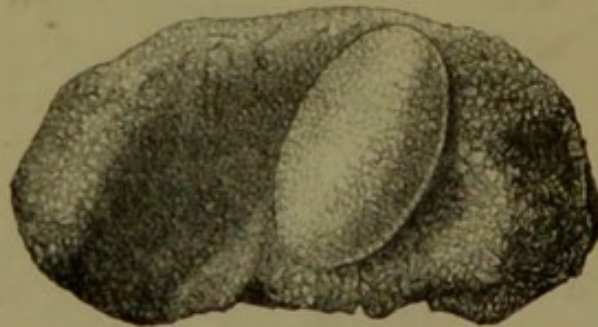


portion marked A was all that presented in the bladder cavity, and this was evidently the surface from which the successive lithotritists had removed the more salient portions of the stone. In front of this rough surface was a smooth cup-shaped cavity, B, in which the intra-vesical prostatic projection played. It will easily be seen that it was impossible to remove this stone by any instruments introduced through the natural passages, and that it could have been thoroughly removed by supra-pubic cystotomy.

The next illustrative case is also one where the stone was of remarkable shape, being like half a bird's nest, with a loose stone like a bird's egg in it. The calculi consisted of solid uric acid, the larger one in reality presenting a cast of a not very deep post-prostatic pouch.

CASE 4.—P. B——, aged seventy. Seen with Dr. G. D. Thane, November, 1888. The patient suffered from great irritation of the bladder. He was often disturbed every ten minutes to pass urine; riding in a carriage caused great distress, but there was no pain after micturition, and blood had never been seen in the urine. I sounded him, found a stone, and thought that perhaps there were several stones. Three days after the patient was anæsthetised, and the stone seized with a lithotrite, but I was at once conscious that the calculus was fixed and not free in the

FIG. 6.



cavity of the bladder, and therefore immediately proceeded to supra-pubic lithotomy. When the finger entered the bladder I had reason to congratulate myself upon the decision, for there was a cup-shaped mass of uric-acid stone (Fig. 6), lying underneath a prostatic projection, together with a small free uric-acid stone. It would have been impossible thoroughly to crush and evacuate this stone by lithotritry, for it was far too firmly and too deeply fixed. I removed it with a scoop, and the patient made a good recovery, and he has remained well ever since. The larger stone presents anteriorly a cup-shaped hollow, in which the intra-vesical prostatic projection lay.

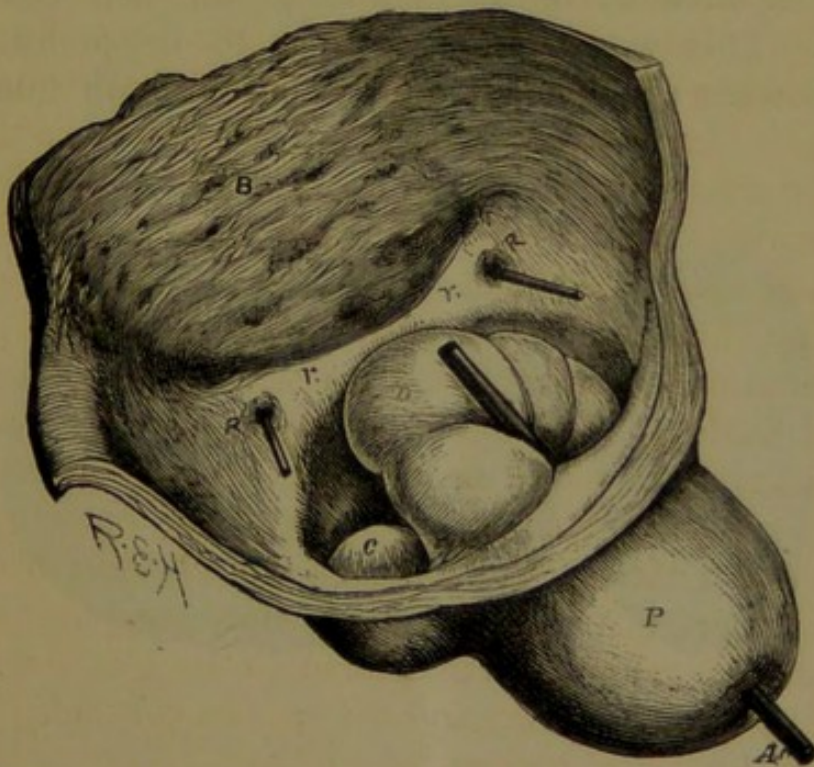
The following case is of perhaps greater professional interest than the others, for the patient had been in several hands before he came to mine, and during the time he was under my care I had occasionally to contend with the greatest difficulties, due to the depth of the post-prostatic pouch ; owing, however, to the fact that this condition was thoroughly realised, these difficulties were always successfully overcome. When at last the patient died, I was allowed to examine the parts concerned ; and I am therefore able to give a complete account of the case.

CASE 5.—B. V——, aged seventy, seen with Mr. H. Fraser Stokes. Retention of urine, August 1887, and ever since all by catheter. In July 1888, Mr. Stokes wrote asking me to see the patient, and saying : “ He has been sounded several times by Mr. —— and Mr. ——, and by myself, and nothing can be detected.” On the 24th I visited him. The catheter was passed every three hours ; there was much spasm and great pain in the penis ; the urine was acid, with much pus ; sp. gr. 1018. I sounded, and at first felt nothing ; but after a little search found a stone, apparently on the floor of the bladder. On July 27th Mr. Moss administered ether, and I seized a medium-sized stone with reversed blades and crushed it. The operation was satisfactorily completed, and the patient made a very good recovery. The stone weighed 2 drachms 25 grains, and consisted of an oxalate centre with phosphatic incrustation. January 1889 : The patient had been very well, going six hours between his catheterisations, but he now complained of pain before and after using the catheter. He was sounded, nothing found, and the bladder washed out with a No. 16 tube and lithotrity aspirator, obtaining no result nor hearing the smallest rattle of stone against the end of the tube. The symptoms continuing, I was asked to sound him again, and on February 5th did so, and found a stone apparently on the floor of the bladder, and withdrew the sound. Mr. Stokes, who was standing by, said he had not heard the stone, and asked if I would let him hear it. So the sound was reintroduced ; but no stone could

be felt, nor was it until after careful search had been made for several minutes that the beak of the sound seemed to find its way into a pouch on the floor of the bladder, and immediately there encountered the stone. Next day lithotripsy was performed. The stone was difficult to find, but it was seized with reversed blades, and then carried into the cavity of the bladder. While held there we discussed the question of performing lithotripsy or of opening the bladder above the pubes, and we decided in favour of the former. The stone was therefore crushed and entirely removed, a rectal bag being introduced into the bowel to press up the floor of the bladder, and to prevent as far as possible *débris* from falling into the pocket behind the prostate. The patient made a good recovery, and continued very well and active until October, when he began to experience again a little pain after catheterism. On the 25th I sounded and found stone. The urine was very offensive, and there was much spasmodic pain before and after catheterism. Next day lithotripsy was performed, and two calculi were successively picked out from the pouch on the floor of the bladder, with which I was now very familiar. Great pains were taken to evacuate every particle, and no trace of more stone in any part of the bladder could be felt; and although the patient's consent had been obtained to supra-pubic cystotomy, if necessary, we thought it well to be content. Unfortunately he was not at all relieved by this operation, and the spasms continued before and after each catheterism, which had to be performed every hour. This went on until Nov. 4th, when he was so ill that I decided to open the bladder, and next morning performed the usual supra-pubic operation. Directly the finger entered the bladder it found an intra-vesical prostatic growth as large as a chestnut, growing from below and rather to the right of the vesical urethral orifice; and under the growth, at the bottom of a deep pocket, there was a calculus as large as a pea. The prostatic outgrowth offered itself temptingly for removal, but taking into consideration the patient's weak state we reluctantly left it

alone. He was so ill afterwards with vomiting and hæmaturia that we were very glad we had done so. He slowly recovered, and on the 29th the wound was firmly healed. During the middle of December he had a severe attack of right renal colic, and on the 21st I washed out of the bladder a distinct calculus through a No. 15 evacuating lithotripsy tube. During January 1890, he enjoyed good health, frequently held his urine seven hours, and was entirely free from pain. On Feb. 1st he had another severe

FIG. 7.

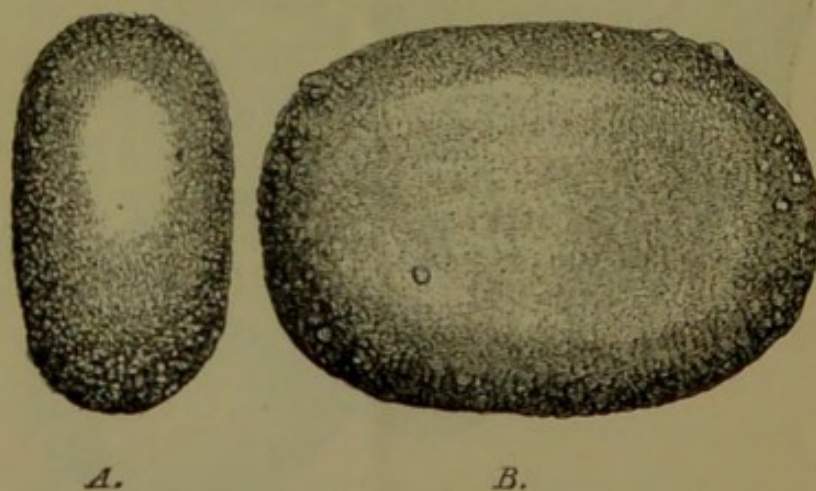


- A. Piece of bougie lying in urethra. B. Bladder wall—post-trigonal pouch. C. The calculus. D. Intra-vesical prostatic growth. P. The prostate. RR. The vesical openings of the ureters. rr, Inter-ureteral ridge.

right renal colic with rigors, and gradually passed into a dying condition, and sank on Feb. 12th. On Feb. 14th I made a post-mortem examination, and obtained the bladder and prostate shown in the engraving (Fig. 7). A stone has been put in to show where the stone lay during life, and it will easily be seen why difficulty was so fre-

quently experienced in the detection of the successive calculi and in their removal through the urethra, and how it was that one calculus was never touched until the bladder was opened supra-pubically. The intra-vesical prostatic growth completely roofed over the post-prostatic pouch, and was practically in contact with the well-developed inter-ureteral ridge, so that exploring instruments were only with great difficulty, and even uncertainty, passed into the pouch. At the post-mortem examination, the deep post-prostatic pouch was entirely free from calculus. The ureters were only slightly dilated, and the right ureter was almost blocked by a calculus about an inch below the kidney. This was the only stone to be found. The kidneys were congested, and passing into an interstitial

FIG. 8.

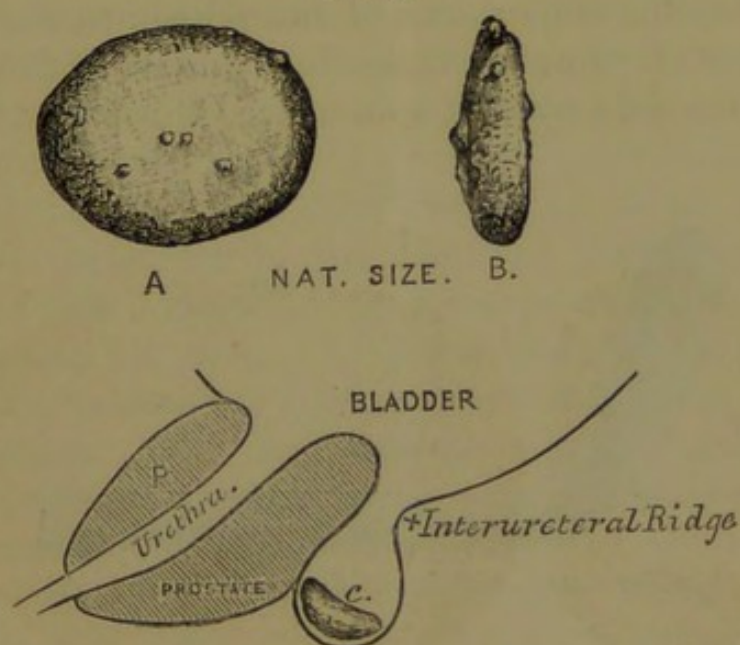


suppurative condition. This patient evidently from time to time passed stones into his bladder from his right kidney, which were trapped by the post-prostatic pouch—indeed, they had not a chance of escape by the urethra. It was unfortunate that his vital powers failed when they did, for there was only one more renal stone to be passed, and that was engaged in the ureter at the time of his death.

CASE 6.—The stones in the case just related were only small, and it may be urged that that was one reason, at

any rate, why they were not easily found ; but really large stones sometimes lie in this pouch and escape detection. Fig. 8 represents a calculus weighing thirteen drachms and a half, which I recently removed by supra-pubic lithotomy from a patient aged eighty. He lived eight weeks after the operation. The stone was hidden away in a post-prostatic pouch. An excellent surgeon had within a few months performed lithotrity in the general cavity of the bladder without, it may fairly be assumed, ever touching this large calculus.

FIG. 9.

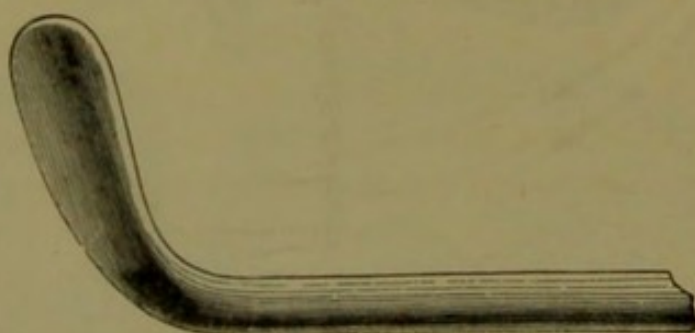


The next case (Case 7) is one of a uric-acid calculus weighing fifty grains, and shown in Fig. 9, which I entirely failed to find by sounding, in the bladder of a gentleman aged eighty, although I examined him thoroughly three times, once when he was anæsthetised, using lithotrity tubes and aspirator and sounds of various sizes and curves. My conviction that he had a stone was, however, not shaken, and as his sufferings were severe he submitted to supra-pubic cystotomy. On entering the bladder with the finger the stone was found with great difficulty, owing to the depth of the post-prostatic pouch in which it lay. The diagram represents the parts as I found them. This case is an important illustration of what I maintain to be a fact

—viz., that vesical calculus may exist under such conditions as to be absolutely out of the reach of all instruments introduced through the urethra.

If time and space permitted I could give further examples of a more ordinary character from my practice, where I and others have failed to find stones when sounding in the usual way, owing to their lying in post-prostatic pouches. In one case the bladder was opened by lateral perineal cystotomy for drainage and exploration, and the stone was not felt by the staff or detected until the finger entered the bladder; but I think enough has been related to illustrate the importance of the post-prostatic pouch in the surgery of stone in the bladder, and to prove the two propositions with which I commenced this paper.

FIG. 10.



Bladder sound, with broad flat beak (the author's).

The practical outcome of my paper is therefore—1. The insistence in all doubtful cases of vesical suffering, where the prostate is enlarged, upon careful search being made behind that organ. In sounding in such cases it is not enough merely to reverse the beak of the sound, but thorough examination must be made, with the reversed beak, for the slit-like opening between the intra-vesical prostatic growth and the inter-ureteral ridge, which may be the sole means of access to a large post-prostatic pouch, when such a pouch exists. For this investigation a sound I have designed with a beak like a flat-bladed lithotrite will be found useful. The broad flat beak is easily reversed when in the bladder, and it slips with greater facility than the beak of an ordinary round-ended sound

under the projecting lobe of the prostate, allowing the space under it to be as fully explored as is possible by any instrument passed in by the natural passage. Help may sometimes be afforded in this exploration by introducing a rectal bag into the bowel before sounding, or by an assistant's making upward pressure with his finger in the rectum. The endoscope, as in too many of the really obscure troubles of the bladder, is here of no use; nor is distension of the bladder with fluid, which in the case of a post-trigonal pouch is always useful, of any avail when the stone lies concealed in a post-prostatic pouch. 2. When there is reason to believe that there is a deep post-prostatic pouch it will be well, save in very exceptional cases, not to attempt lithotrity, for it is when performed under such conditions that lithotrity is likely to be discredited, because it may be impossible to clear the pouch of all stone by instruments passed in by the urethra. Case 4 is a good example of this. Here lithotrity was abandoned in favour of supra-pubic lithotomy. It is reasonable to believe that such a stone, situated as it was under a projecting prostatic mass, could not have been entirely removed by lithotrity, and the result has justified the decision, for the patient has had no return of calculous troubles since the operation, two years and a half ago. 3. Finally, when calculous symptoms and vesical distress continue in spite of treatment, and no stone can be found by the usual methods of examination through the urethra, and also in cases where a stone is found, but lying deeply in a post-prostatic pouch, it is urged that the bladder should be opened by supra-pubic incision in preference to all others. When this is done and combined with firm upward rectal pressure, the surgeon obtains complete command over the post-prostatic pouch, such command indeed as can be obtained by no other cystotomy, while at the same time it is incomparably safer than any perineal operation (being almost bloodless) in cases which by their very nature (great prostatic enlargement) are certain to bleed freely if any incision is made from between the legs.

