

**A case of suprapubic cystotomy in which the bladder was distended with air instead of water, and four hundred and ninety-five calculi removed / by W.W. Keen.**

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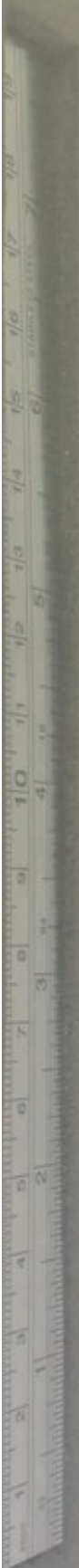
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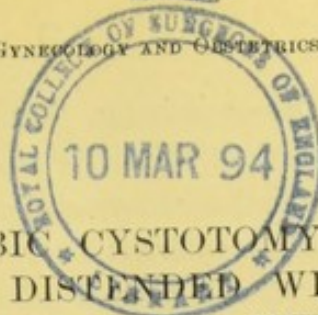
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A CASE OF SUPRAPUBIC CYSTOTOMY IN WHICH THE BLADDER WAS DISTENDED WITH AIR INSTEAD OF WATER, AND FOUR HUNDRED AND NINETY-FIVE CALCULI REMOVED.

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Mr. S. was first seen June 17, 1893, at the request of Dr. Charles A. Service, at Bala. He is seventy-five years of age, and both his father and grandfather died of prostatic trouble. For several years he has been passing small calculi with the urine at frequent intervals and in considerable quantities, but for three months has passed none until within the last few days, in which time he has passed a number of fragments of a larger stone or stones, as they show distinctly that they are portions of the concentric layers of small phosphatic calculi. He has long had trouble in passing his water, and the stream has been without any force. Within the past four months he has begun to have pain which has increased at times until it was excessive. Four days ago he had retention of urine, and Dr. Service was compelled to draw it. This he has succeeded in doing with a soft catheter in spite of the fact that there is a slight stricture at the bulbous portion of the urethra. This afternoon he failed entirely, and was compelled to introduce a prostatic silver catheter. The passing of any instrument is so painful that Mr. S. can scarcely endure it. He has slept but little, lost his appetite, and is very miserable. His temperature remains about normal. Examination by the rectum shows a very large prostate, the upper part of which I am unable to reach. It is about of normal consistence, and is only slightly tender. After several trials with different instruments I succeeded in passing a Nélaton catheter with a conical bulbous tip, and relieved him of about ten ounces of very bloody urine. This was uniformly very bloody without any clots. The urethra was so sensitive that I was not able to introduce any sound or other metallic instrument.

I suggested that the doctor relieve the bladder as rarely as pos-

sible with the Nélaton catheter, that when tolerance to its passage is established the patient shall be taught how to use it, and that he shall then be sounded for stone and operated on. If the bladder and urethra still remain intolerant after a time, a suprapubic cystotomy should be done. A full dose of morphia was given to quiet him.

*June 19, 1893.*—He has passed a very much more comfortable forty-eight hours, and the urine is now but little discolored with blood. He is still passing small fragments of calculi, and his general condition, although improving, is far from satisfactory.

*Operation, July 8, 1893.*—The caliber of the urethra was only 19 (Fr.), and the urethra was still so irritable and sensitive that I did not feel justified in attempting to dilate it sufficiently for litholapaxy, especially as he was suffering so much that immediate relief was demanded. Moreover, as the prostate gland might need to be excised, I determined upon suprapubic cystotomy.

I adopted the suggestion of Dr. A. T. Bristow (*Annals of Surgery*, June, 1893), and injected nine ounces of air into the bladder. This distended the bladder satisfactorily, forming a distinct elastic tumor to the touch in the middle line. At its upper part was a rounded tumor an inch and a half in diameter, which I had not seen, but was explained later as a distended pouch of the bladder.

An incision in the middle line discovered the bladder very well. The peritoneum was not seen. As soon as the bladder was incised the air immediately escaped, the edges of the bladder wall were seized by hemostatic forceps, and the finger thrust into the bladder. In a moment I discovered a large number of small stones lying in the pouch behind the prostate. These were removed chiefly by a scoop, and when counted after operation were found to be four hundred and ninety-five in number, the majority of them very small. The weight of the whole number was three hundred and eighty-six grains. About fifty or more would range from a diameter of twenty-six to thirty-two of the French catheter scale.

The mucous membrane of the bladder was then examined by an electric light. It was markedly red and velvety. This explained the hemorrhage.

At the upper part of the bladder a pouch was found with several stones lying in it. Its mouth was easily seen by the electric light. This pouch was undoubtedly the small tumor above referred to,

which at first had puzzled me a good deal, as I had not before found it when examining the belly wall (Fig. 1).

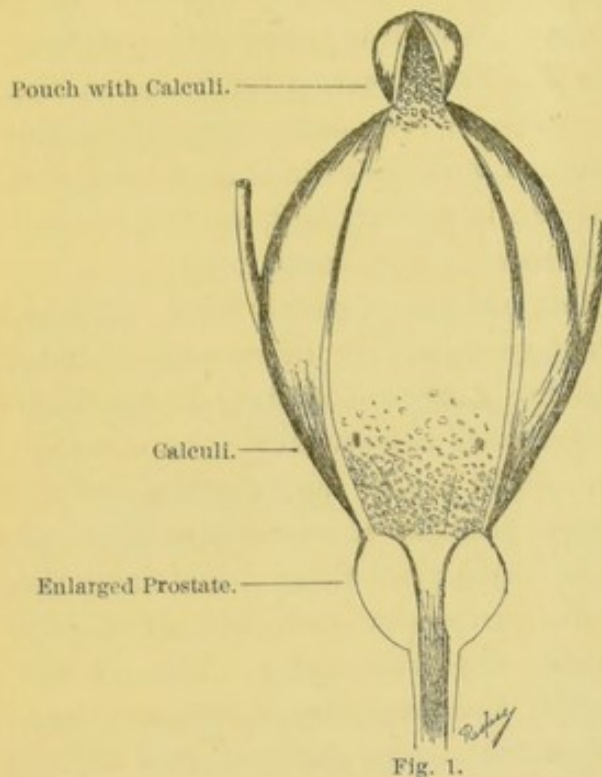


Fig. 1.

Bladder showing enlarged prostate and calculi and the pouch in the fundus containing calculi.

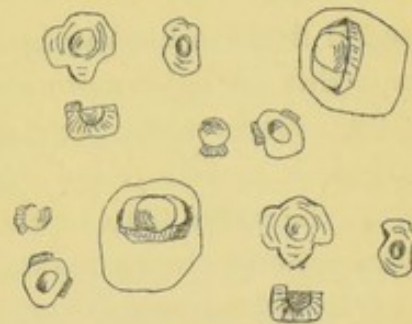


Fig. 2.

Calculi showing nuclei and incrustation.

The prostate was moderately enlarged on its vesical aspect, but as it did not obstruct the urethra, nor would probably do so in the near future, in view of his age it was left alone. Three stitches were taken in the upper part of the wound, the incision in the bladder being left open.

*July 14, 1893.*—The stitches were removed to-day. The wound looks well, and the patient will recover without trouble. The highest temperature has been 99.4°.

The calculi removed at the operation, and the fifteen or twenty passed before it, are all of the same character. The small round nuclei consist of uric acid, and the incrustation is of phosphates (Fig. 2).

#### REMARKS.

The foregoing case is of interest, partly by reason of the large number of calculi removed, partly on account of the small sacculated pouch, but especially on account of its being, I believe, the

first case in which the bladder has been distended by air instead of by water. My experience in this single case is such that it would certainly lead me to adopt Dr. Bristow's suggestion in the future unless further experience discloses some unsuspected disadvantages.

I did not use the Petersen bag in the rectum for lifting up the bladder, and I found that the bladder was better lifted up by the air alone than by the usual method with water in the bladder and the bag in the rectum. Moreover, it was not soft, as I had feared beforehand it might be, and so leave me in doubt as to whether it was bladder or possibly intestine, but was distinctly hard and firm.

The use of air has the advantage which Dr. Bristow has claimed for it, namely, that there is far less danger of rupture of the bladder, because the air is so much more compressible than water is; and it lifts the bladder better. I did not see the peritoneum at all, and did not, therefore, measure how far it was raised from the pubes, yet from the fact that the bladder rose three inches above the pubes, I should judge that the peritoneum was lifted off farther from the pubes than would be the case with water. The distinction between the resonant bladder and the intestine was very clear.

The last advantage that Dr. Bristow calls attention to is that it gives a dry wound instead of one filled with blood and stained fluid escaping from the bladder. This I found a very great advantage. Ordinarily in suprapubic cystotomy the moment the bladder is incised, the wound is filled with escaping water, blood and urine, and the edges of the opening are entirely obscured. In the present case the edges of the bladder wound were as easily seen and seized as the edges of the wound of the skin. It was an absolutely visible wound throughout; and this I found no small advantage. In most cases, of course, the air need not be filtered, as it enters a bladder already infected; but should there be reason to filter it, nothing is easier than to tie a wad of cotton over the distal end of the tube of an ordinary Davidson or other syringe.

The number of stones was very large; although, of course, their size, in the majority of cases, was small. In view of their character, which showed that they were incrustations of renal calculi discharged into the bladder and lying in the pouch behind the prostate, I purpose, as soon as the patient is in a suitable condition, to dilate the urethra up to say No. 30 (Fr.) or thereabouts, and then, at stated intervals thereafter, perhaps every one

or two months, to insert the Bigelow evacuator and search for any stones which may have recently passed into the bladder from the kidneys. This prophylactic extraction of the small stones will enable me, I think, to avoid any need for a subsequent cystotomy. Of course suitable dietetic and other measures will be taken to prevent their accumulation.

Had I attempted litholapaxy, one condition of the bladder would have defeated absolutely my object, namely, the little extra pouch at the upper part of the bladder, which I could not have emptied of the stones by means of the evacuator. I had considerable difficulty in getting the stones out by a small scoop and the hemostatic forceps, even after I had discovered the pouch and its contents.

The proposed future treatment of this patient leads me to make the following suggestion, which is probably not new, but which I have not seen proposed as a systematic treatment, viz.: That in cases of renal colic, when the attack has subsided and the stone has reached the bladder, if the stone is not voided by the urethra within two or three days, the evacuator of Bigelow shall be introduced and the stone sucked out of the bladder by the rubber bag. Within a few days, in just such a case, I evacuated a large and prickly uric acid calculus in just this manner without any need for the lithotrite (which, of course, could be used if necessary), and as the patient has had three attacks of renal calculus I have advised this as a routine treatment after any subsequent attack. The obvious advantage is not only in freeing him from the pain caused by the small stone in the bladder, if such pain exists, but in preventing the formation of a much larger stone by subsequent phosphatic incrustation.



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