Five cases of suprapubic cystotomy : three for stone, one for tumor in the bladder, and one for exploration with catheterism of the ureters : one death / by W.W. Keen.

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FIVE CASES OF SUPRAPUBIC CYSTOTOMY:

Three for Stone, One for Tumor in the Bladder, and One for Exploration with Catheterism of the Ureters; One Death.[1]

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CASE I. *Stone in the bladder; suprapubic cystotomy; prostatectomy; recovery.*—I was called to Vineland, N. J., September 12, 1888, by Dr. C. R. Wiley, to see Mr. B., aged sixty-five. He had had the usual symptoms of stone in the bladder for six years. A Petersen's bag was inserted in the rectum and distended with ten ounces of warm water. The bladder was injected with six ounces of water with four grains of boric acid to the ounce. Suprapubic dulness then existed to two inches above the pubes. The operation was done by the usual vertical incision, and two stones were removed, weighing together 763 grains. The prostate projected so much into the bladder at the mouth of the urethra that I removed a piece a slarge as the last joint of the finger, by the scissors. The bleeding was slight. The bladder was not sutured. A drainage-tube was inserted and removed on the tenth day: a catheter was retained in the bladder for four days more. The patient recovered without any trouble, his

[1] Read before the Philadelphia Academy of Surgery, April 6, 1890.

highest temperature being 100.6°, falling to normal, both morning and evening, within a week. The wound healed entirely in four weeks.

In July, 1889, he had a return of his old symptoms, and Dr. Joseph W. Hearn, being in Vineland, was asked by Dr. Wiley to see him again. Dr. Hearn having detected a stone by the sound, reopened the former wound by dilating a small fistula which had appeared, then crushed and removed two stones, weighing 412 grains in all. After that time he was well until his death recently from another disease, as Dr. Wiley informs me.

I have no question that the stones removed by Dr. Hearn had formed since the first operation, for the entire interior of the bladder was inspected at that time and no further stone was detected.

CASE II. *Ankylosis of the knee; stone in the bladder; suprapubic cystotomy; recovery.*—R. J. B., of Bridgeton, N. J., first consulted me June 19, 1888. A tall, spare man, aged forty-three, with ankylosis of the left knee from a white swelling twelve years ago. Has also suffered considerably from rheumatic gout, and has a deformed right hand following it. There is also considerable ankylosis of both elbows. He passed a stone from the bladder for the first time in 1876, and since then has passed dozens of them, mostly phosphatic, and he has had also renal trouble from gravel, attended with hæmaturia, seven or eight years ago. He has passed no stone by the urethra for eighteen months, but his present attack of vesical irritation has existed for three years. He is obliged to empty the bladder from one to four times an hour. Urine, specific gravity 1011, small amount of pus and albumin, with phosphates; reaction faintly alkaline.

Operation, June 4, 1888. The patient desired that the "high operation" should be done in order that the condition of the bladder could be explored by the eye and the finger at the same time that the stone was removed. The ankylosis of the knee, as well as his wish, made me decide to do the suprapubic operation. The rectal bag was distended with ten ounces of warm water, and the bladder with seven ounces of water with four grains of boric acid to the ounce. The dulness of the distended bladder extended two inches above the pubes. An incision two and one-half inches long was made and the bladder easily reached, except for the difficulty with the anæsthetic, as mentioned later. An incision two inches long was made in the bladder and the stone was extracted. Its shape was that of a flattened sphere; it weighed 421 grains when dry, and its surface was quite smooth except at the edges.

The bladder wound was then closed with eight stitches of interrupted fine chromic catgut. The bladder was now injected with warm water combined with the boric acid in order to test the accuracy of the closure of the wound. No water escaped. The wound was then filled with water and the bladder was injected with nine ounces of air, when instantly a leak was discovered by the air bubbling up through the water. A stitch closed this, and made the bladder both air- and water-tight. Six stitches closed the wound in the abdominal wall, which included with care the aponeurosis of the abdominal muscles. The peritoneum was not recognized during the operation. A flexible catheter was inserted into the bladder, and its end was at first corked up and the bladder emptied every hour; but, as this caused some pain, the catheter was uncorked and continuous drainage into a urinal substituted.

6th (2d day). He has had no pain; his highest temperature is 100°; he is hungry, and has slept well. The wound was re-dressed yesterday, when everything looked well.

Four days after the operation there was considerable local tenderness and irritation, and on the sixth day this was so marked that I removed the stitches and evacuated some urine and pus, which had formed as a result of the giving way of the stitches in the bladder. The wound was drained for a few days and then closed, and he went home on the 25th, three weeks after the operation. Since that time he has had no trouble.

REMARKS.—No other operation than the suprapubic could have been done in this case on account of the ankylosis of the knee. The operation was an extremely difficult one, because unless he was deeply anæsthetized he was struggling, with the abdominal walls as tense as boards, and in order to relax them anæsthesia had to be carried to a point which I felt involved serious danger. Between Scylla and Charybdis it was very difficult to steer a safe course. The difficulty was especially great in suturing the bladder. In fact, I think it would have been wiser had I not attempted to do so, but had simply drained.

CASE III. *Stone in the bladder; surgical kidneys; death from sudden œdema of the lungs.*—W. H. C. was referred to me by Dr. Julius A. Johnson, of Easton, Md., December 11, 1889. His age is fifty-nine; his weight two years ago 185 pounds; at present about 135 pounds. Seven to eight years ago he first noticed that his water was passed very slowly. Four years ago had a brief attack of apparently acute

inflammation of the bladder. Two years ago another attack of acute inflammation, with very thick urine, and required catheterization; has used a Nélaton catheter himself more or less ever since. Passes his water about ten times in the twenty-four hours; has never passed any blood, except as a result of the use of the catheter, he thinks. Has no pain in the small of the back, but suffers severely in the bladder and perineum, for which he has taken from one-half to one grain of morphia a day for about two years. In spite of his wasting, his appetite is good, and also his sleep, excepting that it is interrupted by the necessity of passing his water.

Eight years ago, while brushing his teeth, he touched a nerve, he thinks, and for a few minutes his face was "drawn." From one to two years later, while going home to dinner, his left arm and leg became weak, and he had no use of them for a few minutes. He did not fall, but sat down, and after a short time walked home. A few times since then he has felt as if a similar weakness was coming on; seizing his wrist stopped it. In October, 1888, on a Saturday he had a fever and a chill from exposure to cold. On the following Tuesday his wife gave him a hot toddy. A little while afterward, while sitting in a chair, a "queer look" came over his face, so his wife states, and for a few minutes he "talked thick," but after that had no further trouble. He has never had any headache.

He has had at least three considerable hæmorrhages from the bladder. He is not quite sure, but thinks that the hæmorrhages came on only at the end of micturition, except the last time, when the urine was uniformly bloody from the beginning. The longest of these hæmorrhages continued for two to three days. By spells the urine has been alternately clear and bloody, and its passage attended

with considerable soreness, which passed away as soon as the hæmorrhage occurred.

Once he passed a small calculus the size of a pea, and probably one hundred of about the size of a pin-head; these last at varying times.

Operation, December 26, 1889. I was assisted by Professor Brinton and Drs. Horwitz and Coplin. Owing to the bad condition of his kidneys, chloroform was given instead of ether. The field of operation was thoroughly prepared the day before. Petersen's bag was inserted into the rectum and distended with twelve ounces of warm water. I had not examined his bladder instrumentally before, as it gave him great pain even to introduce a soft instrument, and in view of his general poor health and the damaged condition of his kidneys, I determined not to give an anæsthetic twice. In order to fill the bladder as well as to explore it, I now introduced a silver catheter. The instant it entered I struck an evidently large stone. After washing out the bladder, nine ounces of warm, boiled water were introduced through the catheter; as soon as this limit was reached the water began to escape alongside of the catheter, and to prevent its further escape, rubber tubing was tied around the penis. Notwithstanding this double dilatation, the belly was still resonant down to the pubes, though the resonance slightly diminished as the pubes were approached. An incision was made in the middle line from the pubes three inches upward. As soon as the belly-wall was cut through, the peritoneum was encountered, reaching all the way to the pubes. It was readily lifted to the upper end of the incision, but as it was more than usually thin, and required an additional assistant, I determined at once to get rid of this necessity and danger, by placing the patient in Trendelenberg's position. A tall, stout

nurse, with his back to the patient's perineum, took the patient's knees over his shoulders and thus lifted the pelvis about a foot from the table. The peritoneum at once disappeared at the upper extremity of the incision. The bladder was still so deep that a possibility, even, of its rupture from the injection suggested itself to me. It was found, chiefly by the aid of the catheter which had been placed in it, at a depth of three inches from the skin. Several large veins were first ligated, both on the bladder-wall and in the connective tissue in front of it. The bladder was then opened, and one large and three small stones removed. The small stones were about the size of Lima beans; the large one crumbled down, under the grasp of the forceps, into a number of fragments; the stones were phosphatic. The weight of all that was recovered was just 600 grains, and I estimated that fifty or sixty grains were lost in the débris in washing out the bladder. The wall of the bladder was much pocketed, and the three small stones were found in these pockets, and would almost inevitably have been overlooked had any other operation than the suprapubic been done. They were readily extracted by the finger in searching for fragments. The prostate, which had been found but little enlarged toward the rectum, was greatly enlarged on the vesical aspect, the enlargement being chiefly in the middle line and to the right, forming a uniform, rounded mass, bulging into the bladder just behind the orifice of the urethra, but not blocking it. Prostatectomy, therefore, was not done.

The walls of the bladder were rugose and about three times their natural thickness. The wound in the bladder was not closed. A drainage-tube of soft rubber with a bulbous end was introduced into the bladder. As there was so large a space between

the bladder and the abdominal wall, I thought it prudent also to introduce a second drainage-tube for the first forty-eight hours into the pre-vesical space. The abdominal wall was then closed by interrupted sutures, the two drainage-tubes coming out together at one interspace.

31st. Reacted very well from the operation. For two days he had slight vomiting, and on the third and fourth days considerable hiccough, which yielded to one-quarter grain doses of cocaine. His temperature fluctuated between 97.9° and 99.6°, only once reaching 100°. The wound was irrigated through the drainage-tube with warm boric acid solution. The pre-vesical drainage-tube was removed at the end of forty-eight hours.

When I left him at 5 P. M. on the 30th (the fourth day) I felt very well satisfied with his condition and quite assured of his recovery. So far as could be judged, the amount of urine secreted was ample, and there was no danger apparently from the kidneys. At 9.30 P. M. on the night of the 30th acute œdema of the lungs set in, followed by death in seven hours. No post-mortem could be obtained.

REMARKS.—This operation was only undertaken in view of the urgent symptoms. The bad condition of the kidneys and his serious antecedent history of cerebral disturbance of course contra-indicated operation, but his suffering from the stones in the bladder was so intense that relief was absolutely necessary. That life was terminated by the sudden œdema is not to be wondered at in view of the renal complications.

No case ever showed me better the value of Trendelenberg's position. The moment he was placed

in that position, not only did the peritoneum fall down and away, but the bladder was made accessible, although being so deeply placed. Neither the rectal bag nor filling the bladder with water raised it to the abdominal wall, and I was seriously afraid that the bladder had been ruptured, although no more water was injected than the capacity of the bladder easily permitted.

CASE IV. *Papilloma of the bladder; removal by suprapubic cystotomy; recovery.*—Mr. S., aged fifty-seven. (The following history was furnished by Dr. Lorini, his medical attendant.) Family history negative; no cancer. He had malaria in the sixties with biliary fever. He had marked trouble with his gall-bladder from 1878 to 1881, and visited Carlsbad, since which time he has had no return of the trouble. There is no history of urinary calculus or gravel. In 1885 he had an attack of cystitis with blood in the urine for a few days. He was circumcised in 1887. For thirty years he has had a sense of discomfort in the small of the back. About August 1, 1889, after a horseback ride at Ocean Beach, N. J., bleeding from the bladder began, but yielded to internal remedies after two days. August 15th, another attack came on and continued for a few days, but yielded again to the same remedies. In January, 1890, a third attack lasted for nine weeks, in spite of internal remedies and the actual cautery over the back. In April and May his bladder was washed out with boric acid and nitrate of silver solutions of various strengths. After five days the bleeding stopped, but returned again about the middle of June, and continued up to the middle of August, in spite of the use of the nitrate of silver and boric acid solution. He spent the summer

in Maine and gained greatly in health. The capacity of the bladder was undiminished, and the urine contained neither casts nor albumin when there was no blood. There was slight prostatic tenderness. The blood was always thoroughly mixed with the urine from the very start, whether drawn by catheter or voided voluntarily. Clots were passed from time to time. These were of irregular shape and seemed to be fewer and smaller when he led an active life, more numerous and larger when he rested. No shreds of tissue have ever been found, in spite of the most careful watching, except one minute specimen, which was thought to be papillomatous, and the deeper cells possibly sarcomatous, by Dr. F. A. Packard.

November 13, 1890, the hæmorrhage returned more profusely than ever, and has continued to the present time, in spite of internal remedies, washing out the bladder, hypodermics of ergotine, etc.

Status præsens, Dec. 7, 1890. When I saw him for the first time, at this date, I found a short, stout man who appeared to be in good health, but with an anæmic, pale skin, and who was evidently suffering from the mental depression incident to the continued hæmorrhage. He had lost but little flesh, and his anæmic appearance, as was stated to me by Dr. Lorini, who had known him for many years, and under whose care he now was, was habitual and not a result of the bleeding, a rather surprising fact in view of the amount of blood lost. I saw him void his urine, which was porter-colored from the first drop. There were some small clots of irregular shape, and from the amount of urine passed and its color and clots I estimated that the amount of blood lost was not far from half a pint a day. Dr. Crozer Griffith examined a specimen of the urine for me. It showed no casts; a large amount of blood was

present, with an excess of white blood-cells, which in some places were adherent to each other in masses, as in cystitis and other suppurative processes. No epithelial cells were found. Fragments of possible tissue were examined and found to be only clots which had rested somewhere in the urinary tract sufficiently long to become largely fibrinous. The urine contained 2 per cent. of urea. The blood count showed 3,890,000 blood cells, 53 per cent. of hæmoglobin, and no plasmodia. A careful examination of the region both of the bladder and the kidneys, not only by myself but by Drs. Lorini, W. J. Taylor, J. William White, and William Pepper, was entirely negative. There was no dulness, no tenderness, no pain, but simply hæmaturia and nothing more. On December 13, 1890, I attempted to examine the bladder by the cystoscope, but was unsuccessful in detecting anything. The bloody urine was first drawn and replaced with a warm boric acid solution, but in spite of the most careful use nothing further could be seen.

The day after the use of the cystoscope he observed in urinating that some air or gas bubbled out. I attributed this naturally to some air which had been injected into the bladder with the fluid, but he called my attention to this difference: that at the present time the gas produced no pain, but that when air was injected it produced distinct pain as it often had done a year ago when washing out his bladder. This discharge of air or gas has continued up to the present time. It does not occur with each act of urination, but occurs at least once a day, and takes place at the end of urination, not at any other time. It is especially noticed when he strains to press out the last few drops from the bladder. So far as he can observe the gas has no

odor, and I have observed that the urine has none, nor have the clots that have been passed. He has had no pain in his bladder or rectum.

His wife tells me that she thinks there is a distinct loss of strength in the last few weeks, and also that for the last year or more he has been more drowsy than formerly.

Operation, December 29, 1890. Assisted by Drs. J. William White, William J. Taylor, Orville Horwitz, J. C. Da Costa and Dr. Lorini, his physician. The bladder was first washed out and then filled with 9 ounces of a boric solution, a drachm to the pint. The Petersen bag in the rectum was then dilated with warm water, but as soon as the capacity of eight ounces was reached the resistance became so great that I desisted from introducing any more. An incision in the median line disclosed the bladder, which was secured by two ligatures and then incised. As soon as the finger was introduced I perceived a small tumor near the right ureter. With the electric light it was inspected, though with some little difficulty. In doing so I used both Watson's vesical speculum and my own, but each had to be supplemented by a long pair of forceps to push back the posterior wall of the bladder. The tumor was about the size of the end of the forefinger, say a little over half an inch in diameter, and about the same in elevation. It was strawberry-like in its appearance, though not quite so red. Near to it were two other small elevations of the size of a moderate pin-head, which were thought possibly to be the beginning of similar growths. There were several other very minute growths, but so small as to make it doubtful whether they were normal or pathological.

The tumor and the two small elevations near it were seized by the forceps and drawn forward some-

what forcibly, and the mucous membrane for some little distance around the base was removed with the tumor by curved scissors. The bleeding was very moderate and required no special means for its control.

One stitch was put in the wound in the bladder and four stitches in the abdominal wall. Two drainage-tubes were introduced, one into the prevesical space and the other into the bladder, both secured in place by stitches in the skin. A large wood-wool dressing was then applied over the wound, and aristol ointment spread over the abdomen under the dressing. The dressing was to be changed whenever it was wet, and the bladder to be washed out with a warm boric acid solution.

He was put to bed in a very fair condition. During the operation Trendelenberg's position was also tried, but its advantages were not very manifest. Still there was, I think, slightly greater ease of access to the bladder. The ureters were seen and an attempt was made to catheterize one of them, but without obtaining any urine. In justice to the procedure, however, it should be said that we did not persist long enough, probably, to make the attempt valuable. We had found sufficient to account for his condition, and we did not deem it just to him needlessly to prolong the operation.

No communication was discovered between the bladder and the bowel, though the interior was carefully examined at every point.

January 1, 1891 (the third day). Since the operation, now three days, he has gone on steadily improving. His highest temperature was on the night following the operation, since which time it has been 99° and a fraction. The wound looks perfectly well. On the second day he developed spasmodic pain, which he referred to the prostate, the

attacks of which were quite severe. Thinking that it might be due to the pressure of the end of the drainage-tube in the bladder, I removed this rubber tube and replaced it with a shorter tube of glass, but during yesterday, his pains being so severe, Dr. White, as I was absent from the city, removed the tube from the pre-vesical space. This was not followed by immediate relief, but with some amelioration of the attacks, and finally their disappearance at the end of about twenty-four hours. The tube in the bladder I removed to-day. His appetite is very good, so that he enjoyed a small chop yesterday and a small beefsteak to-day. His sleep has been very fair.

3d (fifth day). He has had a good deal of vesical tenesmus, for which I cannot see any reason. The wound looks well. Two of the four stitches were removed to-day; some small shreds of sloughing connective tissue came away. In examining the rectum a few days ago Dr. White thought he detected a nipple-like prominence, just as would exist if there were a fistulous opening in the rectum, and at the operation a pouch in the posterior wall of the bladder was discovered, which possibly corresponds to this, although no opening or other lesion could be detected either at the operation or since. A large enema yesterday emptied the bowels thoroughly, and there has not been, either from the bladder or from the bowels, any evidence of communication between the two.

From this time on he improved very rapidly. His pain quickly lessened and the wound closed at the end of five weeks. Since that time he has been perfectly well. There has been no escape of fæces or of gas from the urethra, nor has there been the least return of the bleeding.

The tumor was examined by Dr. J. P. Crozer Grif-

fith and Dr. Burr, and was found, on section, to be a compact sessile form of papilloma without any filiform fringes.

CASE V. *Possible tumor of bladder; boutonnière operation; later exploratory suprapubic cystotomy, with catheterism of the ureters by the aid of the electric light; recovery.*—M. H., of Mauricetown, N. J., aged twenty-eight; weight 121 pounds. Was referred to me by Dr. Samuel Butcher, November 22, 1889. Family history negative. No venereal history. On June 5, 1887, when he rose from bed he passed clear blood from the bladder without pain and without apparent reason, he being then apparently in perfect health. The blood was intimately mixed with the urine from the very first drop. With slight intervals the urine has been bloody ever since. A week after the hæmaturia he became a little better, when a sudden retention for twenty-four hours was followed by the evacuation of a quantity of clots. There are usually no clots, but the blood and urine were intimately mixed. For the first year he suffered a little pain; since then he has only had slight pain in the loins, possibly more marked on the left side. In June, 1888, he had bilious fever, and in December, 1888, and January, 1889, clots accumulated again and required a catheter. He thinks that occasionally the clots were long and slender, especially when few in number, being one to two inches long and about the thickness of a pin.

When clots accumulate in the bladder he has considerable pain near the anterior superior spine; his water then clears up and is apt to be more colored when the pain disappears. No calculus is discovered by sounding, and there is no pus in the urine. He passes about the usual quantity and urinates five or six times a day. Nothing is found in the urine by microscopic examination but blood. A small

amount of albumin is present when there is blood in the urine, but when there is no blood the urine is absolutely free from albumin.

Dr. Hearn examined the patient some months ago, and believed that there was a papilloma in the bladder. I admitted him to the Jefferson Hospital in December, 1889, and watched the urine with great care. No long, slender clots were at that time found, but only irregular-shaped clots. Small fragments of a possible papilloma were watched for carefully, but only one or two were found at intervals, which were believed by Drs. Longstreth and Coplin to be fragments of a doubtful papilloma. The renal symptoms were practically *nil*, for the pain in the loin was but slight, and scarcely more marked on one side than on the other. No increase in the dulness over either kidney was noted, nor was there any tenderness on palpation by one hand nor on bimanual examination. The tenderness near the anterior superior spine only existed when there were clots in the bladder, and there is no tenderness at present.

First operation, January 3, 1890. I explored the bladder by the boutonnière opening. As soon as the finger entered the bladder, I found at the upper right wall posteriorly a soft, velvety mass. Whether it was a tumor or the bladder-wall I was not able definitely to decide. I introduced a pair of smooth-bladed stone-forceps until the bladder-wall was touched, then withdrawing them half an inch and closing the jaws I found that I had grasped something, which by traction gradually yielded with a sensation as if thread after thread was being torn. In the jaws of the forceps was a florid mass, looking not unlike a blood-clot, but traversed by threads which looked like fibrous tissue. Nothing like mucous membrane was seen. A number of small

masses were removed in this way, amounting in all to a mass about twice as large as an English walnut. Twice I tried Sir Henry Thompson's serrated tumor forceps, but both times, in spite of using every precaution, I found that I had caught the bladder-wall, as was manifested by its not yielding after the same gentle traction as before, and by the mucous membrane being drawn into the wound. The bleeding was inconsiderable. Watson's perineal drainage tube was inserted.

He recovered from the operation without difficulty, the wound closing in twenty days, at which time he went home. The urine at first cleared up considerably, though afterward it again became bloody, but two months later it was almost clear. The mass removed was again submitted to Drs. Longstreth and Coplin, but in spite of careful examination they were still doubtful whether the masses were blood-clots or fragments of a papillomatous growth, although rather inclined to the latter opinion.

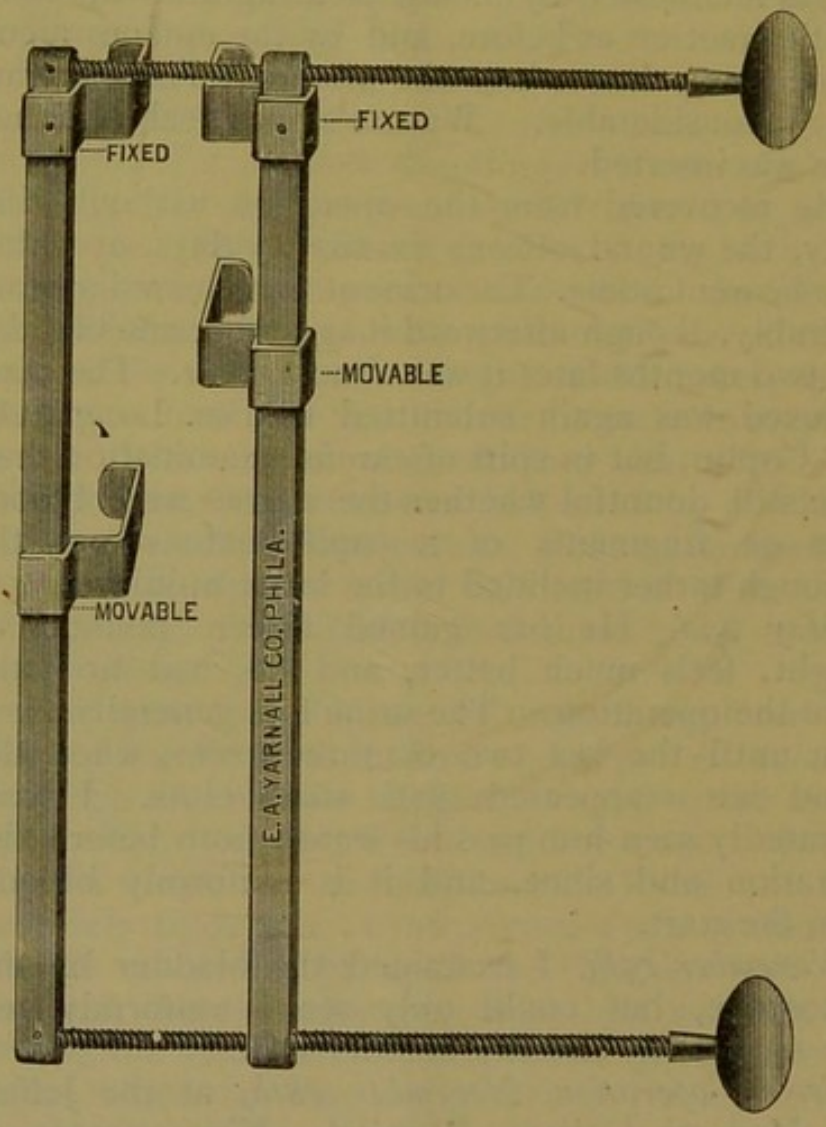
May 23d. He has gained fifteen pounds in weight, feels much better, and has had no pain since the operation. The urine has generally been clear until the last two or three weeks, when the blood has reappeared, with small clots. I have repeatedly seen him pass his water, both before the operation and since, and it is uniformly bloody from the start.

November 15th. I examined the bladder by the cystoscope, but could only see a uniformly red and apparently healthy bladder-wall.

Second operation, November 18th, at the Jefferson Medical College Hospital. Nine ounces of warm boric-acid solution (four grains to the ounce) were injected into the bladder, and eleven ounces of warm water into the rectal bag. The injection into the bladder alone produced dulness of but one

finger's-breadth above the pubes. This was increased, by filling the rectal bag, to 2.5 inches. A three-inch incision in the middle line disclosed

FIG. 1.



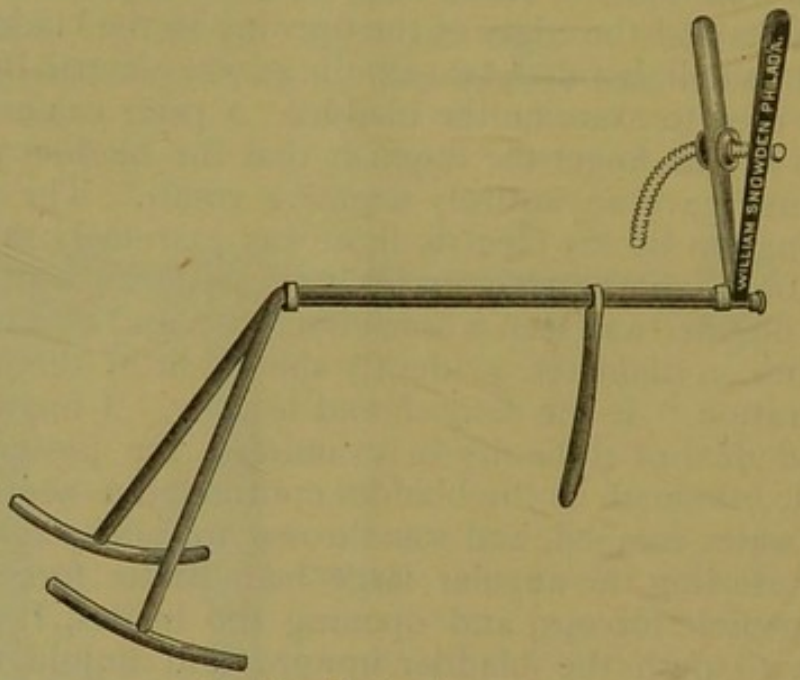
the bladder very readily. The peritoneum was not seen. The bladder was opened, and the edges of the opening caught with two hæmostatic forceps. A special retractor, which I had devised (Fig. 1), was

then inserted, in order both to separate the recti muscles and the edges of the opening in the bladder, and a small, hooded, two-candle power electric light was used to examine the bladder. A prior examination by the finger the moment that the bladder was opened gave an entirely negative result. The examination by the electric light was extremely satisfactory; on the right upper and posterior wall of the bladder was seen a scar about one and one-half inches in diameter, evidently the result of the first operation. It was smooth and healthy. I found a good deal of difficulty in examining the posterior wall, inasmuch as the bladder contracted as soon as the water escaped, and was thrown into deep folds. By inserting the angular large hæmostatic forceps, or pedicle forceps, and opening the blades, I was able to push the bladder upward and unfold the creases in its wall. To obviate this difficulty I have lately devised another instrument (Fig. 2) which as yet I have not had an opportunity to test. I then discovered between and above the orifices of the ureters a small ulcer, a scant quarter of an inch in diameter, possibly tubercular. A piece of the bottom of it was pinched off for examination microscopically, but showed no bacilli.

I found that I could examine the posterior wall of the bladder a great deal better when the rectal bag was removed. The orifices of the two ureters were seen, and both successfully catheterized. From the left ureter bloody urine was obtained, and from the right one clear urine.

When the urine escaped into the bladder no difference in the urine from the two ureters was perceptible, as the red wall of the bladder made both look alike. But when they were collected in a small glass cup the difference in their appearance was instantly perceptible.

FIG. 2.



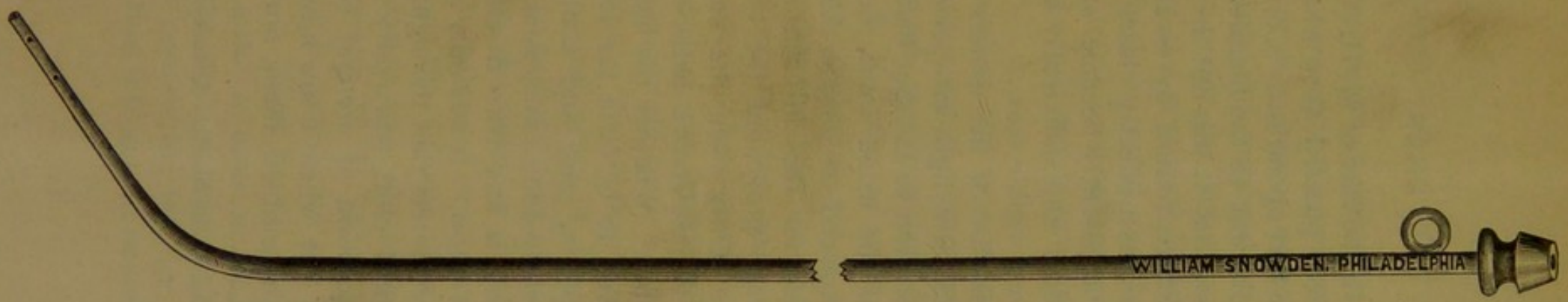
Bladder-dilating instrument.

To facilitate this ureteral catheterism I have devised an angular catheter which I believe will be of service (Fig. 3).

The opening in the bladder was then stitched, except at its lower end, where a drainage-tube was inserted. The external wound was partly closed.

December 8 (three weeks). The patient went home to-day. The drainage-tube was removed on the second day after the operation. The rest of the wound healed very well, but the opening in the bladder did not close until two weeks after the operation. Until that time the urine had been much freer from blood, but it now became much more bloody. No especial incident attended his recovery. He still has bloody urine. Whenever he is ready I intend to explore the left kidney.

FIG. 3.



Instrument for catheterizing the ureters.

REMARKS.—In the case of M. H. (Case V.) I have been a good deal puzzled as to what it was that I removed at the first operation. Certain it was that the mass was adherent to the bladder wall, and certain it was, also, that it was not the mucous membrane. The differentiation by means of the two kinds of forceps was perfectly clear. In some way the blood-clot apparently became attached to the wall of the bladder and sufficiently attached for its removal to leave a visible scar.

The catheterization of the ureters in this case by the aid of the electric light was perfect. I beg to call especial attention to the fact that the difference in the color of the urine from the two kidneys could not be noticed so long as the urine escaped into the bladder, for the uniform redness of the mucous membrane prevented the true color from being detected. Only when the water was drawn in a glass was the difference between the two distinctly perceptible. Whether the hæmaturia which is now determined to be from the left kidney is a case of hæmophilia, pure and simple, for which Brown[1] has recently done a successful nephrectomy, or whether there is any true disease of the left kidney I do not know. It was only after the catheterization of the ureters that the significance of the slender, cylindrical clots was really known. It is true that the question of ureteral clots had been considered, but yet when I saw him nothing had been seen that resembled them, nor was it at all

[1] American Journal of the Medical Sciences, November, 1890, p. 522.

certain that they were anything more than accidental. They were certainly not common.

As a result of my present experience with the boutonnière and the suprapubic operations, I would certainly prefer the latter as by far the better. In view of the persistent hæmaturia, with its baneful effects both on mind and body, I propose to explore the left kidney whenever the patient is ready, and if the indications point that way, to do a nephrectomy.

Case IV. resembles this one in many ways. In both the hæmaturia was the only symptom present, and the diagnosis was correspondingly obscure. Although Mr. S. had the advantage of the most skilful diagnostic opinions, yet it was with great doubt as to whether the papilloma really existed in the bladder or not, that the operation was begun. It was clear, however, that something ought to be done, for the disease was making inroads on the patient's nervous system quite as much as on his physical condition. The kidney was so absolutely exempt from any indication of disease, that it did not seem right to explore there; and even if I had decided to do so, the question *which* one, was still a difficult one to solve. I would call especial attention to the fact that in both these cases the urine *was uniformly bloody from the beginning of micturition.* In the case of M. H. (Case V.) it ought to have been so, for it came from the kidney, but in the case of Mr. S. (Case IV.) it ought not to have been so, for as a rule a tumor in the bladder bleeds only toward the end of micturition when it is squeezed by the contracting bladder. The element of uncertainty thus introduced was very puzzling.