

URETERAL STONES: SYMPTOMS, DIAGNOSIS, AND TREATMENT*

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The question of ureteral calculi has been very prominent in medical literature in the last few years; more so, because the diagnosis has been made considerably easier. This fact is due to the x-ray and the cystoscope.

Not so many years ago a very large percentage of the stones in the ureter were invariably thought to be kidney stones, and the method of removal was a cutting operation. Even today, as is well known, the appendix is often removed for the distressing symptoms of a right ureteral stone. I have removed a few ureteral stones under the same circumstances. It would be folly to say that every man is right every time in his diagnosis. Many times we could clear the situation up by co-operation with our fellow-practitioners, if we only would.

The symptoms of ureteral stones vary considerably, but in the majority of cases are typical. One important feature that varies the symptoms is when complete blocking of the canal takes place and a temporary hydronephrosis follows. Of course this multiplies the ordinary cutting symptoms, strictly speaking, ureteral. The main symptoms are colicky pains which require large doses of morphin for relief. The pains are on the side of stone location, as a rule, extending downward to the genitals and inner side of the thighs. Gas accumulation in the stomach and intestines is not a rare symptom; also lumbar pains and frequent urination, sometimes with blood. Often a feeling of great distress and anxiety is present.

The frequency of the attacks varies in different individuals, according to the location of the stone and its size.

DIAGNOSIS

The diagnosis begins with the symptoms as in other diseases. The urinary findings in many cases throw no light upon the subject; the urine may be negative. On the other hand, the urine from the af-

fected side compared with that of the normal side is, in some cases, almost conclusive of the stone.

Oschner¹ called attention to careful history taking as a great help in diagnoses. His viewpoint should be highly respected, as many times it will be of the greatest aid in the diagnosis. The x-ray, according to men most familiar with the subject, demonstrates between 80 to 90 per cent. of ureteral calculi.

The small per cent. that fail to show may be diagnosed in the following manner:

Ureteral obstruction to the catheter.

Ureterogram.—After using the fluid for injection the catheter is withdrawn and another plate made in a few hours. Many times enough of the fluid has collected around the stone to make it visible in that length of time. Dr. Cole, of Savannah, mentioned this point to me first. I have found it satisfactory. If I find no obstruction, I doubt there being a stone present unless it is very small or sacculated. The most confusing shadows we get in the ureteral regions are phleboliths and pathologic glands. This in most instances may be cleared up by the use of the iron oxide catheters and by making plates after their insertion.

The thorough preparation of the patient is of great importance.

Treatment or removal of the stones is, of course, the next step to consider.

I will take up only the removal by cystoscopic methods. First the cystoscope is introduced and the ureteral orifices viewed. If the one in the side where the stone is located is too small this is clipped to a larger size. Then the catheter is inserted to locate the obstruction. When found, a few minims of novocain or papaverin is injected, hoping for some relaxation and a certain amount of anesthesia. If the stone is low, the ureteral forceps are inserted and an effort is made to catch it. If this is not done, the various dilators are inserted and dilated below the stone. After this, a sterile solution of olive oil is inserted through the catheter above the stone, if possible. The patient is then told to drink water or other liquids in abundance. One hundredth of a grain of atro-

*Read in Section on Surgery, Southern Medical Association, Thirteenth Annual Meeting, Asheville, N. C., Nov. 10-13, 1919.

1. Oschner, A. J.: Renal and Ureteral Stones. Jour. A. M. A., Oct. 11, 1919.

pin is given every four hours for four doses, and morphin to relieve the pain.

I have had 37 cases and removed 34 stones by this method. Two of the 37 were operated upon. The other one would not yield to but three treatments. As to the number of treatments, that depends upon the individual. Some are removed by one treatment, some by more. My average has been three.

This procedure saves the sufferer a major operation. With none of the patients I have treated were there any harmful effects. Several of them have been kept under observation for several months.

DISCUSSION

Dr. A. J. Crowell, Charlotte, N. C.—It seems to me that I am getting on my feet a good bit. We discussed this subject yesterday, but it is an important one and I do not think we need apologize for giving the results of our experience in this work. I am delighted to hear of the excellent results obtained by Dr. Merritt. They coincide with our results. We began this treatment some time ago, that is, by local anesthesia, dilatation and instillation of oil, and since then we have had to operate on only two cases. If we had had as much confidence in the plan then as we have now, I feel quite sure we would have succeeded in those two cases. The local anesthetic enables you to get by the obstruction and the manipulation that follows, I think, has as much to do with the removal of these stones as the anesthetic itself. I always go up and come back with a rotary motion and you can change their location and remove them in this plan. I repeat what I have said many times, which is that every recently impacted stone can be removed in this way. By recently impacted I mean those treated before the secretion of the kidney is permanently inhibited. We might be able to remove the stone, even though the kidney had stopped secreting, by filling the pelvis of the kidney, over-distending it, with a normal saline solution and sterile oil, but if it has persisted for a great length of time our results may be disappointing.

Dr. Bransford Lewis, St. Louis, Mo.—The dilating bougie of Garceau is one that we use when the obstruction is high up and that induces it to descend to the lower region where we can apply some of the more definite mechanical means, such as the ureteral forceps and the ureteral dilator. I have had several different kinds of dilator constructed and the last has the two bars parallel; this is safe and does not offer any danger of puncturing the ureteral wall and putting the patient in worse condition than he was in before. This is the best method I have ever found. I have demonstrated it at least four inches up in the ureter, so it can be used at least that high. If you wish to go higher you can use the dilating bougie. We use sedative oils and local anesthetics in

connection with the more definite methods of dilating. These are not valuable alone, but if used in connection with the dilators they are very good.

It is surprising how large a stone may be induced to come down to the opening by the cystoscopic method. Dr. Bugby showed me a stone which was over an inch in length and a half inch in thickness that he had gotten out that way. I have gotten out stones that I could not believe had been obtained in that way if I had not seen them. Surgeons may jump at the conclusion that if the stone is large it must be operated on openly, but that is not necessarily true. Every stone in the ureter should be subjected to the cystoscopic method of removal before resorting to the open operation.

Dr. John R. Cault, St. Louis, Mo.—I know of nothing more difficult to the practitioner than the diagnosis of ureteral calculus—the differential diagnosis between gall-bladder and appendicitis particularly. Several years ago before the Mississippi Valley Medical Association a paper was presented stating that in 300 cases of infection 27% had had the appendix removed for the pain without relief, showing the importance of the urinary tract in producing various abdominal symptoms. These cases should be radiographed and receive very careful examination. I have been impressed by the fact that the urine in the ureteral calculus cases shows evidence of the calculus being there; that is, it shows red blood cells. I believe that 85 per cent. will give definite evidence if careful search is made.

The symptoms do not always mean stone. The stone exemplifies itself only by its pressure symptoms. Other conditions will give the same symptoms as stone and we have to be very careful in our differentiation. We can not come up and be absolutely definite in our diagnosis. I made a great mistake a few weeks ago. The patient had symptoms, but the catheter passed directly up his ureter—there was no obstruction. He had blood in the urine from both sides—we always get it from both sides with ureter catheters—but I could not find the stone and neither could the roentgenologist, but the man passed the stone. We must not rely entirely upon the catheter in the ureter touching a shadow which looks like a ureteral stone. Every case should have a stereoscopic ureterogram; that is the only way you can be very certain.

With regard to the removal of ureteral stones, I agree that the best method is the cystoscopic method if we can get the stones. I have here a stone that we removed from a child of nine by the ureteral cystoscopic method. I was surprised to hear Dr. Merritt's report of the number of patients and the number of stones. I have removed 120 stones in less than half as many cases. One woman had thirty-four stones removed through the ureter, one very large. She had multiple stones throughout the kidney pelvis. There is no question that if we are patient we can remove the greater proportion of calculi by ureteral cystoscopic operations. The most important thing is not to open too early for an appendix—not until you have done various diagnostic things,

unless, of course, it is an acute suppurative one. The important thing for the urologist is not to be too quick in saying that there is a stone in the ureter.

Dr. Merritt (closing).—I beg to differ with Dr. Crowell slightly on his method. He injects first normal saline into the kidney pelvis and after that oil. I think the oil really does the work in the majority of cases by lubrication.

Another thing that strikes me as being a great aid is reflex irritation, as you may say, of the urethra from the cystoscopic examination. That has a great deal to do with the expulsion of the stone, sometimes even without putting the catheter into the ureter. And if you put the catheter in that will stimulate the peristaltic waves sufficiently to force it to be expelled. Dr. Lewis, several years ago, said that he had performed a meatotomy on a few patients and a stone passed just afterward. I was very much surprised to hear Dr. Fowler say yesterday that he thought ninety-nine out of one hundred ureteral stones would pass spontaneously. I can not agree with him. I have worked on cases that have had ureteral stones for two or three years and do not think they would have ever passed spontaneously.

Dr. Lewis believes in the dilators more than in the oils and anesthetics. He is partially right, but if they were used in conjunction he would get even better results—possibly.

Dr. Caulk is right when he says that we should be very sure that it is not a ureteral stone before taking out the appendix. I have two such cases, where the appendix had been removed for relief of the pain, and I then removed the ureteral stone from the right side.

Dr. Caulk is also right when he says the urine in 85 per cent. of the cases will give evidence of the stones; if nothing else, red blood cells. That is absolutely correct. In all probability the case he reported where the catheter passed by was a little sacculated stone.

NEW USES OF THE SCROTUM*

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I wish to present a report of two cases in which an excess of scrotum was used to advantage, in relieving two conditions, which have not yielded always to the usual treatments.

Case 1.—*Pruritus ani.* History: Mr. P., age 48, of Pine Bluff, Ark., had suffered for twenty years with pruritus ani. The skin was thick, rough and leathery for a radius of two and one-half inches from the anus, from the constant exoriation by the nails.

In so far as the usual methods were concerned, this case was intractable. It was evident that the entire area must be excised. In

endeavoring to find some new epithelial covering for this area, I found a pendulous scrotum, which would supply this need.

Operation.—Baptist Hospital, Memphis, Tenn., July 16, 1917. The scrotum was drawn well up and spread laterally as shown in Fig. 1. When it was raised the testicles were more than two inches from the end, thus giving a double layer of skin two inches long by the width of the scrotum. Incision was made beginning laterally on the right side; at the end of the scrotum, and extending down two inches, then directly across the posterior surface of the scrotum to a corresponding point on the opposite side, thence

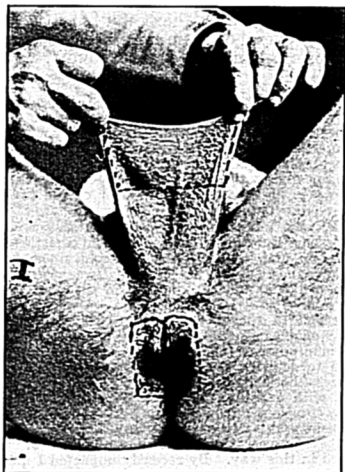


Fig. 1, Case 1

to the end on the left side. When this flap was straightened out it formed a flap four inches long and pendulous from the anterior surface. The scrotum was closed by passing a few mattress sutures through the short posterior flap and the anterior surface of the scrotum. An incision was made entirely around the diseased area and the skin was raised to the anal mucosa. This skin was folded together and drawn through the median incision in the scrotal flap (Fig. 2). The flap was sutured in place, the anal mucosa divided and sutured to the flap as divided, thus entirely covering the denuded area. The union was primary and on the twelfth day, under local anesthesia, the flap was divided from the scrotum (Fig. 3).

Comment.—An area of hyperesthesia was converted into an area of anesthesia. This offers a simple operation for the relief of one of the most distressing conditions which we are called upon to treat.

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Case 2.—History: B. H., Camp Johnston, Florida, April, 1918. Mr. N., a soldier, age 25, came under my care suffering from lymphoedema of

vein was injured and the hemorrhage was controlled by sutures en masse. There was an obstruction of the lymph return through the right



Fig. 1, Case 2



Fig. 2, Case 2



Fig. 2, Case 1

the leg following an operation for right inguinal adenitis. During the operation which had been performed about six months before, the saphenous



Fig. 3, Case 1

inguinal lymphatics. The leg did not recede to normal when elevated. The scrotum was not oedematous.

The problem, as the return lymph could not go through the right groin, was to find another