SILENT LESIONS OF THE UPPER URINARY TRACT

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A certain percentage of lesions of the upper urinary tract do not produce any outstanding subjective symptoms which obviously pertain to the kidney and the ureter. Because of this fact we designate them "silent lesions," and because of the absence of symptoms referable to the urinary tract an incorrect diagnosis is often made with unfortunate and sometimes fatal results. It must not be understood that many of these lesions do not give any symptoms, but the symptoms are not referable to the organ diseased.

Prominent among these lesions are kidney tumors, kidney stones and often ureteral calculi as well, but hydronephrosis, inflammatory conditions, certain anomalies of the urinary tract and other conditions should also be included. Pyonephritis, pyelonephrosis, pyelitis, hydronephrosis, nephroptosis, and ureteral stricture also may fail to produce any characteristic symptoms referable to the seat of the lesion. The symptoms of any of these conditions may apparently relate to the gastro-intestinal tract, to the spine, to certain orthopedic conditions or in women, in particular, to the genital organs.

It is apparent, then, that the location of the discomfort as described by the patient is not always a dependable guide and that the answer to the question: "What is your complaint?" may be most misleading. Of course a physical examination will often readily disclose the real lesion, but too often a complete examination is not made or the attention of the physician may be directed entirely to the area of referred discomfort or pain and the treatment is directed accordingly.

It should be noted also that pathological conditions of the urinary tract may coexist with lesions elsewhere, and therefore microscopic as well as chemical examination of the urine should form a part of every routine examination, and in the presence of pus or of red blood cells a searching examination with the cystoscope and with the aid of the roentgen ray should be made to rule out or to establish the presence of a lesion within the urinary tract.

Not only may symptoms of the above-cited lesions be entirely referable to the gastro-intestinal tract, to the spine or to the genital organs, but the presence of what is called the reno-renal reflex may cause a mistaken diagnosis; that is, the symptoms of a lesion

of one kidney or ureter may be referred to the opposite kidney or ureter, but this is exceedingly rare.

Cases of renal calculus may present symptoms all of which point to an acute abdominal condition, and especially when these symptoms are referred to the right lower quadrant a misleading conclusion is apt to be drawn. In such cases, many an innocent appendix has undoubtedly been sacrificed while the guilty kidney or ureter has remained, with the continuance of the symptoms and perhaps ultimate disaster.

In many cases stones may remain quiescent for many years without causing any symptoms. A stone may even cause extensive destruction of the renal parenchyma while presenting either no symptoms or none more significant than a dull backache or chronic cystitis. Both kidneys may be filled with stones and the patient never have a renal colic. I have seen a number of such cases.

Nausea and vomiting, epigastric pressure, general and local abdominal pain, pyrosis, belching of gas and constipation are so frequently associated with kidney and ureteral lesions that it is not surprising that a lesion of the gastro-intestinal tract is often first suspected. Pain in the right lower abdominal quadrant is so often present that it is not strange that the appendix is often falsely accused, while backache and shooting pains direct suspicion to the neuromuscular system. The metabolism is so often disturbed that the endocrine system may come under suspicion; while frequently palpitation and anginal pain suggest an involvement of the cardio-vascular system.

In women the symptoms of pathological conditions in the urinary tract closely resemble those presented by lesions of the genital organs. Therefore, as we have already pointed out, an examination of the urine is essential for the establishment of the differential diagnosis. In such cases the presence of pus and of blood cells in the urine may easily be misinterpreted, so that only specimens secured by catheterization should be used.

Only in recent years has it been generally realized that most of the lesions of the urinary tract may occur in children as well as in adults. The refinement of diagnostic measures now makes it possible to examine children with little if any more difficulty than that required for the examination of adults. It should be borne in mind that in young children it is often difficult to elicit a description of subjective symptoms, so that one must place greater dependence upon objective findings than in the case of an adult. The significance of enuresis, in particular, should not be dismissed with the casual conclusion that it is of nervous origin or due to cystitis, and it

should be borne in mind that pyuria may be a sign of a surgical lesion of the upper urinary tract as well as of cystitis. Enuresis should lead to a suspicion of the presence of renal tuberculosis, as enuresis is a prominent symptom of this condition. It is a well known, but too often overlooked fact that a solid tumor in a child's abdomen is nearly always a renal tumor. A congenital polycystic kidney is nearly always painless and may grow to a great size without causing any discomfort. As these tumors are nearly always bilateral, the diagnosis is easily made.

It is not necessary to enumerate here the symptoms of those lesions which relate directly to the kidney and ureter, as when such symptoms are present no difficulty in diagnosis is presented. I wish merely to emphasize the importance of the urological examination in any case of generalized or localized symptoms the cause of which is not obvious, and to urge the microscopic examination of the urine as a part of every routine examination, with immediate reference of the patient to the urologist if pus or red blood cells are found.

Our attention has so often been called to the existence of these silent lesions of the upper urinary tract by their discovery in the course of routine x-ray examinations for gastrointestinal complaints or of orthopedic examination for backache, sacro-iliac discomfort, etc., that I decided to make a study of a group of lesions of the upper genito-urinary tract to determine how frequently they had existed without causing any subjective discomfort directly at the seat of the disease.

In a series of 637 cases of kidney lesions on which there were sufficient data it was found that in 33.1 per cent no symptoms referable to the kidney were present, the patients complaining rather of discomfort in other parts of the body. In 15.3 per cent of the cases the symptoms were entirely referable to the bladder; in 9.5 per cent, to the gastrointestinal tract or back, hips, chest, etc., while in 8.3 per cent the lesion was entirely symptomless so far as the subjective discomfort of the patient was concerned, having been detected in the course of the routine examination from the presence of blood or pus in the urine.

Among cases of tuberculosis of the kidney, symptoms were referable to the kidney in only 27.5 per cent of the series, so that in 72.5 per cent no symptoms referable to the kidney were presented. In this group, in 62.3 per cent the symptoms were referable to the bladder and many of these cases were therefore treated for the cystitis which was secondary to the tuberculous lesion in the kidney. I believe that if the frequency with which this error is made were

generally known, these cases would not be subjected for so long a period to the treatment of the secondary lesions.

Among cases of tumor of the kidney, in 50 per cent the symptoms were not referable to the kidneys and attention was directed to the kidneys only because of the presence of blood in the urine, or in children because of an abdominal tumor. Since stones in the kidney and ureter are of such common occurrence, it is fortunate that the proportion of cases in which the symptoms are not referable to the kidney and ureter is much less than in the types of cases cited above, yet in 19.3 per cent of the cases in our series the discomfort was referred to other areas than that of the upper urinary tract. Many of these cases presented gastro-intestinal symptoms — an observation which accounts for the large number of mistaken diagnoses and often unnecessary abdominal operations.

Among the cases of hydronephrosis in this series, in 38.4 per cent no symptoms referrable to the kidney were presented. The "silence" of these cases is readily understood, since often hydronephrosis is due to a congenital stricture at the uretero-pelvic or uretero-vesical junction, or to aberrant blood vessels which obstruct the ureter, the dilatation being so gradual that a marked crisis may never occur.

Among the cases of pyelonephrosis in this series, 62.4 per cent did not present any symptoms referable to the kidney; 16.6 per cent of this group were symptomless, and in 37.5 per cent the symptoms were referable to the bladder only. Among the cases of perinephritic abscess, 60 per cent presented symptoms referable to the kidney, the remainder being symptomless or presenting symptoms not referable to the upper urinary tract. Of particular interest were the cases of hematuria, among which 71.3 per cent did not present any symptoms referable to the upper urinary tract. Generally hematuria presents a peculiarly interesting and important problem, since if the lesion is in the kidney it may not be recognized until a blood clot or some tumor tissue obstructs the ureter and produces the characteristic renal colic. To await such an event before a diagnosis of the source of the hematuria is made may mean that the condition will then have progressed too far for satisfactory treatment to be applied.

In passing I might suggest that chronic prostatitis, now so frequently observed, seldom presents symptoms referable to the prostrate gland, but in any case of arthritis in men, the prostrate should be checked.

The following case histories are offered to illustrate the diagnostic difficulties which are presented by some of these cases of silent lesions of the upper urinary tract:

CASE I

The patient was a woman, 39 years of age, who came to the clinic complaining of pain in the side, and nervousness. Six years before, after a miscarriage, an infection had occurred and severe peritonitis had developed. For the past five years she had had periodic attacks of pain which occurred quite regularly before the menstrual period, were very severe, lasted for several hours, and were located over the right iliac crest. She had an uncomfortable feeling in the right groin most of the time, this feeling being relieved by heat and rest and sometimes by codein. She was sometimes nauseated during the attacks of pain, but she never vomited. She could always eat and the pain was not related to diarrhea or constipation. She was never jaundiced. During the duration of the pain there was urgency and frequency, but no pain or blood or burning accompanied micturition. She had no palpitation, cough or edema, no headaches or dizziness. For years she had taken bromids for insomnia. For the preceding two months she had had stiffness of both hips and moved with considerable pain.

Examination of the urine showed nothing of importance, but on x-ray examination the roentgenograms of the gall bladder showed six stones clustered in the region of the gall bladder. A pyelogram of the kidney, however, showed a localized hydronephrosis in one of the upper calices and it was concluded that this contained the calculi.

At operation six renal calculi were removed from the right kidney.

Comment: In this case the patient had suffered for five years under the misapprehension that her pain was due to a menstrual disturbance.

CASE II

The patient was a man, 46 years of age, who came to the clinic complaining of frequency of urination. Six years before he had had an attack of influenza and about the same time he had hematuria which he characterized as "complete," that is, not terminal. Three days later he had a milder hemorrhage. There was no obstruction to urination. The doctor who examined him first said that he had inflammation of the bladder and later that his trouble was prostatitis. Recently his only symptom had been frequency of urination with occasional shreds in the urine. Three weeks before our examination he had had some sharp pains in the right side.

The first clinical impression was that he was suffering from chronic prostatitis and chronic cystitis.

Microscopical examination of the urine showed a few red blood cells and 25 to 35 pus cells per high power field. The roentgenograms showed no suspicious shadow in the gastro-intestinal tract; a pyelogram, however, showed an enlarged pelvis on the left side and on the right a catheter passing for only a short distance into the ureter. Cystoscopic examination together with examination of the catheterized specimens led to a suspicion of renal tuberculosis on the right side with stricture of the right ureter.

At operation a rather small right kidney was removed, sections through which showed fairly numerous, rather large tubercle formations, enough of which were present to warrant an unquestionable diagnosis of tuberculosis of the kidney.

Comment: For six years this man had been treated for cystitis and prostatitis, the true condition being diagnosed only by pyelographic and cystoscopic examinations.

Case III

The patient was a man, 26 years of age, who came to the clinic complaining of sharp pain in the left side which he had experienced for the preceding eight months. The pain was accompanied by nausea and epigastric pain. He presented no symptoms referable to either the kidney or the bladder. Palpation disclosed tenderness over the lower left abdomen and inguinal region.

X-ray examination disclosed the presence of a small shadow in the region of the right kidney that might be due to stone.

Cystoscopic examination verified the diagnosis of calculus.

Comment: In this case there was nothing in the history or clinical symptoms to suggest the presence of a calculus in the kidney.

Case IV

The patient was a married woman, 49 years of age, who came to the clinic complaining of numbness of the feet and fingers, which had been coming on during the preceding six months. The neurological examination suggested peripheral neuritis. Examination of the urine, however, disclosed an occasional red blood cell and numerous pus cells — 75 to 100 per high power field. Cystoscopic and roentgenographic examinations were made, the latter of which revealed the presence of a large calculus in the upper left ureter or kidney pelvis. The former revealed an infected calculus in the left ureter with an infected left hydronephrosis.

Nephrectomy was advised, but the patient has not as yet consented to have the operation performed.

Comment: This is a case of special interest in view of the neurological symptoms for which no other cause than the condition of

the kidney could be found on examination. This would have been missed had it not been for the urinary findings.

Case V

The patient was a married woman, 23 years of age, who came to the clinic complaining of persistent pain in the right upper abdominal quadrant which had been present for two years. A diagnosis of cholecystitis with stones had been made, and three weeks before she came to the clinic a cholecystotomy had been performed at which no stones or other pathological condition of the gall bladder had been found. The symptoms had been unrelieved.

A roentgenogram taken after the injection of sodium iodid showed dilatation of the right ureter above a stricture, and the diagnosis of hydronephrosis was made. Dilatation of the ureter relieved the symptoms.

Comment: In this case, an examination of the urinary tract would have saved the patient a useless and serious operation.

Conclusion

In conclusion, may I impress upon you the fact that if you wait for the organism to indicate plainly the particular organ involved, especially in the case of the upper urinary tract, you will miss many diagnoses and many cures which might have resulted had you made an early diagnosis.

Silent Lesions of the Kidney

(Figures represent percentage of total number in each series of cases)

	Total Proven Cases	*Tuberculosis*	*Tumors*	*Stones*	*Hydronephrosis*	*Pyelonephrosis*	*Multiple Infarcts*	*Ptosis*	*Anomalies*	*Perinephritic Abscess*	*Hematuria*
With symptoms referred to kidney	66.8	27.5	50.0	80.6	61.5	37.5	100.0	42.9	----	60.0	28.5
Without symptoms referred to kidneys	33.1	72.4	50.0	19.3	38.5	62.4	----	57.0	99.9	40.0	71.3
Symptomless	8.3	5.8	27.8	3.7	7.7	16.6	----	14.2	33.3	----	38.7
With symptoms not referred to genito-urinary tract	9.5	4.3	11.1	9.7	7.7	8.3	----	28.6	----	20.0	12.2
With symptoms referred to bladder only	15.3	62.3	11.1	5.9	23.1	37.5	----	14.2	66.6	20.0	20.4