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Late and Rare Complications of Urolithiasis: Perinephric Abscess and Renal Replacement Lipomatosis

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Abstract

Background: Perinephric abscess and renal replacement lipomatosis (RRL) as a late and rare complications of urolithiasis.

Case presentation: We report the case of a 62-year-old Kazakh woman who suffered for a long period of time from back pain, weakness (has been treated with confirmed osteochondrodystrophy) and was not aware about her kidney stones. She had never had hematuria or renal colic and urgently was admitted in a serious condition with large palpable abdominal mass. The diagnostic workup, differential diagnosis, surgical management, medical follow-up and a review of the literature presented. Persistent back pain and weakness for several years were caused by nephrolithiasis and its late and rare complications like RRL. Only one of the acute complications of nephrolithiasis as perinephric abscess attracted the attention of urologists and made it possible to set up the correct diagnosis. Surgical management of the hephrolithiasis complications (urgent drainage of perinephric abscess and delayed nephrectomy [because nonfunctioning kidney with multiple stones as a nidus of infections and RRL] after stabilization of patient's condition was performed.

Conclusion: Occasionally urolithiasis may mimic signs of spine disease, so in patients with persistent back pain which did not respond to conventional therapy of this pathology should be excluded the hephrolithiasis. Non-treated urolithiasis may lead to loss of the kidney function and development of life-threatening acute complications like perinephric abscess and later – renal replacement lipomatosis.

Background

Urolithiasis (UL) is one of the most common diseases, with worldwide increasing incidence and prevalence [1]. Life-time risk of renal stone disease is up to 10–15%. Peak incidence is between 30–50 years. Females have bimodal distribution – second peak after menopause [2]. Urolithiasis–one of the main problems of medical science, because UL is the disease which is predominant among pathology of urinary system and constitutes 30-50% of the urological in-patients [3]. Non-treatment or low quality treatment of urolithiasis may lead to a serious complications like suppurative pyelonephritis, hydronephrosis and renal atrophy [4].

Renal replacement lipomatosis (RRL) is an extremely rare condition, which occurs secondary to atrophy or destruction of renal parenchyma, with proliferation of excessive lipomatous tissue in renal sinus, renal hilum and perirenal space [5-8].

We report a rare case of a 62-year-old Kazakh woman with persistent back pain for a long time due to documented osteochondrodystrophy of the lumbosacral spine; paramedian left-sided herniation of the VL4-VL5; the central protrusion of the disks VL5-VS1; secondary stenosis of the spinal canal at the level of the VL4-VL5, VL5-VS1, and never been seen by urologist, because she had never had hematuria or renal colic. Only with urgent case of palpable and painful abdominal mass, hectic fever a patient was delivered to the surgical hospital.

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Case Presentation

A 62-year-old Kazakh woman who had an abdominal mass, hectic fever and back pain was urgently hospitalized to the surgical hospital.

Complaints: weakness, severe loin and abdominal pain, abdominal swelling, fever.

Past medical history of the patient: She has been treated by a neurologist with confirmed osteochondrodystrophy of the lumbosacral spine; paramedian left-sided herniation of the VL4-VL5; the central protrusion of the disks VL5-VS1; secondary stenosis of the spinal canal at the level of the VL4-VL5, VL5-VS1 for continous time without much success. She had never had hematuria or renal colic. Surgical interventions had not taken place.

On physical examination her condition was weak. Her blood pressure was 90/60 mmHg. Her pulse was 90 beat/min. On the right lumbar and iliac region – a palpable tenderness mass which extending to the median line with involvement of umbilicus, and hyperemia of the skin, and high local temperature were found. Right kidney was tenderness. Extension in the right knee joint is impossible due to severe pain ("psoas syndrome").

Laboratory findings: Hb-89; Leyc.-14.4; Eryth.-3.69; ESR-15 mm/h; Creatinine-147.28 mmol/L

MRI: In the right lumbar-iliac region visualized a huge, irregular liquid mass, 21 x 8.4 cm in size which extending to the pelvic cavity. Right kidney is decreased in size and deformed with multiple calculi (Figure 1).

Ultrasound diagnostics revealed liquid formation with heterogeneous contents in the right lumbar region extending to the iliac fossa.

To exclude an infected urachal cyst as a cause of purulent omphalitis, ascending cystography was performed (Figure 2) which showed a normal urinary bladder (no urachal cyst or vesicoureteral reflux found).

So, we were confident that liquid content formation in the lumbar region which extending to the iliac fossa and umbilicus was associated only with changes of the right kidney.

Based on clinical course of the disease, physical examination, radiology and ultrasound findings diagnosis was made: Urolithiasis, infected right kidney with multiple calculi, complicated with right perinephric abscess. Given the serious condition of the patient due to a huge perinephric abscess and a sepsis we decided to limit ourselves only to drain the abscess, and postpone a removal of infected kidney.

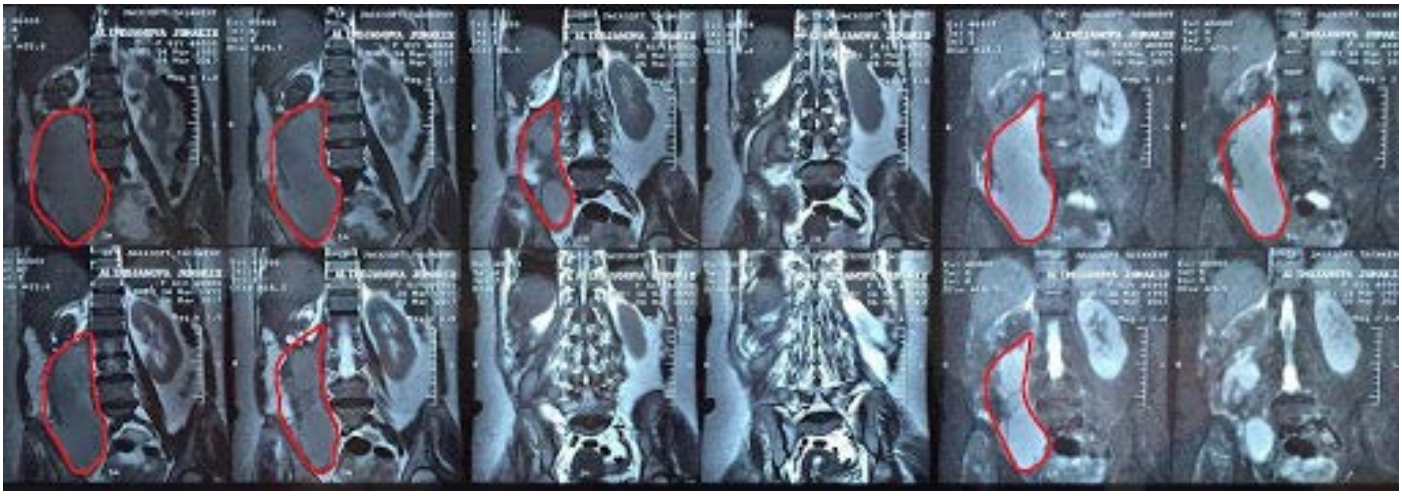

Figure 1: MRI Size of the right kidney is reduced (7.0 x 4.0 cm). Shadow of multiple calculi seen in renal cavity. Renal parenchyma is thinned (0.2 cm). Size of the left kidney is normal (10.0 x 7.0 cm), thickness of the parenchyma 1.7 cm. In the right lumbar-iliac region visualized a shadow of the a huge, irregular liquid mass, 21 x 8.4 cm in size which starting from lower pole of the left kidney and extending to the pelvic cavity.

Along with this, to exclude other causes of purulent omphalitis–a voiding cystography was done (Figure 2); in this study, contrast medium introduced into the bladder does not spread beyond its cavity (thus we excluded an urachal cyst as a possible cause of the purulent omphalitis as well as a vesicoureteral reflux).

Figure 2: Voiding cystogram. Contrast medium introduced into the bladder does not spread beyond its cavity (thus we exclude an urachal cyst as a possible cause of the purulent omphalitis as well as a vesicoureteral reflux); also deformation of the right lumbar-iliac region visualized by shadow of the huge, irregular liquid mass.

Thus, it was proved that perinephric abscess was associated only with the changes in the right kidney. Based on the clinical presentation, physical examination, laboratory data and radiology findings we made a diagnosis: Urolithiasis; multiple calculi of the right kidney. Secondary pyelonephritis; huge lower perinephric abscess and sepsis.

In choice of the volume of surgical intervention, the following problems were considered: of course, purulent changes of the right kidney are cause of the huge perinephric abscess which requires the kidney removal, however given serious condition of patient and sepsis it was decided to limit ourselves only to drain the abscess, and postpone a removal of infected kidney.

Surgical procedure. Urgent right lumbar-iliac access with draining of the perinephric abscess with 1.500 ml thick purulent contents performed. The boundaries of the purulent cavity are: upper – lower pole of the right kidney; medially – posterior leaf of the peritoneum; laterally – lateral abdominal wall; and bottom – small pelvic cavity. Revision of the right kidney was impossible due to very dense fibrous capsule of the abscess. Purulent cavity washed-out and drained, a drain tube left.

After 6 months of outpatient treatment, a patient's condition was significantly improved, signs of sepsis disappeared (Hb-122; Eryth.-3.9 x 1012/L; Leuk.-6.9; ESR-4 mm/h; Creatinine - 83 mmol/L).

With the successful treatment of the perinephric abscess with the source of right kidney's multiple calculi, selective renal function tests were performed (contrast medium CT and intravenous urography) to determine the methods of renal stones treatment.

Contrast medium CT: Nonfunctioning right kidney. Normal functioning left kidney (Figure 3).

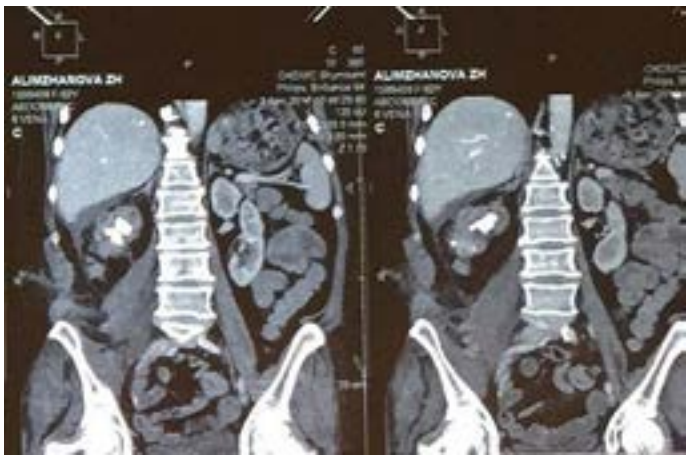

Figure 3: Contrast medium CT: Nonfunctioning right kidney with multiple stones, and severe renal parenchymal atrophy, normal function of the left kidney.

Intravenous urography: Nonfunctioning right kidney with multiple calculi, normal function of the left kidney (Figure 4).

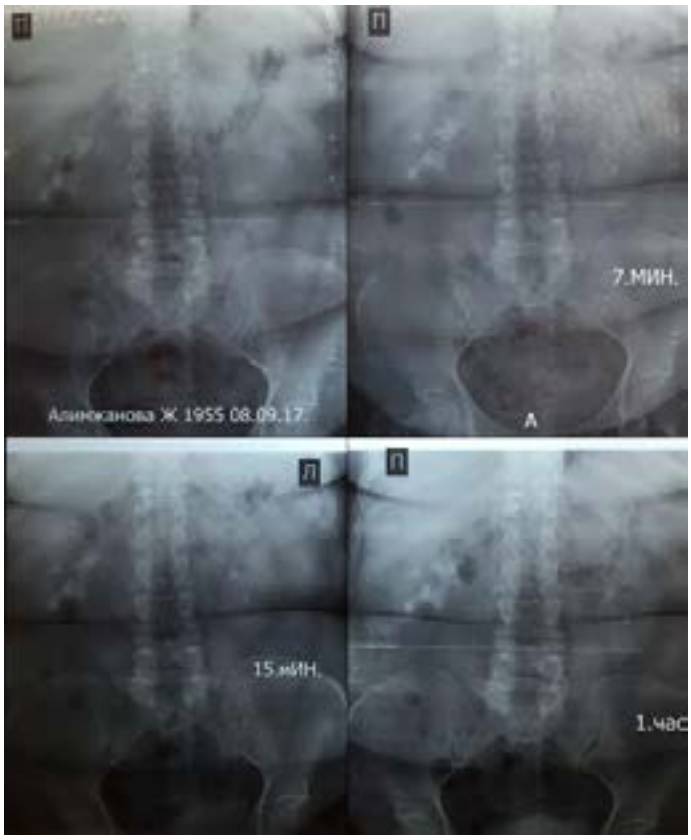

Figure 4: Intravenous urogram: Nonfunctioning right kidney with multiple calculi, normal function of the left kidney

Due to the fact that multiple calculi of the right kidney led to irreversible changes of the parenchyma with the loss of renal function, it was decided to perform a nephrectomy in order to prevent the patient from life-threatening complications.

27.09.2017 nephrectomy was done. Surgical procedure was carried out with technical difficulties because the kidney subjected to irreversible changes and was closely welded to surrounding structures.

Specimen: Right kidney. 8.0 x 7.0 x 4.0 см in size, with irregular surface; dark-gray colour, impacted. On cross-section the renal structure is destroyed; almost 90% of renal parenchyma replaced with yellow, brilliant adipose tissue; in renal collecting system different sized stones and purulent cavities were seen.

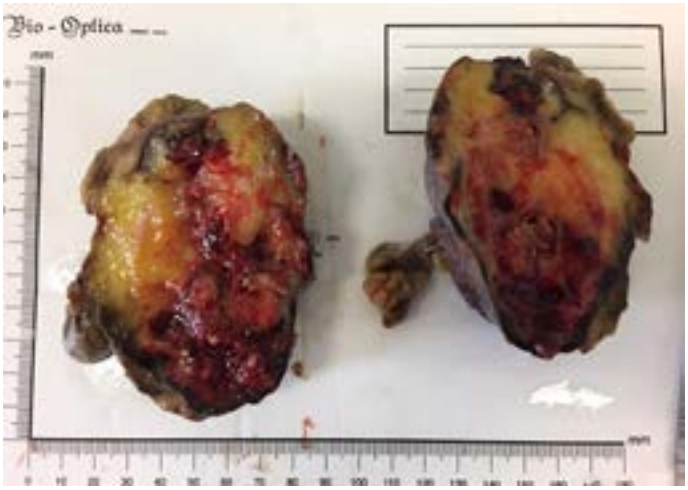

Figure 5 and 6: Specimen: Right kidney. 8.0 x 7.0 x 4.0 см in size, with irregular surface; dark-gray colour, impacted. On cross-section the renal structure is destroyed; almost 90% of renal parenchyma replaced with yellow, brilliant adipose tissue; in renal urinary collecting system are different sizes of stones and purulent cavities seen.

Histology: The renal tubules shows a severe dystrophy. Around blood vessels and tubules there is an intense formation of fibrous and connecting tissue seen. Renal parenchyma replaced by adipose tissue (Figure 7).

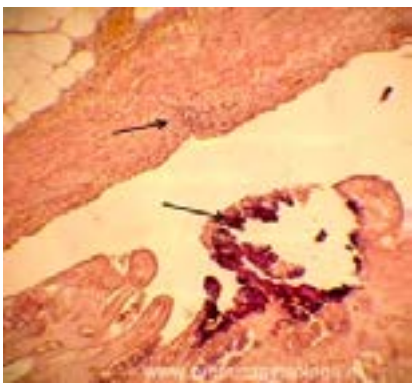

Figure 7: In the capsule of the kidney focal polymorphous cell infiltration with a predominance of lymphocytes and pronounced fatty layers (arrows) seen. Full-thickness of the glomerular capillaries with erythrocyte sludge, plasmorrhagia, swollen endothelial cells with narrowing of the capillary lumen.

Results and Discussion

Urolithiasis is one of the main problems of modern medical science, it is the most common disease of urinary system and constitute 30-50% of urological in-patients [3]. Untreated or at low quality treatment urolithiasis may lead to a serious complications like as suppurative pyelonephritis, hydronephrosis, and renal atrophy [4]. According to Tarasov N.I. among 557 patients with urolithiasis which underwent surgery – in 91 (16.3%) - nephrectomy was done [5]. In our case, an extremely rare complication of urolithiasis in the form of renal replacement lipomatosis is identified [6,7]. The development of such kind of complication may be associated with the fact that the patient never been examined by urologist, because she had never experienced an attack of renal colic and hematuria; and also because the patient was confident that the pain on lumbar region was associated with confirmed by neurologist spinal disease. As a result untreated and long standing nephrolithiasis led to irreversible renal parenchymal changes with subsequent suppurative pyelonephritis, acute huge perinephric abscess with life-threatening sepsis. Destruction of renal parenchyma induced renal replacement lipomatosis with loss of the renal function.The danger that nonfunctioning kidney which susceptible to purulent changes can be a source of life-threatening complications (renal abscess, purulent perinephritis) forced us to perform a nephrectomy which confirmed our concerns.

Conclusion

Occasionally urolithiasis may mimic signs of spine disease, so in patients with persistent back pain which did not respond to conventional therapy of this pathology hephrolithiasis should be excluded. Non-treated urolithiasis may lead to irreversible renal parenchyma changes with loss of the kidney function and development of one of life-threatening acute complications like perinephric abscess and later–renal replacement lipomatosis.

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Author's contributions

KK performed the operation, carried out the study, and revised the manuscript. ND perfoirmed the histological study. ZM performed the operation, carried out the study. KA helped in drafting the manuscript and revised the contents of the discussion of the manuscript. AG performed the operation and carried out the study. AA revised the manuscript. All authors read and approved the final manuscript.

References

1. Knoll T (2010) Epidemiology, pathogenesis, and pathophysiology of urolithiasis. *Eur Urol Suppl* 12: S802-S806. [Crossref]
2. Tom Walton (2011) Pathophysiology of Upper Urinary Tract Obstruction.
3. Shalekenov BU, Vozshula VI, Usupbayeva AG (2013) Urolithiasis. etiology, incidence, laser technology, treatment and metaphylaxis.
4. Chernetcova GS, Chernetcov ON (2015) Renal functional state in nephrolithiasis. "Noninvasive technology in urology": Kazakhstan Urology Congress. *Almat*y 1: 190-193.
5. Tarasov NI (1978) Endemic urolithiasis in arid zone 1: 224.
6. Pytel AY (1969) Guideline in clinical urology. Renal and upper urinary tract diseases. Moscow 1: 428.
7. Ambos MA, Bosniak MA, Gordon R, Madayag MA (1978) Replacement lipomatosis of the kidney. *AJR Am J Roentgenol* 130:1087–91. [PubMed]
8. Prasad KR, Satish Chandra H, Vijay Kr (2012) Renal replacement lipomatosis. *Indian J Urol* 28: 105-106. [Crossref]