

The development of spontaneous steinstrasse in patient with nephrocalcinosis

Nefrokalsinozisli olguda spontan tař yolu geliřimi

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ABSTRACT

Development of the steinstrasse is usually seen in patients with a history of extracorporeal shock wave lithotripsy. In patients who were followed up with the diagnosis of nephrocalcinosis development of steinstrasse is rare. In this study, spontaneous steinstrasse formation and treatment in 30-year-old male patient with idiopathic medullary nephrocalcinosis who had no history of extracorporeal shock wave lithotripsy, is reported.

Keywords: Steinstrasse, nephrocalcinosis, treatment

ÖZ

Tař yolu geliřimi genellikle beden dıřı řok dalga tedavisi öyküsü olan hastalarda görülmektedir. Nefrokalsinozis tanısıyla takip edilen hastalarda spontan tař yolu geliřimi oldukça enderdir. Bu alıřmada, 30 yařında etiyolojisi bilinmeyen, beden dıřı řok dalga tedavisi öyküsü olmayan medüller nefrokalsinozisli erkek hastada spontan tař yolu oluřumu ve tedavisi sunulmaktadır.

Anahtar kelimeler: Tař yolu, nefrokalsinozis, tedavi

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INTRODUCTION

Steinstrasse is usually observed following extracorporeal shock wave lithotripsy (ESWL) applied to the upper urinary tract stones ⁽¹⁾. Spontaneous development in adults is very rare. Nephrocalcinosis is described as small but common calcifications of the renal parenchyma that can be caused by many conditions such as Alport syndrome, chronic glomerulonephritis, medullary sponge kidney, hyperoxalosis, renal transplantation rejection, distal renal tubular acidosis, and hypercalcemia ⁽²⁾. In this study, spontaneous steinstrasse formation and its treatment in a 30-year-old male patient with idiopathic medullary nephrocalcinosis who had no ESWL history is reported.

CASE REPORT

A 30-year-old male patient followed by nephrology department due to medullary nephrocalcinosis presented to the urology department with the complaints of dysuria and color change in urine. Physical examination was normal. There were punctate calcifications in the parenchyma of both kidneys in plain urinary system radiograms (DUSG) (Figure 1). No stone was observed in both renal pelvises and ureters of the case for which strong findings for nephrocalcinosis were obtained by renal ultrasonography. Biochemical values of the patient were normal. His family history did not include a renal stone disease, renal parenchymal disease and gout. The patient was followed up with a nonspecific therapy including



Figure 1. Direct urinary system graphic at the first presentation of the patient.



Figure 2. Image of spontaneous steinstrasse in the left ureter in the direct urinary system graphic.

plenty of liquid intake. Significant left costovertebral angle tenderness was detected during physical examination of the patient who had a left flank pain and described dysuria and passing kidney stones two years later. Laboratory values of the patient were normal. In the direct urinary system radiogram (KUB), bilateral nephrocalcinosis, calcifications and opacities consistent with the steinstrasse along the tract of the left ureter were detected (Figure 2). In renal ultrasonography, bilateral nephrocalcinosis, grade 3 hydronephrosis of left kidney and collecting system, stone particles lining in a column in the left ureter were observed. The stones in the left ureter were removed by ureteroscopy and a double J stent (DJS) was placed in the left ureter under general anesthesia. Steinstrasse reformation in the distal left ureter was observed in the patient with recurrent complaints after two months on the control KUB



Figure 3. Image of steinstrasse in the left ureter in the case with DJS.

(Figure 3). Left DJS, and the stones in the ureter were removed and the patient was observed during the follow-up period.

DISCUSSION

Nephrocalcinosis is a renal parenchymal calcification that can occur secondary to many diseases and factors. Parenchyma is anatomically divided into two parts as medulla and cortex. Nephrocalcinosis is classified as medullary or cortical type. Medullary type is more common. Medullary nephrocalcinosis frequently accompanies hyperparathyroid-associated hypercalcemia. Hypercalcemia is usually accompanied by hypercalciuria and medullary nephrocalcinosis occurs as a result of precipitation of calcium salts in basal membrane of renal tubular cells and the loop of Henle. There are many studies demonstrating the superiority of KUB and ultrasonographic imaging in the diagnosis of nephrocalcinosis⁽³⁾. The treatment used for nephrocalcinosis is the treatment of the underlying primary disease. It is known that steinstrasse can occur in 4% of the patients receiving ESWL therapy for renal stones⁽⁴⁾. After ESWL, stone fragments pass down the ureter and enter into the bladder spontaneously. If the stones cannot pass down the ureter due to a blockage, they begin to accumulate along the ureter and generate the structure called steinstrasse. Accumulation of stone fragments in the ureter is deemed to be caused by the vesicoureteral obstruction or the ureteral stenosis. One of the reasons of steinstrasse formation is ESWL

applied for the large stones (>2.5 cm for kidney, and >1.5 cm for ureter) ⁽⁵⁾. Use of high energy at the beginning of the ESWL process also leads to steinstrasse formation. Although steinstrasse was regarded as a common complication of ESWL formerly, it has been observed less frequently nowadays thanks to the technological progress in ESWL devices. Incidence rates for steinstrasse differ for distal (64%), proximal (29%), and midureter (8%) segments ⁽⁶⁾. Clinical presentation can be colicky or silent pain. Spontaneous steinstrasse is rarely seen in adults. Ureteral stent has an important role in the prevention of steinstrasse after ESWL ⁽⁷⁾. Development of a second spontaneous steinstrasse in spite of DJS in our case is striking. Besides, our case does not have an ESWL history. Nephrocalcinosis that caused development of spontaneous steinstrasse was idiopathic in our case. Homayoon et al. reported the formation of spontaneous steinstrasse in a patient with nephrocalcinosis who already had distal tubular acidosis ⁽⁸⁾. There are some studies indicating the utility of alpha-blocker therapy for spontaneous steinstrasse in lower ureter ⁽⁹⁾. However, in this case, all the stones in the ureter were removed by rigid ureterorenoscopy without administering alpha-blocker therapy. Consequently, close follow-up for the potential spontaneous stein-

strasse formation in patients followed with nephrocalcinosis is useful.

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