Transition of overlooked sterile pyuria

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A 37-year-old woman was admitted to our hospital for evaluation of a solitary pulmonary nodule in left lower lobe. She also complained of urinary frequency and dysuria. She had a recent history of recurrent cystitis. She had visited our hospital 5 years prior due to cystitis. The results of the urinalysis and urine culture at that time showed only sterile pyuria. An abdominal computed tomography (CT) demonstrated nonspecific findings except for parenchymal calcifications in the right kidney (Fig. 1a). After admission, the urinalysis showed microscopic hematuria and pyuria. The acid-fast stain and culture for urine Mycobacterium tuberculosis was negative. She was sent for a percutaneous needle biopsy. The percutaneous needle biopsy of the lung results revealed chronic granulomatous inflammation with necrosis. An abdominal CT demonstrated a multi-loculated cyst with internal calcifications in the upper pole of right kidney (Fig. 1b). The tuberculosis polymerase chain reaction in the urine and the bronchoscopic washing fluid was positive. The T-cell release assay of interferon-gamma following stimulation by antigens that are unique to Mycobacterium tuberculosis was positive. The radiologic findings were compatible with renal tuberculosis. This case highlights the importance of having a high index of suspicion for tuberculosis in a patient who presents with recurrent sterile pyuria and renal calcifications, especially in countries where tuberculosis is endemic.

A case of acute pyelonephritis with ureteral stricture in a patient with chronic kidney disease

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Introduction: Acute kidney injury associated with acute pyelonephritis caused by segmental ureteritis is not common. We report a case of acute kidney injury caused by segmental ureteritis successfully treated by percutaneous nephrostomy (PCN) and antibiotics therapy.

Case: A 65-year-old Korean woman with a history of diabetes visited our emergency department complaining of lower abdominal pain for 3 days with fever of 38.5°C. Her blood pressure was 100/50 mmHg and heart rate 120 beats/min. Urine analysis showed turbid appearance with obvious pyuria and hematuria. Initial laboratory findings revealed an elevated white blood cell count (14.6 × 10³/mL) and CRP (14 mg/dL). Blood urea nitrogen and serum creatinine concentrations were 114 mg/dL (normal: 8-20 mg/dL) and 5.8 mg/dL (normal: 0.6-1.2 mg/dL), respectively. Computed tomography and sonography showed left pyelonephritis with hydronephrosis. The ultrasonogram of the right kidney showed increased renal parenchymal echogenicity with subtle obliteration of the corticomedullary differentiation, which suggested of chronic kidney disease. The urine culture revealed Enterococcus faecium. After percutaneous nephrostomy and appropriate antibiotic therapy, the creatinine level decreased from 5.8 mg/dL to 1.6 mg/dL on the 30th day of admission. During the evaluation of the cause of hydronephrosis in left kidney, ureteral stricture was detected by pelvic magnetic resonance imaging and intravenous pyelography. At the 30th day of admission, ureteral stricture was relieved partially. But we could not remove percutaneous nephrostomy because of recurrent pyelonephritis while clamping the drainage of percutaneous nephrostomy. At the 50th day of admission, we performed antegrade pyelography and confirmed full recovery of ureteral stricture, and then removed PCN.

Conclusion: Percutaneous nephrostomy and appropriate antibiotic therapy could be a good treatment options, in case of acute kidney injury associated acute pyelonephritis caused by segmental ureteritis.