Salmonella Typyhi Isolated From Urine Culture before Percutaneous Nephrolithotomy: A Case Report

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INTRODUCTION

Typhoid fever is the most common illness caused by Salmonella typhi (S. typhi).[1] S. typhi bacteriuria can be seen following a recent episode of typhoid fever, or in chronic carrier state involving the urinary system, especially with local abnormalities of urinary tract.[2] However, S. typhi bacteriuria with renal stone disease has rarely been reported.[2] We presented a rare case of a kidney stone with Salmonella infection and discussed the treatment approaches in the light of literature.

CASE REPORT

A 58 years old man with right flank pain and frequent urination was presented to our outpatient clinic. There was hematuria and leukocyturia in dipstick urinalysis. Intravenous urography findings were 25 mm stone located in the right pelvis with multiple lower calyx stones and severe hydronephrosis of the right kidney (Figure 1). Noncontrast computed tomography revealed severe hydronephrosis, parenchymal loss and in the renal pelvis and lower pole hyper dense appearance of 25 mm millimeter stones (Figure 2). In technetium-99m-diethylenetriaminepentacetic acid (99mTc-DTPA) renal scintigraphy, renal functions for the right and left kidneys were measured as 29% and 71%, respectively.

Serogroup D Salmonella was isolated from the first midstream urine culture. Findings of the vital signs were normal but erythrocyte sedimentation rate was 44 mm/h (0-20 mm) and C-re-

Figure 1. The stone located in right kidney pelvis on intravenous urography.

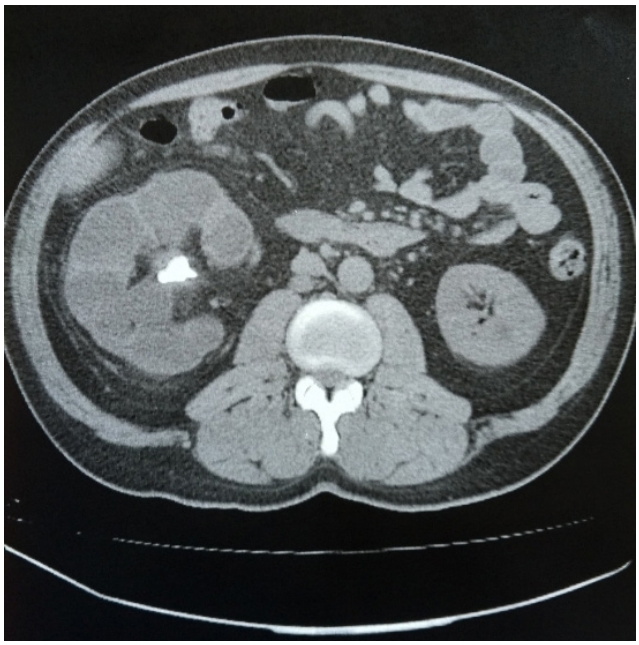

Figure 2. Noncontrast computed tomography shows a stone in the renal pelvis with severe hydronephrosis and parenchymal loss.

active protein was 14.18 mg/dL (0-5 mg/dL). Microbiological workup resulted positive for S. typhi H antigen (1/100) and S. serogroup D. There was no significant infection according to the stool culture. Ceftriaxone (2g every 12 hours, intravenously) was administered thereafter. On the third day of the antibiotic therapy the patient underwent percutaneous nephrolithotomy. We obtained pyuric urine samples from the renal pelvis. The obstructive pelvis and lower calyx stones were cleared. Stone culture samples were taken. The urinary catheter and the nephrostomy tube were retrieved on the first and third postoperative day, respectively. On the first and the second postoperative day, 38.5°C fever was measured. S. typhi was isolated from the intraoperative pelvic urine and stone culture. Preoperative antibiotic treatment was continued for 7 days and the patient was discharged with oral ciprofloxacin therapy (750 mg twice daily) after 11 days of hospitalization. Ciprofloxacin was discontinued after 3 months of use. Outpatient evaluation of third months was negative for urine culture. At six months, 99mTc-DTPA renal scintigraphy revealed the percentages of distribution of the total renal function as 31% and 69% for the right and left kidney, respectively.

DISCUSSION

Salmonellae are facultative anaerobic, non-spore-forming, gram-negative bacilli.[1] The bacilli have been classified into 2541 serotype by the Kaufmann-White scheme based on the O and H antigens.[1] The laboratories perform a few simple agglutination reactions that define specific O antigens into serogroups, designated as groups A, B, C1, C2, D and E Salmonella.[1] S. enteritidis and S. typhi are both group D. Our patient's midstream urine, pelvic urine and stone culture yielded Salmonella group D.

Isolation of S. typhi from urine is rare even where this infection is endemic.[1] It is believed that the bacilli are shed in urine following a recent typhoid fever as part of the natural history of this disease or in chronic carrier states.[3,4] During asymptomatic bacteriuria, cystitis or pyelonephritis can be seen clinically.[1,2,5] But interstitial nephritis and renal micro abscesses can develop as important complications in the course of the disease.[1] The incidence of bacteriuria is reported as 0.6%.[1] This condition occurs in patients both with and without local abnormalities of the urinary tract. Up to 50% of patients with S. typhi urinary tract infection

(UTI) had urinary calculi.[3] This bacteriuria was related with predisposing factors such as urinary tract abnormalities or immunosuppression.[4] In case of a UTI associated with anatomic obstructive abnormalities, surgical correction may be required in addition to prolonged antimicrobial therapy (≥ 6 weeks) to eradicate infection.[1] S. typhi bacteriuria is asymptomatic in the majority of patients and probably is associated with a recent typhoid fever in patients. Although S. typhi bacteriuria is rare even where it's endemic, this specific infection should be kept in mind in patients who have an unidentified chronic UTI.

CONFLICT OF INTEREST

None declared.

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