

RESEARCH ARTICLE

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Salmonella Typhi in Urine Associated with Bilateral Nephrocalcinosis: A Rare Case Report

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ABSTRACT

This case report discusses a rare occurrence of Salmonella Typhi isolated from the urine of a patient with bilateral nephrocalcinosis. Salmonella Typhi is a known pathogen causing typhoid fever primarily associated with gastrointestinal manifestations. However, its presence in the urine is a rare phenomenon, especially in conjunction with bilateral nephrocalcinosis.

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Introduction

Salmonella Typhi, a notorious pathogen synonymous with enteric fever, typically elicits its clinical manifestations through gastrointestinal involvement. However, the identification of Salmonella Typhi in urine is a rare occurrence, and when coupled with bilateral nephrocalcinosis, it presents a clinical conundrum. This case report delves into the intricacies of an atypical presentation, narrating the journey of a 45-year-old male who, amidst complaints of fever and abdominal discomfort, unexpectedly revealed the presence of Salmonella Typhi in his urine. Unveiling the intricate interplay between an unusual urinary pathogen and the rare entity of bilateral nephrocalcinosis, this report underscores the significance of meticulous diagnostic evaluation and a tailored therapeutic approach in managing such uncommon clinical scenarios. This case report highlights the importance of considering Salmonella Typhi as a possible cause of urinary tract infection in patients with nephrocalcinosis, even if they have no recent history of typhoid fever.

Case Presentation

A 45-year-old male presented with complaints of intermittent fever, abdominal pain, and dysuria for the past two weeks. He had no recent history of travel or exposure to sick contacts. Clinical examination revealed tenderness over the lower abdomen and lumbar regions.

Investigations

Laboratory findings included a white blood cell count of 15,000 cells/ μ L with a neutrophil predominance, and a serum creatinine of 1.2 mg/dL. Urinalysis revealed pyuria and bacteriuria. Laboratory investigations included blood and urine cultures, of which urine revealed growth of non-lactose fermenting colonies (figure 1) which was identified as Salmonella Typhi [1,2] by BD Phoenix M50 and was reconfirmed by Vitek 2, Biomerieux.



Figure 1: Non-lactose fermenting colonies of Salmonella Typhi on MacConkey agar.

The isolate was confirmed by serological typing with polyvalent Salmonella O, monovalent O9, Hd and Vi antisera as Salmonella enterica serotype Typhi [3,5,6]. Antimicrobial susceptibility testing revealed the isolate to be sensitive to Ceftriaxone (MIC \leq 0.25 μ g/ml), Ciprofloxacin (\leq 0.06 μ g/ml) but resistant to Cotrimoxazole [7]. Imaging studies, including abdominal ultrasound confirmed bilateral nephrocalcinosis (Figure 2) [4].

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Figure 2: X ray KUB shows Bilateral nephrocalcinosis.

Management

The patient was treated with a targeted antibiotic regimen—Ciprofloxacin 500 mg Twice daily for 14 days guided by the urine culture sensitivity report. Additionally, supportive care for bilateral nephrocalcinosis included hydration and pain management. Repeat monitoring of urine cultures were conducted to assess treatment efficacy.

Outcome

The patient responded well to the antibiotic therapy, with the resolution of fever and dysuria. Follow-up imaging demonstrated stable bilateral nephrocalcinosis without further progression. The patient was discharged with recommendations for continued monitoring.

Discussion

While *Salmonella Typhi* is a recognized pathogen, its isolation from urine is uncommon, and its association with bilateral nephrocalcinosis is exceptionally rare. Possible routes of renal involvement may include hematogenous spread or ascending infection from the urinary tract. The coexistence of nephrocalcinosis adds complexity to the clinical scenario, warranting a multidisciplinary approach to patient care [8,9].

The patient's nephrocalcinosis may have contributed to the development of *Salmonella Typhi* bacteriuria. The calcium deposits in his kidneys may have provided a nidus for bacterial

growth, and his impaired renal function may have made it more difficult for his body to clear the infection.

Conclusion

This case highlights the importance of considering atypical pathogens in the context of unusual clinical presentations. *Salmonella Typhi* bacteriuria is a rare complication of nephrocalcinosis, even in patients without typhoid fever. However, it is important to consider *Salmonella Typhi* as a possible cause of urinary tract infection in patients with nephrocalcinosis, even if they have no recent history of typhoid fever. *Salmonella Typhi* in urine, especially with bilateral nephrocalcinosis, is a rare entity that requires careful evaluation and a tailored treatment approach.

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