

Eggs-posing the culprit: A rare cause of Salmonella Enterocolitis and Pyelonephritis

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Introduction:

Non-typhoidal Salmonella gastroenteritis is a significant cause of diarrhea, affecting approximately 1.4 million people annually in the United States, primarily children under 5 years old and adults over 50 years old. It is transmitted via the fecal-oral route. Salmonella urinary tract infection (UTI), on the other hand, is much less prevalent, with rates ranging from 0.015% to 0.9%, and is often associated with abnormalities of the genitourinary (GU) tract.

Case Presentation:

A 65-year-old female with past medical history of paroxysmal atrial fibrillation, chronic kidney disease, and recent renal calculi status post nephrostomy stent 17 days prior, presented to the emergency department with a 2-day history of fevers, acute right upper quadrant abdominal pain, and acute diarrhea. She reported the onset of fevers two days prior, accompanied by nausea and 7-8 episodes of non-bloody watery diarrhea per day. On arrival, her vital signs were as follows: temperature 102°F, heart rate 92 bpm, blood pressure 110/78 mmHg, respiratory rate 21/min, and oxygen saturation 98% on room air. Physical examination revealed right upper quadrant tenderness with guarding, rigidity, and tenderness.

A CT scan of the abdomen revealed a right nephro-ureteral stent in place, prominent inflammation around the proximal right ureter and renal pelvis suggestive of underlying infection, associated transcortical hypodensities in the right kidney with mild perinephric inflammation indicative of nephritis, probable hydroureteronephrosis, and diffuse wall thickening in the small bowel loops, ascending, and transverse colon. The patient was admitted for sepsis secondary to pyelonephritis and enterocolitis and was started on intravenous fluids and ceftriaxone 1g daily. A gastroenterology pathogen panel resulted positive for Salmonella. Preliminary urine cultures grew gram-negative rods, subsequently identified as Salmonella. This raised concern for hematogenous seeding of infection from enterocolitis to the genitourinary system in the context of the ureteral stent. Further questioning revealed that the patient had been blowing her neighbor's unpasteurized chicken eggs with her mouth to preserve the eggshells approximately seven days prior. However, as blood cultures remained negative through day 3, the perineal spread of Salmonella via diarrhea and subsequent ascending infection was confirmed. Patient was treated for 14 days with oral ciprofloxacin. Repeat urine cultures were also ordered to ensure successful treatment.



Figure: CT Abdomen showing a nephro-ureteral stent in place with signs of pyelonephritis and colitis

Discussion:

Nontyphoidal Salmonella urinary tract infection demands heightened clinical awareness, often manifesting concurrently with gastroenteritis. Extensive literature underscores a significant correlation with structural genitourinary tract anomalies, such as ureteral stenting for nephrolithiasis and malignancies. Therefore, it is crucial to thoroughly review local resistance patterns of nontyphoidal Salmonella before initiating antibiotic therapy to ensure effective eradication.

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