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Sacroiliitis: A Complication of Salmonella Infection Case Report

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ABSTRACT

A rare case of Salmonella-induced sacroiliitis in a female in her late teens in Asia is presented. The patient had a recent history of diarrhea and fever and was presented with left hip pain and difficulty walking. Blood tests showed anemia, leukocytosis, and positive blood culture for Salmonella typhi. MRI revealed the involvement of the left sacroiliac joint and adjacent muscles. Initial treatment with ceftriaxone did not improve the patient's condition, and intravenous meropenem was started based on bacterial sensitivity. This case highlights the importance of considering the patient's medical history and risk factors, and performing a thorough differential diagnosis. Antibiotic resistance is a concern in managing Salmonella infections, and tailored treatment based on susceptibility is crucial. Surgery may be necessary in cases of poor clinical response or when accurate bacteriology is needed, and a multidisciplinary approach involving infectious disease and orthopedic teams is essential for optimal patient care.

Keywords: *Salmonella typhi*, Sacroiliitis, Adolescent, Antibacterial agents, Magnetic Resonance Imaging

INTRODUCTION

The case report describes a rare case of *Salmonella*-induced sacroiliitis in a female in her late teens in Asia. It suggests that *Salmonella*-induced sacroiliitis may be a potential complication of *Salmonella* infection, albeit uncommon. The clear message is the importance of considering patient history, tailoring treatment based on susceptibility, and involving a multidisciplinary approach for optimal care. It also highlights the issue of antibiotic resistance in *Salmonella* infections, emphasizing the need for judicious antibiotic use and monitoring of antibiotic susceptibility patterns.

CASE PRESENTATION

A female in her late teens, presented to the hospital with complaints of severe pain in the right hip joint and lower back for the past 3 days. The patient reported a history of recent fever, abdominal pain, and diarrhea before the onset of her symptoms. There was no history of recent trauma or any other significant medical disorders. On admission, she was initially seen in the clinic and prescribed NSAIDs and empiric antibiotics (ceftriaxone) based on the suspicion of an infectious etiology. However, her symptoms did not improve, and she was presented to the hospital for further evaluation.

Upon admission, she had a temperature of 39.4°C, blood pressure of 110/80 mm Hg, and a pulse rate of 80/minute. Inspection of the left hip showed no obvious swelling, redness, or deformities. Palpation of the left hip revealed tenderness over the left sacroiliac joint and the anterior aspect of the left hip joint, but no tenderness over the iliac crest or the greater trochanter. Range of motion of the left hip was limited due to pain, with pain reported on internal rotation and abduction. There was no neurological weakness or gross abnormality. Abdominal examination revealed no abnormalities, and CNS examination was unremarkable.

The relevant history included a recent episode of acute gastroenteritis, where the patient had consumed contaminated food from a local restaurant. This history was significant, as it raised suspicion of a possible infectious cause for sacroiliitis. The patient had no previous history of joint pain or systemic illness. Further workup included a Magnetic Resonance Imaging (MRI) scan of

the hip (Figure 1), which showed heterogeneous signals at the left sacroiliac joint involving the iliac bone, with adjacent edematous and thickened iliacus muscle, and foci of postcontrast enhancement in the pelvic region. There were no findings suggestive of bone destruction, sequestrum formation, or periosteal elevation, ruling out osteomyelitis. Tiny areas of non-enhancement within the iliacus muscle were suggestive of abscesses/collections. Foci of post-contrast enhancement was also seen in the right sacral ala. Both hip joints appeared normal. No lymphadenopathy or other abnormalities were noted in the pelvic region. Prompt diagnosis and appropriate antibiotic treatment led to clinical improvement.

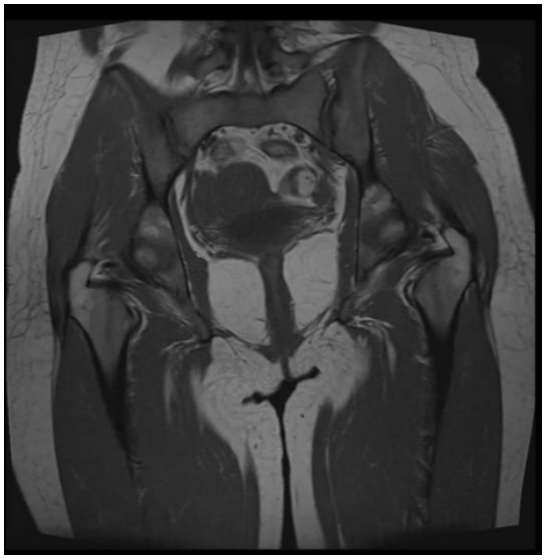

Figure 1. Axial T2-weighted MRI scan of the left hip in a patient

Showing heterogeneous signals at the left sacroiliac joint with adjacent edematous and thickened iliacus muscle, suggestive of abscesses/collections.

Blood tests revealed leukocytosis, Elevated Erythrocyte Sedimentation Rate (ESR), and negative autoimmune markers, and blood culture and stool culture were positive for *Salmonella Typhi*, confirming the diagnosis of *Salmonella*-induced sacroiliitis (Table 1).

Table 1. Treatment details of *in-vitro* regeneration in Godavari

Lab Test	Result	Normal Range
Hemoglobin	9.7 g/dL	Male:13.5-17.5 g/dL
		Female:12.0-16.0 g/dL
Total leukocyte count	2000/mm^3	4500-11,000/mm^3
Polymorphonuclear leucocytes	72%	-
Iron profile	Iron deficiency anemia	-
Erythrocyte sedimentation rate	42 mm/hour	0-20 mm/hour
C-reactive protein	57 mg/L	0-5 mg/L
Procalcitonin	2.71 ng/L	<0.5 ng/L
Autoimmune markers	Negative	-
CPK	98 IU/L	34 IU/L-145 IU/L

Based on the history, physical examination, and MRI findings, she was diagnosed with left-sided sacroiliitis with adjacent muscle and pelvic involvement, possibly due to *Salmonella typhi* infection. She was initially given ceftriaxone, which showed no clinical response. Therefore, she was switched to intravenous meropenem 1 gram every 8 hours for 7 days. Final blood cultures showed sensitivity toward meropenem. The patient was given meropenem for a total of 14 days (approximately 2 weeks).

DISCUSSION

The rarity of *Salmonella*-induced sacroiliitis in the presented case report is an interesting observation. While this condition is generally uncommon, underlying conditions such as sickle-cell hemoglobinopathies, systemic lupus erythematosus, or immunosuppressive therapy may have played a role in increasing the patient's susceptibility to *Salmonella* infection [1,2]. This highlights the importance of considering the patient's medical history and risk factors when evaluating cases of sacroiliitis. The prevalence of tuberculosis in Pakistan and its potential for presenting as unilateral sacroiliitis is noteworthy [3]. This raises the need for a thorough differential diagnosis approach, including considering tuberculosis as a possible causative factor in regions where it is prevalent. Furthermore, neurological manifestations resulting from *Salmonella* spondylitis are infrequent, distinguishing it from tuberculosis [4]. However, diagnostic tools such as blood cultures and MRI scans mentioned in the case report are essential in confirming the diagnosis and guiding appropriate treatment [5]. The issue of antibiotic resistance, particularly in the context of quinolones, is a concerning factor in managing *Salmonella* infections, as mentioned in the case report. The use of intravenous meropenem in the presented case is an interesting treatment

approach that may have been chosen based on the sensitivity of the bacteria to other antibiotics [6]. This highlights the importance of tailoring the treatment regimen based on the susceptibility of the causative organism and the local antibiotic resistance patterns. The potential need for surgery in cases of poor clinical response to antibiotics or when accurate bacteriology is essential is an important consideration [7,8]. This underscores the multidisciplinary approach required in managing complex cases of *Salmonella*-induced sacroiliitis, involving infectious disease and orthopedic teams for optimal patient care.

CONCLUSION

In conclusion, this case report highlights the rarity of *Salmonella*-induced sacroiliitis and the challenges in diagnosis and treatment. The importance of considering underlying conditions, performing appropriate diagnostic tests, and tailoring the treatment approach based on antibiotic sensitivity and resistance patterns are emphasized. Collaborative efforts between different specialties are crucial in managing such cases effectively. Further research and studies may be warranted to better understand the pathogenesis and management of this rare condition.

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