

## UNUSUAL PRESENTATION OF REACTIVE ARTHRITIS AFTER SALMONELLA ENTERITIS IN A 6-YEAR-OLD BOY

SAMINA AKHTAR, BELQEES YAWAR FAIZ, KHURRAM KHALIQ BHINDER,  
SALMA GUL, IJAZ A. KHAN, MADIHA SAEED WAHLA  
*Shifa International Hospital, Islamabad*

### ABSTRACT

Reactive arthritis, formerly called Reiter's syndrome is extra-articular oligoarthritis, which can be due to bacterial infection or genetic predisposition. The infections are either urogenital (chlamydia being most notorious) or gastrointestinal (e.g. salmonella, yersinia, etc.). The human leukocyte antigen (HLA-B27) antigen has been implicated as the most common predisposing factor. Reactive arthritis often involves the joints of the lower limb. Bacterial enteric infections are a potential threat in a Pediatric population that can be due to an acute illness or its sequelae. Reactive arthritis following outbreaks of enteric infections with Salmonella is uncommon in the pediatric population. We report a rare case of a 6 years old boy who came to ER with high-grade fever and severe pain in the right iliac fossa. Clinical diagnosis of appendicitis was made by the physicians on physical exam but after radio-pathological investigation like CBC, ESR, CRP, Blood culture, USG abdomen, CT abdomen, and MRI, diagnosis of reactive arthritis secondary to salmonella enteritis was made and the patient underwent right hip arthrotomy after which he was discharged. Thus, imaging played a pivotal role in the right diagnosis of a patient with proper management guidelines. This also showed that salmonella enteritis can present atypically mimicking septic arthritis or acute appendicitis. Reactive arthritis after salmonella infection is a very rare and one of its kind case reported in Pakistan.

**Keywords:** Reactive, Arthritis, Salmonella, Reiters, Infection

**How to cite this article:** Akhtar S, Faiz BY, Bhinder KK, Gul S, Khan IA, Wahla MS. Unusual presentation of Reactive Arthritis after Salmonella Enteritis in a 6-year-old boy. *Pak Postgrad Med J* 2020;32(1). 48-51

---

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/3.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

DOI: <https://doi.org/10.51642/ppmj.v32i01.145>

*Correspondence to: Khurram Khaliq Bhinder  
Resident Radiologist,  
Shifa International Hospital,  
Islamabad, Pakistan*

*Email: [kkbhinder@yahoo.com](mailto:kkbhinder@yahoo.com)*

---

Reactive arthritis predisposing factors include chronic disease, immunosuppressive states but cases without predisposing factors have also been reported<sup>4</sup>. This case report presents a rare case of an immunocompetent child with reactive arthritis caused by salmonella.

### INTRODUCTION

Reactive arthritis is sterile arthritis that occurs after gastroenteritis or urogenital infections caused by salmonella, shigella, yersinia, campylobacter<sup>1,3</sup>. Its pathogenesis is incompletely understood but it is associated with immunogenic marker HLA-B27<sup>3</sup>. Reactive arthritis in healthy children caused by salmonella is rare with an incidence of 0.1 to 0.2% of the reactive arthritis cases among the children<sup>2</sup>.

### CASE DISCUSSION

A 6-year-old male child was presented to Shifa International Hospital emergency with a history of high-grade fever and severe pain in the right hip/leg for 4 days. The patient had no vomiting, diarrhea, loss of consciousness, seizures, or shortness of breath. The past medical and surgical history was unremarkable. Based on physical examination, he had a high-grade fever with a pulse of 110/min, respiratory rate of

23/min. He had tenderness in the right iliac fossa and hepatosplenomegaly. His right lower limb was flexed and no swelling or tenderness at the right hip. He had a limited range of motion. All other systemic examination was normal.

Initially, Meronem, vancomycin, and azomax was given but showed no improvement.

His important laboratory investigations showed WBC 5910/ul, ALT levels 121U/l, CRP 235, and ESR 33. Covid-19 was negative. Blood culture and sensitivity showed isolated Salmonella Typhi.

The abdominal ultrasound showed a thick-walled aperistaltic gut loop in the right side of the abdomen with free fluid in the right iliac fossa and enlarged rounded lymph nodes in the right paracolic gutter (Figure 4). Mild hepatosplenomegaly with homogeneous echo-texture and no focal lesion was seen. Prominent central abdominal lymph nodes were also seen in the central abdomen. X-ray right pelvis showed blurring of fat around the hip joint and X-ray right femur showed mild haziness around the right hip joint. The bone visualized were unremarkable. On ultrasound right hip joint, a streak of fluid along the neck of right femur measured 6.2mm was seen. No collection or soft tissue swelling was seen in the right thigh. CT abdomen and pelvis with contrast revealed mild hepato-splenomegaly (Figure 2). Distended gall bladder with trace pericholecystic fluid was also noted. There were multiple enlarged abdominal lymph nodes particularly right iliac fossa lymph nodes and thickened terminal ileum with free fluid in the right iliac fossa concerning ileitis (Figure 1). A normal-sized appendix was noted. There were minimal joint effusion and right hip joint with a slightly enhanced joint capsule (Figure 3). For further evaluation, MRI bilateral hip without contrast was done and it showed mild right hip joint effusion with a diffuse synovial and capsular thickening (Figure 5). Edema in muscles and intramuscular planes of obturator muscles was also reported (Figure 6).

The patient underwent a right hip arthroscopy. Per operatively 5-6 ml, yellowish turbid fluid was collected and it was sent for biopsy. The patient was well after the operation and he was discharged after 6 days of hospitalization. Any data that has been released and all procedures were performed under the patient's permission.

## DISCUSSION

Reactive arthritis is synovitis caused by genitourinary or gastrointestinal tract infection<sup>1</sup>. Reactive arthritis

in children is rare and occurs as 5.5-12 cases per hundred with a single joint infection<sup>2</sup>. In the present case, diagnosis of reactive arthritis hip joint was based not only on pathological findings like blood cultures with elevated ESR and CRP but also on radiological findings on USG abdomen, CT abdomen and pelvis and last but not the least, MRI. The reactive arthritis etiology is not well understood but it is associated with certain bacterial infections caused by salmonella, shigella, yersinia, and chlamydia<sup>1</sup>. The incidence of reactive arthritis by salmonella is 1% and it monoarticular with hip joint most commonly involved<sup>2</sup>. Reactive arthritis pathophysiology proposes the local invasion by enteric bacteria followed by bacterial antigens entry into the systemic circulation causing an immunologic reaction in joints; aggravated in the presence of HLA-B27<sup>3</sup>.

Salmonella, enteroinvasive and enteropathogenic, belongs to gram-negative bacteria. It is transmitted through the intake of contaminated food and water. It mostly occurs in immunocompromised patients<sup>4</sup>. Infections caused by salmonella include gastroenteritis, enteric fever, septicemia, and carrier state. Localized infection caused by salmonella involves any site of the body including bones and joints<sup>5</sup>. The gold standard treatment of reactive arthritis is joint debridement and antibiotic therapy. Antibiotics mostly fluoroquinolones and third-generation cephalosporins are effective in the treatment of reactive arthritis<sup>6</sup>. The patient was correctly diagnosed and timely intervention including antibiotics cover and arthroscopy saved the patient's hip joint.

## CONCLUSIONS

Paediatric populations being more prone to salmonella infection can rarely present with reactive arthritis. However, keeping this in differentials can lead to early management and prevent morbidity. Timely action taken by the physicians and surgeons on the proper radiological reports aided to save the life of patient in our case. Thus, imaging played a momentous role in making precise diagnosis on time.

## ETHICAL APPROVAL

The study was approved by the Institutional Review Board & Ethics Committee of Shifa International Hospital, Islamabad via Reference No. IRB# 084-21 Dated: March 27, 2021.



Figure 1: Axial contrast enhanced CT abdomen showing multiple enlarged abdominal lymphadenopathy.

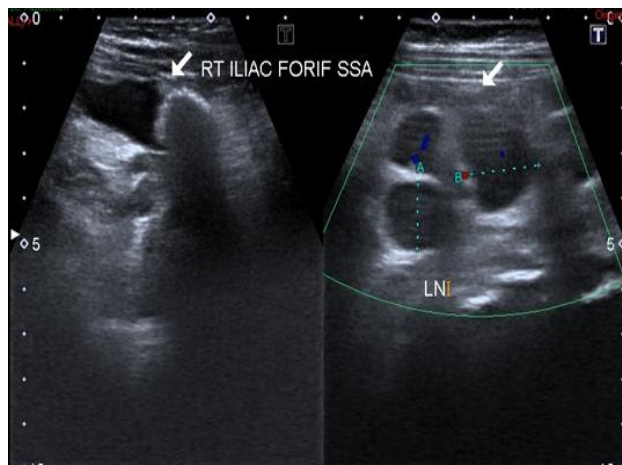


Figure 4: Abdominopelvic ultrasound showing free fluid in right iliac fossa and enlarged rounded lymph nodes in right paracolic gutter..



Figure 2: Axial contrast enhanced CT abdomen showing hepatosplenomegaly.

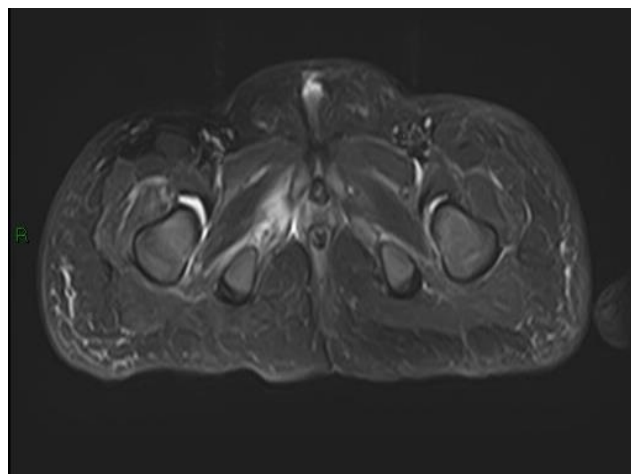


Figure 5: Axial non contrast MRI pelvis showing mild right hip joint effusion.

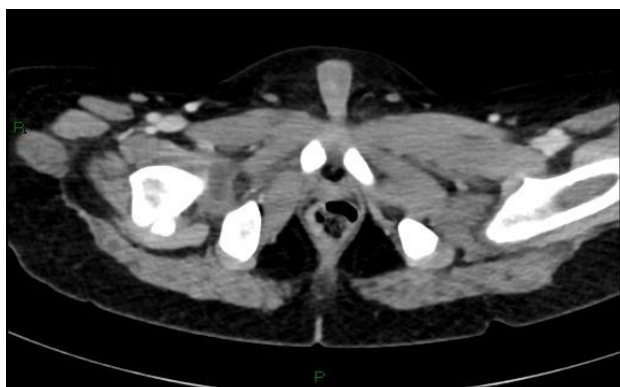


Figure 3: Axial contrast enhanced CT abdomen showing right hip joint effusion.

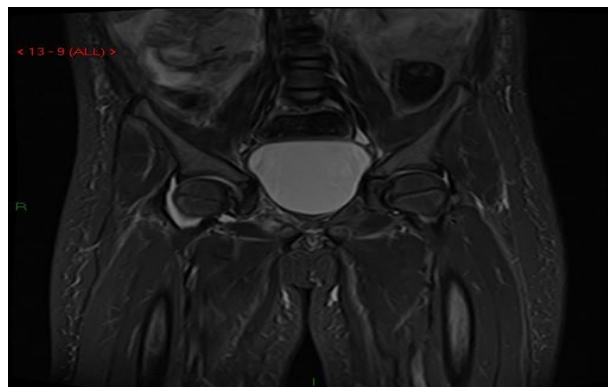


Figure 6: Coronal non contrast MRI pelvis showing edema in muscles and intramuscular planes of obturator muscles.

## REFERENCES

1. Chun P, Kim YJ, Han YM, Kim YM. A case of reactive arthritis after Salmonella enteritis in a 12-year-old boy. *Korean journal of pediatrics*. 2011 Jul;54(7):313.
2. Kurniawan A, Sitorus IP, Loho T, Hutami WD. A rare case of septic arthritis of the knee caused by Salmonella typhi with preexisting typhoid fever in a healthy, immunocompetent child—A case report. *International Journal of Surgery Case Reports*. 2021 Jan 1;78:76-80.
3. Dworkin MS, Shoemaker PC, Goldoft MJ, Kobayashi JM. Reactive arthritis and Reiter's syndrome following an outbreak of gastroenteritis caused by Salmonella enteritidis. *Clinical Infectious Diseases*. 2001 Oct 1;33(7):1010-1014.
4. Gupta P, Kaistha N, Omar BJ, Gupta P, Singh V, Mohanty A. Salmonella typhi: A cause of septic arthritis knee: A rare entity. *Int J Biomed Res*. 2017;8:242-244.
5. Agnihotri N, Dhingra MS, Gautam V, Gupta V, Kaushal R, Mehta D. Salmonella Typhi septic arthritis of hip—a case report. *Jpn J Infect Dis*. 2005 Feb 1;58(1):29-30.
6. Uygur E, Reddy K, Özkan FÜ, Söylemez S, Aydin Ö, Şenol S. Salmonella enteritidis Septic Arthritis: A Report of Two Cases. *Case reports in infectious diseases*. 2013 Oct 22;2013.