

Salmonella Related Septic Arthritis: A Case Report

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Citation: Alebbi S, Rahat F, Elhaj MF, Zahir FZ, Hamed M (2021) Salmonella Related Septic Arthritis: A Case Report. Annal Cas Rep Rev: ACRR-288.

Received Date: 23 October, 2021; **Accepted Date:** 27 October, 2021; **Published Date:** 31 October, 2021

Summary

Salmonella is a well-known cause of foodborne illness, commonly resulting in gastroenteritis, bacteremia and focal infections. Salmonella septic arthritis is a rare entity with cases mostly prevalent in patients with sickle cell disease, immunocompromised state, and advanced age. Here, we present a case of salmonella septic arthritis in a previously healthy young gentleman with no risk factors who presented with fever, skin rash, abdominal pain and left hip pain. Initial laboratory findings showed high inflammatory markers, negative blood culture. MRI of the left hip joint showed effusion and features of inflammatory changes. The diagnosis was confirmed by joint aspirate culture growing Salmonella b. Furthermore, he underwent joint arthrotomy, pus was drained and was treated with an antibiotic. Subsequently, the patient responded with marked clinical recovery.

Keywords: Salmonella, septic arthritis, hip joint, inflammatory.

Introduction

It is well known that Salmonella is one of the leading causes of foodborne bacterial diseases worldwide. It is transmitted via the fecal-oral route commonly resulting in gastroenteritis, bacteremia and other localized infections [1]. In comparison to other gram-negative bacteria, Salmonella is rarely encountered as a cause of osteoarticular infections. There are well-described reports of septic arthritis secondary to Salmonella particularly in individuals who are immune compromised, have a history of sickle cell disease, systemic lupus erythematosus or prosthetic joints [2,3,4,5]. However, Salmonella arthritis in a native adult joint of healthy individuals is a rare phenomenon that has not been well established in the literature. Here we describe a case of septic arthritis of the hip joint caused by Group B Salmonella in an immune-competent individual with no underlying comorbidities. In addition to its rarity, this case is presented to emphasize on the unusual manifestations of Group B Salmonella.

Case report

A 37 years old Syrian male with no comorbid conditions presented to the emergency department with complaints of lower back pain radiating to the left leg for 10 days and onset of fever for 5 days and abdominal pain. Hip pain was associated with inability to bear weight, but there was no morning stiffness, no other joint involvement, no history of similar presentation, no history of trauma or surgery. Patient also denied any history of nausea, vomiting, constipation or diarrhea. Before presenting to our Emergency department, he went to a private clinic where initial lab investigation showed deranged liver enzymes so initial judgment upon presentation was hepatitis versus cholecystitis. Upon examination, patient was found to have oral ulcers, erythematous rash over the back and chest. On physical examination there was restricted, painful flexion, internal and external rotation of the left hip, right hip joint examination was normal. Abdominal examination was unremarkable including negative Murphys sign. Initial laboratory data revealed high inflammatory markers (CRP: 136.9 mg/dL, ESR: 39 mm/hr), and deranged liver functions (ALT :142 U/L, AST: 99 U/L). Ultrasound abdomen showed fatty liver however, no features of cholecystitis. Moreover, X-ray of his Left Hip showed no bony pathology. He was admitted under medicine with an assessment of reactive arthritis in view of fever, herpetic

rash, left hip joint pain. He was started on topical acyclovir and received ceftriaxone for 3 days. However, patient symptoms did not improve and the rheumatology team was consulted for possible reactive arthritis.

Detailed history taken revealed that the patient's history has been since 2 weeks prior to hospital admission which was started with maculopapular skin rash (Fig 1a,1b), followed by oral ulcers then abdominal, back and left hip pain. He was started on NSAIDs for possible reactive arthritis.



Fig.1a



Fig.1b

Figure 1: This is Erythematous rash over the back (1a) and chest (1b).

Work up for reactive arthritis (hepatitis serology, parvovirus PCR, brucella serology, chlamydia and gonorrhea, viral serology, and HIV AB) was negative including blood cultures. On patient follow up, his oral ulcer, skin rash improved but hip pain persisted.

For better characterization of persistent hip joint pain, MRI of the left hip joint was done and showed joint effusion, left proximal femur bony edema, findings suggest infective/inflammatory process (Fig 2a and 2b).

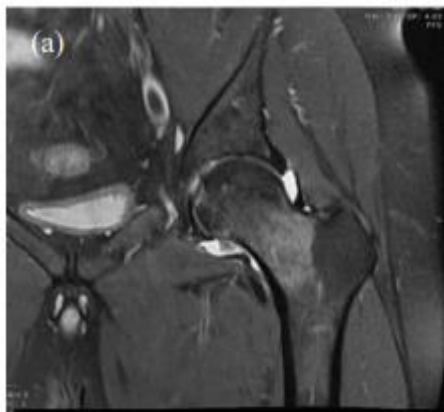


Fig.2a

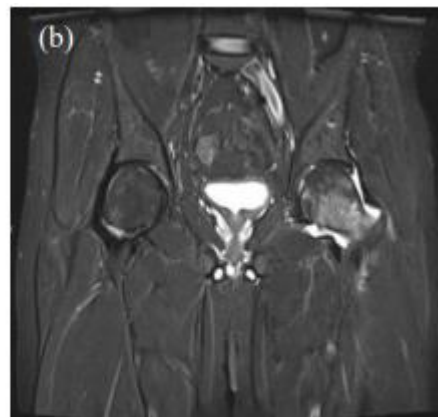


Fig.2b

Figure 2: This is a proton density (PD) sequence showing left hip joint effusion and bone marrow Edema.

Left hip joint aspiration was done by interventional radiology and straw-colored fluid was sent for analysis, cytology and culture. Fluid's analysis revealed turbid fluid with WBC 3875 / mL, with 49% neutrophil. Blood culture grow gram negative bacilli (salmonella B). The patient underwent arthrotomy, pus was drained, the joint was washed out and a drain was inserted which was removed on 3rd day and physiotherapy was initiated. Afterward, he started to improve significantly with restoration of fully functional joint and inflammatory changes subsided. The patient was discharged with a plan of 2-3 weeks of antibiotics therapy as per infectious disease (ID) team recommendation.

Discussion

Salmonella belongs to a class of gram-negative bacteria. Two species of salmonella are present, Typhoidal and nontyphoidal. Most common source of infection is ingestion of poultry, beef, and eggs, however, direct or indirect contact with reptiles, ingestion of snake-based products (such as meat) has also been reported [7].

Typhoidal species are notably known for causing enteric fever. Nontyphoidal species infection usually manifests as Gastrointestinal ailment [6]. Extraintestinal manifestations

of Salmonella infection include sepsis and involvement of any major organ systems. Salmonella infection is commonly reported in children patients [16]. Having an immunocompromised condition like sickle cell, SLE [13], human immunodeficiency virus (HIV) [11], malignancy, antimicrobial therapy, use of immunosuppressive agents [8], diabetes [9], surgical implants, age more than 80 years [12] and are predisposing features for systemic involvement.

Salmonella infection of the bones and joints is rare, and few cases have been reported [9-13]. As previously described salmonella often causes monoarthritis, with the hip joint being predominantly involved [13]. Hematogenous spread is leading cause of developing salmonella septic arthritis. However, Blood cultures are often positive in only 10-15% of cases [15].

The novelty of our case is our patient developed salmonella septic arthritis without any predisposing factors. He presented with abdominal pain, fever, rash, and back pain. Initial labs showed high inflammatory markers and negative blood culture. In absence of risk factors and obscure symptoms, Septic arthritis wasn't taken into initial consideration. Afterward, the patient develops severe hip pain and limping which raised the concern for septic arthritis. MRI showed feature of an inflammatory process. Diagnosis was confirmed by hip arthrotomy and joint fluid culture grew Salmonella B.

Management of Salmonella osteoarticular infection is nonconsensual and variable duration of treatment is available at least 4-6 weeks of susceptible antibiotic and sometimes demanding surgical debridement [14]. Commencement of early treatment in septic arthritis is crucial to prevent sequelae to warrant early restoration of fully functioning joint. Our patient underwent left hip arthrotomy and pus was drained and was started on appropriate antimicrobial. Subsequently, patient was able to ambulate and showed marked improvement. This case highlights the importance of screening for typhoidal infection in patients who present with fever, monoarthritic in presence of abdominal pain and skin rash.

Conclusion

In conclusion, Salmonella septic arthritis of the hip is a rare presentation, especially in non-debilitated adults. Moreover, as in this patient, the joint motion restriction seen in early septic arthritis can be delayed in Salmonella related infections. In addition, there may be little or no increase in warmth or erythema around the affected joint. Therefore, each patient with clinical suspicion of septic arthritis must be thoroughly investigated in a timely manner, and antibiotic therapy along with surgical decompression should be performed at the time of diagnosis in order to prevent permanent joint dysfunction. What we are add to the literature is that Group B Salmonella related septic arthritis, although rare, can also present in healthy, immune competent patients, possibly by the hematogenous spread of systemic infection. Therefore,

physicians must be aware of this rare manifestation of non-typhoidal salmonella even in immune competent, healthy adults.

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