

CASE REPORT

Septic arthritis of the hip joint by *Salmonella typhi*; A Case Report and Review of Literature

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SUMMARY

We report a case of septic arthritis of hip joint in a 10-year-old boy with enteric fever. The clinical diagnosis was confirmed by *Salmonella typhi* isolation from joint aspirate obtained by FNAC. Treatment with intravenous Imipenem injections was successful.

Keywords: *Salmonella typhi*, septic arthritis, hip joint

INTRODUCTION

Enteric fever, often known as typhoid fever (TF), is a serious life-threatening infection that is mostly seen in impoverished nations. (Bhume and Babaliche, 2020) Unlike other gastro-intestinal diseases that primarily affect children aged 6 months to 3 years, typhoid fever is most common in children aged 5 to 12 years. (Chiu et al., 2001) Moreover, typhoid fever can occur in youngsters under the age of five years in a milder or unusual form. (Chiu et al., 2001) This unusual or subclinical manifestation might be the result of a poorly established reticulo-endothelial system, the breeding ground for *S. typhi* proliferation. (Ferreccio et al., 1984)

CASE

A 10-year-old boy presented to Pediatric emergency department of Shaikh Zayed Hospital, Lahore in a semi-conscious state with complains of high-grade fever, abdominal pain and vomiting for one month, and pain in left hip and joint for 20 days. There was no history of trauma or surgery of the left hip or knee. His vitals were done which showed a BP of 110/70 mmHg, pulse 96/min, respiratory rate 18/min and fever 101 degrees Fahrenheit. Local examination of the hip joint showed no signs of inflammation, but the joint was tender, and movements were restricted due to pain. His labs showed an Hb of 9.4mmHg, WBC count 8.48 with 75% polymorphonuclear cells, CRP 24 and ESR 120. Peripheral smear was done which showed no significant findings. Ultrasound left thigh and left hip revealed joint effusion in left hip.

Figure 1. Ultrasound left hip showing joint effusion.

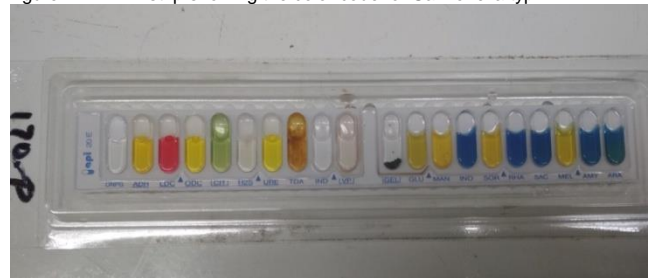


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The patient was admitted in Pediatric ward with the diagnosis of Enteric fever with septic arthritis of left hip joint. Ultrasound guided aspiration was done from the left hip joint and the pus obtained was gram stained and inoculated on MacConkey agar. Gram stain of the pus revealed many neutrophils and gram-negative bacilli. The culture plate was incubated at 37 degrees Centigrade for 24 hours and yielded non lactose fermenting colonies. The growth was confirmed to be of *Salmonella typhi* by means of API and serotyping with Poly O, O9, poly H and Hd antibodies.

Figure 2. An API strip showing the color code for *Salmonella typhi*



Blood and urine cultures were sterile. Antimicrobial sensitivity testing was done by VITEC and the bacterium was found to be sensitive to Imipenem and Meropenem. It was resistant to Ampicillin, Ceftriaxone, Cefixime, Chloramphenicol, Azithromycin and Trimethoprim and Sulpha meth oxazole.

Figure 3. X-ray Left hip and knee joint showing effusion around joints.



Treatment was started with Ceftriaxone on the day of admission on suspicion of enteric fever after taking blood samples for culture and sensitivity. It had to be stopped later when the blood culture and sensitivity report came out, which showed resistance to the drug. Imipenem I/V was then started after which the patient showed significant improvement. It was given for 7 days Patient was discharged on oral Ciprofloxacin 500mg BD for 7 days and was called for follow up after 2 weeks.

DISCUSSION

Septic arthritis is a bacterial joint infection that can cause considerable short-term and long-term impairment.(Montgomery and Epps, 2017) In developed nations with all the resources, the total prevalence of acute septic arthritis is reported to be 4 to 10 per 100,000 children. The incidence is greater in males, which is probably because of their increased physical activity, which naturally leads to repetitive microtrauma. (Howard- Jones and Isaacs, 2013)

Staphylococcus aureus is the most common cause of septic arthritis ever since it was diagnosed and studied. (Chiu et al., 2001) *Salmonella* arthritis is reported rarely, accounting for only 1% of all cases. (Neu et al., 1978). In addition to the more prevalent organisms, patients with sickle cell disease are more likely to have septic arthritis by *Salmonella* species. (Montgomery and Epps, 2017).

Non-infectious inflammatory causes such as reactive arthritis, juvenile rheumatoid arthritis, transient synovitis, and pericapsular pyomyositis must be ruled out during differential diagnosis. Osteonecrosis of the femoral head and persistent osteomyelitis are the most prevalent complications.(Ben-Zvi et al., 2019)

Salmonella arthritis is more like gonococcal arthritis, which has a high recovery rate, than staphylococcal arthritis (which has a 50% recovery rate) or arthritis caused by other gram-negative bacteria (recovery rate, 33 percent). (Goldenberg and Cohen, 1976)

Antibiotic treatment can be given intravenously for a few days and then orally until the disease is gone in cases of septic arthritis without complications. Clinicians can observe the

improvement in clinical status and inflammatory markers to evaluate whether it is time to switch to oral medication.(Castellazzi et al., 2016)

CONCLUSION

To avoid fatal consequences, septic arthritis must be thoroughly investigated, identified, and treated. (Castellazzi et al., 2016).

Conflict of interest: Nil

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