



Infantile Septic Arthritis Due to Salmonella Enterica Serotype Typhimurium

KEYWORDS

Septic arthritis, Salmonella Typhimurium, Metastatic lesions

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ABSTRACT

Salmonella infection is endemic in developing countries. Isolation of Salmonella species from aberrant sites with variety of clinical syndromes, where they are hardly expected, has been reported. Septic arthritis and osteomyelitis are uncommon due to this organism, compared to other gram negative bacteria. They are usually associated with underlying disease including haemoglobinopathies, previous joint trauma, surgery, connective tissue diseases, lymphoma or immunosuppressive states. Bacteremia and metastatic infections are most commonly caused by Salmonella Choleraesuis and Salmonella Dublin. Here we report a rare case of septic arthritis of right knee joint caused by Salmonella Typhimurium in an infant who had no underlying disease or congenital abnormality. Septic arthritis due to Salmonella Typhimurium in a healthy infant, therefore suggests that it being an invasive organism, should be suspected in focal metastatic diseases. After laboratory confirmation it should be aggressively treated to avoid serious complications.

India is endemic to Salmonella infections which usually are enteric fever & gastroenteritis. Occasionally, after invasion of the blood stream, there are focal lesions of persistent infection at unusual sites like lungs, bones and meninges etc especially in patients with haemoglobinopathies, connective tissue disorders, previous trauma/surgery or other immunosuppressive states (Sarguna P, Lakshmi V, 2005). Although, any serotype of salmonellae can cause bacteremia and metastatic infections, these are most common with Salmonella Choleraesuis and Salmonella Dublin (Chart H, 2007). We report here a case of septic arthritis of right knee joint caused by Salmonella Typhimurium in an infant who had no underlying disease or congenital abnormality.

A one month and 10 days old female child, second in birth order was admitted in our institute with swelling over right lower thigh for the last three days. On examination, the swelling was soft, fluctuating, painful, tender with increased local temperature and restricted movements. There was no history of fever and change in bladder/bowel movements. She was born full term by lower segment caesarean section. There was no history of trauma of any kind. A provisional diagnosis of septic arthritis of right thigh was made.

Her blood picture and other vital parameters were within normal limits. Pus (15ml) was aspirated from the swelling and sent to the Microbiology department for culture and sensitivity. The Gram stained smear of pus showed plenty of polymorphonuclear cells and Gram negative bacilli. After 18 hours of incubation at 37° C, non-lactose fermenting colonies were obtained on Mac Conkey agar medium. Results of the biochemical tests and Automated ID and AST system 'VITEK-2 Compact' (BioMerieux) identified the pathogen, which was finally confirmed by doing agglutination with specific antisera as Salmonella Typhimurium. Study of antimicrobial susceptibility by Kirby Bauer's method (CLSI Guidelines) as well as by Automated system showed that the isolated organism was sensitive to ampicillin, cefotaxime, ceftriaxone, nalidixic acid, ciprofloxacin and co-trimoxazole. Her blood

culture was found to be sterile and Widal test did not show diagnostic titres. She was already on injection ceftriaxone which was continued. However, when it was observed that one week of treatment had not produced any appreciable response, arthrotomy of right knee was performed. Wound was thoroughly washed and pus was again sent for microbiological examination. This time the pus culture was sterile. Intravenous ceftriaxone was continued for another two weeks. Her condition improved and active movements could be elicited. She was discharged with hip spica and oral antibiotics for another two weeks. At the subsequent follow ups, she showed complete healing with normal movements of the joint.

An attempt was made to find the source and mode of transmission of infection. Since her birth, she was not being breast fed. She was on top feed (powdered milk). Considering, faecal/oral transmission from an infective adult including the mother in the household as the possible source of infection, repeated stool cultures of both the parents and her sibling were performed but it yielded negative results. It is reported that S. Typhimurium infection is frequently associated with animal reservoir (Chart H, 2007). As the patient was from urban surroundings and there was absence of pet animals or poultry in the house, close contact of the infant with the animal source also seems impossible.

There are reports of bone and joint infections in literature but most of these are due to S. Typhi (Gupta V et al, 2010 & Tachdjian MO, 1990). Sarguna et.al. and a few others have reported Salmonella Typhimurium as a cause of neonatal septic arthritis, but all these patients had some underlying pathology (Sarguna P, Lakshmi V, 2005). Septic arthritis due to Salmonella Typhimurium in a healthy infant, therefore suggests that being an invasive organism Salmonella Typhimurium should be suspected in the focal metastatic diseases. After laboratory confirmation it should be aggressively treated with antibiotics in proper dosage to avoid serious complications like crippling deformity of joints in a case of septic arthritis.

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