Salmonella typhi osteomyelitis in healthy young adult

Ranjith TC1, Bhaskaran VK2

ABSTRACT

Osteomyelitis caused by salmonella is rare and is usually seen in persons with haemoglobinopathies like sickle cell disease and thalassemia.

There is often a history of prior gastrointestinal infection with salmonella. There are very few reports of spontaneous salmonella infection in normal individuals. We report the case of an apparently normal person who developed Salmonella typhi osteomyelitis.

We believe that the index of suspicion should be high for uncommon organisms, especially when the symptoms are insidious particularly in travelers and that there could be changes emerging in the pattern of infection.

Key words: Osteomyelitis, Salmonella typhi, Salmonella osteomyelitis

Introduction

Salmonella as an aetiologic agent in osteomyelitis is rare. Salmonella osteomyelitis accounts for only about 0.8% of all salmonella infections and is the causative organism only in 0.45% of osteomyelitis.1 The three most common strains of salmonella causing osteomyelitis are Salmonella typhimurium, Salmonella typhi, and Salmonella enteritidis, with Salmonella typhi being the only strain with a human to human transmission. Osteomyelitis caused by Salmonella panama has also been reported in the literature.2 The first report of salmonella osteomyelitis as a complication of enteric fever was by Paget.3

Most of the reported instances of salmonella osteomyelitis are in patients with hemoglobinopathies like sickle cell disease or thalassemia.4 Very few cases of salmonella osteomyelitis in otherwise healthy adults have been reported. They usually have preexisting history of intestinal infection.

Salmonella vertebral osteomyelitis was reported by Afzal and Halwai in a patient with a recent history of Salmonella enteritis.5 Arora and Singh reported Salmonella osteomyelitis in an otherwise healthy adult which was treated with antibiotics alone.6 Sucato, Daniel J. M.D reported pelvic osteomyelitis in two otherwise healthy white children.7

Sanchez and Anthony reported on a tibial osteomyelitis which mimicked a fibrous dysplasia.1 Thakkur, Singh and Gole10 reported a case of salmonella osteomyelitis of occipital bone leading to intracranial abscess. Typhoid osteomyelitis has a predilection for patients with diabetes mellitus, systemic lupus erythematosus, lymphoma, liver disease, previous surgery or trauma, those at extremes of age and patients on steroids.11 The incidence of typhoid osteomyelitis in otherwise healthy individuals is much lower. There are very few cases reported in the literature in which salmonella osteomyelitis is seen in an otherwise healthy individual.2,5,6,11

Case report

We report the case of a patient with osteomyelitis of the distal femur who gave no history of enteric fever or hemoglobinopathy.

A 28 year old man, driver by profession, presented with history of recurrent episodes of pain and swelling of left knee. The first episode occurred six months before the patient presented to us. The episodes of pain and swelling were associated with low grade fever, which was relieved with medications, presumably antibiotics, but the fullness of the knee never completely resolved. He also had some discomfort on acute knee flexion. He gave no history of extramarital sexual contact, past febrile illnesses of significance or history of...
Examination revealed a diffuse swelling on medial metaphyseal area of distal femur, which was warm and tender to deep pressure. There was no knee joint effusion or tenderness of the knee joint, but knee movements beyond 70 degree of flexion produced pain at the distal femur.

At presentation, haemoglobin was 14.1gm%, total leukocyte count 13600/mm$^3$, neutrophils 76.4%, lymphocytes 13.1%, ESR 52 mm/1st hr and C reactive protein was 178.0 mg/L.

X-ray of the knee and distal femur showed expansion of medial cortex with cystic cavity in the metaphysis of the distal femur. (Figure 1a & b)

MRI scan done prior to admission showed features suggestive of infective pathology in the medial femoral condyle and subperiosteal pus collection on posteromedial aspect of medial femoral condyle.

Histopathology examination revealed spicules of bone separated by areas of hemorrhage, mixed inflammatory infiltrate consisting of mononucleated karryorhectic debris, areas of necrosis, collection of epitheloid histiocytes and foci of fibroblastic proliferation. Microbiologic cultures grew Salmonella typhi. The patient was given parenteral ceftriaxone and ciprofloxacin for two weeks followed by oral ciprofloxacin for another 4 weeks.

The patient was treated with incision and drainage of the pus which was predominantly over the posteromedial aspect of distal femoral metaphysis. A cortical window was made on the medial aspect of the femur and the medullary cavity was curetted. The medullary cavity contained grayish white tissue and a slimy material. The wound was washed with saline. The abscess cavity and the medullary cavity was packed with roller gauze. Stay sutures were put in place for skin. The pus was sent for culture and antibiotic sensitivity and the tissue was sent for histopathology examination. The drain was removed after 24 hours. Re-debridement and definitive closure over drain was done after 48 hours.

Figure 1a & b. Radiographs of the knee and lower femur showing a cavity in the metaphyseal region of distal femur.

MRI scan done prior to admission showed features suggestive of infective pathology in the medial femoral condyle and subperiosteal pus collection on posteromedial aspect of medial femoral condyle.

The patient was treated with incision and drainage of the pus which was predominantly over the posteromedial aspect of distal femoral metaphysis. A cortical window was made on the medial aspect of the femur and the medullary cavity was curetted. The medullary cavity contained grayish white tissue and a slimy material. The wound was washed with saline. The abscess cavity and the medullary cavity was packed with roller gauze. Stay sutures were put in place for skin. The pus was sent for culture and antibiotic sensitivity and the tissue was sent for histopathology examination. The drain was removed after 24 hours. Re-debridement and definitive closure over drain was done after 48 hours.

Stool cultures done to investigate for carrier state were reported as negative. Widal test was done in which titres were reported as Salm. typhi O:1:40, Salm. typhi H:1:640 Salm. paratyphi AH:<1:20 Salm paratyphi BH:<1:20. Sickling test negative.

The patient on review at 4 weeks from surgery was healthy. He declined further blood investigations to monitor the control of infection and was lost to follow up thereafter.

Discussion

Salmonella osteomyelitis is a rare but has been described most commonly in diaphysis of long bones. It is often associated with previous infection with salmonella. The symptoms are often not dramatic and may often be chronic. Elevated ESR and widal test are contributory but not always positive.

Growth of the organism in culture is confirmatory and antibiotic sensitivity guides the definitive treatment. Salmonella infection should be suspected in patient with features of low grade bone infection especially in travellers, like in the case described here. A definite history of salmonella infection may
not be forthcoming. The condition responds to surgical debridement and antibiotics although non-operative treatment also has proven to be efficacious.\textsuperscript{11} Recurrence of infection even after a long interval.\textsuperscript{14}

\section*{REFERENCES}

6. Errkos Constant, MD; Robert L. Green, MD; David K. Wagner, MD Salmonella Osteomyelitis of Both Hands and the Hand-Foot Syndrome AMA Arch Surg. 1971;102(2):148-151.