

Case Report

A Rare Case of Chronic Fibular Osteomyelitis in a 21 Month Old Child

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ABSTRACT

Osteomyelitis is an infection localized to bone which is caused by hematogenous route more commonly in children than in adults. More than one-half of pediatric cases occur in children younger than five years and one-quarter in children younger than two years. Fibular osteomyelitis is very rare. We present a case of a 21 month old child who presented to us with intermittent fever, pain, swelling in right leg distal one-third. Due to delay in appropriate treatment, patient developed a draining sinus. Past history of the patient revealed no relevant risk factors in the patient. Based in patient's preference, conservative management with intravenous antibiotics was started. Follow-up revealed higher white cell count, when it was decided to operate on the patient. Patient recovered well post-operatively and hematological investigations shifted towards normalcy. This case report stresses on the fact that a clinician needs to have a high index of suspicion because patients, especially in the younger age group, present with non-specific symptoms. Most cases of chronic osteomyelitis recover well after initiation of timely and appropriate therapy. Intravenous antibiotics should be the first line of management and should be given for sufficient period of time before a decision of surgical debridement is taken.

Keywords: fibula, osteomyelitis.

INTRODUCTION

Osteomyelitis is an infection localized to bone. It is usually caused by microorganisms (predominantly bacteria) that enter the bone hematogenously. Other pathogenic mechanisms include direct inoculation (usually traumatic, but also surgical), or local invasion from a contiguous infection (eg, cellulitis, sinusitis, periodontal disease). Other risk factors for nonhematogenous osteomyelitis include open fractures that require surgical reduction, implanted orthopedic hardware (such as pins or screws), and puncture wounds. Hematogenous osteomyelitis is more common in children than in adults. Boys are affected nearly twice as often as girls.^[1] More than one-half of pediatric

cases occur in children younger than five years and one-quarter in children younger than two years.^[2]

Osteomyelitis is very uncommon in fibula and we, in this case report, present a care of chronic fibular osteomyelitis in a 21 month old child. We describe how diagnosis was obtained and discuss relevant literature.

CASE REPORT

A 21 months old female child presented to our hospital with a history of discharging sinus over right leg distal 1/3rd since 6months. Patient complained of difficulty in walking, and also had pain in right leg on weight bearing. Initially patient had swelling over right leg, which was associated with pain. Pain was gradual

in onset and progressive in nature. Patient also had multiple febrile episodes. Fever was on and off since 6 months. Patient went to local physician and took symptomatic treatment. While taking symptomatic treatment the patient developed a discharging sinus over leg. (Image 1) There was no previous history of trauma to right leg or previous history of tuberculosis or any infection in the body. Patient had no history of symptoms in opposite leg or any other limb.

On examination, the patient had a discharging sinus over distal 1/3rd of leg on lateral aspect. Redness was present around the discharging sinus and no undermining of edges was seen. Discharge was purulent and whitish colored granulation tissue was visible. Excessive bowing of tibia was also noticed. Diffuse tenderness was present on lateral aspect of leg along the fibula. On admission, culture sensitivity report of discharge from sinus showed positive growth of staphylococcus aureus. Routine hematological investigations were ordered which revealed hemoglobin of 9.2 gm%, white cell count of $24000/\text{mm}^3$, erythrocyte sedimentation rate (ESR) 55 mm/hour and c-reactive protein (CRP) was 63.5mg/L. X-ray of the affected leg shown in Image 2. Rests of the investigations were normal.

In our case due to patient's preference, we started conservative

treatment with antibiotics according to culture and sensitivity report. During this conservative regime patient had multiple fever spikes. And follow-up investigation showed increased leukocyte count ($30000/\text{mm}^3$) and increased ESR and CRP levels.

As the symptoms did not subside, we decided to operate. We did debridement of fibula along with sequestrectomy and sinusectomy. Intraoperatively we found purulent discharge along with sequestrum involving the shaft of fibula. Thorough debridement was done along with removal of sequestrum (Image 3) and it was sent for culture and sensitivity and histopathological study. We instilled 1 ampoule of gentamicin before closing the wound. Left lower limb was immobilized in above knee slab. Culture sensitivity report of intra-operatively collected purulent material from fibula showed enterococcus species and staphylococcus aureus. Histopathological report suggested chronic granulomatous osteomyelitis involving the right fibula.

Postoperatively we started intravenous antibiotics for 4 weeks. At 6 weeks follow-up, the patient was asymptomatic with investigations showing hemoglobin 10.2%, white cell count of $8500/\text{mm}^3$, ESR 21 mm/hour and CRP 3.8 gm/L.



Image 1: Clinical picture of affected leg.



Image 2: Pre-operative X-Ray showing antero-posterior and lateral view of the affected leg showing periosteal reaction along the length of fibula with sequestrum.



Image 3: Sequestrum removed surgically from fibula.



Image 4: Post operative X-Rays

DISCUSSION

Osteomyelitis of fibula is a very rare clinical entity with only a few cases

reported in medical literature. [3] The incidence of pediatric osteomyelitis varies geographically, and is greater in developing than developed countries. Risk factors for osteomyelitis in older infants and children include sickle cell disease, immunodeficiency, sepsis, minor trauma with coincident bacteremia, and indwelling vascular catheter.

In older infants, children, and adolescents, the thicker cortex, denser periosteum, and atrophy of the metaphyseal capillaries prevent spread of infection to the soft tissues and epiphysis. However, joint infection may occur if the metaphysis is intracapsular (eg, shoulder, hip, ankle, elbow) or with simultaneous hematogenous infection. [4] Most cases of acute hematogenous osteomyelitis in children are caused by gram-positive bacteria, principally *S. aureus*. [5]

The initial symptoms of osteomyelitis can be nonspecific (e.g., malaise, low-grade fever) in children of all ages. Therefore a high index of suspicion and monitoring of the clinical course are essential to establishing the diagnosis. Complications of osteomyelitis include extension of infection into the soft tissues, septic arthritis, abnormal bone growth, subperiosteal or intraosseous abscess, pathologic fracture, devitalized bone, chronic osteomyelitis, and venous thrombosis.

Most newborns, infants, and children who receive prompt, appropriate antimicrobial therapy before extensive bone necrosis develops have excellent outcomes. In systematic reviews and observational studies, >95 percent of patients have complete resolution of radiographically apparent bone damage. [6] Patients may be managed conservatively or surgically. Indications for surgical intervention include: drainage of subperiosteal and soft tissue abscesses and intramedullary purulence, debridement of contiguous foci of infection, excision of sequestra (i.e., devitalized bone) or failure

to improve after 48 to 72 hours of antimicrobial therapy. [7] Children receiving appropriate antimicrobial therapy generally demonstrate clinical improvement within three to four days. [8] Before discontinuing antimicrobial therapy, we obtain a plain radiograph to make sure there are no new bone lesions (eg, abscess, sequestra), even if there is no clinical evidence of treatment failure. Children should be evaluated at one- to two-week intervals for clinical improvement and complications related to antibiotic therapy. Monitoring drug levels during oral therapy may be useful in selected patients (e.g., those in whom resolution of clinical findings or normalization of CRP and ESR does not occur as expected). In addition, a radiograph should be performed at the end of treatment.

CONCLUSION

Chronic osteomyelitis of fibula is the rare entity in children less than 2 years and should arouse suspicion in a child presenting with pain in involved extremity. Swelling develops gradually over few weeks and may not always be the first sign. Early diagnosis and prompt treatment can ensure complete cure of disease and helps in preventing complications. Intravenous antibiotics should be the first line of management and should be given for sufficient period of time before a decision of surgical debridement is taken.

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