

CASE REPORT

A CASE OF NEONATAL OSTEOMYELITIS

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ABSTRACT

Acute hematogenous osteomyelitis of neonatal origin is very rare in clinical studies. Early diagnosis and treatment are important to decrease the morbidity. The aim is to provide a reference case for medical practitioners for early diagnosis and treatment of cases like this with symptoms, signs, blood investigations, radiological studies and blood culture outcomes. There have not been any adverse sequelae after effective antibiotic therapy. Timely diagnosis and management of neonatal osteomyelitis are of significant importance.

KEYWORDS: Osteomyelitis; Neonatal Osteomyelitis; Hematogenous Osteomyelitis; Children; Incidence; Morbidity; Mortality.

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INTRODUCTION

Acute hematogenous osteomyelitis in neonates is very rare and has high morbidity. Timely diagnosis and management to minimize morbidity are necessary. Because of conservative therapy, high incidence of osteomyelitis and under diagnosis by doctors, there is an increased risk of myeloma due to delayed therapy and it can lead to limb paralysis and put life in danger. So diagnosing osteomyelitis correctly helps in reducing the morbidity and mortality.

CASE REPORT

Neonate, aged 21 days, came with complaints of swelling in the left knee with restricted activity since last three days, with local erythema, crying on handling, but no fever. The child was sucking and feeding well. On examination: temperature 98.6°F, pulse 140/minute, respiratory rate 46 breaths /min, weight 4.8 kg, alert, afebrile, no icterus, rashes or any active bleeding. Anterior fontanelle measured 2.0 cm × 2.0 cm, at level. Systemic examination was normal. Left leg was in mild flexion, left knee swelling present, skin erythema present, no local rise of temperature, tenderness present and activity of the limb was limited. Right lower limb was normal. Diagnosis on admission: left knee swelling under evaluation for

left femur distal osteomyelitis or sepsis?

BLOOD: WBC 11200 cells/mm³ (65% neutrophils, 42% lymphocytes), ESR 18 mm/hr, stool routine, urine routine, C-reactive protein, anti-O were normal. X-ray of the left knee: periosteal reaction and bone destruction of left distal femur. The child was started on Ceftriaxone sodium, 50 mg/kg for three weeks and supportive care given. CT left femur: local destruction of bone, soft tissue swelling, punctate high density lesions. MRI left femur: atypical signal intensity in the left femur epiphyseal and metaphyseal cartilage associated with soft tissue swelling. Blood cultures: Staphylococcus aureus. The swelling of leg reduced and range of movements in the left leg of the child improved after treatment. After treatment for one week, blood investigations were reviewed. CRP and ESR were normal. Blood culture became negative. Post two weeks of management; child was afebrile, alert, active, left knee had no swelling or tenderness and no warmth. Child was followed up for two months after discharge, showing normal movements, normal development and there was no limb length discrepancy or angular deformity.

DISCUSSION

Children have a rich blood supply to bones than adults, and also have rich capillary network in metaphysis, and the sluggish blood flow is beneficial for bacterial deposition, growth and reproduction. It affects the long bones, the metaphyseal region is involved. The height of involvement depends on local and systemic resistance. There are multiple causes of osteomyelitis and there is a strong association with malnutrition, cold exposure, and other causes leading to decreased resistance against causative organisms. It mostly affects young children who sus-

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tain injuries during fall. Rupture of capillary network, tissue injury and rupture of cells leads to easy colonization of bacteria which in turn causes osteomyelitis. Children with osteomyelitis presents with fever, decreased range of movement of affected limbs. On palpation there will be swelling, warm, tenderness. Osteomyelitis is not commonly seen in a single bone, it usually involves other surrounding soft tissue, nearby joints, joint structure and multiple bones. In this case, the laboratory tests were normal except for elevated ESR, and CRP. On radiographic imaging of left knee revealed signs of minimal damage involving the periosteum, which indicated periosteal reaction, which was typical of osteomyelitis. There are other tests like synovial fluid and blood culture to identify the causative organism, but the limitation is that it has a low positive rate. The total count is not a reliable indicator. In this case, the WBC even though infection is present is within the normal range. ESR is most often raised in almost all cases of osteomyelitis, but it is not reliable, rather CRP can be considered. CRP begins to rise after hours of infection and usually returns to normal limits within seven days after controlling the infection. The usual CT findings in osteomyelitis includes swelling of subcutaneous tissue, involvement of adjacent muscle, bone tissue damage, hematoma of subperiosteal region (cyst like) and fat liquid plane. MRI allows early detection of lesions of bone tissue, and thus is more suitable for the early diagnosis. Drugs like penicillin III plus cefotaxime sodium, ceftriaxone, cefuroxime sodium are used in the treatment of osteomyelitis. They have high curative rate and hence are the preferred drugs. If osteomyelitis is found to be due MRSA, intravenous drugs like clindamycin and vancomycin is used in the

treatment. It usually takes 3 to 6 weeks to return back to normal. Surgical procedures like pus drainage, decompression of joint cavity are very important. Osteomyelitis affect the growth and development of the child which leads to decreased quality of life, hence it is very important to diagnose the disease in the earlier stages. In the case mentioned above, child was treated for 3 weeks (with proper antibiotics, anti-inflammatory, medical and supportive therapy). Follow up X-ray was done, it was found to be normal, and hence the child was discharged and was asked for review after three weeks.

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CONFLICT OF INTEREST

Authors declare no conflict of interest.
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AUTHORS' CONTRIBUTION

The following authors have made substantial contributions to the manuscript as under:

Conception or Design:	KGPG
Acquisition, Analysis or Interpretation of Data:	KGPG, KNC, SJ
Manuscript Writing & Approval:	KGPG, KNC, SJ

All the authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.



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