

A Rare Case of Osteomyelitis of Right Elbow Joint in a Neonate

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Abstract

Introduction: Osteomyelitis means infection of bones. In pediatric age group, long bones like femur, humerus are commonly involved. In neonates, for every 1000 hospital admissions, the incidence ranges from 1 to 3 cases. The diagnosis of osteomyelitis in neonates is challenging due to subtle and nonspecific clinical presentation.

Case Report: Herewith, we report a case of 19 days old girl baby who came with complaints of diffuse swelling over posterior aspect of right elbow for one week. The swelling was gradual in onset, progressive and attained the present size. Baby had incessant cry while moving right upper limb. There was no history of trauma or fever. History of bad child rearing practices was absent. Surgery and orthopaedic team were involved. X-Ray of right elbow showed soft tissue swelling with lateral epicondyle swelling. USG showed mild periosteal reaction of humerus and distal radius, suggestive of osteomyelitis with septic arthritis. Methicillin resistant staphylococcus aureus (MRSA) was grown in blood culture. Neonate was started on IV antibiotics (vancomycin) for 21 days and the swelling subsided gradually followed by active movements of upper limb.

Conclusion: Early diagnosis and appropriate intervention of neonatal osteomyelitis can prevent bony deformity in future. Adequate treatment with antibiotics and timely surgical intervention is necessary for neonatal osteomyelitis.

Keywords: Osteomyelitis, MRSA, Vancomycin

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Introduction

Osteomyelitis refers to inflammation in the bones. Osteomyelitis are classified into three groups namely Acute osteomyelitis, subacute osteomyelitis and chronic osteomyelitis. Acute osteomyelitis was diagnosed within the 2 weeks of onset of symptoms, subacute can be diagnosed after 2 weeks of symptoms onset while chronic osteomyelitis can be diagnosed only after one month after symptom onset¹. In pediatric age group, long bones like femur, humerus is commonly involved in the infection. In neonates, for every 1000 hospital admissions, the incidence ranges from 1 to 3 cases. The diagnosis of osteomyelitis in neonates is challenging due to subtle and

nonspecific clinical presentation. Speedy diagnosis of this disease is very important or else it results in the septic arthritis, deep vein thrombosis, infection in the multiple organ and even lead to death².

Case Report

Herewith we report a case of 19 days old girl baby who came with complaints of diffuse swelling over posterior aspect of right elbow for one week which was insidious in onset and gradually progressive to attain the present size. Baby had incessant cry while movement of the upper limb (Fig-1). There was no history of trauma, fever, administration of injection over the site. History of bad child rearing practices

was absent. Mother's Antenatal history was uneventful and the baby was born at term, 38 weeks via normal vaginal delivery with birth weight 2.9 kg. Baby cried immediately after birth and there was no NICU admission. Baby was vaccinated as per schedule. No relevant family history. On local examination diffuse swelling of size - 3x3 cm over the posterior aspect of right elbow joint was noted, the swelling was warm and tender with restriction of movements (Fig.2).

Baby was investigated. X-Ray of right elbow showed soft tissue swelling with lateral epicondyle involvement (Fig-3).USG showed periosteal reaction in right humerus and distal radius suggestive of osteomyelitis with septic arthritis. Blood investigations showed leucocytosis with elevated ESR and CRP, blood culture and sensitivity showed growth of Methicillin resistant *staphylococcus aureus*.

Orthopaedician opinion was obtained, above *elbow slab* with limb elevation was advised. Infant was started on appropriate IV vancomycin for 21 days. The child was discharged and upon regular followup the swelling had regressed completely and the joint movements are normal.



Fig-1 Baby had incessant cry and restriction of movements of right upper limb



Fig-2 Baby had swelling over right elbow joint



Fig.3 X- ray of right upper limb shows soft tissue swelling with lateral epicondyle involvement.

Discussion

Acute osteomyelitis is a rare complication in a neonate. If untreated can lead to long term complications like destruction of joints and growth failure. In a review of Fox et al, among 300 cases male had predominance over females (1.6:1)³. The NICU stay of Preterm infants are longer which includes invasive procedures like intravenous or intra-arterial catheters, ventilatory support. They are also at increased risk of sepsis, hence risk of osteomyelitis is more in comparison to term infants⁴. Two subgroups of neonates were classified one is premature neonates and other is healthy term

neonates within 2 to 4 weeks of discharge. Our case is a similar term neonate with clinical presentation within 3 weeks of life. Osteomyelitis is caused by bacterial pathogen like *Staphylococcus aureus*, group B *Streptococcus* and gram negative organisms like *E.Coli*, *klebsilla* in children. MRSA has emerged as a serious infection in recent years. The causative organism in our case was also MRSA. A high index of suspicion is required. Combined approach which includes clinical acumen along with confirmation by radiological and microbiological investigations is needed for confirmation of osteomyelitis. Magnetic resonance imaging (MRI) has proved to have higher specificity (94%) and sensitivity (97%) for the diagnosis of acute osteomyelitis.^{5,6}

Treatment should be initiated at the earliest to prevent long term complications. The duration of treatment depends on the extent of infection, the clinical response and the presence of underlying risk factors⁴. Surgical team should be involved simultaneously. If there is no improvement with antibiotic treatment and to drain the abscess surgical intervention is required. The prognosis depends upon the management. If not treated adequately and appropriately, it can cause permanent joint destruction and pathological fractures. Limb-length discrepancy can occur secondary to cartilaginous growth plate damage⁷.

Conclusion

A high index of suspicion is required to diagnose neonatal osteomyelitis due to its subtle presentation. Early diagnosis and appropriate intervention can prevent bony deformity in future. Adequate treatment with antibiotics and timely surgical intervention is necessary for neonatal osteomyelitis.

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