Case Report

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Chronic Osteomyelitis in a Newborn

Paediatrics Section

BAPPADITYA DAS, PRANAB KUMAR DEY, SATYABRATA ROY CHOWDHURY, KALPANA DATTA

ABSTRACT

A term, 14-day-old male baby was presented with high grade fever, decreased feeding, lethargy, progressively increasing swelling and restricted movement of right elbow since 7th day of life. He was born by normal vaginal delivery in a hospital with uneventful antenatal, natal and immediate postnatal period. X-ray of the right elbow showed features of chronic osteomyelitis. A diagnosis of chronic osteomyeltis with septicaemia was made and treated conservatively with intravenous antibiotics followed by oral. He showed good improvement. The case is reported here for it's rarity as it was presented in first week of life.

Keywords: Chronic osteomyelitis, Septicaemia, Neonate

INTRODUCTION

Osteomyelitis is defined as an inflammation of the bone caused by an infecting organism. It may also involve marrow, cortex, periosteum and the surrounding soft tissues. It can be usefully sub-classified on the basis of the causative organism (pyogenic bacteria or mycobacteria), the route, duration and anatomic location of the infection [1]. Osteoarticular infections, although uncommon, represent a severe condition in neonates. To the best of our knowledge very few cases has been reported till date. Osteoarticular Infections in newborns are largely of an acute in nature [2]. Lower extremity joints are commonly affected [3]. Herein we report a rare case of chronic osteomyelitis of humerous since 7th day of life.

CASE REPORT

A 14-days-old male baby was brought to us with fever, decreased feeding, lethargy, progressively increasing swelling and restricted movement of right elbow since 7th day of life. Fever was of high grade, continuous in character. Baby was born to a booked primigravida by normal vaginal delivery at term in the same institution. Antenatal and immediate post-natal periods were uneventful. Birth weight of the baby was 2.5 kg. On examination, right elbow was swollen, reddish, tender, warm to touch with circumference of 15 cm where as the left measured only 11 cm. The skin of the overlying lesion was normal.

Investigation revealed haemoglobin of 15 gm%, WBC of 34600/cmm with polymorph 75% and Platelet of 292000/cmm. Peripheral smear showed toxic granules and band cell 5% of neutrophil.CRP was 9.8 mg/dL and ESR 50 mm (1st hour). HIV I, II and VDRL test of the mother were negative. Coagulation profile was within normal limit. Digital X-RAY [Table/Fig-1] of right elbow (AP and Lateral view) showed metaphyseal irregularity associated with permeative destruction at the lower end of humeral diaphysis, continuous periosteal reaction, bony fragmentation at the distomedial aspect of humeral diaphysis. All the features were suggestive of chronic osteomyelitis. Blood culture showed no growth. Based on the clinical, radiological and other investigations final diagnosis was made as chronic osteomyelitis. Baby was managed with intravenous cefuroxime. Sling was maintained. After three weeks of intravenous therapy CRP was decreased, circumference came down to 12 cm and range of movement was increased gradually. Repeat X-RAY [Table/Fig-2] showed resolution to a great extent. Baby was discharged on oral cefuroxime for three weeks and regular physiotherapy. After completion of antibiotic course circumference came down to 11 cm and the baby attained full range of movement of right elbow.

[Table/Fig-1]: X-ray of right elbow (AP and Lat view) obtained on the seventh day of life at the time of admission showing metaphyseal irregularity associated with permeative destruction at the lower end of humeral diaphysis, continuous periosteal reaction, bony fragmentation at the distomedial aspect of humeral diaphysis

[Table/Fig-2]: X-ray of right elbow (AP view) showing resolution to a great extent after 3 weeks

DISCUSSION

Chronic osteomyelitis is rare in newborn. The diagnosis is difficult and often delayed as the clinical features differ significantly from older children, adolescent and adults [4]. In literature few cases were reported but rarely found within first week of life. A case was reported where a 33 days old baby was hospitalised for pre-maturity, septicemia, respiratory distress syndrome and gastrointestinal bleeding. Her chest X-ray showed bilateral humeral osteomyelitis and bilateral glenohumeral joint arthritis [5]. Another case was reported where a five weeks old term appropriate for gestational age baby born by vacuum assisted vaginal delivery presented with difficulty in moving his right upper limb since three weeks of life. X -ray was suggestive of osteomyelitis [3]. In a study, which included thirty-four neonates with osteomyelitis showed that the hip (19 cases) was the most common site involved. Swelling and pseudoparalysis were the most significant local signs. Radiographic abnormalities, such as metaphyseal rarefaction and/or joint subluxation around hip were found on the initial radiographs in 18 of the 19 cases [4]. In another study, it was found that 41% cases were secondary to complication of pregnancy and 47% were secondary to complications of deliveries. Majority of the babies had antecedent illness or were subjected to potentially infective procedures in perinatal period [6]. However, in the present case mother had an uneventful pregnancy and institutional delivery but baby presented with clinical features and laboratory findings of sepsis.

Chronic osteomyelitis is most commonly caused by S. aureus and gram-negative enterics. Polymicrobial aetiologies are found in a high proportion of children with osteomyelitis secondary to trauma or contiguous spread [7]. Haematogenous spread is most common. Metaphysis of long bones, such as the femur, tibia, and humerus are usually involved [1].

The diagnosis of chronic osteomyelitis is based on clinical, laboratory and imaging studies. Standard laboratory indicators of inflammation, such as the WBC, ESR, and CRP, are all generally elevated. Blood cultures are positive in 30% to 50% of patients [8]. Bone aspiration under CT or ultrasound guidance may reveal an aetiologic agent when the blood cultures are negative [8]. Plain radiography is extremely helpful in diagnosis of chronic osteomyelitis which may yield areas of sequestration with dead bone lying in a pocket of cellular debris outlined by the sclerotic border, periosteal proliferative activity, modeling of the entire cortex and endosteum, and areas of bone lysis. Plain films do help in demonstrating fractures or bone malignancies, which are included in the differential diagnosis of osteomyelitis. [9]. Technetium-labeled methylene diphosphate bone scan, CT, MRI are also useful in selective situations.

Antibiotics are recommended for at least 4-6 weeks duration or till normalisation of CRP or ESR [9]. Surgical debridement is more critical for optimal treatment of chronic osteomyelitis [7]. Hyperbaric oxygen may be a useful adjunctive treatment measure in the management of chronic osteomyelitis that is refractory to standard approaches. So to conclude, a possible diagnosis of osteomyelitis, though rare, should be kept in the back of mind in case of a newborn in first few weeks of life when there are features of inflammation and difficulty in limb movement and a plain radiograph may be enough to diagnose this condition in most cases.

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AUTHOR(S):

1. Dr Bappaditya Das
2. Dr Pranab Kumar Dey
3. Dr Satyabrata Roy chowdhury
4. Dr Kalpana Datta

PARTICULARS OF CONTRIBUTORS:

1. Junior Resident (MD), Department of Paediatrics, Medical College, Kolkata, India.
2. Clinical Tutor, Department of Paediatrics, Medical College, Kolkata, India.
3. Junior Resident (MD), Department of Paediatrics, Medical College, Kolkata, India.
4. Professor, Department of Paediatrics, Medical College, Kolkata, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Dr Pranab Kumar Dey,
Govt. Housing Estate,Block-B, Flat-6, 82 Belgachia Road,Kolkata-700037,West Bengal, India.
Phone: 918902365478
Email: drpranabdey@gmail.com

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