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Multifocal Osteomyelitis in a Newborn

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The clinical features of osteomyelitis of childhood have been described, but descriptions concerning the clinical characteristics of the disease in the neonatal period have not been consistent. Although septic arthritis and osteomyelitis frequently occur together but the association of septic arthritis with multifocal osteomyelitis in septicemic newborns has not commonly been documented. We present one such case here.

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Case Report

A full term female baby was born to a 32 years old G_4P_3 mother through a normal vaginal delivery at Smt. S.K. Hospital. The membranes had ruptured 2 days prior to the delivery. The antenatal period had been uneventful. The neonate was admitted to the Neonatal Unit attached to this hospital at the age of 8 hours with history of blood stained vomiting.

On physical examination, nothing remarkable was revealed apart from mild abdominal distension. The baby was kept under observation. On the 2nd day, the child was found to be slightly lethargic. The baby was put on antibiotics cephalexin, gentamicin and intravenous fluids and was investigated. The Apt test was positive on D_1. The Hb was 13 g/dl, TLC 11,000/cu mm, ESR 49 mm/1st hour, P/S–Normal. Platelet count was 1.5 lakh/cu mm. Blood culture was sterile. The condition of the child improved initially but deteriorated subsequently and he became lethargic and was groaning. At this stage (day 10), a repeat blood culture revealed klebsiella which was sensitive to amikacin, cefotaxime and ofloxacin but was resistant to all other antibiotics. The CSF was suggestive of meningitis and klebsiella was cultured. The child was put on cefotaxime and amikacin. The general condition of the child improved marginally and was subsequently put on nasogastric feeds. On the 20th day, the child was noted to be jaundiced and developed a swelling at the right shoulder joint with restricted movements. Alongwith this, another swelling appeared at the right elbow joint and the child developed spiky fever. The right shoulder joint was aspirated and 3 ml of pus was drained and sent for culture.

The child was further investigated and blood culture again grew klebsiella, CSF

and pus culture also grew klebsiella. The klebsiella from each of these sites had the same antibiotic sensitivity as before. Liver function tests revealed a serum bilirubin of 11 mg/dl (direct 8 mg/dl, indirect 3 mg/dl), SGOT 40 IU/L, SGPT 30 IU/L, and Alk phosphatase 27 KA units. Prothrombin time was normal. Urine for bile salt was positive, urobilinogen was positive. The LFT was suggestive of hepatitis attributed to the septicemic process. *X*-ray chest showed bronchopneumonia; Skeletal survey revealed multifocal lesions comprising of periostitis, metaphysitis and osteochondritis in the upper and lower limbs (*Figs. 1 & 2*). It was reported by the radiologist as suggestive of congenital syphilis. The TORCH studies done on the mother and child were negative. VDRL test in mother and baby was negative on two occasions.

The child was put on ceftazidime and cloxicillin. The child started improving and was discharged after 6 weeks. The child has been coming for follow up and is gaining weight and has shown remarkable clinical improvement.

Discussion

Neonatal osteomyelitis has long been considered different from osteomyelitis in older children(1). Although osteomyelitis is not uncommon in newborns, and multifocal osteomyelitis is also well documented but the association of multifocal osteomye-

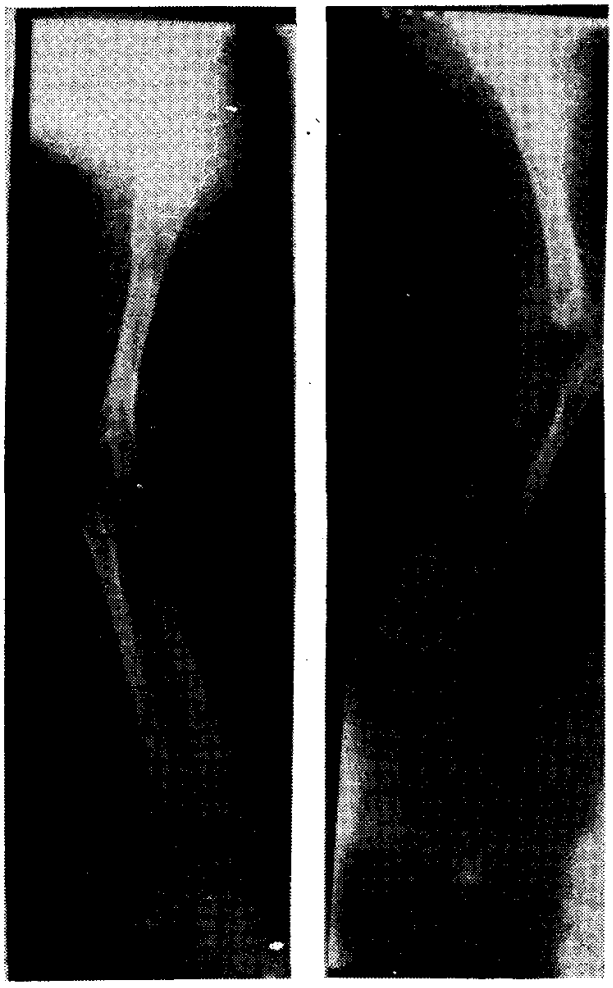

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Fig. 1. Osteomyelitis femur (Bone destruction, periostitis and metaphysitis both ends of femur bilaterally).

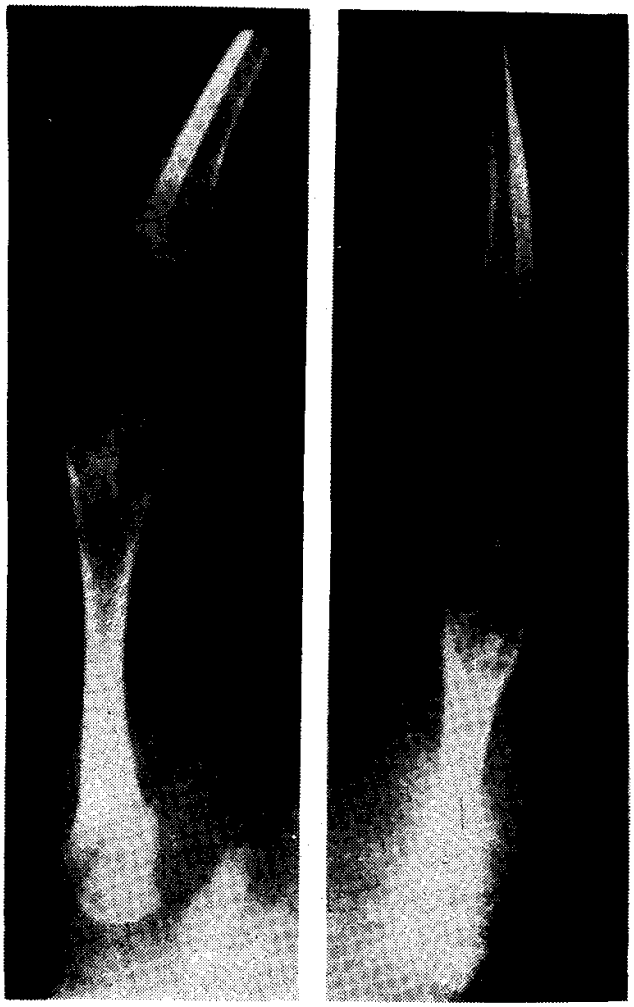

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Fig. 2. Osteomyelitis humerus (bilaterally).

litis with septic arthritis is not very commonly reported. Osteomyelitis usually occurs in neonates during the first two weeks of life. The most common sign of neonatal osteomyelitis is limitation of spontaneous movements(2,3). The other clinical features are localized tenderness, erythema and swelling. In more than half of the cases, sepsis may be the presenting feature(4).

Very early in the disease, roentgenography and radionuclide scintigraphy may yield normal results(5). Sensitivity of bone scintigraphy is reportedly between 70-90%. Bressler *et al.* showed that the scan is 100% sensitive with high resolution gamma cameras and is extremely valuable for detection of multiple bone affection(6). 99 Tc diphosphonate is commonly used for scintigraphy but Gallium 67 and WBC tagged with Indium III has also been found useful(7). Metaphyseal bone destruction and periosteal reaction are roentgenographic findings that develop later. Aspiration of subperiosteal pus or metaphyseal fluid yield a pathogen in 70% cases(1).

Earlier *Staphylococcus aureus* was the predominant offending organism. This was followed by a shift in early 1970's to Group B streptococci. An increase in Gram negative organism causing osteomyelitis has been reported in India(4).

A direct needle aspiration of the involved joint or bone when the clinical diagnosis of osteomyelitis is entertained is recommended. If frank pus is aspirated, arthrotomy may be done for adequate drainage(3).

The usual therapy is combination of penicillinase resistant penicillin and an aminoglycoside. The recommended duration of antibiotic therapy is four to six weeks(8).

This neonate was suspected to be suffering from congenital syphilis due to the radiological findings although the diagnosis was ruled out by a negative VDRL reaction. The various cultures and the course of the disease clinched the diagnosis of a bacterial multiple site osteomyelitis with septic arthritis with septicemia with meningitis and neonatal hepatitis.

An early diagnosis of septic arthritis and osteomyelitis in septicemic newborns is mandatory, for a delay in institution of therapy may result in poor outcome. Further, once septic arthritis is diagnosed, a complete skeletal survey and bone scintigraphy may be carried out to look for multifocal bone involvement.

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