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Chikungunya Infection in Neonates

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ABSTRACT

We describe two neonates in whom chikungunya infection was confirmed by RNA PCR. Important clinical features include apnea, fever, erythematous maculopapular rash and generalized hyperpigmentation.

Key words: *Chikungunya, Newborn.*

INTRODUCTION

An epidemic of chikungunya fever was raging in many states of India in the second half of year 2006. There are not many reports of clinical features of confirmed chikungunya infection in newborns. We report 2 cases with chikungunya, confirmed by RNA PCR, with their distinct clinical picture and briefly review literature available on neonatal chikungunya infection.

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CASE REPORT

Case 1: A single term 3 Kg male baby was born to a second gravida mother by cesarian section. The mother had pregnancy induced hypertension and was on antihypertensives from the 2nd trimester. One day prior to delivery the mother developed high fever with severe joint pains. In view of the chikungunya epidemic in Khargone (a town in the state of Madhya Pradesh in India where the baby was born), a clinical diagnosis of chikungunya was made and she was treated conservatively with antipyretics. The baby cried immediately after birth and was on breast feeds from day 1. On day 3 the baby stopped feeding and developed fever of 39°C. He also developed generalized maculopapular rashes. Twelve hours later he developed 2 episodes of apnea with cyanosis and was referred to our hospital for further management.

At admission child was excessively irritable and crying constantly. He had a generalized maculopapular rash but heart rate, respiratory rate and blood pressure were normal for age. He had no organomegaly and cardiovascular examination was normal. Sepsis screen, blood culture was taken and empirical antibiotics were started. He did not have any recurrence of fever or apnea in hospital and the rash slowly disappeared over 3 days. The child was discharged on exclusive breast feeds after 7 days. His investigations were as follows: Hb 13.5 g/dL, total leukocyte count 11,200/mm³, platelet count 2.2×10⁹/L and CRP was negative. Blood culture was normal and PCR for chikungunya RNA was positive.

Case 2: A 21-day-old male baby presented to us with intermittent fever from 5 days of age. He was born to

a second gravida mother by normal vaginal delivery with a birth weight of 2.75 Kg. There were no antenatal problems in the mother except for high fever with severe body pains suggestive of chikungunya 3-4 days before delivery. The mother was treated conservatively. The baby was on breast feeds from day 1. On the 5th day he developed fever for which he was admitted in a local hospital and given IV antibiotics. The fever continued and he developed generalized hyperpigmentation and some respiratory distress for which he was referred to our hospital. At admission he weighed 2.3 Kg, had deep generalized hyperpigmentation especially over face and nose and also over abdomen, extremities and knuckles. He had mucositis especially over the hard palate which was erythematous. He had decreased subcutaneous fat, no organomegaly and normal neurological examination. His hemoglobin was 11.7 g/dL, total leukocyte count was 28,000/mm³, platelet count was 1×10⁹/L, serum sodium was 140 meq/L and potassium 4.2 meq/L. His CSF examination had 2 lymphocytes, 12-14 RBCs, protein of 50 mg/dL, glucose of 42 mg/dL and negative culture. PCR for chikungunya was positive in the child. He was treated with IV ceftriaxone and oral chloroquine and IV fluids. Oral feeds were slowly built up and child was discharged on 7th day; afebrile, on full feeds and gaining weight. On last follow up, 4 months after discharge, his hyperpigmentation had slowly decreased, he was gaining weight and had appropriate milestones.

DISCUSSION

Chikungunya fever is a viral disease transmitted to humans by the bite of infected mosquitoes. Chikungunya virus is a member of the genus *Alphavirus*, in the family *Togaviridae*. First isolated in 1953, it has since been identified repeatedly in West, Central and Southern Africa and many areas of Asia. It can cause a debilitating illness and symptoms documented most often in adults include after fever, headache, fatigue, nausea, vomiting, muscle pain, rash, and joint pain(1,2).

The incubation period (time from infection to illness) can be 2-12 days, but is usually 3-7 days. "Silent" infections (infections without illness) do occur; but how commonly this happens is not yet

known. Acute chikungunya fever typically lasts a few days to a couple of weeks. Some patients have reported incapacitating joint pain, or arthritis which may last for weeks or months. Chikungunya infection (whether clinical or silent) is thought to confer life-long immunity.

In world literature the main data in newborns is from the close surveillance during the Chikungunya epidemic in 2005-2006 in the Reunion Island off the coast of Africa. In pregnant mothers, 160 were infected with Chikungunya(3). Of 9 documented miscarriages before 22 weeks, 3 were attributed to this infection. Of the remaining 151 infected women, 118 were viremia negative at the time of delivery and none of the newborns were affected. Of the 33 with viremia at the time of delivery, 16 newborns were symptomatic in the neonatal period.

In another report also from the Reunion Island, of 84 pregnant mothers who were infected with chikungunya, 74 had healthy newborns(4). In ten cases the neonates were symptomatic. Symptoms included 4 cases with meningoencephalitis and 3 with DIC. Six of these children required prolonged NICU care including ventilation and one had a severe intracranial bleed due to thrombocytopenia. There were no deaths. All cases were confirmed by serology or PCR.

Our case report is mainly to highlight some characteristic clinical features we encountered in many neonates whose mothers had fever suggestive of chikungunya in the last week before delivery. We have only described two cases in whom we had confirmed the diagnosis by PCR because not all could afford the test. To confirm diagnosis of chikungunya, RNA was extracted from blood and real time PCR was done using chikungunya RNA detection kits (Gensen brand). The sensitivity of the kit was 20 copies/mL.

The clinical findings we found very often in neonates during the epidemic was the fine erythematous maculopapular generalized rash, unexplained episodes of apnea and diffuse hyperpigmentation. Fever was also noted, which is otherwise rare in neonates. The rash and the apnea usually subsides in 3-4 days while the hyperpigmentation persists for several weeks.

CASE REPORTS

All patients responded to conservative, supportive therapy.

Contributors: GRP: acquisition of data and drafting of manuscript; YZK: acquisition of clinical data; DSC: acquisition of laboratory data. All authors drafted the paper.

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