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CASE REPORTS

NEONATAL CHIKUNGUNYA ENCEPHALOPATHY

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ABSTRACT

Chikungunya has emerged as a significant vector borne viral illness. The arboviral pathogen has the ability to impact different populations including pregnant women and newborns. There are very few reports on the clinical and epidemiological features of congenital and neonatal chikungunya. We report two neonates with chikungunya encephalopathy due to vertical transmission from mother. Both had encephalopathy, hyperpigmentation and symptoms resembling sepsis.

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KEYWORDS

Neonatal Chikungunya, Vertical Transmission, Encephalopathy, Meningitis

Introduction

Chikungunya is a viral fever caused by an alphavirus transmitted by the bite of infected Aedes aegypti mosquito. Perinatal transmission was first reported from Reunion Island in Africa in 20061 and subsequently by others. Neonatal chikungunya infection is a rare entity and a diagnostic challenge. It can present with fever, excessive crying, poor feeding, tenderness, unexplained apnea, various dermatological manifestations, shock and disseminated intravascular coagulation.2,3 Perinatally transmitted chikungunya can lead to encephalopathy in newborns and possible evolution towards persistent disabilities. We present two cases of neonatal chikungunya infection associated with rapidly evolving encephalopathy responding to symptomatic treatment.

Case 1: A single, preterm (33+4weeks), male baby was delivered to a fourth gravida mother by normal vaginal delivery. Mother had history of fever with joint pain and rashes 4 days prior to delivery. Baby was admitted to neonatal intensive care unit (NICU) after 1 hour of birth due to respiratory distress. X-ray chest was suggestive of moderate respiratory distress syndrome (RDS). Baby was started on non-invasive ventilation with heated, humidified high-flow nasal cannulae (HHHFNC) and surfactant was administered. Caffeine citrate was added for apnea of prematurity. Sepsis screen was negative (hemoglobin 20.9gm/dl, total leukocyte count 10,340/cumm, absolute neutrophil count 9050/cumm, platelet 158,000/cumm, C-reactive protein (CRP) 0.2 mg/L, blood culture- no growth). Nasogastric feed was started. On 5th day of life, the infant developed maculopapular rashes over the body, swelling over both elbows, decreased activity, apnea and seizures, so phenobarbitone was started. He also needed ionotropes and ventilatory support. Elisa tests for chikungunya and dengue IgM antibody were negative on day 5 of life. However mother's chikungunya IgM ELISA was positive. Now the hemoglobin was 18.2 gm/dl, total leukocyte count was 20,880/cumm, absolute neutrophil count was 19,300/cumm, platelet count was 158,000/cumm, CRP was 6.8mg/L. Blood culture was sterile. Cerebrospinal fluid (CSF) analysis was normal. Antibiotics were upgraded from cefotaxime and amikacin to piperacillin/tazobactam. He developed progressive generalized hyperpigmentation with marked perioral involvement on 15th day of life. Chikungunya IgM ELISA was sent again and was positive. Antibiotics were stopped and the infant improved gradually. Feed was increased gradually and child was discharged on exclusive breastfeed in neurologically stable condition on 30th day of life.

Case 2: A term, single, male baby was delivered to fourth gravida mother by normal vaginal delivery with normal APGAR and immediate cry after birth at a local hospital. Mother had history of fever with joint pain 1 day prior to delivery. Baby was admitted there soon after birth for respiratory distress with grunting and referred to our center with excessive cry, fever and not responding to antibiotics after 4 days. Sepsis screen and blood culture were sent and empirical antibiotics (cefotaxime and amikacin) were started. Investigations revealed hemoglobin 12.1 gm/dl, total leukocyte count 11,150/cumm, absolute neutrophil count 10,180/cumm, platelet count 198,000/cumm and CRP was 1.8 mg/L. Blood culture was sterile. Child's condition further deteriorated with one episode of seizure and shock on 6th day of life. Phenobarbitone and ionotropes were started. CSF showed 30 cells (50% neutrophils and 50% lymphocytes) with minimally raised protein (140 mg/dl) and normal sugar (52 mg/dl). He developed generalized progressive hyperpigmentation on 10th day of life. In view of chikungunya epidemic and suggestive history in mother, chikungunya IgM ELISA was sent and it tested positive both in the mother and baby. Antibiotics were stopped on day 11th of life and child improved gradually. Child was discharged in normal neurological condition on life day 14 on exclusive breast feed.

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Discussion

Vertical transmission of chikungunya during the perinatal period was first reported during the epidemic in Reunion Island in Africa in 2006.1 In this report, 160 pregnant women were infected with chikungunya. Of the 33 with viremia at the time of delivery, 16 newborns were symptomatic in the neonatal period.1 In another report from this place by Robillard et al, out of 84 pregnant women who were infected with chikungunya, 74 had healthy newborns, while 10 newborns were symptomatic.4 Out of these, 4 had meningoencephalitis and 3 had disseminated intravascular coagulation (DIC). Six of these neonates required prolonged NICU care including ventilator and one had a severe intracranial bleed due to thrombocytopenia. No deaths were reported. All cases were confirmed by serology or PCR.

The greatest risk of mother-to-child transmission is during birth if mother has acquired the infection days before delivery.1 Diagnosis is made by serology or RT- PCR. Chikungunya IgM antibodies are detectable by ELISA as early as 2 days after infection and persist for several weeks to 3 months. RT-PCR can detect viremia in the first week. The illness is most often self-limiting and responds to conservative or supportive therapy.4 Hyperpigmentation can persist for 3 to 6 months. Encephalopathy can sometimes lead to poor neurocognitive outcome and sequelae.5 Both our patients had generalized erythematous maculopapular rashes, unexplained apnea, excessive crying, seizures and shock. The first patient also developed joint swelling over the elbows while the second case presented with fever. Both the babies developed progressive generalized hyperpigmentation in the second week of life which was present even at the time of discharge.

Conclusion

Chikungunya should be suspected in all unexplained cases of neonatal encephalopathy. Maternal history and hyperpigmentation can give an important clue to the diagnosis.

Compliance with Ethical Standards

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Conflict of Interest: None

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