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A case of neonatal chikungunya with encephalitis and hyperpigmentation

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Abstract

Chikungunya arboviral infection which is considered as a disease of adult and paediatric population is being rarely diagnosed in the neonatal period. In recent times frequent reporting of neonatal infections has gained importance. Its natural history, vertical transmission and clinical characteristics are poorly understood and vary among individuals posing a diagnostic challenge. Here we report an infant with neonatal chikungunya with encephalitic presentation and skin hyper pigmentation. The Magnetic Resonance Imaging showed fronto-parietal hyper intensity and the cerebro spinal fluid analysis showed lymphocytosis. The diagnosis was confirmed by IgM serology in the infant and the infant improved with symptomatic treatment. In countries where Chikungunya epidemics are frequent, it is important for the physicians to have high index of clinical suspicion to diagnose neonatal chikungunya in a symptomatic neonate.

Keywords

Chikungunya; neonate; encephalitis; hyperpigmentation

Introduction

Chikungunya is a viral infection caused by genus alpha virus of togaviridae family and transmitted by aedes species mosquitoes [1]. Vertical transmission of chikungunya virus was first documented in 2007 in Reunion Island, Africa. Since then many cases of neonatal chikungunya has been reported [2]. Clinical presentation can mimic other common neonatal infections like sepsis and leads to diagnostic dilemma. In particular, Neurological manifestations in the infant in the form of encephalopathy which is common in maternal to child transmission needs early and prompt diagnosis.

Case Report

A term female infant with birth weight of 2.62 kgs with uneventful natal events developed fever

on twelfth day of life and was admitted with fever, limb edema, poor feeding, lethargy and seizures. Incidentally the infant also had a cleft palate. Subsequently after 2 days the infant developed patchy acrofacial and perioral pigmentation which progressed to generalised hyperpigmentation in the next two days (Fig: 1). Initial investigations revealed thrombocytopenia, elevated liver enzymes and hyponatremia. C-Reactive Protein was elevated and blood cultures were negative. Enzyme Linked Immunosorbant Assay (ELISA) Test for IgM Chikungunya Virus was positive for the infant and negative for the mother. Cerebro-spinal fluid analysis showed lymphocytosis and normal glucose and protein. Electroencephalogram showed diffuse epileptiform activity. Neurosonogram was normal and MRI revealed restricted diffusion in corpus callosal & bilateral fronto-temporo-parietal matter suggestive of viral encephalitis like picture (Fig: 2). Diagnosis of neonatal chikungunya was made based on IgM positivity and the characteristic clinical grounds. The baby was treated symptomatically with fluids, anti-convulsants and other supportive measures. The fever and encephalopathy settled after 7 days. The hyperpigmentaion resolved slowly after 2 weeks (Fig: 3).

Discussion

Chikungunya infection in a newborn is rarely considered and diagnosed in clinical practice. In particular, neurotropism of chikunkunya virus in a neonate is often overlooked and misdiagnosed as the features closely resemble sepsis [3]. Infection in a newborn can be congenital or acquired. Congenital infection is considered in an IgM seropositive baby if the mother is symptomatic within a week or two prior to delivery. On the other hand, symptom onset after 12 days from birth with IgM Chikungunya Virus antibody positivity with negative serology in mother is considered to be acquired post-natally [4]. Foetal risk though rare, higher incidence of abortions can be noted in first trimester infections [5].

Clinical features include fever, lethargy, poor feeding, hypotonia, unexplained apnea, distal edema, seizures, encephalitis and with a characteristic pattern of skin pigmentation called the 'brownie nose' or 'chik sign' [6]. Other atypical dermatological manifestations include generalised erythema, bullous dermatitis, periorbital hypermelanosis, addisonian type of palmar pigmentation, petechiae and guttate psoriasis. Hyperpigmentation is caused by post inflammatory response triggered by the virus causing increased intra epidermal retention of melanin [7]. Chow et al has demonstrated the involvement of inflammatory cytokines and chemokines which explains the raised CRP and thrombocytopenia seen in these cases [8]. Neurological manifestations can present as encephalitis, meningoencephalitis or encephalomyeloradiculitis. Encephalopathy seems to be common in newborns affected by mother to child transmission [9]. This higher incidence of encephalitis may be due to increased viral replication and delayed clearance in infants. Rarely myocarditis, renal failure, liver failure and DIVC can be a part of neonatal illness. Neonatal chikungunya can be diagnosed in the acute stage by Real Time-Polymerase Chain Reaction during first week of viremia. IgM Chikungunya virus antibodies can be detected from 2 days after infection and can be detectable up to 3 months [10]. IgG antibodies remains positive for years thereafter. CSF analysis can show moderate lymphocytic pleocytosis with normal glucose and protein levels. Prognosis in infected neonates is variable as in some cases debilitating long term sequelae such as fixed flexion deformity, microcephaly, seizure disorder, visual impairment, neuro cognitive impairment and cerebral palsy can ensue requiring appropriate monitoring and follow up [11]. Though hyperpigmentation persists for weeks to months it usually resolves

without residual pigmentation.

Figures

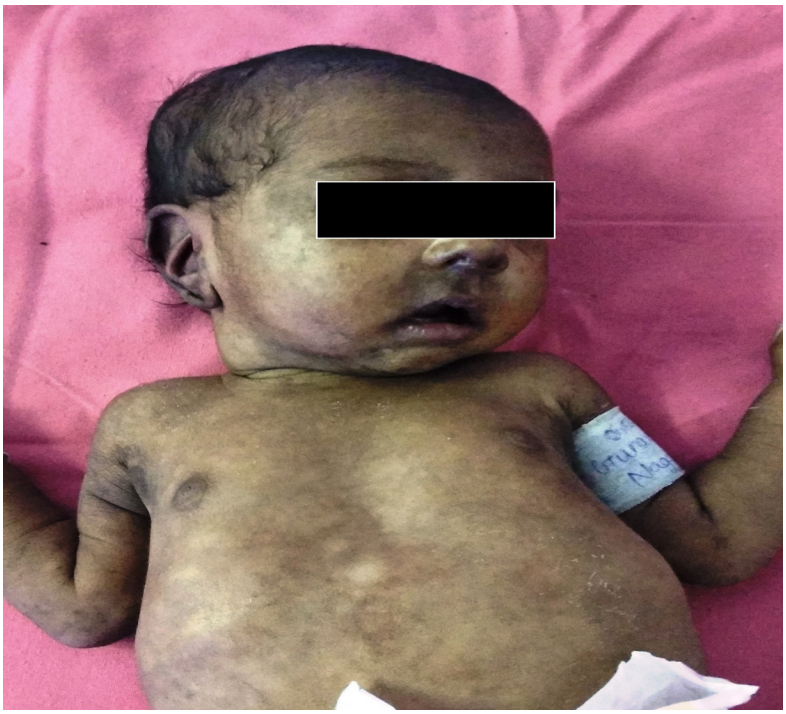

Figure 1: The infant with central and facial hyperpigmentation

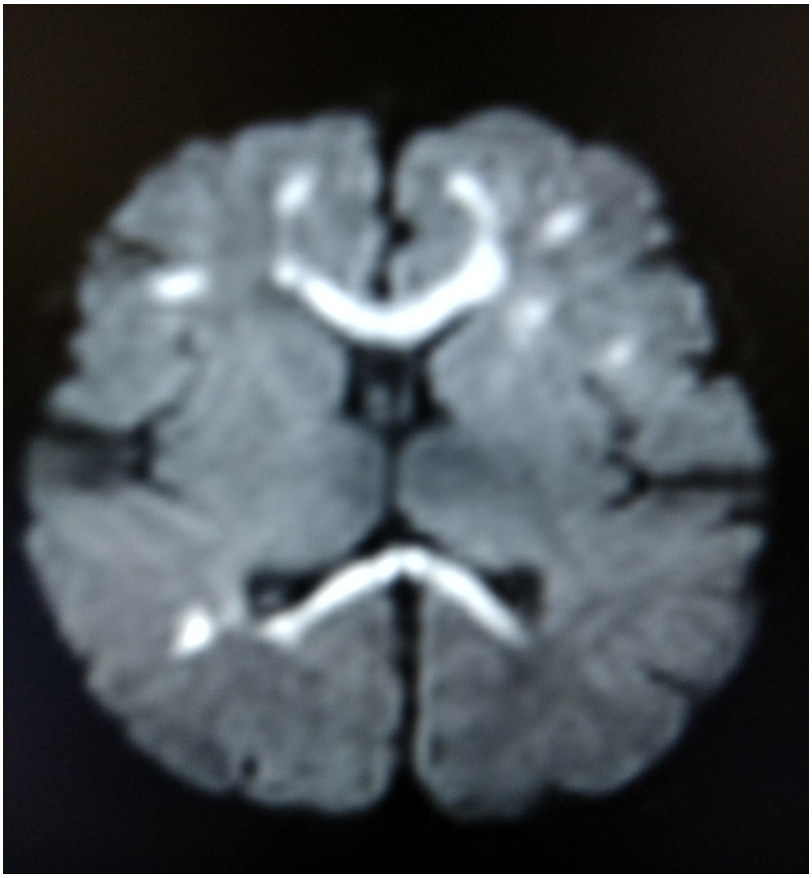

Figure 2: MRI picture showing the hyper intensities in fronto-parietal areas

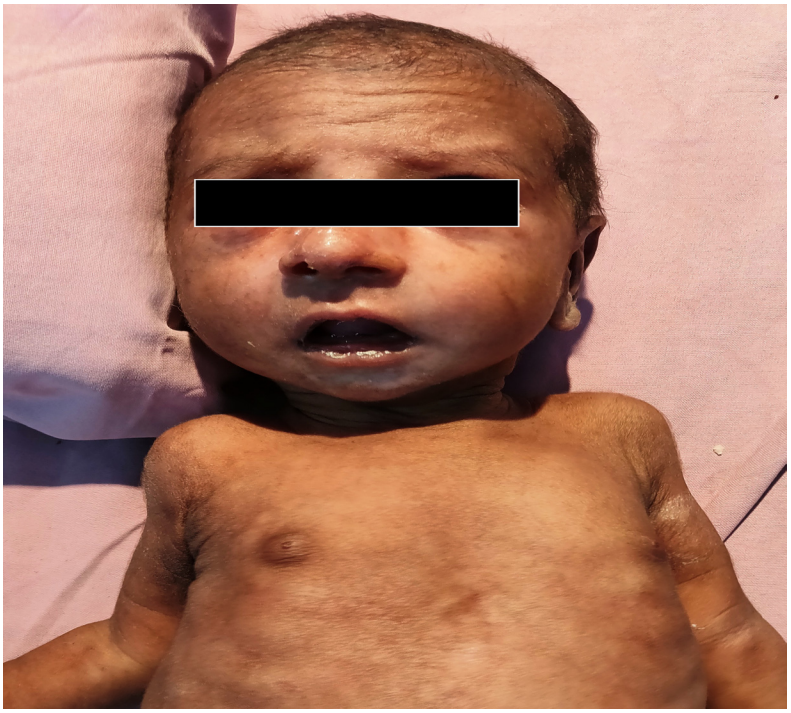

Figure 3: Hyper pigmentation resolved after 2 weeks

Conclusion

In countries where Chikungunya epidemics are frequent, and with prevailing little knowledge about maternal to child transmission and its characteristics, it is important for the physicians to have high index of clinical suspicion to diagnose neonatal chikungunya in a symptomatic neonate and to initiate treatment and follow up strategies.

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