

Varied Clinical Manifestations of Chikungunya—A Case Series

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ABSTRACT

Aim and objective: The aim and objective of this study is to report varied clinical manifestations of chikungunya amongst different pediatric age groups.

Background: Chikungunya is an arboviral disease transmitted by *Aedes* mosquitoes, which has caused epidemic outbreaks in the past. The clinical manifestations vary widely among neonate, infant, and pediatric age groups.

Case descriptions: We report four cases (two neonatal and two pediatric cases) of chikungunya. Neonates in this case series had predominant neurological and cutaneous manifestations. The older age groups in this series however had circulatory and cutaneous manifestations. All children reported in this case series had fever, lethargy, and thrombocytopenia. Chikungunya was confirmed by CHIKv PCR in all the cases. All cases reported recovered with appropriate neonatal/pediatric intensive care management.

Conclusion: The spectrum of chikungunya disease is different in neonates and infants as compared to older children. Though it is predominantly a benign illness, its presentation can mimic commonly seen emergencies like viral encephalitis or septic shock. A high index of clinical suspicion is necessary for diagnosis.

Clinical significance: Chikungunya should be considered as a differential diagnosis in neonates presenting with fever, typical hyperpigmentation, and encephalopathy. Neonates born to mothers with chikungunya should be closely observed for symptoms in the 1st week of life. Children, unlike adults, can have more of hematological and cutaneous than rheumatological manifestations. Management of chikungunya is predominantly symptomatic. Early clinical diagnosis can avoid irrational use of antibiotics.

Keywords: Acrocyanosis, Chikungunya, Infants, Neonates, Vesiculobullous lesions.

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BACKGROUND

Chikungunya is an arboviral disease, transmitted by *Aedes* species mosquitos. The disease has an incubation period of 2–7 days. The clinical manifestations can vary among different age groups. It is generally considered a benign disease and reports of severe manifestations in children are sparse.¹

Congenital chikungunya in neonates presents with predominant CNS involvement (encephalopathy), characteristic hyperpigmentation pattern on skin, and thrombocytopenia.² The most common features in the pediatric age group are fever, cutaneous changes, irritability, followed by arthralgia and arthritis.³ In this case series, we describe four cases with varied presentations and clinical manifestations of chikungunya among different age groups.

CASE DESCRIPTIONS

Case 1

A primi mother at term was referred with maternal pyrexia for 2 days associated with myalgia. The mother was admitted and treated with IV antibiotics (intrapartum). A baby was delivered by lower segment cesarean section (LSCS) at term, birth wt. 3 kg, male, with normal scoring system for assessment of newborns based on appearance, pulse, grimace, activity, respiration (APGARs), appeared apparently normal at birth with breastfeeding initiated soon. Owing to maternal pyrexia, the baby was initially screened for sepsis and was started on IV antibiotics.

After 48 hours of life, the baby developed fever spikes with lethargy and poor feeding. The baby was then transferred to NICU for further care. Initial exam revealed a febrile neonate with

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acrocyanosis, vitals HR—180 minute, CRT—4 seconds, temp—101°F, SpO₂—98% in room air.

The baby was rescreened for sepsis and then was started on IV fluids and paracetamol with antibiotics stepped up to the second line. Complete blood count (CBC) showed leucocytosis with thrombocytopenia and C-reactive protein (CRP) was elevated. The baby continued to have fever spikes with acrocyanosis noted during febrile episodes.

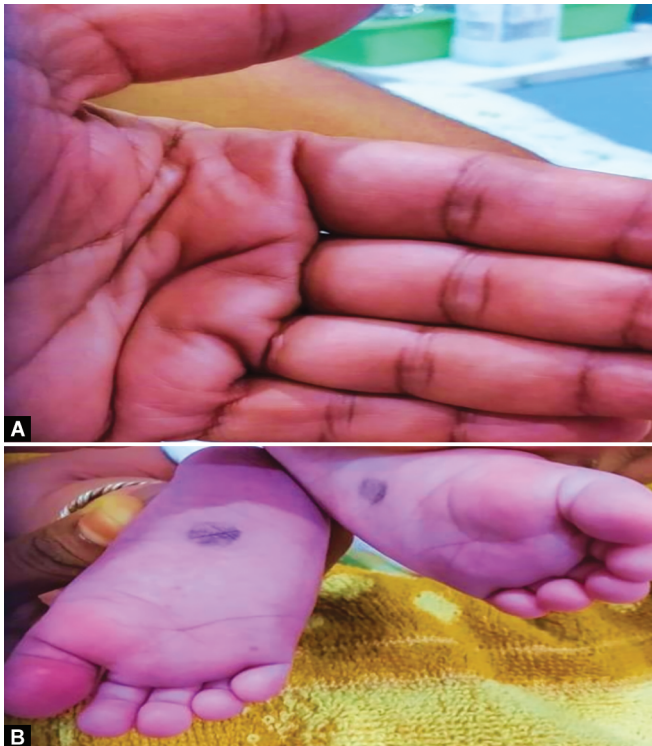
On day 4 of life, the baby developed one episode of multifocal seizures involving both upper and lower limbs. The baby was then treated with loading dose of inj. phenobarbitone following which there were no further episodes. The MRI brain showed hyperintensities on T2 and FLAIR images involving frontal and parietal lobes in bilateral periventricular and subcortical regions with



Fig. 1: Neonatal chikungunya—"brownie nose" pigmentation



Fig. 2: Neonatal chikungunya—child on follow-up—pigmentation healing with scars



Figs 3A and B: Neonatal chikungunya—acrocyanosis

evidence of diffusion restriction in rostrum and splenium of corpus callosum. Cerebrospinal fluid (CSF) analysis showed mild pleocytosis with hypoglycorrachia resembling viral encephalitis picture.

On day 5 of life, the baby showed clinical improvement with no further febrile episodes or seizures along with improved reflexes and activity. On day 6, the baby developed facial "brownie-nose" pigmentation (Fig. 1), which later appeared in the trunk and lower limbs. Owing to the typical clinical appearance, blood and CSF samples were sent for CHIKv PCR. Blood was positive for CHIKv PCR while CSF was negative, suggesting that this baby was a case of neonatal chikungunya infection.

On day 7 of life, the baby started taking feeds well with no further febrile episodes and was shifted out of NICU. Platelet counts normalized in the next 3 days along with a reducing trend in CRP

levels. Both blood and CSF cultures were sterile. The baby was discharged on day 10 of life with normal clinical examination and normal lab parameters (Fig. 2).

Case 2

Term neonate (female, 2.7 kg) was referred on day 2 of life with poor feeding. There was a history of maternal pyrexia along with joint pains 3 days prior to delivery for which the mother was treated with IV antibiotics but was not investigated. The baby on arrival in the NICU was febrile (101°F, HR—190 minute, SpO₂—96%) in room air with acrocyanosis (Fig. 3) and irritable cry.

Septic screening done and baby was commenced on IV antibiotics and started on paracetamol and IV fluids. Few hours later, the baby developed multifocal seizures involving both upper and lower limbs lasting for 90 seconds. The baby was treated with a loading dose of inj. phenobarbitone following which there were no further episodes of seizures. Initial investigations revealed thrombocytopenia (counts <10,000) with leucocytosis along with elevated CRP.

The baby required platelet transfusion for severe thrombocytopenia. The MRI brain done showed T2/FLAIR hyperintensities with diffusion restriction in bilateral periventricular and subcortical frontoparietal and temporal white matter, corpus callosum, and internal capsule. The CSF analysis was suggestive of pleocytosis with mildly elevated protein with hypoglycorrachia.

After 2 days of admission, the baby showed clinical improvement with no further febrile episodes or seizures along with improved activity and reflexes. Platelet counts monitored daily showed an increasing trend. However, on day 5 of life, the baby developed hyperpigmentation over the face and nose, which later gradually involved the trunk and lower limbs. Considering the clinical picture, blood and CSF samples were sent for CHIKv PCR. Blood turned out to be positive while CSF was negative, confirming the diagnosis of a neonatal chikungunya infection. Both blood and CSF bacterial cultures were sterile. The baby was subsequently discharged on day 10 with normal clinical exam and blood investigations.

Case 3

A 7-month-old female presented with fever and rigors for 2 days, excessive irritability, and blanching erythematous rash. She was hemodynamically stable on admission and accepting feeds. Initial investigations showed normal counts, transaminitis, mild coagulopathy, and elevated CRP. She was admitted to wards initially



Fig. 4: Chikungunya—vesiculobullous rash

and started on supportive care. She was transferred to PICU as the child was excessively irritable with high fever and also developed acrocyanosis, poor peripheral perfusion, and borderline blood pressures. She was started on low-dose inotrope support. Cardiac evaluation was normal. Though hemodynamics stabilized over the next few hours (with normal heart rate and blood pressures), acrocyanosis persisted. The child continued to have high spiking fevers in spite of adequate antibiotic cover. By day 4 of hospital stay (day 6 fever), she developed multiple bullous vesicles in both lower limbs (Fig. 4). Cultures were sterile. Considering the clinical features, evaluation for tropical fevers was done, which showed chikungunya CHIKv PCR positive in blood. Fever subsided after 7 days and irritability reduced. Skin lesions gradually healed with scars over the subsequent weeks, as noted on follow-up (Fig. 5).

Case 4

A 10-year-old male presented to ER with 1 day history of fever with rigors, lethargy, decreased oral intake, and myalgia. No other localizing signs/skin rashes. On presentation in ER, the child was febrile (102°F), alert, with HR 140 minute, RR 20 minute, peripheries warm, bounding pulses, with systolic blood pressure 85, and diastolic not recordable. Systemic examination was unremarkable. He was resuscitated as per surviving sepsis (septic shock) guidelines with ~40 mL/kg of fluid boluses, as he was not fluid responsive—and was started on inotrope. Initial blood investigations including blood counts, CRP, and organ functions were normal. The ECHO screening was normal. Blood gases showed mild acidosis with normal lactates. He was admitted to PICU and was started on empirical broad-spectrum antibiotics and other supportive care. Hemodynamics stabilized over the next few hours. However, he continued to have high spiking remittent fevers over the next 4 days. He did not have any cutaneous or rheumatological manifestations. Cultures were negative. Screening for tropical fevers revealed blood chikungunya PCR positive. Fever showed a decreasing trend by day 5 and the child recovered well with supportive care.

Discussion

Chikungunya in children can present with protean clinical manifestations. Clinical examination and high index of suspicion are essential in clinching the diagnosis as the presentation can mimic other commonly seen emergencies like septic shock or viral encephalitis.³ Detection of chikungunya can be done by PCR or ELISA. RNA PCR, during the first 5 days of illness, has 100% specificity and 98% sensitivity.⁴

Clinical manifestations as presented in the above case series are entirely different from those in adults. The distinct clinical manifestations among infants and children mentioned in this series are similar to those documented in previous studies.⁵ Knowledge of these clinical manifestations is essential to distinguish them from



Fig. 5: Chikungunya—rash healed with scars

other tropical fevers like dengue and also to identify coinfection. Myalgia and other rheumatological manifestations are more characteristic of chikungunya, whereas hemorrhagic manifestations, thrombocytopenia, and hemodynamic instabilities are more pronounced in case of dengue.⁶ Treatment is predominantly symptomatic; however, severe cases of chikungunya may require fluid management and intensive care monitoring similar to dengue.⁷

Conclusion

Chikungunya is a predominantly self-limiting viral illness in pediatric population with rare instances of severe illness. It is important to consider chikungunya as a differential diagnosis while treating tropical fevers in children. Congenital chikungunya should be considered a possibility in neonates born to mothers with fever and arthralgia. A high index of clinical suspicion is essential for early diagnosis and to avoid irrational antibiotic use.

Clinical Significance

Tropical fever epidemics are common in our country. Early recognition and appropriate supportive care form the mainstay of management in case of viral fevers like dengue and chikungunya. This report aims to highlight the varied clinical manifestations of chikungunya in children.

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