International Journal of Medicine Research
www.medicinesjournal.com
ISSN: 2455-7404
Received: 12-11-2025, Accepted: 11-12-2025, Published: 26-12-2025
Volume 10, Issue 2, 2025, Page No. 13-14

A Case study of a 6-month-old male infant with acute febrile illness, seizures, and developmental regression

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Abstract

Background: Acute febrile illnesses with seizures in infancy are neurological emergencies associated with high morbidity and risk of long-term developmental impairment. Early recognition and structured neurological assessment are essential for prognosis and rehabilitation planning.

Case Description: We report the case of a 6-month-old male infant presenting with high-grade fever, recurrent generalized seizures, altered sensorium, and regression of motor activity. The illness was preceded by persistent fever and excessive high-pitched crying. Clinical examination revealed hypertonia, extensor posturing, exaggerated deep tendon reflexes, and bilateral positive Babinski sign, indicating central nervous system involvement. The child required Pediatric Intensive Care Unit (PICU) admission and anticonvulsant therapy.

Conclusion: This case highlights the importance of prompt intensive care management and early physiotherapy-oriented neurological evaluation in infants with acute encephalopathy and seizures. Early identification of abnormal tone, posture, and reflex patterns is crucial to initiate timely neurodevelopmental intervention and reduce long-term sequelae.

Keywords: Infant seizures, acute encephalopathy, febrile illness, developmental regression, pediatric neurorehabilitation

Introduction

Seizures in infancy, particularly when associated with high-grade fever and altered sensorium, are a medical emergency and may indicate serious central nervous system involvement such as encephalitis, meningitis, or acute symptomatic seizures. Early diagnosis and multidisciplinary management are crucial to reduce morbidity and long-term developmental impairment. This case report documents the clinical course and neurological findings of a 6-month-old infant admitted with recurrent convulsions and impaired consciousness.

Case Presentation

Patient Information

- **Name:** XYZ
- **Age:** 6 months
- **Sex:** Male
- **Informant:** Mother and father
- **Address:** Kalol, Gujarat, India
- **Date of Admission:** 09/12/2013
- **Date of Assessment:** 12/12/2013

Chief Complaints

1. Not opening eyes for 2–3 days
2. Recurrent convulsions prior to admission
3. Not moving all four limbs

History of Present Illness

The infant was apparently well until 10 days prior to admission, when he developed high-grade fever associated with cough. The fever was persistent and did not subside with medications prescribed by a local practitioner. Over the following days, the child became increasingly irritable and cried excessively with a high-pitched cry.

During crying episodes, the parents noticed breath-holding spells followed by convulsions. The seizures were characterized by tightening of all four limbs, upward rolling of the eyeballs, and extension of the head. The frequency of convulsions was approximately 4–5 episodes per day. Due to worsening symptoms, the child was brought to the tertiary care hospital and admitted to the Pediatric Intensive Care Unit (PICU).

Despite initiation of medical management, the parents reported that the child was not opening his eyes and had markedly reduced spontaneous movements of all limbs.

Past History

- **Antenatal History:** Unremarkable
- **Natal History:** Full-term vaginal delivery
- **Birth Weight:** 2.8 kg
- **Birth Cry:** Present
- **NICU Stay:** Admitted for 2 days due to breathing difficulty; required oxygen support
- **Postnatal History:** No major illnesses prior to current episode

Immunization History

Immunization was appropriate for age. Vaccines due at 6 months had not yet been administered at the time of illness.

Developmental History (Prior to Illness)

Before the onset of current illness, the infant had age-appropriate developmental milestones. Following the illness, there was regression with reduced limb movements and poor responsiveness.

Clinical Examination

General Examination

- **State of Consciousness:** Altered sensorium
- **Eyes:** Not opening spontaneously
- **Crying:** High-pitched cry
- **Head Circumference:** 33 cm
- **Weight:** 2.8 kg at presentation

Vital Signs
- **Heart Rate (HR):** 103/min
- **Respiratory Rate (RR):** 33/min
- **SpO_2:** 97% on room air

Respiratory System Examination
- Shallow breathing pattern
- Bilateral air entry equal
- No added sounds

Neurological Examination
Cranial Nerves
- Facial asymmetry noted
- Light reflex present
- Other cranial nerve assessment limited due to altered consciousness

Posture and Attitude
- **Upper limbs:** Shoulders adducted, elbows flexed, fingers fisted
- **Lower limbs:** Increased tone bilaterally

Muscle Tone
- Generalized hypertonia
- Marked tightness in both upper and lower limbs

Reflexes
- **Deep Tendon Reflexes:** Knee jerk exaggerated bilaterally
- **Plantar Response:** Positive Babinski sign bilaterally

Sensory and Pain Response
- Withdrawal movement present to painful stimulus

Positioning and Handling Observation
- Marked extensor posturing observed in side-lying position
- Minimal voluntary movements noted

Investigations
The child underwent routine blood investigations and neuroimaging as per PICU protocol (details not available in records). Continuous monitoring was performed in the PICU.

Medical Management
The infant was managed in the Pediatric Intensive Care Unit with:
- Antipyretics
- Anticonvulsants
- Supportive care
- Oxygen support as required

Discussion
Seizures occurring in infancy in association with high-grade fever and altered consciousness raise concern for acute central nervous system pathology, including meningitis, encephalitis, febrile status epilepticus, or acute symptomatic seizures. In the present case, the presence of recurrent convulsions, high-pitched cry, breath-holding spells, and regression of motor activity strongly suggested acute encephalopathy.
Neurological examination revealed generalized hypertonia, exaggerated deep tendon reflexes, extensor posturing, and bilateral positive Babinski sign, all of which are indicative of upper motor neuron involvement. Such findings are commonly reported in infants with acute brain injury secondary to infection, inflammation, or metabolic insult. Altered sensorium and poor spontaneous movements further support diffuse cerebral involvement.
Early admission to the PICU and initiation of anticonvulsant therapy were critical in stabilizing the child. However, infants who survive acute encephalopathic episodes are at high risk of developing long-term neurodevelopmental impairments such as cerebral palsy, epilepsy, cognitive delay, and motor dysfunction. Therefore, comprehensive neurological and physiotherapy assessment is essential once the child is medically stable.
Physiotherapy evaluation focusing on tone, posture, primitive reflexes, and spontaneous movement patterns helps in early detection of abnormal neuromotor development. Early intervention strategies, including positioning, handling techniques, sensory stimulation, and caregiver education, may improve functional outcomes and quality of life.
This case emphasizes the need for a multidisciplinary approach involving pediatricians, neurologists, physiotherapists, and caregivers to ensure optimal recovery and long-term follow-up.

Conclusion
Infants presenting with high-grade fever and recurrent seizures require prompt evaluation and intensive management. Detailed neurological and physiotherapeutic assessment is essential for early detection of neurodevelopmental impairment and planning of early rehabilitation. This case emphasizes the need for multidisciplinary care in managing acute neurological illnesses in infancy.

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