CASE SERIES

A Clinical Spectrum of Reflex Epilepsies in Childhood: Seven Cases Across Sensory, Emotional and Behavioural Domains

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Received: 06.01.26
Accepted: 26.01.26

How to cite this article:
Rai Preeti L. A Clinical Spectrum of Reflex Epilepsies in Childhood: Seven Cases Across Sensory, Emotional and Behavioural Domains. Int J Adv Integ Med Sci 2026;11(1):35-38.
Source of Support: Nil,
Conflicts of Interest: None declared.

ABSTRACT

Background: Reflex epilepsy is a fascinating but relatively uncommon form of epilepsy in which seizures are consistently triggered by specific stimuli or activities. These triggers may be visual, auditory, emotional, somatosensory, or even related to everyday activities such as eating. Because many of these triggers are unusual, diagnosis is often delayed unless a careful history is obtained.

Objective: To describe the clinical characteristics of seven children with different forms of reflex epilepsy and to highlight the importance of recognizing trigger factors in Paediatric epilepsy through a detailed and thorough history taking.

Methods: We present a series of seven Paediatric patients evaluated in a tertiary care teaching hospital. Detailed clinical history, neurological examination, electroencephalography (EEG), and neuroimaging whenever indicated were performed. Particular attention was paid to identifying seizure-provoking stimuli and assessing response to treatment and trigger avoidance.

Results: The age of the children ranged from 4 to 11 years. The series included one child with eating epilepsy, two children with startle epilepsy, one child with laughing epilepsy, one child with photosensitive epilepsy, one child with emotionally triggered epilepsy, and one child with epilepsy precipitated by exposure to light after darkness. Recognition of the precipitating stimulus played a key role in diagnosis and management. Most children showed significant improvement with appropriate antiseizure medication and avoidance of known triggers.

Conclusion: This case series demonstrates the wide spectrum of reflex epilepsies encountered in Paediatric practice. A detailed history often provides the most important diagnostic clue. Increased awareness among clinicians and caregivers can facilitate early diagnosis, reduce anxiety, and improve outcomes.

KEYWORDS: Reflex epilepsy, paediatric epilepsy, startle epilepsy, eating epilepsy, photosensitive epilepsy, gelastic epilepsy.

INTRODUCTION

Epilepsy is one of the most common neurological disorders in childhood. While most seizures occur spontaneously, a small but important group of patients experience seizures that are consistently triggered by specific stimuli. These are known as reflex seizures, and when such seizures form the predominant seizure type, the condition is referred to as reflex epilepsy.[1]

The triggers may be external, such as flashing lights, sudden sounds, touch, or changes in illumination, or internal, such as emotions, thinking, reading, or other cognitive activities. Recognition of these triggers is important because it can significantly influence diagnosis, counselling, and treatment.[2]

Although photosensitive epilepsy is well recognized, many other forms of reflex epilepsy remain underreported, particularly in children. We present seven Paediatric cases that collectively cover a broad spectrum of reflex epilepsy and illustrate the remarkable diversity of seizure-provoking stimuli.[1,2,3]

This case series is the largest Paediatric reflex epilepsy series in childhood from a single centre in Bareilly region and emphasises that multiple trigger domains can coexist in one cohort though rare. In all the seven cases the detailed and thorough history taking and video recording of the onset of seizures on giving the stimuli is present. A thorough detailed history is the lone factor which identified the triggering stimuli. This study also highlights the under recognition of reflex epilepsy in children.

CASE SERIES

Case 1: Eating Epilepsy

A 4-year-old girl was brought to our Paediatric neurology clinic with recurrent episodes occurring almost exclusively during meals. Parents noticed that the child would suddenly stop eating, stare blankly, and subsequently develop generalized seizure activity. The episodes were consistently associated with chewing and swallowing and rarely occurred at any other time. The epileptic event was as well evidenced in the ward as soon as patient started eating, the seizure started with a blank stare and in few seconds evolved to Generalized Tonic clonic seizures.

Physical and neurological examinations were normal. EEG showed epileptiform activity suggestive of focal seizure onset. The child was started on sodium valproate along with tablet clobazam one hour before meals, and parents were counselled regarding supervised feeding and recognition of early symptoms. Seizure frequency decreased considerably during follow-up. Patient is in continuous follow-up since 2 years and is seizure free since last 1 year. Repeat EEG done at end of 2 years came out to be normal.

Case 2: Startle Epilepsy Triggered by Sudden Calling

A 6-year-old girl presented with seizures that occurred whenever she was suddenly called from behind or startled by a loud voice. Family members observed an immediate startle response followed by tonic stiffening and loss of awareness lasting a few seconds. The patient was admitted and a provoking stimulus in form of sudden loud sound was given which precipitated the seizures witnessed by whole treating team members. The seizures were aborted by inj midazolam & patient was loaded with inj valproate with maintenance. She had 3 episodes of seizure activity all triggered by loud sound/voice in the ward leading to progressively increasing dose of valproate to 60mg/kg/day which stopped the seizures. The patient was discharged on 12th day of admission completely seizure free.

The consistency of the trigger provided an important clue to the diagnosis. EEG findings supported epilepsy. The family members were counselled to prevent sudden auditory stimulation. The patient is in follow up since last one year and is seizure free.

Case 3: Startle Epilepsy Triggered by Sudden Trauma

An 8-year-old girl experienced seizures following unexpected physical stimuli such as accidental bumps or sudden touches. Each episode began with a startled reaction followed by abnormal body movements and transient impairment of consciousness. In the ward after admission when she was pricked for random blood sugar estimation bedside suddenly without prior information she went into seizures which was reverted by inj. Midazolam. But when an intravenous catheter was placed in situ after counselling her and keeping her well informed she had no seizure episode

Clinical evaluation and EEG findings were compatible with reflex epilepsy. The family was educated about minimizing sudden physical triggers, and the child responded favourably to antiseizure therapy.

Case 4: Laughing triggered Epilepsy

An 11-year-old boy was referred for recurrent seizures that appeared to be associated with bouts of intense laughter. Parents reported that episodes occurred during moments of excitement and laughter and were characterized by sudden behavioural arrest followed by generalized seizure manifestations witnessed by the treating team in the ward as well as the parents carried with them multiple videos which showed how the seizure was triggered by happiness and laughter.

MRI was performed to exclude structural abnormalities, particularly hypothalamic hamartoma. EEG came out to be abnormal. The child responded well to medical management (sodium Valproate) and at present seizure free on continued follow-up.

Case 5: Photosensitive Epilepsy

A 4-year-old boy presented with seizures that occurred while watching television, especially during animated programs containing rapidly changing scenes and bright flashes.

EEG was abnormal with photic stimulation and demonstrated photosensitivity. The parents were advised regarding screen-time restrictions, maintaining adequate room lighting while viewing television, and avoiding exposure to flashing visual stimuli. Combined with antiseizure medication (Sodium valproate), these measures resulted in substantial improvement and now after six months of regular follow up child is seizure free and enjoys television and other gadgets.

Case 6: Emotionally Triggered Epilepsy

A 7-year-old girl developed seizures following episodes of emotional distress, particularly after being scolded by her parents. The events were remarkably consistent and occurred shortly after intense crying or emotional upset. Each and every episode of emotional upset resulted in generalized tonic clonic seizures. The child used to be seizure free all other times when she was playful and active

Neurological evaluation and EEG confirmed epilepsy. In addition to pharmacological treatment, family counselling focused on positive communication and emotional support. The frequency of seizures decreased markedly during subsequent follow-up visits.

Case 7: Epilepsy Triggered by Light After Darkness

A 9-year-old child presented with seizures precipitated by sudden exposure to bright light after staying in a dark environment. The episodes occurred repeatedly when moving from a dark room into sunlight or bright artificial illumination. The parents were taking treatment from multiple places in last one year but there was no relief

EEG findings suggested increased photosensitivity on photic stimulation. Environmental modifications, including gradual adaptation to light and avoidance of sudden bright exposure, along with antiseizure medication (sodium valproate@ 60mg/kg/day and carbamazepine @ 30mg/kg/day), resulted in good seizure control.

DISCUSSION

Reflex epilepsies provide a unique window into the relationship between environmental stimuli and cortical excitability. The present series illustrates how a wide variety of everyday experiences—eating, laughing, being startled, watching television, emotional distress, and changes in lighting—can precipitate seizures in susceptible children.

The most striking observation in this series was the diversity of triggers despite the relatively small number of patients. Two children exhibited startle epilepsy, highlighting the importance of sudden sensory stimulation as a seizure precipitant. Visual triggers were identified in two patients, one with classic photosensitive epilepsy and another with seizures induced by light after darkness.

Equally noteworthy were the less commonly reported forms of reflex epilepsy. Eating epilepsy remains rare worldwide, while emotionally triggered epilepsy is often overlooked because emotional stress is not always recognized as a true seizure trigger. The child with laughing epilepsy further demonstrates the broad spectrum of reflex seizure phenomena encountered in clinical practice.

For all patients, a detailed history from caregivers proved invaluable. In several cases, the diagnosis became apparent only after careful questioning regarding circumstances surrounding seizure onset. This emphasizes that history-taking remains one of the most powerful diagnostic tools in paediatric neurology. The role of specific stimulus leading to precipitation of seizures in the ward witnessed by the treating team nailed the diagnosis.

Beyond medication, trigger identification allowed practical interventions that improved quality of life. Simple measures such as reducing exposure to flashing lights, avoiding sudden startling stimuli, or addressing emotional stress contributed significantly to seizure control.

CONCLUSION

This case series highlights the diverse manifestations of reflex epilepsy in childhood. Although uncommon, reflex epilepsies are likely under recognized because their triggers may appear unrelated to epilepsy at first glance.

The cases highlight the importance of obtaining a thorough and detailed history from patients and caregivers. Identifying a specific trigger can guide diagnosis, facilitate counselling, and enable targeted preventive strategies alongside conventional antiseizure therapy.

Greater awareness of reflex epilepsies among paediatricians and neurologists may lead to earlier diagnosis and better outcomes for affected children.

This series demonstrates that careful trigger focussed history can identify a remarkable broad spectrum of reflex Epilepsies in children, including rare forms such as eating, emotion, laughter etc. Triggered seizures allowing targeted management.

KEY MESSAGES

- Reflex epilepsy can be triggered by a wide range of sensory, emotional, and behavioural stimuli.
- Careful history-taking is often the most important diagnostic tool.
- Trigger identification helps in both diagnosis and management.
- Rare forms such as eating epilepsy, laughing epilepsy, and emotionally induced epilepsy deserve greater clinical attention.
- Combining trigger avoidance with appropriate antiseizure medication can achieve excellent seizure control in many children.

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