Case Report

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Paediatrics Section

# Benign Centrotemporal Spikes in a Female Child with Rolandic Epilepsy: A Case Report

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## ABSTRACT

Benign Epilepsy with Centrotemporal Spikes (BECTS), also known as Rolandic epilepsy, is a common epilepsy syndrome that mainly affects children. It is more prevalent during the preschool and school years, with a higher incidence in males (M:F - 1.5:1). The present case report highlighted a case of a seven-year-old girl with typical Rolandic seizures with specific symptoms such as facial muscle contractions, drooling, and difficulty in speaking, which are common features of BECTS. The patient was immediately started on antiepileptic medication - Syp. Levetiracetam 5 mL BD and tab. clobazam 5 mg OD, due to the frequent nature of the seizures. A follow-up Electroencephalography (EEG) still showed centrotemporal spikes without clinical deterioration. Due to the benign progression, the antiepileptics were discontinued. In the present case report, the authors emphasised the importance of accurate diagnosis, reassurance for families and the need for follow-up in monitoring seizure frequency and severity, as BECTS typically resolves by adolescence and does not lead to long-term cognitive or neurological issues.

**Keywords:** Electroencephalogram, Generalised paroxysms, Paediatric, Seizures

## CASE REPORT

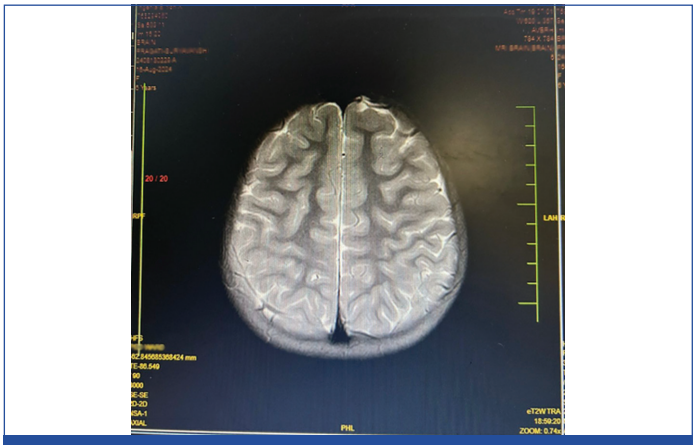
A seven-year-old female with no significant past medical history presented to the department of paediatrics with episodes of twitching on the right side of her face and difficulty in speaking without loss of consciousness, primarily occurring at night. The patient experienced brief, focal motor seizures affecting the right facial muscles, accompanied by drooling and speech arrest for the past three years. Episodes lasted for 1-2 minutes, mostly occurring during sleep or upon waking. The child was born to non-consanguinous parents, first in order of birth, with other siblings normal. No family history of similar complaints and no neurological or comorbid systemic diseases. She was born at full term through normal vaginal delivery without any perinatal problems. The child has been immunised to date.

The child was initially treated on an Outpatient Department (OPD) basis with tab Clobazam 2.5 mg OD, Syp. Levetiracetam 2.5 mL BD and Syp multivitamin 5 mL OD for four months. Following this treatment, the patient was seizure-free for approximately 6-7 months. However, she later experienced another seizure episode, leading to a hospital visit.

Neurological examination was normal between seizures, with no focal neurological deficits. EEG showed characteristic centrotemporal spikes, predominantly over the left hemisphere, with increased activity during drowsiness and sleep [Table/Fig-1]. Magnetic Resonance Imaging (MRI) of the brain was normal, with no structural abnormalities [Table/Fig-2]. Based on preliminary examination, a differential diagnosis of focal structural epilepsy, Nocturnal Frontal Lobe Epilepsy (NFLE), Landau-Kleffner Syndrome (LKS) ruled out due to the absence of language deterioration, cognitive decline, or supporting EEG features, Juvenile Myoclonic Epilepsy (JME) was considered inappropriate due to the patient's younger age and differing seizure type and Psychogenic Non-Epileptic Seizures (PNES) was ruled out given the presence of stereotyped events and electroencephalographic confirmation of epileptic form discharges. Finally, based on the clinical presentation, EEG findings, and absence of underlying structural abnormalities, the patient was diagnosed with unprovoked seizures suggestive of BECTS.

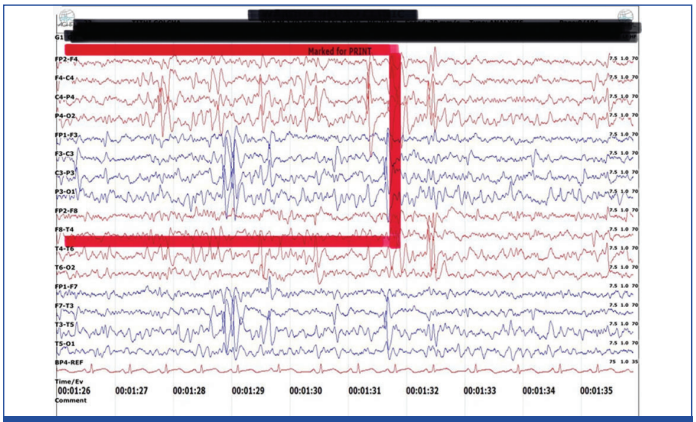
The patient was immediately started on antiepileptic medication - Syp. Levetiracetam 5 mL BD and tab clobazam 5mg OD - due to the frequent nature of the seizures. An EEG revealed centrotemporal spikes and a normal MRI supported the diagnosis of BECTS. The patient's family received counselling and education about the benign nature of the condition, seizure safety precautions, and how to respond during a seizure. A follow-up plan was put in place to monitor seizure frequency and reassess the treatment plan.

**[Table/Fig-1]:** EEG showing centrotemporal spikes.



**[Table/Fig-2]:** MRI showing no structural abnormality.

In the following year, the patient experienced only two more night-time seizures, which did not significantly affect daily activities or cognitive function. A follow-up EEG showed centrotemporal spikes without any clinical deterioration [Table/Fig-3]. Due to the benign progression, the antiepileptic treatment was discontinued, and the family was reassured that the seizures were likely to resolve by adolescence.




**[Table/Fig-3]:** Follow-up EEG showing centrotemporal spikes.

## DISCUSSION

The BECTS, also known as Benign Rolandic epilepsy, typically affects children between the ages of 1 and 14. The incidence of BECTS is 10 to 20 per 100000 children up to the age of 15 years. BECTS accounts for up to 15% of all epilepsy cases in children, making it the most common epilepsy syndrome of childhood [1,2].

Regarding gender predilection, literature reported a predominance in boys with a proportion rate of 6:4 [3]. Recently, Rajeswari S and Jayapriyanjali J reported a case of a four-year-old male child [4]. Srinivas M et al., reported a case of a four-year-old female child with Rolandic seizures who presented with a typical EEG pattern [5]. The child had a history of aggressive behaviour and was diagnosed with Attention-Deficit/Hyperactivity Disorder (ADHD), which was not reported in this case.

In the present case report, EEG showed characteristic centrotemporal spikes, predominantly over the left hemisphere, with increased activity during drowsiness and sleep, which is considered the main characteristic of this condition. BECTS, based on its clinical presentation, can be typical and atypical. Typical Rolandic seizures usually begin between the ages of 3 and 13 [6,7].

These seizures typically originate from the Rolandic area of the brain, near the central sulcus, which is responsible for motor control. Symptoms include twitching, numbness, or tingling on one side of the face, tongue, lips, or throat, as well as drooling or difficulty speaking during the seizure due to facial muscle involvement. Consciousness is usually maintained during these seizures. They often occur during sleep or upon waking up. An EEG typically shows characteristic centrotemporal spikes (sharp waves) in the Rolandic area. The prognosis is that seizures are typically harmless and resolve on their own by adolescence without needing any interventions. Atypical Rolandic seizures may still occur in childhood but can start earlier or persist longer than in typical cases [8,9].

Seizures can be more prolonged and frequent and may generalise into tonic-clonic seizures. Symptoms include involvement of both sides of the face or body (bilateral symptoms) and impairment of consciousness, unlike the typical form, where consciousness is usually preserved. Atypical cases may also involve atypical EEG patterns, such as more diffuse spike-wave discharges [8,9].

In the present case, the girl presented with episodes of twitching on the right side of his face and difficulty speaking without loss of consciousness, primarily occurring at night. The patient experienced brief, focal motor seizures affecting the right facial muscles, accompanied by drooling and speech arrest. BECTS can be associated with cognitive and developmental delays, speech difficulties, or learning challenges.

In both typical and atypical cases, treatment may involve antiepileptic medication, although typical cases often do not require long-term treatment. In cases where seizures are frequent, treatment with Antiepileptic Drugs (AEDs) is necessary. To date, there are no standard guidelines for the management of this condition; however, literature reports the utilisation of levetiracetam, Clobazam and sodium valproate as first-line drugs. Levetiracetam is more preferred due to its efficacy (in seizure control, EEG normalisation, cognition, speech, and behaviour) and fewer side effects. Among those preferred first-line drugs, exposure to high doses of sodium valproate has been shown to be associated with poor cognition and has many other adverse effects. Hence, was avoided in the present report instead clobazam and Levetiracetam was considered [10,11]. With proper guidance and follow-up, most children with BRE will outgrow the condition without lasting neurological consequences. While the seizures can be distressing, the majority of children outgrow them by puberty, and long-term cognitive outcomes are usually excellent.

## CONCLUSION(S)

This case presents the typical clinical course of BECTS in a paediatric patient, emphasising the importance of accurate diagnosis and effective management. The outlook for BECTS is very positive. Most children see their symptoms improve by the time they reach adolescence, and many won't need any antiepileptic medication. The choice to use antiepileptic medication to treat BECTS depends on how often seizures occur, how severe they are, and how they affect the child's quality of life. Close monitoring, family education, and regular, timely follow-up remain critical in the management of BECTS.

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