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# TRANSIENT DYSARTHRIA AND HEMIPARESIS IN AN ADOLESCENT

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## ABSTRACT

An adolescent male in his teens had recurrent episodes of transient left lower limb weakness, persisting for three years. These episodes were consistently triggered by specific movements, such as postural changes or movement initiation, occurring multiple times per day. The patient adapted his behaviour to avoid triggering symptoms. Based on the clinical presentation, paroxysmal kinesigenic dyskinesia was diagnosed. Although dysarthria is uncommon in paroxysmal kinesigenic dyskinesia, its presence in this case highlights the condition's clinical variability. Carbamazepine therapy was initiated, which resulted in a significant reduction in the frequency of episodes. This case underscores the importance of recognising movement-triggered transient motor symptoms, including rare symptoms such as dysarthria, to prevent misdiagnosis and unnecessary testing. Early recognition and treatment can significantly improve outcomes and quality of life in patients with paroxysmal kinesigenic dyskinesia.

## KEYWORDS

Paroxysmal kinesigenic dyskinesia, transient hemiparesis, dysarthria kinesigenic trigger

## LEARNING POINTS

- Paroxysmal kinesigenic dyskinesia is a rare disorder characterised by brief, recurrent episodes of involuntary movements triggered by sudden voluntary motion.
- Atypical symptoms such as dysarthria and hemiparesis in paroxysmal kinesigenic dyskinesia may mimic transient ischaemic attacks or structural brain lesions.
- Anticonvulsants such as carbamazepine are highly effective in treating paroxysmal kinesigenic dyskinesia and can significantly reduce episode frequency and improve quality of life when initiated early.

## INTRODUCTION/BACKGROUND

Paroxysmal kinesigenic dyskinesia (PKD) is a rare neurological disorder characterised by brief episodes of involuntary movements triggered by sudden voluntary motion or the initiation of movement[1]. It is a rare movement disorder, with an estimated prevalence of approximately 1 in 150,000 individuals. It predominantly affects adolescents and young adults, with symptoms often emerging between

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the ages of 5 and 20 years. These episodes typically last for a few seconds to a few minutes and often manifest as dystonia or athetosis, affecting the limbs, face or neck. A distinctive feature of PKD is the frequent involvement of the lower limbs with unilateral symptom distribution[2]. Although dysarthria is uncommon in PKD, its presence may prompt clinicians to consider structural brain lesions or transient ischaemic attacks, particularly in young patients. This report describes an adolescent with PKD presenting with recurrent, movement-induced hemiplegia and dysarthria, an uncommon combination that emphasises the importance of recognising atypical features in PKD for accurate diagnosis and effective treatment.

## CASE DESCRIPTION

A 16-year-old male described frequent and transient weakness of the left lower limb lasting several seconds, which resolved spontaneously, especially when initiating movements such as crossing at a traffic signal, disembarking from a train or rising from a chair. Intermittent dysarthria accompanied these episodes, but there was no loss of consciousness or sensory dysfunction. The patient exhibited a keen awareness of symptom triggers and had consciously adapted his behaviour, such as rising slowly, standing repeatedly before disembarking and gripping handrails to mitigate symptoms. His medical history was unremarkable except for asthma, which was managed with inhaled therapy, and there was no familial predisposition for similar manifestations. A neurological examination revealed intact muscle strength, normal reflexes and no sensory deficits. Electroencephalography, Holter electrocardiogram monitoring and routine laboratory investigations showed no abnormalities. During consultation, his symptoms were consistently triggered by standing up from a seated position, a recognised provoking manoeuvre *(Fig. 1 and Video 1)*. Based on the clinical course and distinct symptomatology, PKD was diagnosed.



*Figure 1. A few seconds after standing up, the patient exhibited dysarthria and weakness of the left lower limb, leaning against the wall for support.*



*Video 1. Paroxysmal kinesigenic dyskinesia. Transient hemiplegia and dysarthria observed upon standing.*
*https://youtu.be/HrSUxGaBjJE*

## DISCUSSION

PKD must be distinguished from epilepsy, orthostatic hypotension, other paroxysmal movement disorders and structural brain lesions. In this case, the presence of transient dysarthria – an atypical but reported feature of PKD – necessitated a thorough differential diagnostic process. Epilepsy was considered but deemed unlikely given the preservation of consciousness during episodes, absence of automatisms and normal findings on interictal electroencephalography.

Orthostatic hypotension was excluded based on the absence of orthostatic symptoms such as dizziness or syncope, and the maintenance of stable vital signs upon postural change. Other subtypes of paroxysmal dyskinesia, including paroxysmal exercise-induced and non-kinesigenic dyskinesias, were ruled out due to the brief duration of symptoms (lasting only a few seconds), their consistent precipitation by sudden voluntary movement and the lack of association with sustained exertion or emotional triggers. Structural brain lesions were considered given the presence of dysarthria. However, the transient nature of the symptoms, in combination with the absence of focal neurological deficits and vascular risk factors, rendered this aetiology unlikely. The reproducibility of symptoms during clinical examination, along with the clear kinesigenic trigger pattern, strongly supported the diagnosis of PKD. The patient was advised to initiate movements gradually and to use handrails as a non-pharmacological measure to prevent the sudden onset of symptoms. Pharmacologically, carbamazepine was administered at a dose of 200 mg per

day, which resulted in a significant reduction in the frequency of episodes. Following treatment initiation, the patient reported a subtle alteration in pitch perception; however, audiologic evaluation by an otolaryngologist revealed no abnormalities, and the symptom did not interfere with daily functioning. Consequently, pharmacologic treatment was continued.

This case presents a rare manifestation of PKD characterised by recurrent episodes of transient hemiparesis and dysarthria. In addition to the classic clinical features of clearly defined triggers and transient symptoms, the ability to consistently induce symptoms during an examination is pivotal for diagnosis. Notably, the movement-induced episodes result in falls, substantially impairing daily activities. In this case in particular, episodes were frequently triggered by sudden movements, leading to a substantial impact on the quality of life. When evaluating patients with recurrent paroxysmal motor disturbances, it is essential to include PKD in the differential diagnosis. A comprehensive history focusing on symptom patterns, duration, triggers and associated features is crucial for accurate diagnosis. Subtypes of paroxysmal dyskinesia include exercise-induced (triggered by sustained activity lasting 5–15 minutes, with episodes persisting for 5–30 minutes), non-kinesigenic (induced by stress or fatigue) and hypnogenic (during sleep) types[3,4]. Differentiating among these subtypes relies on the precipitating triggers and duration of episodes. Anticonvulsants, such as carbamazepine, are often effective in managing PKD[5]. Early diagnosis and treatment can significantly reduce the frequency and severity of these episodes, and in some cases lead to complete remission.

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