

Involuntary anterior abdominal wall movements: A rare presentation of truncal epilepsy partialis continua due to stroke

¹Manisha Sharma *DM Neurology*, ¹Bindu Menon *DM Neurology*, ²Gayatri Manam *MD Radiology*

¹Department of Neurology and ²Radiology, Apollo Speciality Hospital, Pinakini Nagar, Nellore, Andhra Pradesh, India

Abstract

Involuntary truncal movements are a challenging clinical scenario in view of limited documentation and experience, multiple close differentials, and variable aetiological profiles. We present a rare case of epilepsy partialis continua (EPC) of the abdominal musculature secondary to acute ischemic stroke. We discuss the case by elaborating on various clinical differentials for abnormal truncal movements.

Keywords: Abdominal movements, stroke, truncal epilepsy partialis continua

INTRODUCTION

Involuntary truncal movements are usually seen in clinical practice as part of generalized movement disorder but are rare in isolation. Belly dancer's dyskinesias¹, truncal dystonia², propriospinal myoclonus³, focal motor seizures⁴, and intractable hiccups⁵ share a common phenotype of abdominal wall movements. The aetiological spectrum of the abnormal involuntary movements of the anterior abdominal wall is quite variable. There is no formatted or organized literature available so far on isolated involuntary truncal movements. We report a case of 70 years old male admitted with acute right frontoparietal region infarct with truncal epilepsy partialis continua (EPC). It is the first report of its kind from India to the best of our knowledge.

CASE REPORT

A 70-year-old obese male with no comorbidities and a sedentary lifestyle came with two days history of sudden onset weakness of the left half of the body and continuous jerky movements of the left half of the abdomen which were observed by attenders on the next day of symptom onset. On examination, GCS was M6V5E4. Cranial nerves and speech were normal. Mild left hemiparesis was present. There was no evidence of bradykinesia or rigidity. There were abnormal, involuntary, continuous, non-rhythmic, jerky movements of the left anterior abdominal wall

with a frequency of 0.5 Hz (Video 1). There was no abnormal trunk posturing or movements in the right abdominal wall or other body parts. The movements had no aggravating or relieving factors including change in position, action, breath-holding, sensory tricks, and sleep. MRI Brain showed acute ischemic lesions in the right frontal and parietal regions. MRA brain showed mild atheromatous narrowing of all intracranial arteries with moderate stenosis of left PCA (Figure 1). MRI whole spine screening showed no significant compression or cord signal changes. Routine blood investigations including blood glucose, serum electrolytes, renal function tests, and peripheral blood smear were normal. CT chest and abdomen were normal. The patient was managed with antiplatelets, antiepileptics (injectable levetiracetam), and supportive treatment. EEG performed after starting antiepileptics showed no abnormal epileptiform discharges. Involuntary movements persisted continuously for 24 hours and later became intermittent for the next 24 hours and finally subsided.

DISCUSSION

In the context of the present case, the first challenge was to identify the cause of the movement. The final diagnosis of focal motor seizures of the left abdominal musculature was made after excluding other potential differentials. It is important to know salient features of various abdominal/trunk movements.

Address correspondence to: Manisha Sharma, Department of Neurology, Apollo Speciality hospital, Pinakini Nagar, Nellore, Andhra Pradesh, India-524004. Tel: +91-7073488301, email: doc.manishasharma@gmail.com

Date of Submission: 6 September 2021; Date of Acceptance: 19 March 2022

<https://doi.org/10.54029/2022vxa>

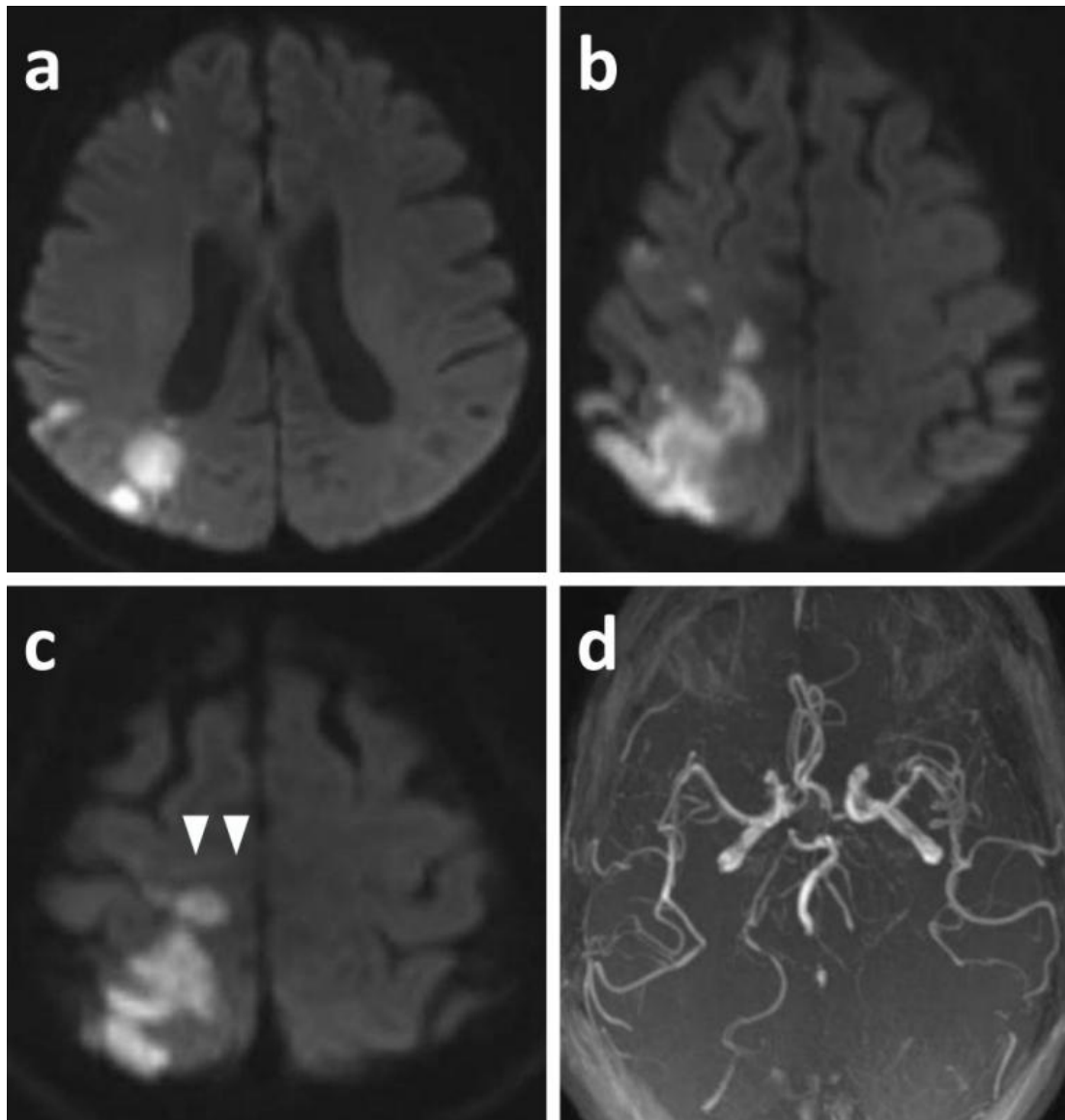


Figure 1. MRI Brain DWI axial images (a-c) show acute infarction in the right frontoparietal region including involvement of trunk area in right parasagittal premotor cortex (c, arrowheads). MRA brain (d) showed mild atheromatous narrowing of all intracranial arteries with moderate stenosis of left PCA.

Belly dancer's dyskinesia

Dyskinesia limited to the anterior abdominal wall is termed as belly dancer's dyskinesia (BDD). It consists of involuntary, repetitive, rhythmic movements of the anterior abdominal wall which may be undulating, fluttering, rolling, or slow writhing with the majority being bilateral and gradual in onset. Such types of movements are not suppressed on breath-holding or distraction.^{1,6} BDD of central origin is usually present during sleep vs peripheral or spinal origin subsides in sleep.⁷ Diagnosis is mainly clinical. Idiopathic,

drug inducement, post-abdominal surgery, pontine or extrapontine myelinolysis, and local trauma are common aetiologies.^{6,8} In the present case, the movements were jerky but undulating, non-rhythmic, unilateral, and acute in onset. Stroke as an aetiological factor is also less likely for BDD.

Truncal dystonia

Truncal dystonia is a less common type of focal dystonia which is frequently observed as part of generalized dystonia. It presents commonly as abnormal posturing like stretching, bending,

or twisting of the trunk; anterior flexion of the trunk is the commonest. The involuntary, writhing movements of the abdominal wall are less common. Action is a significant aggravating factor and sensory tricks like running, placing hands in the pants pockets, or tucking hands in the posterior pants, waist band suppress the movements.^{2,9} So in the context of the present case, absence of abnormal trunk posturing, restriction of movements to the abdominal wall, no aggravation or relief by action and sensory tricks; truncal dystonia is unlikely.

Propriospinal myoclonus

Propriospinal myoclonus has patterned, repetitive, usually flexor arrhythmic brief jerks of the trunk, hips, and knees which are often stimulus sensitive and typically increase when supine in half of the cases.³ So there are phenotypic contradictions apart from the absence of spinal structural lesion in the present case.

Hiccup

Hiccup is the sudden onset of erratic diaphragmatic and intercostal muscle contraction and is immediately followed by laryngeal closure. The abrupt air rush into the lungs elicits a “hic” sound which was absent in the present case. Medulla, periaqueductal grey matter, sub-thalamic nuclei are common CNS areas concerned with hiccups¹⁰ unlike in the present case.

Epilepsia partialis continua

EPC is defined as spontaneous regular or irregular clonic muscular twitching affecting a limited part of the body, occurring for a minimum of one hour, and recurring at intervals of no more than ten seconds. It is cortical in origin with a predilection for distal rather than proximal muscle groups.¹¹ Involvement of abdominal musculature in EPC is rare, the reason being a small topographical representation of the trunk on the motor cortex and its high epileptic threshold.⁴ In the present case, movements were jerky, non-rhythmic, localized to the left half of the abdomen, with no aggravating or relieving factors, favoured focal motor seizures. Seizures persisted for 48 hours, so-called truncal EPC. Seizures were corresponding to right hemisphere stroke involving trunk area in parasagittal premotor strip with a definite temporal relation between the two. There are various reasons accounting for normal EEG in truncal EPC like not qualifying for a minimum of

10 cm² of synchronous cortical activity to record an ictal rhythm, or vertical inhibition secondary to dissociation between epileptiform discharges over the motor cortex and the motor correlates. Previous studies on truncal EPC suggested that owing to the complex organization of the homunculus and some individual variability, epileptogenic zones may not restrict to the somatotopic representation of abdominal musculature (e.g. parasagittal regions, parietal, or frontal lobe).¹² Stroke is one of the commonest causes of EPC. But trunk EPC has different aetiologies like encephalitis¹³, brain tumour surgery¹⁴, SOL¹⁵, cortical dysplasia¹⁶, metastasis¹⁷, and stroke.^{12,18} Areas of the brain involved were frontal lobe^{15,18}, frontoparietal region¹², parieto-occipital sulcus¹⁶, temporal lobe¹⁴, and occipital region.¹⁸

In conclusion, evaluation of involuntary abdominal movements require pattern recognition of the movement. Detailed evaluation regarding the type of movements or posturing, rhythmicity, laterality, frequency, aggravating, and relieving factors; effect of change in position, action, sleep, distractions and sensory tricks on abdominal movements are observations that may assist in the differential diagnosis. Accurate clinical diagnosis will lead to targeted investigations and ensure a better outcome.

DISCLOSURE

Financial support: None

Conflict of interest: None

Video 1: Video shows patient lying supine with abnormal, involuntary, continuous, non-rhythmic, jerky movements of the left anterior abdominal wall with a frequency of 0.5 Hz. ([https://neurology-asia.org/content/27/2/neuroasia-2021-27\(2\)-485-v1.mp4](https://neurology-asia.org/content/27/2/neuroasia-2021-27(2)-485-v1.mp4))

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