



# Localization Value of Versive Seizures—A Video Report

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An 8-year-old, right-handed female with no initial precipitating injuries or family history was presented to the casualty with the history of convulsions. Seizure semiology involves sudden onset of forced head and eye deviation to the left lasting for 20 to 30 seconds with clonic movements of left upper limb. During the episode, the child remained responsive and there was no involvement of other limbs (→ **Fig. 1** and → **Video 1**). Child had a total of four such episodes before hospitalization. General physical and neurological examination was within normal limits. Her fundoscopy was normal. Routine investigations and metabolic screens (kidney function tests, liver function tests, serum calcium and magnesium) were normal. The ictal electroencephalography (EEG) showed right frontal spike and wave discharges with phase reversal at F8 with normal background activity. 3.0-T magnetic resonance imaging of brain with contrast was normal with no evidence of any structural abnormality. She was treated with carbamazepine at dose of 10 mg/kg/d twice daily. The child is on regular follow-up and has not had any seizure recurrences.

## Differential Diagnosis

Since the seizure semiology is subtle, these events can be mistaken for functional disorders like panic attacks. Here fear may manifest as focal seizures, which can be ruled out by electrophysiological studies—EEG/Video EEG. Other less common differentials include migraine with aura, which can be accompanied by visual symptoms. However, in these cases there is significant history of photophobia, phonophobia, and absence of involuntary movements.

Commonly, seizures arising from the insula can mimic frontal, temporal, and parietal lobe seizures. During the seizure onset, these are associated with somatosensory aura. Other conditions, like benign paroxysmal vertigo which is considered as a migraine variant of childhood, are associated with benign paroxysmal torticollis which mimics versive seizures.

Also, nonepileptic seizure is a seizure like event, which is associated with focal seizures and abnormal head and neck movements. Generally, these are distinguished clinically by



**Fig. 1** Deviation of eye toward left side.

## Video 1

Versive seizures. Video showing sudden onset forced head and eye deviation to the left lasting for 20 to 30 seconds with clonic movements of left upper limb. During the episode, the child remained responsive. Online content including video sequences viewable at: <https://www.thieme-connect.com/products/ejournals/html/10.1055/s-0041-1726171>.

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variable rate and direction of jerking and horizontal movements of the head.

## Discussion

Ictal versive head movement is thought to reflect spread of epileptic activity to the frontal eye field (FEF).<sup>1</sup> In epileptic seizures from different brain regions, this spread of epileptic activity may occur sooner or later and after ictal activation of other cortical areas and subsequent spread to the FEF.<sup>2,3</sup> According to the definition by Wyllie et al, only forced, sustained, and unnatural turning of the eyes and head to one side is termed as versive seizure.<sup>4</sup> Contralateral version is considered as one of the most valuable semiological signs for lateralization of epileptogenic zone.<sup>5</sup>

Versive seizures are characterized by sustained neck contraction and has a strong localizing sign. A frontal focus commonly causes a contralateral versive seizure. However, it should be kept in mind that temporal and occipital foci can also cause such movements, but the movements can be either ipsilateral, contralateral, or ipsilateral followed by contralateral. The localization potential of any versive seizures lies in the fact that, extratemporal onset causes early version as compared with temporal onset.<sup>4</sup> Additionally, version with preserved sensorium points to frontal ictal onset.<sup>6</sup> Ipsilateral version is mostly encountered in occipital lobe epilepsy.<sup>7</sup> In our patient, clinical and electrophysiological concordance was noted. The therapeutic relevance of this finding is of importance in the context of epilepsy surgeries.

Epilepsy surgery has become a cardinal treatment alternative in patients with medically refractory epilepsy.

Localization of the epileptogenic zone is pivotal. The tools available for localization are limited. This is beneficial in case of focal epilepsy with imaging being negative. This case thus highlights localization value of focal seizures and its therapeutic implications.

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### Conflict of Interest

None declared.

## References

- 1 Manford M, Fish DR, Shorvon SD. An analysis of clinical seizure patterns and their localizing value in frontal and temporal lobe epilepsies. *Brain* 1996;119(Pt 1):17–40
- 2 Lieb JP, Dasheiff RM, Engel J Jr. Role of the frontal lobes in the propagation of mesial temporal lobe seizures. *Epilepsia* 1991;32(6):822–837
- 3 Götz-Trabert K, Hauck C, Wagner K, Fauser S, Schulze-Bonhage A. Spread of ictal activity in focal epilepsy. *Epilepsia* 2008;49(9):1594–1601
- 4 Wyllie E, Lüders H, Morris HH, Lesser RP, Dinner DS. The lateralizing significance of versive head and eye movements during epileptic seizures. *Neurology* 1986;36(5):606–611
- 5 Baysal-Kirac L, Rémi J, Loesch AM, Hartl E, Vollmar C, Noachtar S. Eye movements differ between ictal ipsilateral and contralateral head turning. *Epilepsy Res* 2015;114:73–77
- 6 McLachlan RS. The significance of head and eye turning in seizures. *Neurology* 1987;37(10):1617–1619
- 7 Usui N, Mihara T, Baba K, et al. Versive seizures in occipital lobe epilepsy: lateralizing value and pathophysiology. *Epilepsy Res* 2011;97(1-2):157–161