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Functional convergence spasm: an unexpected finding in a patient with focal epilepsy

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Abstract. – OBJECTIVE: Convergence spasm is a clinical condition characterized by transient episodes of convergence, miosis and accommodation with strabismus and diplopia and it is usually a manifestation of a functional neurological disorder. We describe a patient with a challenging diagnosis of convergence spasm in the setting of occipital lobe epilepsy.

CASE REPORT: A 52-year-old woman came for the assessment of focal epilepsy due to left occipital cortical dysplasia. During ocular motility tests, she presented with episodes of short duration (~10-30 seconds) of convergent strabismus. Neuropsychological evaluation showed a severe mixed anxiety-depressive disorder with a tendency toward somatization.

RESULTS: Convergence spasm was recorded during video-EEG examination and no ictal activity was present.

CONCLUSIONS: To our knowledge, no other report of functional convergence spasm in the context of focal epilepsy associated with cortical dysplasia has been described in literature.

Key Words:
Psychogenic, Conversion, Non-epileptic, Corticale dysplasia, Seizures.

Introduction

Convergence spasm (also named "spasm of the near reflex") is a clinical condition characterized by transient episodes of convergence, miosis and accommodation with strabismus and diplopia[1]. Convergence spasm usually is a manifestation of a functional neurological disorder, but an association with organic causes has been reported[2,3].

Epileptic seizures may rarely present with paroxysmal gaze deviation[4]. We describe a patient with a challenging diagnosis of functional convergence spasm in the setting of occipital lobe epilepsy.

Case Report

A 52-year-old woman came for evaluation of focal epilepsy due to left occipital cortical dysplasia (Figure 1), well-controlled by levetiracetam 2 gr/day. During ocular motility tests, short-lasting (~10-30 seconds) episodes of convergent strabismus occurred when the patient was asked to continue focusing on the examiner's index finger moving slowly towards the tip of her nose. Ocular motility was normal when the patient was tested with one eye closed (see **Video**). Neurological and ophthalmological examination were otherwise normal. She had never experienced this phenomenon before and denied recent head trauma. Laboratory tests, including anti-acetylcholine receptor antibodies, thyroid hormone levels and cerebrospinal fluid analysis were normal. Neuropsychological evaluation (including the Symptom Checklist-90-R score) showed a severe mixed anxiety-depressive disorder with tendency toward somatization. EEG showed left occipital epileptic abnormalities (Figure 2A). Convergence spasm was recorded during video-EEG examination, and no ictal activity was present before or during the clinical event (Figure 2B). Paroxetine up to 40 mg/day and delorazepam 2 mg/day were given with benefit on depressive and anxiety

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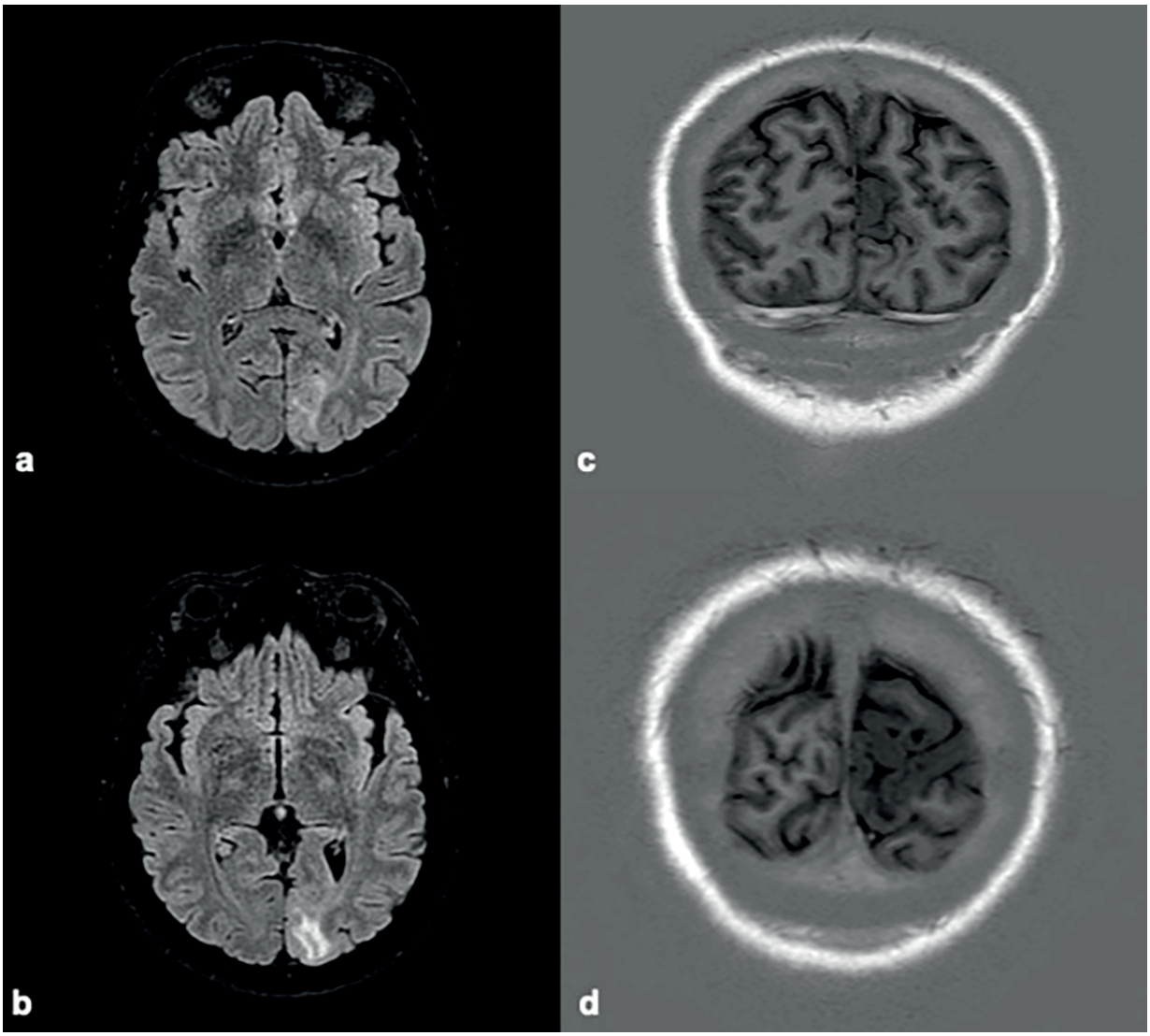

Figure 1. Brain MRI showing an area of abnormal white matter signal intensity with bright signal in axial FLAIR sequences (figure 1, **a** and **b**) and low signal in coronal Inversion Recovery sequences with thickening of cortex and blurring of the grey/white matter junction (figure 1, **c** and **d**) in the left occipital lobe, in keeping with focal cortical dysplasia.

symptoms. At 12-month follow-up, convergence spasm persisted only during ocular motility test.

Discussion

We reported a patient with an unusual coexistence of functional (convergence spasm) and organic (focal epilepsy due to cortical dysplasia) neurologic disorders.

Convergence spasm has usually a psychogenic origin. Fekete et al[5] provoked convergence spasm more commonly in subjects with psychogenic movement disorder (69%) as compared to subjects with non-psychogenic movement disorder (36%) or healthy controls (33%). Convergence spasm has also been described in the setting of organic diseases, such as vertebro-basilar stroke[6], metabolic encephalopathy[7], thyroid diseases[8], head injury[9,10], increased intracranial pressure[11], Wernicke encephalopathy[12] and multiple sclerosis[13-15]. Diagnosis of convergence spasm may be difficult. Misdiagnosis with sixth nerve palsy is common. Scoppetta and Di Gennaro[16] described a patient with convergence spasm misdiagnosed as ocular myasthenia.

Paroxysmal ocular movements, such as nys-

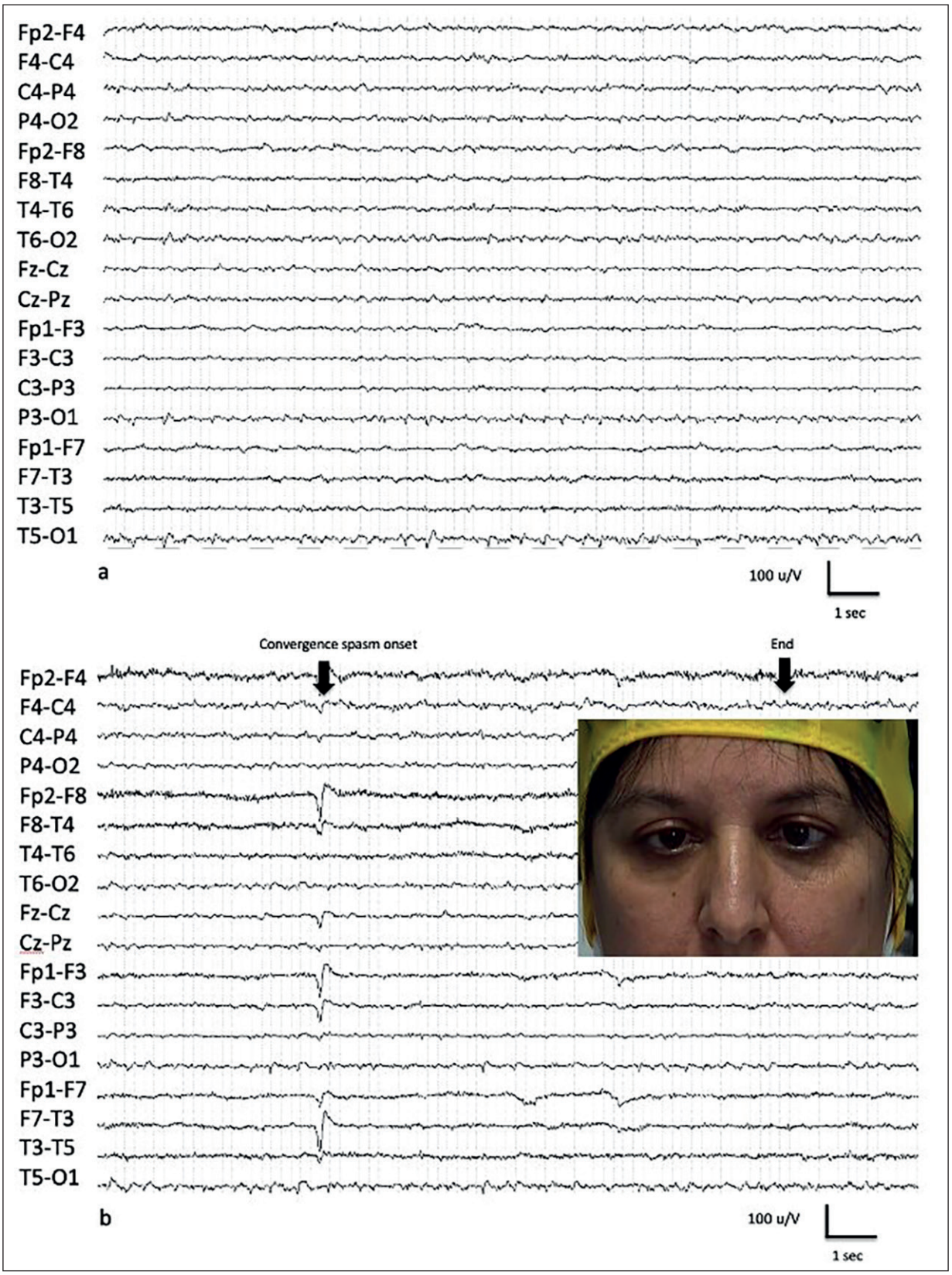

Figure 2. a, Interictal EEG showing epileptic activity over left posterior leads. **b,** Video-EEG showing no ictal activity during convergence spasm.

tagmus and gaze deviations can occur during epileptic seizures and may be accompanied by other symptoms such as head version, dystonic limb posturing or autonomic symptoms[4]. Ictal ocular movements could be explained by the involvement of areas controlling ocular motility (named "eyes fields") including frontal, temporal and parieto-occipital cortices[17]. In our patient, the diagnosis was challenging since convergence spasm was initially believed to be an epileptic phenomenon arising from the occipital cortex. The lack of ictal activity during convergence spasm allowed us to exclude such hypothesis.

Conclusions

Convergence spasm often represents a manifestation of a functional neurological disorder and should promptly be recognized in order to define the appropriate management.

Conflict of Interest
The Authors declare that they have no conflict of interests.

Consent to Participate
The patient signed the informed consent.

Availability of Data and Material
The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

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Authors' Contribution
MG, NS and FE found references and drafted the manuscript. AM and NS read the literature. GS and AU summarized information of the case. CV helped to draft the manuscript. MG disposed figures. FE and AU evaluated the data of patient, designed literature retrieval strategy, and modified the manuscript. All authors read and approved the final manuscript.

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