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A case of symptomatic reflex epilepsy precipitated by bathing

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1. Introduction

By definition, reflex seizures are epileptic events triggered by specific motor, sensory, or cognitive stimulation. Reflex epilepsy is a term reserved for the scenarios in which seizures are exclusively triggered by a specific stimulus like reading or eating [1]. Focal seizures precipitated by somatosensory stimuli often originate in the parietal lobe (somatosensory area II) and present with sensory manifestations usually an ill-localized vague sensation or pain which may proceed to clonic motor movements or other manifestations depending upon the propagation of ictal activity [1,2]. Similarly, myoclonic or focal motor/sensory seizures can be triggered by somatomotor stimuli like sudden unexpected movement in a related form of reflex epilepsy [1]. Hot water epilepsy prevalent in southern India can present with generalized or focal seizures in response to a hot water bath [2]. The following report is the narrative of a young female with an uncommon form of reflex seizure precipitated by bathing which was demonstrated to have an excellent correlation electrographically and on neuroimaging.

2. Case report

A 25-year-old female presented with paroxysmal events precipitated by bathing. A few seconds to a minute after pouring water on her head, she would develop intense itching and unpleasant sensations in the scalp for several minutes. During these episodes, at times, she would have impaired consciousness and dysphasia lasting up to 2 min as reported by her husband. This continued for five years without any response to various forms of therapy. During video telemetry, we were able to replicate the events by pouring water at room temperature as well as ice cold water on her head [Video 1]. Ictal rhythmic delta activity was seen on the right hemisphere predominantly in the temporal region preceding the onset and evolving persistently on the right side [Fig. 1]. Warm water did not precipitate the event. One point five-Tesla magnetic resonance imaging revealed a small subcentimeter T2 hypointense and T1 isointense round lesion in the opercular cortex of left parietal region suggestive of an inflammatory granuloma [Fig. 2]. Advising the patient to have warm water baths was not feasible as she was unable to follow the instruction regularly. Total seizure freedom was achieved with 600 mg daily of oxcarbazepine.

3. Discussion

Water acting as a trigger for reflex epilepsy has been virtually unheard of except for the well-known entity of hot water epilepsy (HWE). Hot water epilepsy is an idiopathic sensory reflex epilepsy usually associated with a pleasurable feeling which leads to self-induction of seizures [2]. Paradoxically, the present patient exhibited neither of these but instead a very unpleasant sensation in response to water at room temperature or cold water. The possible mechanism in her is that water at cold temperature stimulates the somatosensory area II located in the posterior parietal operculum where the ictal activity is generated leading to abnormal sensations [3]. Later, the temporal structures are recruited resulting in the semiology of a focal seizure with impaired consciousness. According to Rui-Sala Padró et al. in their series of six patients with reflex epilepsies provoked by cutaneous stimuli, washing the mouth using cold water was identified in one of them as the consistent trigger [4].

The electroradiological dissociation could be explained on the basis of rich connections producing false lateralization of the ictal activity to the opposite hemisphere. It is also interesting to note that anatomical correlation for lesional reflex epilepsy is more robust than in idiopathic/nonstructural epilepsies as exemplified in the present case where a small lesion was so precisely located in this reflexogenic cortex. In HWE, the temporal and parietal cortexes have recently been implicated after ictal SPECT data showed hypermetabolism in the said areas [5]. Focal lesions like cortical dysplasia of the parietal lobe can present with HWE. Another well established phenomenon in this form of reflex epilepsy is the presence of a trigger zone, the stimulation of which by the specific stimulus results in a seizure [1,2]. This aspect is also supported by the history as the episodes were exclusively in response to a head and not a body bath.

4. Conclusion

To the best of our knowledge, this is the first ever report of a symptomatic reflex epilepsy of focal semiology precipitated by the singular stimulus of a head bath. The role of the parietal lobe in this pattern of reflex seizures is emphasized through this illustrative case with supporting discussion.

Supplementary data to this article can be found online at http://dx.doi.org/10.1016/j.ebcr.2016.08.006.

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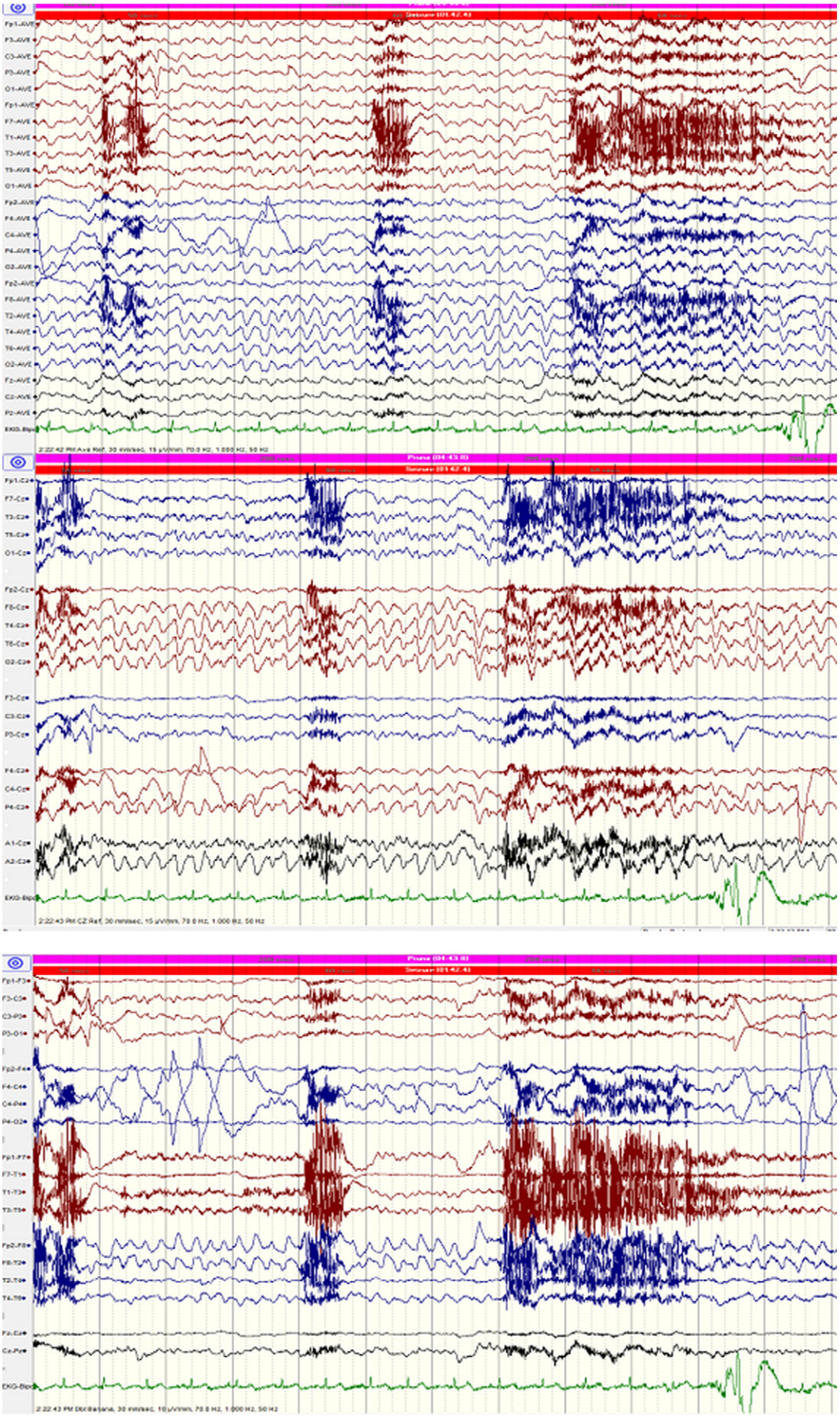

Fig. 1. 32-Channel ictal recording (common referential average/bipolar and Cz reference montages) showing diffuse rhythmic delta better expressed on the right hemisphere.

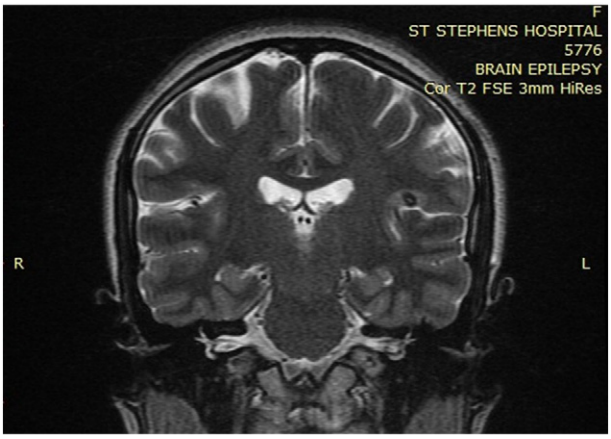

Fig. 2. 1.5-T MRI coronal T2 showing hypointense round lesion (4.5 mg) with an isointense center located in the posterior parietal operculum.

Permissions

Permission was obtained from the director and hospital administration of St. Stephen's Hospital, New Delhi-54. Informed consent was obtained from the patient and family.

Conflicting interests

We have no conflicting interests with any persons or organizations.

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