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A Case Report of a Diagnosis Challenge: Hot Water Epilepsy and Anxiety Disorder

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1. Introduction

Reflex epilepsy is a specific form of epilepsy, distinguished by the occurrence of seizures in response to specific external stimuli [1]. A notable example of this condition is what is known as Hot Water Epilepsy(HWE), which is characterized by the occurrence of seizures triggered by the pouring of hot water. This particular form of epilepsy was first documented in 1945, with subsequent reports of cases being reported in the years that followed [2-5].

A number of case series have been conducted, particularly in India, and it has been reported that 3.6% of all epilepsies have been documented [6]. However, this rate is significantly lower in Western countries. In such cases, genetics and bathing habits may have a role to play [5].Whilst the condition was categorized as belonging to the reflex epilepsy group in the Ilae classification, it is not specifically categorized in the new classification [8.9]. In our case, the diagnostic difficulty is emphasized.

2. Case Presentation

A 40-year-old male patient was admitted to the outpatient clinic with the complaint of recurrent episodes of loss of consciousness. These episodes had been present for a period of 8 years, with an average frequency of once every 6 months. The occurrence of these episodes was always limited to the bathroom. The patient stated that he felt cold in the bathroom, and that pouring hot water resulted in loss of consciousness. The duration of these attacks was no more than 5 minutes.

The patient exhibited no comorbidities or concurrent medication use. There was no family history of febrile convulsions, and no such history was reported by the patient.

Carbamazepine was initiated in consideration of the patient's seizure symptoms. However, at a subsequent consultation at an alternate neurology clinic, it was determined that the diagnosis of epilepsy was inaccurate. Consequently, the patient elected to discontinue the carbamazepine treatment.

Prior to the occurrence of these episodes, the patient would emit a series of audible yet meaningless utterances, followed by a loss of consciousness. During this period of unresponsiveness to his relatives, he exhibited a degree of awareness of the ambient sounds. The patient's family members would approach the bathroom and physically intervene due to the auditory distress preceding the episodes.

The patient's family expressed concern regarding the patient's behaviour, leading them to monitor his bathing habits. They attributed these episodes to behavioural concerns and recommended that the patient seek consultation at a psychiatric clinic. Upon psychiatric evaluation, the patient exhibited meticulous attention to cleanliness and order, characteristics indicative of a perfectionist and detail-oriented personality. The evaluation concluded that the patient met the diagnostic criteria for obsessive personality traits and anxiety disorder. Furthermore, upon detailed inquiry into the nature of the patient's attacks, it was revealed that he derived a sense of pleasure from the act of pouring hot water over his body, a practice he engaged in prior to the onset of the aforementioned attacks. The subject stated that the episodes of acute discomfort occurred exclusively in the context of water being poured over his

head. They were not triggered by baths elsewhere, and occurred only in the context of his own home. He stated that he had a particular affinity for hot water since childhood, when his mother bathed him. As an adult, he continued to bathe with hot water to experience this sensation, but fainting attacks were added. He attempted to avoid seizures by not pouring water over his head.

In view of these behavioural features, sertraline was initiated, with the dosage being progressively increased to 200 mg/day in consideration of the potential for psychogenic seizures and concomitant anxiety disorder. The patient exhibited a reduction in anxiety levels; however, there was no alteration in the frequency of attacks. The patient had already succeeded in diminishing the intensity of his attacks through behavioural modifications. A re-examination of the patient's history was conducted upon his presentation to the neurology clinic, as it potentially manifested symptoms consistent with the condition known as hot water epilepsy. It was ascertained that the patient had experienced a nocturnal seizure of a generalised nature during sleep. A routine Electroencephalogram (EEG) revealed no abnormalities (Figure 1,2), while an MRI scan revealed the presence of a right temporal arachnoid cyst (Figure 3,4).

Following the observation of an attack video, it was noted that the patient had collapsed unconscious on the bathroom floor, exhibited a blank stare, drooled from the mouth, and remained unresponsive to external stimuli.

The patient was diagnosed with hot water epilepsy, and treatment with carbamazepine 400 mg/day was organised, given the patient's history of nocturnal seizures, despite the infrequency of such attacks.

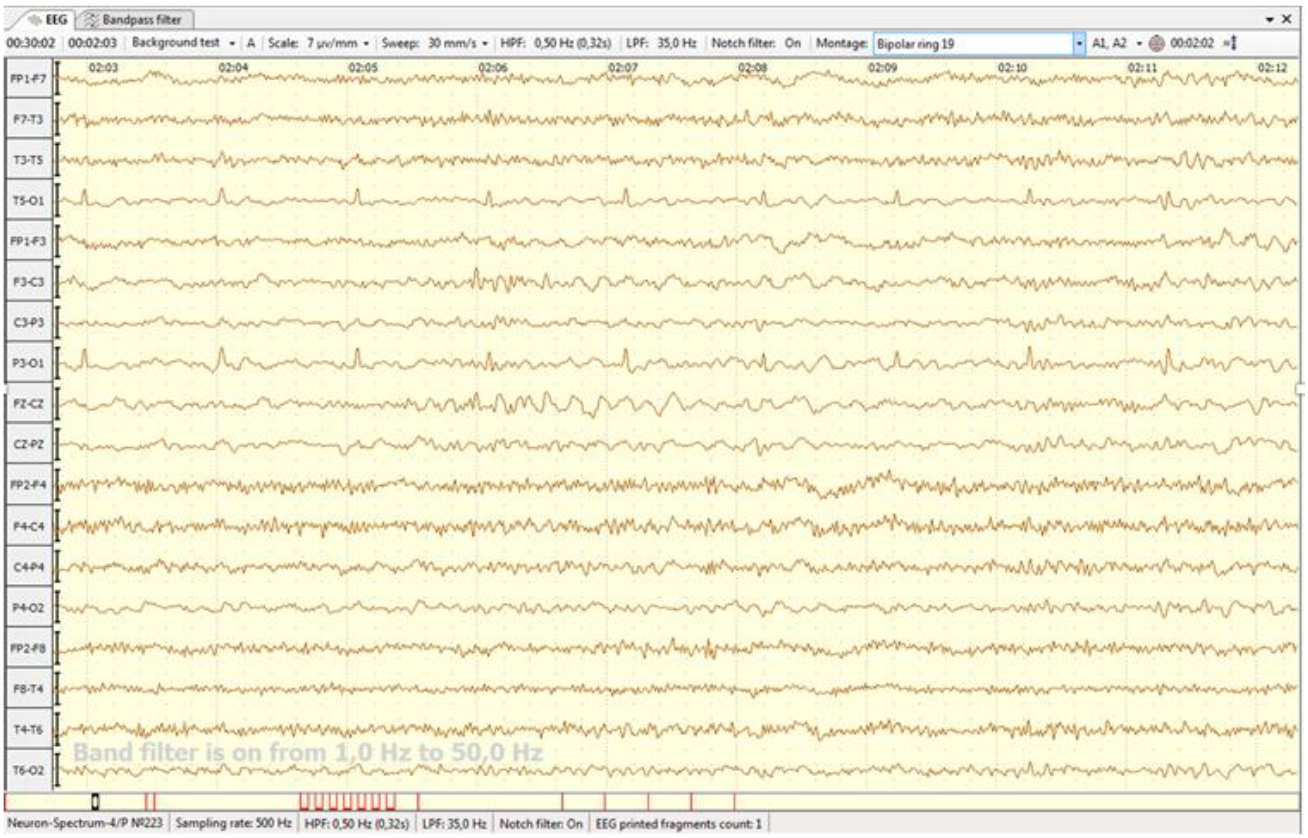

Figure 1: Patient's EEG

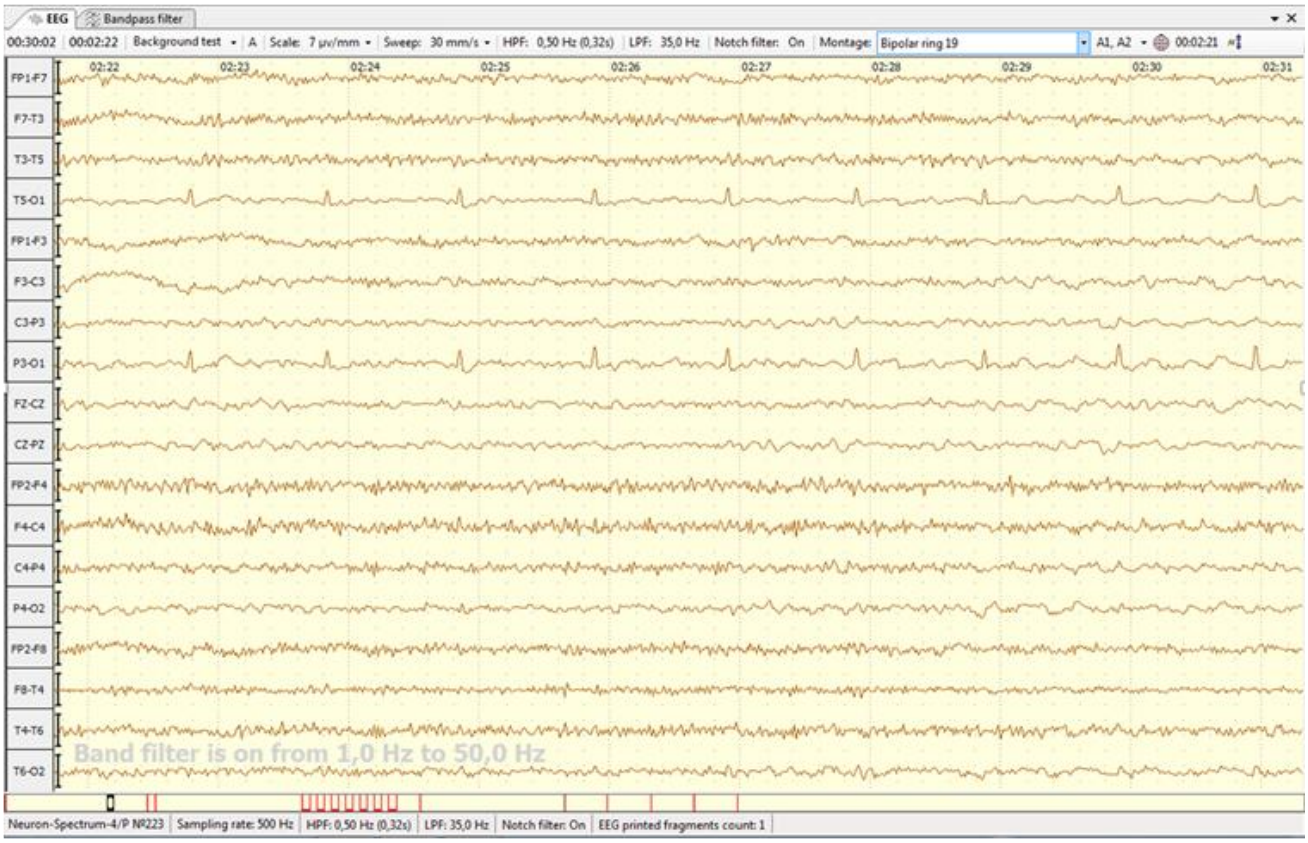

Figure 2: Patient's EEG

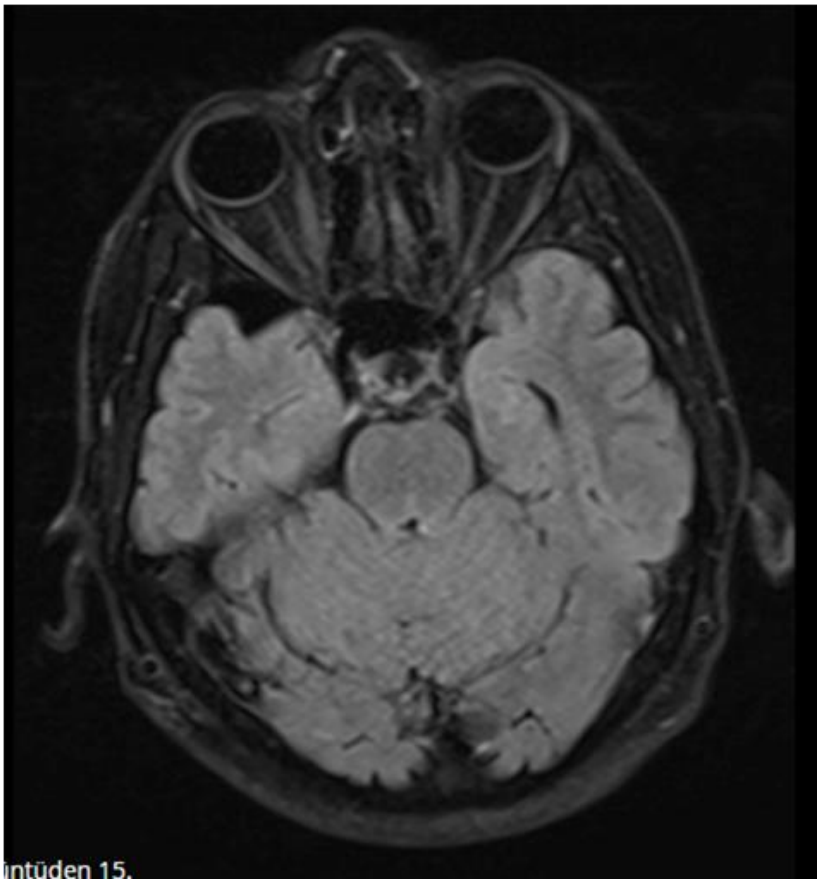

Figure 3: Patient's MRI, FLAIR

3. Discussion

A review of the literature on HWE reveals this rare form of epilepsy, which is characterised by behavioural symptoms. It is predominantly observed as focal seizures, with a higher prevalence in males. While the onset is typically in the first decade, spontaneous seizures have also been reported in later ages.The inability to record seizures in this condition is attributed to the unavailability of conditions that can be applied in a laboratory setting. In half of the patients, focal epileptiform abnormalities, predominantly in temporal regions, were observed on interictal EEGs, and imaging findings were normal. Considering these demographic and laboratory features, our case is consistent with the literature [6,7].

This form of epilepsy has been documented predominantly within Eastern societies. The underlying cause of this phenomenon is hypothesised to be predominantly associated with the practice of bathing in hotter water.

A notable observation within the extant literature pertains to the propensity of patients with this condition to self-induce their seizures. Indeed, patients have been observed to engage in repetitive, compulsive behaviour that results in the triggering of their seizures. However, there remains a lack of consensus regarding the role of this compulsion behaviour as a component of the disease itself [7].

As has been documented in previous publications, patients do not regard it as necessary or avoid talking about these inducing behaviours.This type of epilepsy is in fact self-limiting and has a very good prognosis, and is sometimes not a condition that requires treatment. However, patients erroneously label themselves with psychiatric diagnoses and avoid disclosing these symptoms to the doctor, which delays the diagnosis. The presence of accompanying psychiatric symptoms created an additional difficulty in the case under consideration.There was no significant difference in psychiatric comorbidity in the reported cases. Furthermore, given that spontaneous and nocturnal seizures may occur in some of these patients, their diagnosis and subsequent follow-up are of paramount importance.

4. Conclusion

A detailed history can facilitate differentiation of HWE from syncope and other seizure events.The majority of patients exhibit partial seizure symptoms, which distinguishes HWE from other reflex epilepsies, such as startle epilepsy, as it does not occur immediately after stimuli, but has a longer latency period. The triggering event is complex but not unexpected and sometimes even desirable, involving the contact of water on the skin, the temperature of the water and the environment of the bath. It is important to note that hot water seizures are distinct from other condition-related seizures that persist over years and are triggered by an external stimulus.Our study revealed no additional pathology in HWE, similar to other idiopathic epilepsies.In conclusion, HWE is a benign condition with a clear definition. The partial form of reflex epilepsy shares similarities with primary reading epilepsy in terms of triggering events and the longer latency observed. Consequently, we propose that HWE should be classified distinctly among epileptic syndromes, potentially within the category of idiopathic partial stimulus epilepsies.

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