International Journal of Advances in Medicine
Dsouza G et al. Int J Adv Med. 2025 Jan;12(1):128-130
http://www.ijmedicine.com
pISSN 2349-3925 | eISSN 2349-3933
DOI: https://dx.doi.org/10.18203/2349-3933.ijam20243823

Case Report

Seizures in the shower: a case report on hot water epilepsy

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Received: 12 November 2024
Revised: 09 December
Accepted: 10 December 2024

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ABSTRACT

An uncommon kind of reflex epilepsy called hot water epilepsy is brought on by bathing in or being near hot water. In this case study, a 43-year-old man with a history of head trauma experiences seizures brought on by exposure to hot water. Concurrent symptoms include giddiness. The best course of treatment for HWE typically involves avoiding lukewarm water in the first place and utilizing either standard AEDs or benzodiazepines for intermittent oral prophylaxis.

Keywords: Epilepsy, Seizures, Hot water epilepsy, Reflex epilepsy

INTRODUCTION

Hot water epilepsy (HWE) is a term used to describe epilepsy that is brought on by hot water while taking a bath also called water immersion epilepsy or bathing epilepsy.[1-3] Bathing in hot water consistently triggers HWE, a type of reflex epilepsy. For this type of reflex epilepsy, a certain thermal cutaneous stimulation is necessary.[4] Hot water baths have been linked to both partial and generalized tonic seizures; however, primary generalized tonic-clonic seizures account for one-third of all instances recorded.[5] Southern India has produced numerous reports of HWE, notably the largest cohort of 279 HWE cases.[6]

Typically, seizures begin focally, impair awareness, and last anywhere from 30 seconds to three minutes.[7] In HWE, seizures may appear early in the bath or late in the session. A notable percentage of patients with HWE have also been observed to experience febrile seizures and spontaneous nonreflex epilepsy.[8] Despite reports from all around the world, the majority of documented cases have come from Southern India, suggesting that it is more common there.[6,9] The majority of cases of hot water epilepsy occur before the age of 20, and they are typically connected to typical psychomotor development.[9] Despite being uncommon, this ailment presents special difficulties in diagnosis and treatment because of its particular, frequently disregarded trigger. For the purpose of raising clinical awareness and optimizing patient outcomes, it is essential to comprehend and record such situations. This report describes a case of a 43-year-old male who only had repeated seizures after taking a hot bath. Contributing to the small amount of research on hot water epilepsy, this case emphasizes the significance of taking environmental triggers into account when evaluating epileptic episodes.

CASE REPORT

A 43-year-old male arrived at the outpatient department complaining of giddiness episodes during the previous two weeks. His medical history included that he is hypertensive but not on medications and serious head trauma that he had suffered a year earlier, following which he experienced seizures. According to the patient, taking a bath in hot water would always set off his seizures. The patient was asymptomatic until a year ago when he suffered injuries in a vehicle accident and sustained a brain injury. His first seizure, a generalized one, happened after the injury. The patient eventually discovered that hot water exposure was a specific trigger for his seizures, which

started nearly instantly when he came into contact with it when he took bath. He gave a description of a typical sequence in which he would first have dizziness and an unexplained feeling in his brain, then lose consciousness and have widespread convulsions that lasted for two or three minutes. For several minutes, there was a postictal phase that was marked by drowsiness headaches, and confusion. He had experienced 2 episodes in a week during the last 2 months.

Given the patient's present symptoms, which include fever with giddiness, loose stools, burning micturition, cough with expectoration, and respiratory distress, a comprehensive respiratory and infectious workup was started. Further neurological testing was necessary because of the possible connection between hot water exposure and seizure activity, which suggested hot water epilepsy. Upon assessment, the patient's vital signs were stable and afebrile. On lung auscultation, he wheezed a little bit, but there were no specific neurological abnormalities. During the examination, the patient showed no signs of severe distress and was completely cooperative and oriented.

Routine blood testing revealed that the results of the liver and kidney function tests, electrolytes, and total blood count were within normal ranges. NCCT of brain showed bilateral inferior frontal gliosis probably due to prior trauma, mild diffuse cerebral and cerebellar atrophy was noted. Hot water epilepsy was diagnosed based on the patient's medical history, clinical presentation, and investigative results. Appropriate medications and supportive care were used to treat the underlying cough and fever, which were diagnosed as the result of an acute respiratory infection, most likely bronchitis.

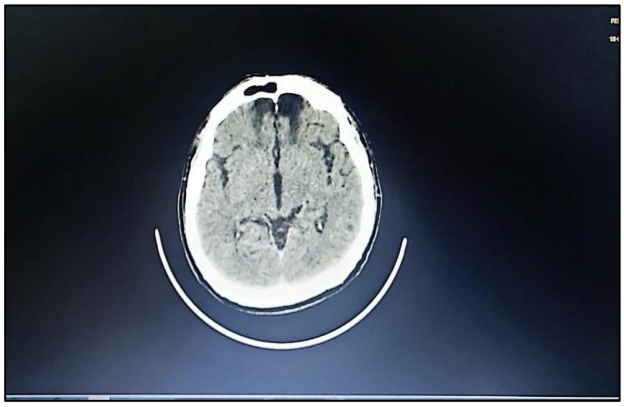

Figure 1: B/L Inferior frontal gliosis.

It was recommended that the patient take lukewarm baths instead of ones that were hot. With an emphasis on controlling the reflex seizures, antiepileptic medication was optimized. The patient was prescribed 500 mg of levetiracetam twice a day, with the intention of gradually increasing the amount in accordance with the patient's response. The patient was also informed about the nature of his ailment and given advice on how to prevent seizures.

Four weeks later, during a follow-up appointment, the patient reported no further seizures, especially after taking the advice to stay out of the hot water. He reported better overall health and that his fever and cough had subsided.

DISCUSSION

Reflex epilepsy known as "hot-water epilepsy" is a kind that develops when bathing in hot water, especially on the head area. Allen originally wrote about it in New Zealand in 1945.[10] While uncommon in most regions of the world, reports from India indicate an incidence of up to 255 per 100,000 people and familial clustering in up to 26.8% of cases, indicating a possible hereditary foundation.[8,9] One type of reflex epilepsies caused by bathing in hot water and saturating the head, face, neck, or trunk is called hot water epilepsy.[11]

HWE's physiopathology is still unknown, but it may be connected to injury to the hypothalamic thermoregulation centre. According to Satishchandra et al hyperthermic kindling may contribute to the development of HWE in people.[6] Patients with HWE are probably hypersensitive to the sudden temperature rise that occurs during hot water baths, which can cause seizures, and they also may have defective thermoregulation systems.

Further research is helping to clarify the concept that this aberrant thermoregulation is genetically determined.[8] The most common symptom of hot water epilepsy is a focal seizure, which is rarely generalizable. The initial signs and symptoms are speechless, feeling scared, auditory and visual hallucinations, and intricate automatisms. Even in the absence of exposure to hot water, they can develop spontaneous seizures.[9] Hot water is the trigger for HWE, whereas bathing epilepsy is characterized by the triggering of seizures by immersion in normothermic water. Appavu et al, noted that taking the body out of the water causes an early type of bathing epilepsy.[13] While 20% to 25% of patients typically have epileptiform abnormalities in the temporal area, interictal EEG is typically normal.[8]

SPECT investigations showed that in three individuals (on the left, and in two on the right), there was ictal hypermetabolic uptake in the medial temporal regions and hypothalamus, which propagated to the opposite hemisphere.[14] Another plausible approach, based on physiological principles, could involve an impaired inhibitory effect on afferent bursts of somatosensory stimuli, such hot or warm water sprayed over a sizable portion of the body.

Given the above-mentioned method of occurrence, HWE may be similar to febrile seizures in this setting, even if fever-induced fits did not significantly affect these patients.[15] Research has demonstrated that lowering the water's temperature can effectively manage HWE. However, AEDs such as sodium valproate, carbamazepine, lamotrigine, phenytoin, phenobarbital, oxcarbazepine, and levetiracetam must be used to treat

one-third of the patients.[8] A preventive dosage of clobazam can be taken once before bathing in patients with hot water epilepsy.[18]

CONCLUSION

A rare type of reflex epilepsy brought on by exposure to hot water, hot water epilepsy is highlighted in this case along with its diagnosis and treatment. It is possible that the patient was predisposed to this illness due to his history of gliosis following traumatic brain injury. A thorough evaluation, which included imaging scans, a neurological examination, and a full history, made the diagnosis easier.

Treatment with supportive care, lifestyle changes, and antiepileptic medication successfully reduced seizures and enhanced the patient's quality of life. This case emphasises the significance of identifying uncommon triggers for epilepsy, such as exposure to hot water. It highlights how important a thorough medical history is in identifying reflex epilepsy, which would otherwise go unnoticed. Furthermore, this patient's effective treatment shows that specialised therapeutic approaches, such as patient education and preventative care, can greatly reduce seizure frequency and enhance results. In the larger framework of epilepsy care, this instance advances knowledge of reflex epilepsy triggers and emphasises the necessity of continued investigation into customised treatment strategies. The significance of teaching patients and medical professionals how to manage lifestyle and environmental factors in epilepsy is also emphasised.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

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Cite this article as: Dsouza G, Shruti H. Seizures in the shower: a case report on hot water epilepsy Int J Adv Med 2025;12:128-30.