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Ear-Plugging Semiology in Epilepsy: A Rare Case Report

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Abstract

Clinical history is of extreme importance in epilepsy to plan out the management of the patient. Semiology of epilepsy especially at the onset helps us localize the site of onset of the seizure. Ear-plugging semiology in epilepsy, although reported in the literature, is still a rare phenomenon. We hereby report a video of a patient having an ear-plugging epilepsy semiology for better understanding.

Keywords

- ear-plugging semiology
- focal dyscognitive seizure
- semiology in epilepsy

Introduction

The different signs and symptoms that an epileptic patient narrates often help us to localize the site of seizure onset or altered electrical activity in the brain. Hughlings Jackson, in 1868, describing the Jacksonian march originating from the primary motor cortex, says "There will be all varieties of epilepsy, according to the exact position of gray matter altered."[1] Ear-plugging seizures, although rarely reported in the literature, indicate an auditory aura and may also lateralize seizure onset to the contralateral superior temporal lobe auditory cortex.[2] A good clinical history from the onset of the symptoms, along with a careful analysis of the semiology and video telemetry, helps us in the localization of epilepsy.[2,3]

We hereby report the case of an 18-year-old man with a history of unsafe chronic suppurative otitis media and mastoidectomy surgery who is now presenting with stereotyped behaviors of ear-plugging epilepsy.

Case Report

An 18-year-old man reported to the emergency room with symptoms of severe ear pain (otalgia) and abnormal body movements or posturing of the hands and head for 2 days. These abnormal movements have been reported as aggressive behaviors of pulling, plucking, or poking of his right ear or rubbing his ear across his shoulder. These behaviors were intermittent, repetitive, and stereotypical, occurring at every 4- to 5-hour intervals lasting for more than 3 minutes. The patient was conscious but aggressive at most times until the day of admission when he stopped responding to his family members. There was no history of self-talking, hearing voices, delusion, or hallucination; there was no history of fever, ear discharge, or headache. The patient had a history of unsafe chronic suppurative otitis media, for which a mastoidectomy was done about a year ago. There was no history of seizure, behavioral issue, or loss of consciousness, with the first event reported 2 days before admission.

On examination, the patient's vitals were stable except for tachycardia; he was conscious with spontaneous eye-opening but not following commands. The eyes had a gaze deviation to the right side but were intermittent. Abnormal body movement was noted as the patient was trying to pull and plug his right ear, plucking his pinnacle with his right hand with a sense of relief after plugging his fingers into the ear (►**Video 1**). Power could not be assessed, but he was moving all four of his limbs with a plantar extensor and showed no sign of meningeal irritation.

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Video 1

Video of a patient showing a stereotypical behavior of plucking and plugging his right ear with his right hand. The patient is conscious but not responding to his surroundings. Online content including video sequences viewable at: https://www.thieme-connect.com/products/ejournals/html/10.1055/s-0044-1788995.

The patient was clinically diagnosed as having a focal dyscognitive seizure and showed a good response to intravenous benzodiazepines and lacosamide antiepileptic used at a dose of 200 mg twice a day. An ear, nose, and throat (ENT) consult was taken, which did not reveal any local abnormalities. The patient was then worked up for an etiological diagnosis and confirmation of localization. An urgent computed tomography (CT) of the brain and mastoid was done, which was normal. Routine investigation with viral marker was negative and normal. The electroencephalogram (EEG)

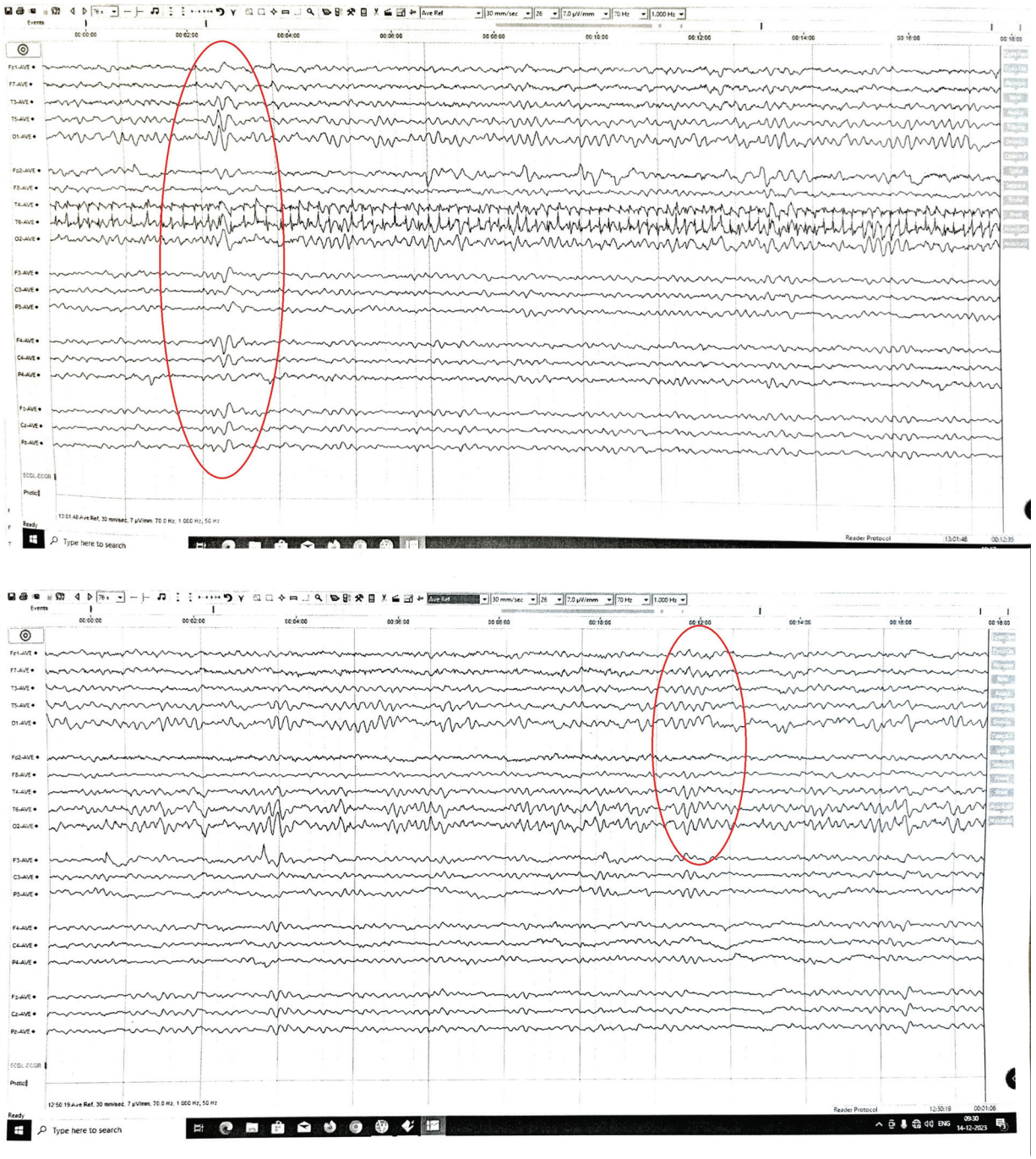

Fig. 1 Awake electroencephalogram (EEG) showing focal spike and sharp transient seen from both temporal leads with secondary generalization.

was done in two settings. The first EEG did not add to the information because of movement artifacts. The second EEG was done in a neurology laboratory with video EEG. There was no event recorded in the video, but the EEG revealed a few focal transient sharp and spike waves noted in both hemispheres, with a predominance in the right temporal leads with secondary spread to other leads (►**Fig. 1**). A 1.5-T magnetic resonance imaging (MRI) of the brain was done with the epilepsy protocol in mind, but the neuroimaging was normal, showing no focal or other parenchyma lesions. On evaluation, the cerebrospinal fluid (CSF) examination showed normal CSF protein and sugar with less than two cells, ruling out infective etiology. Further autoimmune workup in the form of serum anti-N-methyl-d-aspartate (NMDA) and serum antinuclear antibodies (ANA) was negative. The patient was discharged on lacosamide 200 mg twice a day and on regular follow-up with no recurrence of seizures for the last 6 months.

Discussion

A focal dyscognitive seizure may present with inappropriate automatic behaviors, but it does impair awareness or consciousness, and the person may be unable to respond to questions. The clinical presentation may vary depending on the site of the lesion.

Temporal lobe seizures are one of the most studied areas, as these patients usually form a huge number among the surgical candidates for epilepsy. The clinical semiology varies from a dreamy state known as uncinate fits to psychomotor epilepsy, automatism, nose rubbing, and different types of auras to a psychic phenomenon known as experiential hallucinations.[4,5]

Epilepsy with auditory features (EAF) has received its importance in the new International League Against Epilepsy (ILAE) classification. Auditory illusion and hallucination (elementary and complex) are also specific to the temporal lobe and are well known.[5,6] The unformed auditory hallucination usually localizes in the superior temporal neocortex and the temporal operculum.

An ear-plugging seizure is also implicated as a sensory seizure with auditory hallucinations or auras localizing to the contralateral temporal lobe auditory cortex. Stereotypical behaviors in this particular semiology are usually reported in children with poor communication skills.[2] It has been proposed that, in similarity to nose rubbing due to olfactory hallucination, ear plugging is just a motor response to auditory hallucination.[7]

A videotape of the seizure or a video EEG telemetry helps us to identify the semiology and clinically correlate with the EEG and neuroimaging. Classifying semiology is important to further understand and interpret other related investigations and also decide on the treatment protocol.

Conclusion

Ear-plugging seizure is a semiology related to temporal lobe localization explained by motor manifestations in response to auditory hallucinations. A video EEG or simple bedside video may help us to identify the semiology and further plan the management of the patient accordingly.

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Conflict of Interest
None declared.

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