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Temporal Lobe Epilepsy and Right Amygdala Enlargement

Kyaw Thura^{1*}, Ohnmar Saw², Naing Ko Soe³, Myint Thein Naing⁴, Hein Zaw Zaw⁵, Aung Myo Oo⁶, Su Su San⁷, Pyi Thar⁸, Nwe Nwe Win⁹, Myo Min Zin¹⁰

^{1, 2, 5, 7, 8, 9} Department of Neurology, No (2) Military hospital, 500bedded, ^{3, 4, 6} Department of Neurology, Defence Services Medical Academy, ¹⁰Department of Radiology, Kan Thar Yar Hospital

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***Corresponding author:** Kyaw Thura

Department of Neurology, No (2) Military hospital, 500 bedded, 2,3 Department of Neurology, Defence Services Medical Academy, 9Department of Radiology, Kan Thar Yar Hospital

Abstract

A 49-year-old man with a long-standing history of seizures and prominent psychiatric symptoms—including uncontrollable laughing, crying, and visual hallucinations—presented with recurrent events beginning in 2019. His seizures, initially attributed to alcohol withdrawal, persisted despite cessation of alcohol and occurred 1–2 times per month. Typical events consisted of loss of eye contact, staring spells, visual aura, impaired awareness, and occasional secondary generalization. EEG recordings were normal; however, MRI performed in 2024 revealed enlargement of the right amygdala. The findings are consistent with Temporal Lobe Epilepsy (TLE) related to right amygdala enlargement, a relatively uncommon subtype that may occur without hippocampal sclerosis and is frequently associated with emotional or behavioural disturbances.

Keywords: amygdala enlargement, temporal lobe epilepsy, psychiatric symptoms, visual aura

Introduction

Temporal lobe epilepsy (TLE) is a common form of epilepsy that often involves the hippocampus, but less frequently, it can present with unique features such as amygdala enlargement. This enlargement may suggest a distinct subtype of TLE, one without the typical hippocampal sclerosis. In some cases, patients may experience psychiatric symptoms, such as uncontrollable laughter,

crying, and hallucinations, in addition to the usual seizure activity. Here, we present the case of a 49-year-old man with recurrent seizures and psychiatric symptoms, who was diagnosed with TLE associated with amygdala enlargement, a relatively rare and intriguing clinical presentation.

Case presentation

A 49 year-old man presented with a series of psychiatric symptoms, including uncontrollable laughing and crying lasting about 15 minutes followed by a period of falling asleep in November, 2024. He also experienced visual hallucination in terms of seeing Buddha images. Due to these psychotic episodes, the patient sought help from a mental health specialist and was subsequently referred to Neurologist at No (2) Military Hospital, 500 bedded.

During hospitalization, the patient was started on antipsychotic medications and mood stabilizers. While taking medications, the patient developed seizures occurring once daily at bedtime. The seizures were described as bilateral, asymmetrical tonic-clonic movements with impaired awareness, and they were accompanied by tongue biting, urinary incontinence, and post-ictal confusion.

The patient had a documented history of seizures dating back to 2019. His seizures were characterized by loss of eye contact, staring, complex visual aura with impaired awareness an interruption of activities, such as driving, followed by a bilateral tonic-clonic seizure. Initially, the seizures were thought to be related to alcohol withdrawal (referred to as "rum fits") when he stopped drinking alcohol. The patient had no significant comorbidities or risk factors identified, and the seizures had been managed as alcohol-related at first. However, these symptoms continued even after he ceased alcohol consumption with frequency of 1-2 times per month

The patient showed no focal neurological deficits, and his Mini-Mental State Examination (MMSE) score was 30/30, indicating normal cognitive function. EEG showed normal awake and sleep patterns (figure-1). MRI of the brain performed in 2024 revealed suggestive enlargement of the right amygdala (figure-2). This finding was further confirmed by Neuroradiologist. It was demonstrated the presence of the amygdala enlargement and A small posterior fossa arachnoid cyst of 1.4cmx1.6cmx2.9cm in size noted inferior to the torcula on the right side of midline (figure-3).

Discussion

Temporal lobe epilepsy (TLE) is a well-known and commonly diagnosed form of epilepsy. It is often associated with structural abnormalities in the temporal lobe, with hippocampal sclerosis (HS) being the most common pathological finding. However, recent studies have highlighted right amygdala enlargement (AE)

as an emerging cause of TLE, adding a new dimension to our understanding of the epileptogenic network and the clinical features of the disorder.

The amygdala, located within the limbic system, plays a central role in the regulation of emotions, memory, and certain autonomic functions. It is well-documented as part of the epileptogenic network in patients with mesial temporal lobe epilepsy (mTLE). The amygdala's role in emotional processing and memory retrieval suggests that structural changes within this region could significantly impact both seizure activity and emotional regulation.

In our case of right amygdala enlargement (AE), the enlargement itself may reflect a structural alteration due to chronic seizure activity, or it could be a congenital anomaly contributing to seizure susceptibility. Given the amygdala's critical involvement in emotional processing, patients with AE may experience a unique set of clinical features compared to those with other forms of TLE, such as TLE with hippocampal sclerosis (HS).

The amygdala plays a key role in emotions and memory, which helps explain the psychiatric symptoms in TLE with amygdala enlargement (AE). Our patient exhibits these symptoms, which are common with seizures but may also reflect direct amygdala involvement in emotional processing. The presence of both psychiatric and seizure activity is likely tied to the site of the pathology. Patients with TLE involving the amygdala may experience complex auras, often emotional or visceral, similar to those in TLE with hippocampal sclerosis.

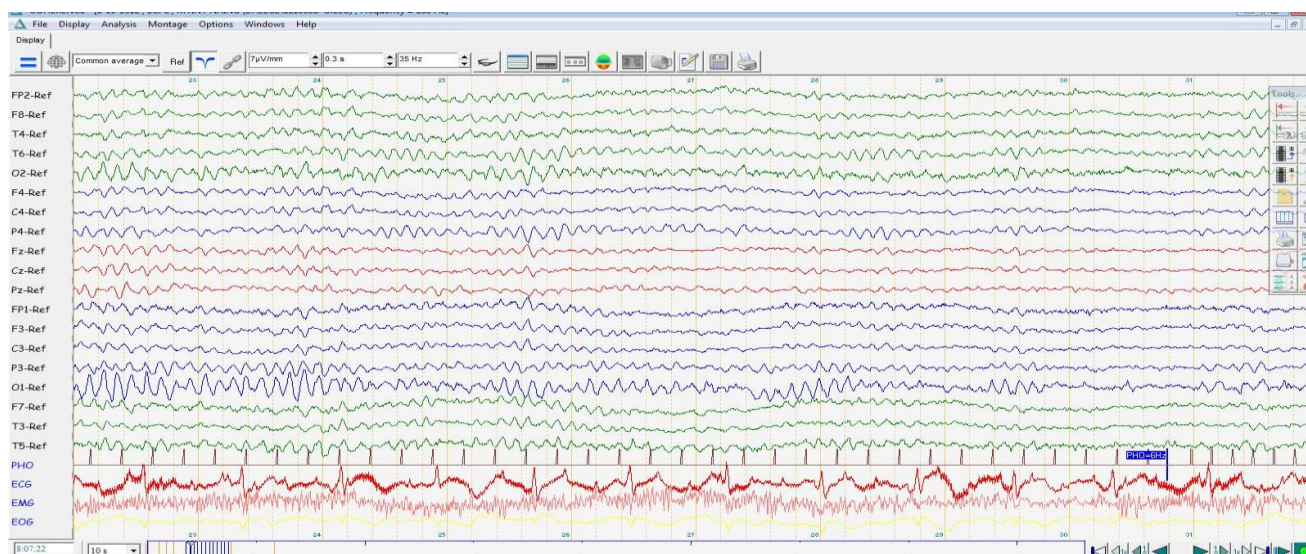
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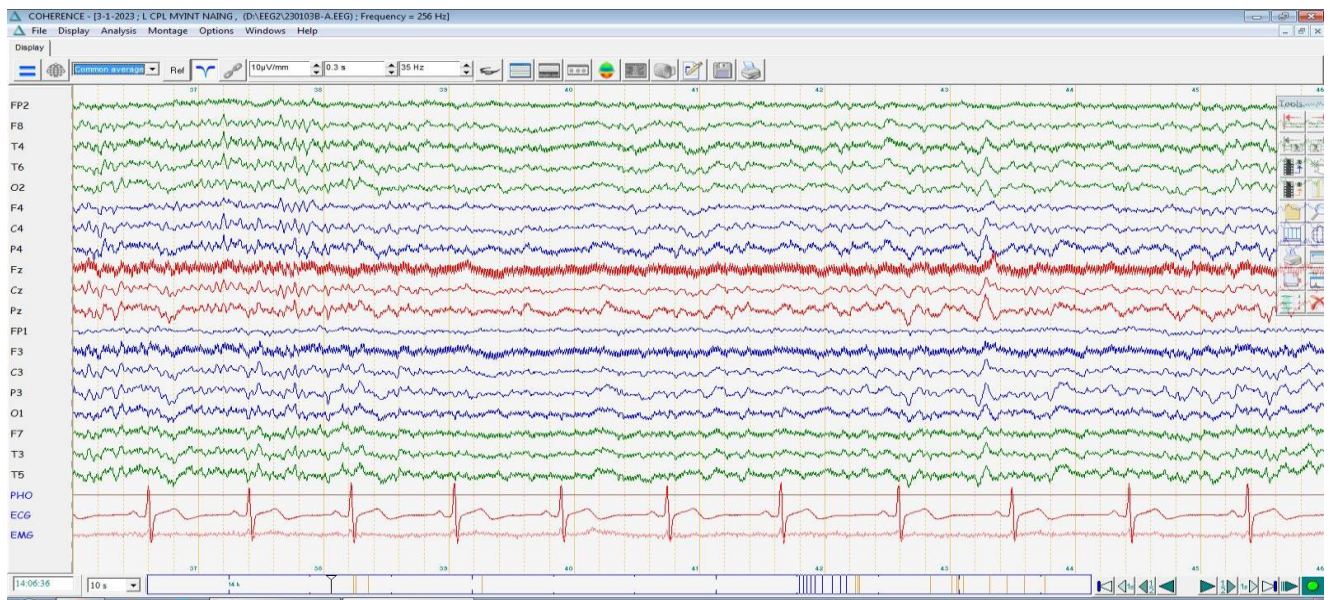
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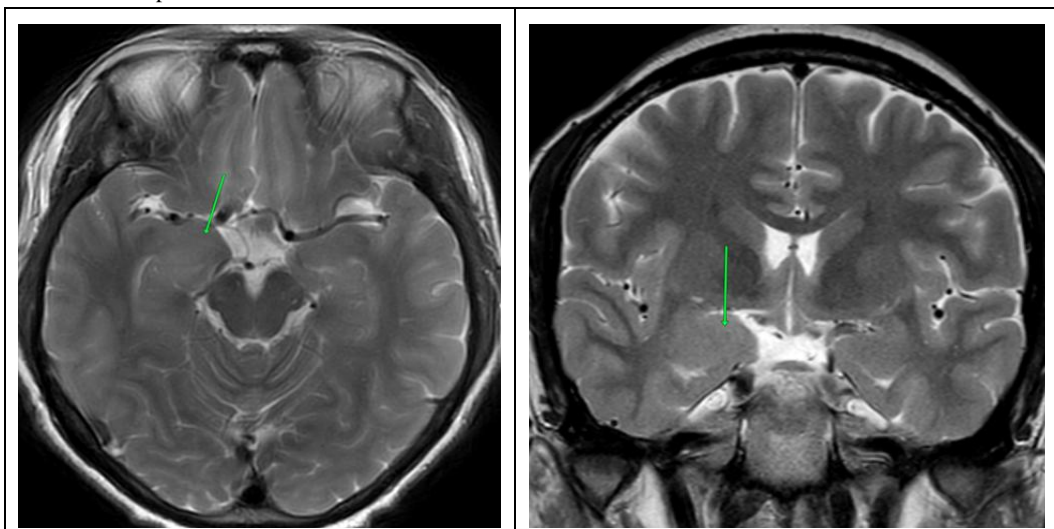
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Figure(1) Normal awake and sleep EEG



Figure(2) Enlargement of right amygdala (green arrow)