Absence Seizures and Generalized Epilepsy in an Adolescent: Insights from Overnight Home Video-EEG Monitoring

Patient History

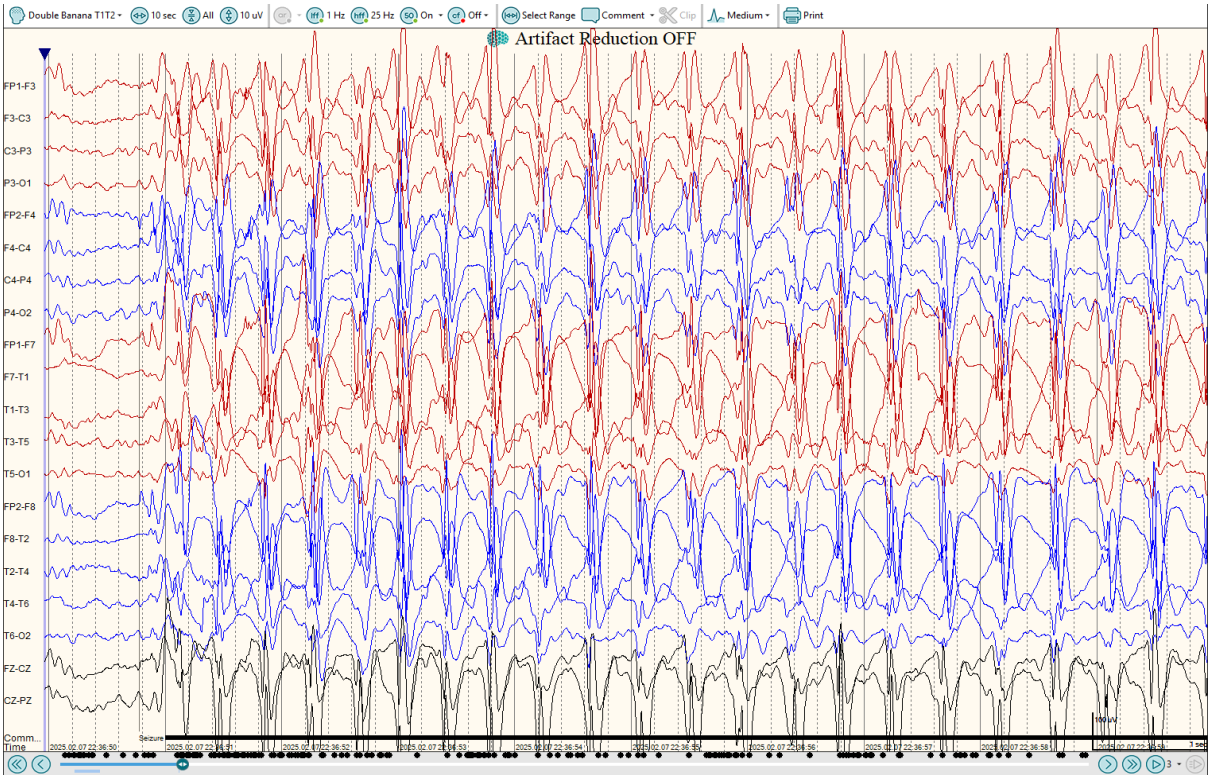
Overnight Home EEG with Hyperventilation was performed for a 14-year-old male with a history of seizure episodes characterized by staring spells associated with lip smacking, chewing automatisms, and occasional right-hand clenching movements, noted since December 2023. Each episode lasts for a few seconds and occurs 2–3 times per day. There are no sleep-related events, and no history of falls, tongue bite, or urinary incontinence. There has been a decline in academic performance (previously 50-60%, currently around 20-30%), along with reduced interest and increased irritability, while memory remains relatively preserved. Developmental history is normal.

A prior EEG (January 2024) demonstrated bilateral epileptiform discharges, predominantly fronto-temporal regions (Fp1/Fp2,T3/T4 involvement noted). MRI brain was reported as normal. The patient was started on Levetiracetam (Levipil) 500 mg twice daily, following which the hand movements improved; however, behavioral irritability was noted.

Mocxa's team performed an overnight home EEG, which revealed continuous generalized epileptiform discharges with electrographic seizures lasting approximately 10–18 seconds, correlating with brief clinical events. This case highlights the utility of extended home video EEG monitoring in capturing diagnostically relevant epileptiform activity in a comfortable home environment.

Procedure Details

Location	Home
Duration	12 Hours
EEG Type	Ambulatory, 23 channels, With Video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1 Hz
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F3-C3
C3-P3
P3-O1
FP2-F4
F4-C4
C4-P4
P4-O2
FP1-F7
F7-T1
T1-T3
T3-T5
T5-O1
FP2-F8
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T6-O2
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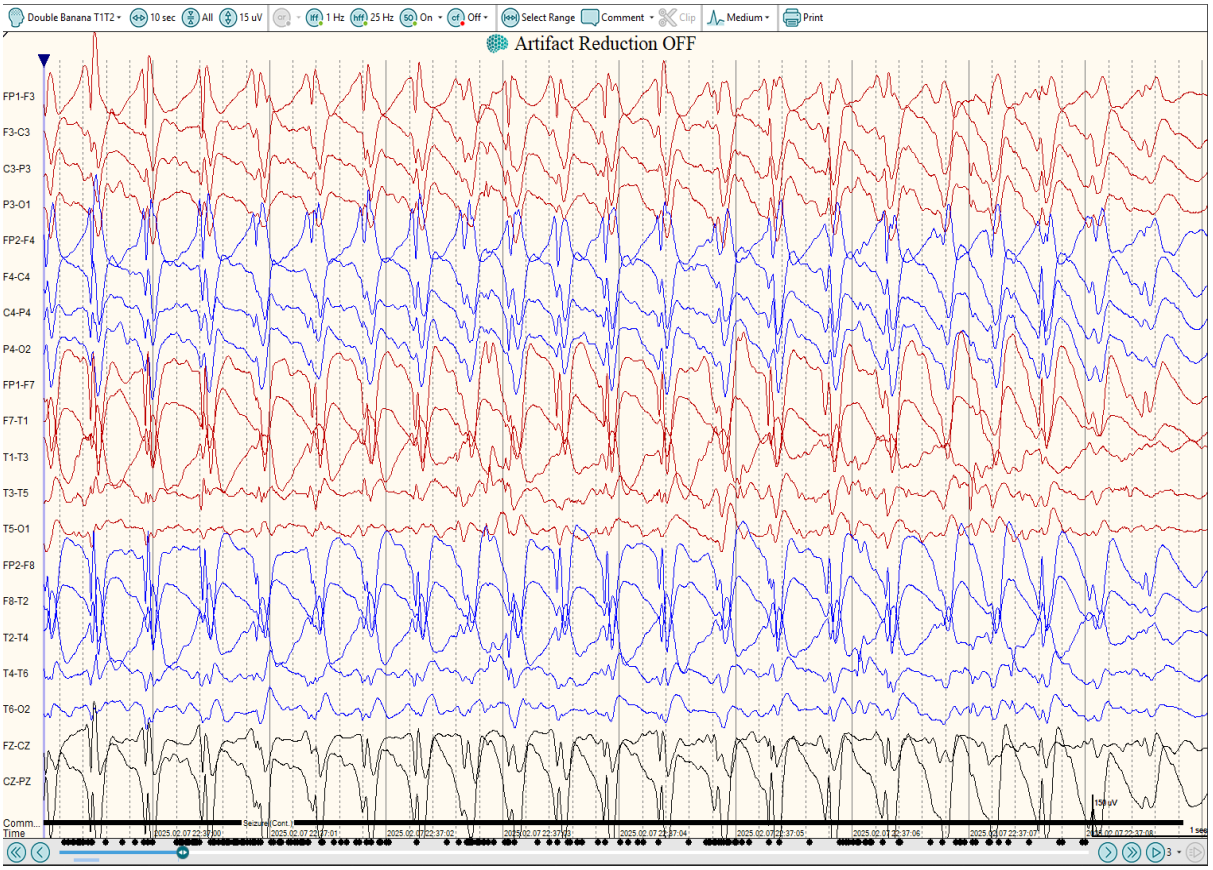
CZ-PZ
Comm...
Time
Seizure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F7-T1
T1-T3
T3-T5
T5-O1
FP2-F8
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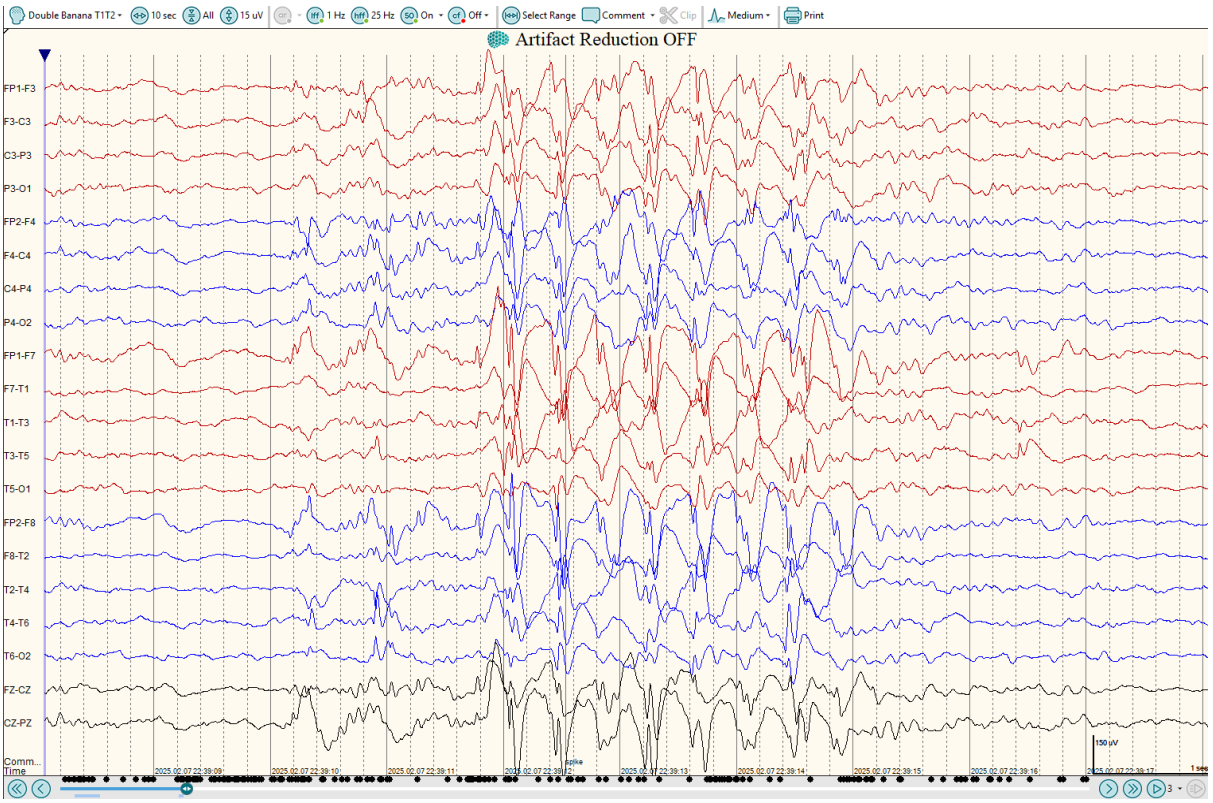
T6-O2
FZ-CZ
CZ-PZ
Comm...
Time
Seizure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15 uV
1 Hz
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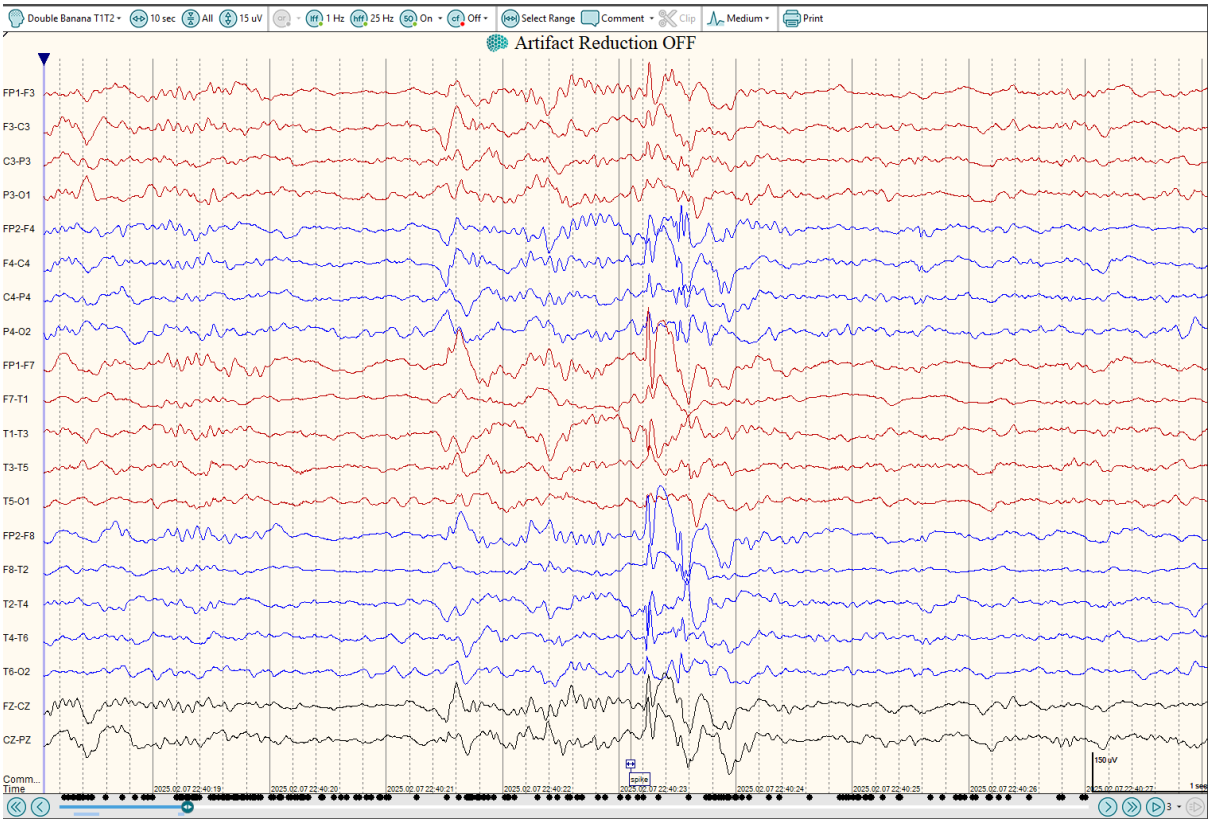
F3-C3
C3-P3
P3-O1
FP2-F4
F4-C4
C4-P4
P4-O2
FP1-F7
F7-T1
T1-T3
T3-T5
T5-O1
FP2-F8
F8-T2
T2-T4
T4-T6
T6-O2
FZ-CZ
CZ-PZ
Comm...
Time
150 µV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FP2-F8
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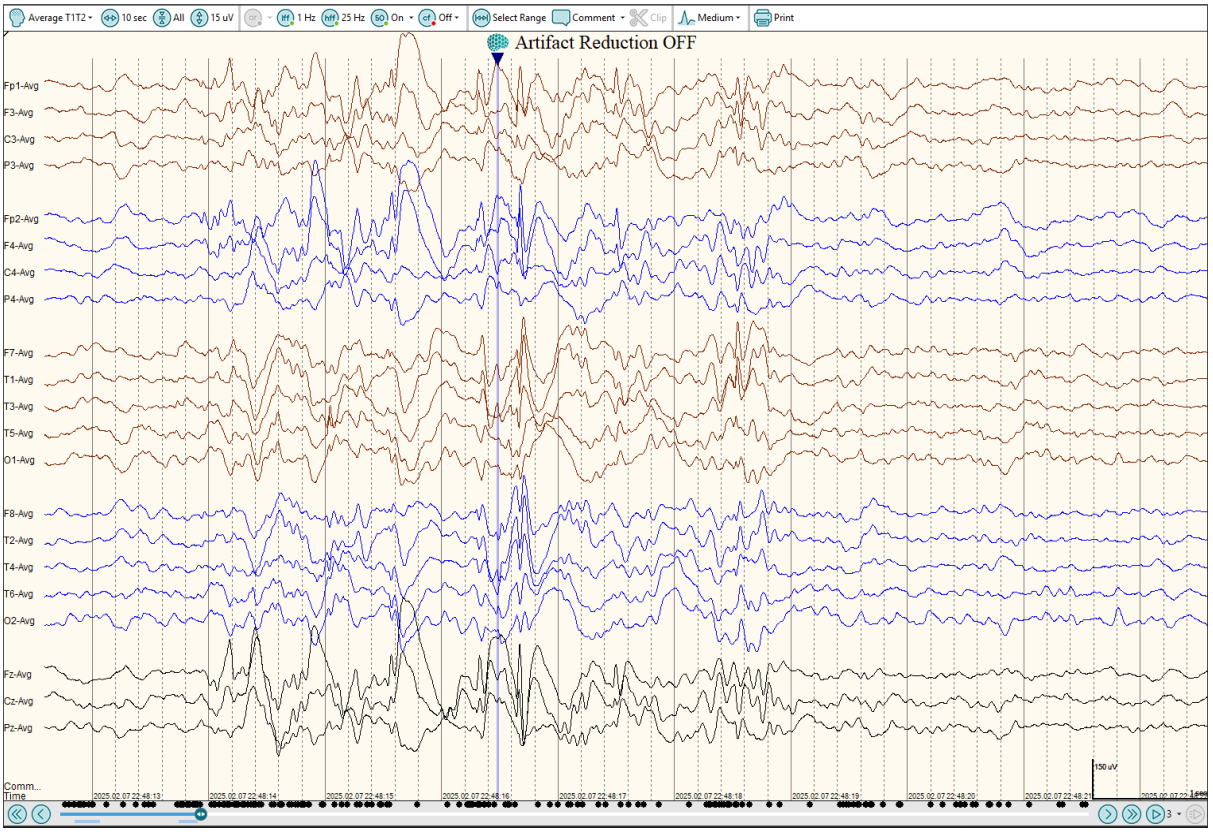
FZ-CZ
CZ-PZ
Comm...
Time
spike
150 uV
1 sec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All
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1 Hz
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F8-Avg
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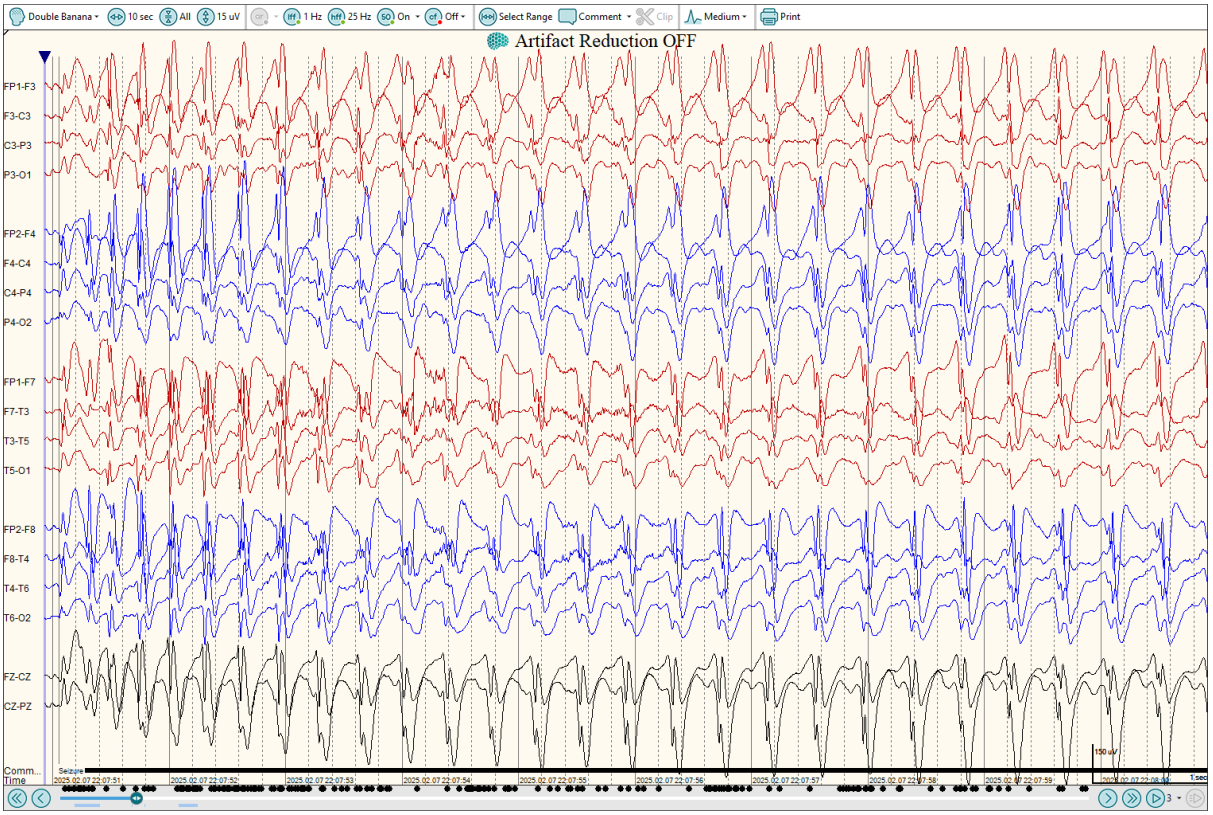
Comm...
Time
150 uV



Report

Description: Recording with the patient awake showed a background activity of 10-11 Hz over posterior head region, bilaterally symmetrical and synchronous, reacting to eye opening and closing. Sleep was obtained naturally and the background during sleep was 6-7 Hz frequency. In sleep, normal sleep structures such as symmetrical well-formed spindles, Vertex and K- complex were seen. EEG showed frequent bilateral fronto-temporal polyspikes and spike and slow wave epileptiform discharges were noted. Frequent bursts of bilateral frontally dominant generalized spikes and waves were also noted with marked activation during sleep. Hyperventilation was done and did not produce any additional abnormalities. During the monitoring period, the patient had 2 electroclinical events and 3 electrographical seizures which lasted for 10-18 seconds.

Event 1: 7-02-2025, 22:07:51 – The patient was sitting position on the bed covered with a blanket holding a Smart Tab with left upper limb→ behavioral arrest→ staring→ Chewing→ offset. The event lasted for 10 seconds.Electrographical: Generalized 3-4 Hz spike and slow wave with bilateral frontal dominants→ offset→ lasted 17 seconds.

Event 2: 07-02-2025, 22:07:51 – The patient was sitting position on the bed covered with a blanket→ looking at the Amplifier towards the left side→ behavioral arrest→ staring→

offset. The event lasted for 10 seconds. Electrographical: Generalized 3-4 Hz spike and slow wave with bilateral frontal dominants→ offset→ lasted 12 seconds

Paroxysmal activity: Frequent generalized high amplitude spikes polyspikes seen. On several occasions, the patient had staring spells. Ictal EEG showed abrupt onset 3 Hz generalized spike wave discharges lasting 10-15 seconds, with abrupt cessation without post ictal slowing.

Impression: Abnormal EEG suggestive of generalized epilepsy. 3 Hz spike wave pattern with typical clinical attacks indicate absence seizures. This continuous 10 hours Video EEG recording showed bilateral fronto-temporal epileptogenicity with secondary generalization with marked activation during sleep. Electrographic seizures were noted which lasted for 10-18 seconds.