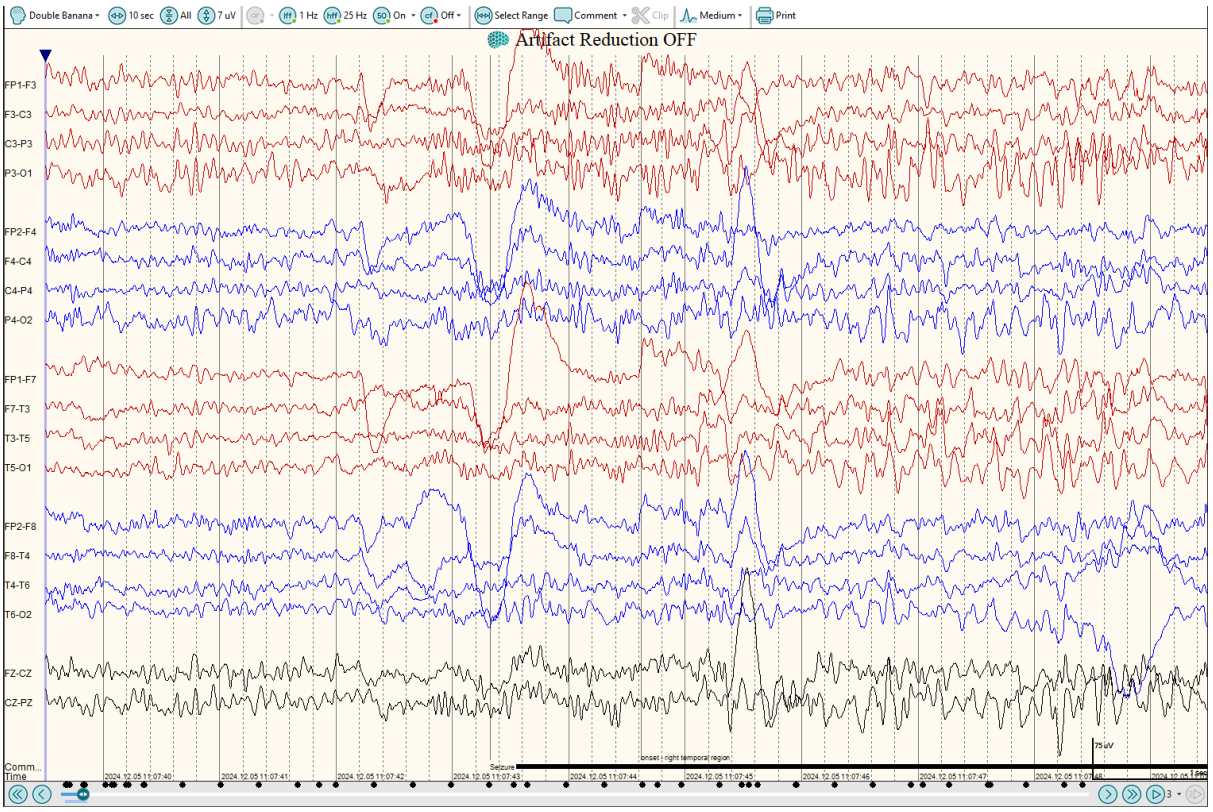
Pediatric Focal Epilepsy with Visual Auras: Localizing Left Hemisphere Irritative Zones through Video-EEG Monitoring

Patient History

The patient, 10 year old female was completely alright after birth and no h/o seizure or NICU stay and no h/o jaundice. The first episode of seizure started in 2022 with an aura of weird feeling and it was clinically right focal with eye deviation and face deviation towards the right. Intermittently rainbow colour illusion on her right eye. Prior routine EEG did not show any epileptiform discharges and reported as normal. After the second episode of seizure, the doctor recommended long term Video EEG. The monitoring showed Left fronto-temporal spike and wave epileptiform discharges. The patient started on AEDs. For the past two years, the patient has been continuing the medicine. She hadn't had any episodes until four months ago. The Mocxa EEG shows the same localization for the focal seizure with the same semiology. This highlights Mocxa's capability for extended monitoring periods with children in varied environments.

Procedure Details

Location	In-patient
Duration	9 Hours
EEG Type	Ambulatory, 21 channels, With Video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7 uV
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P3-O1
FP2-F4
F4-C4
C4-P4
P4-O2
FP1-F7
F7-T3
T3-T5
T5-O1
FP2-F8
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T4-T6
T6-O2
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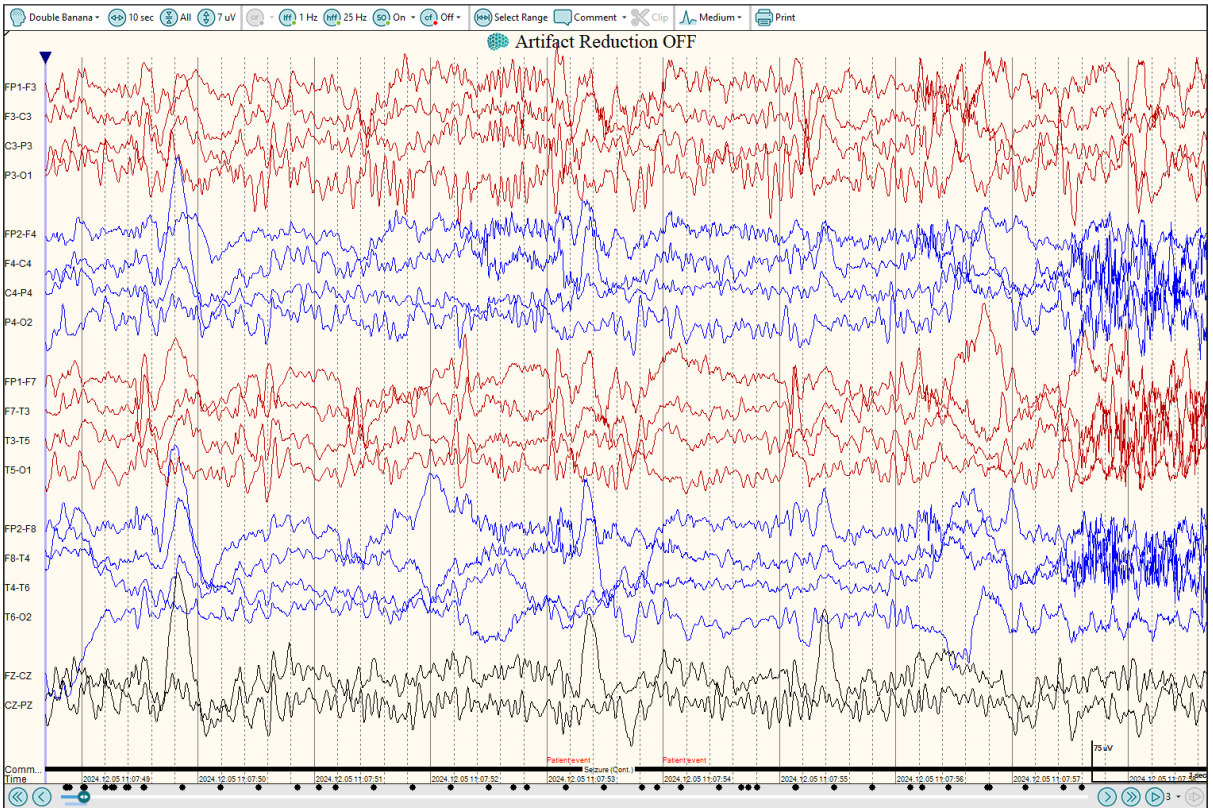
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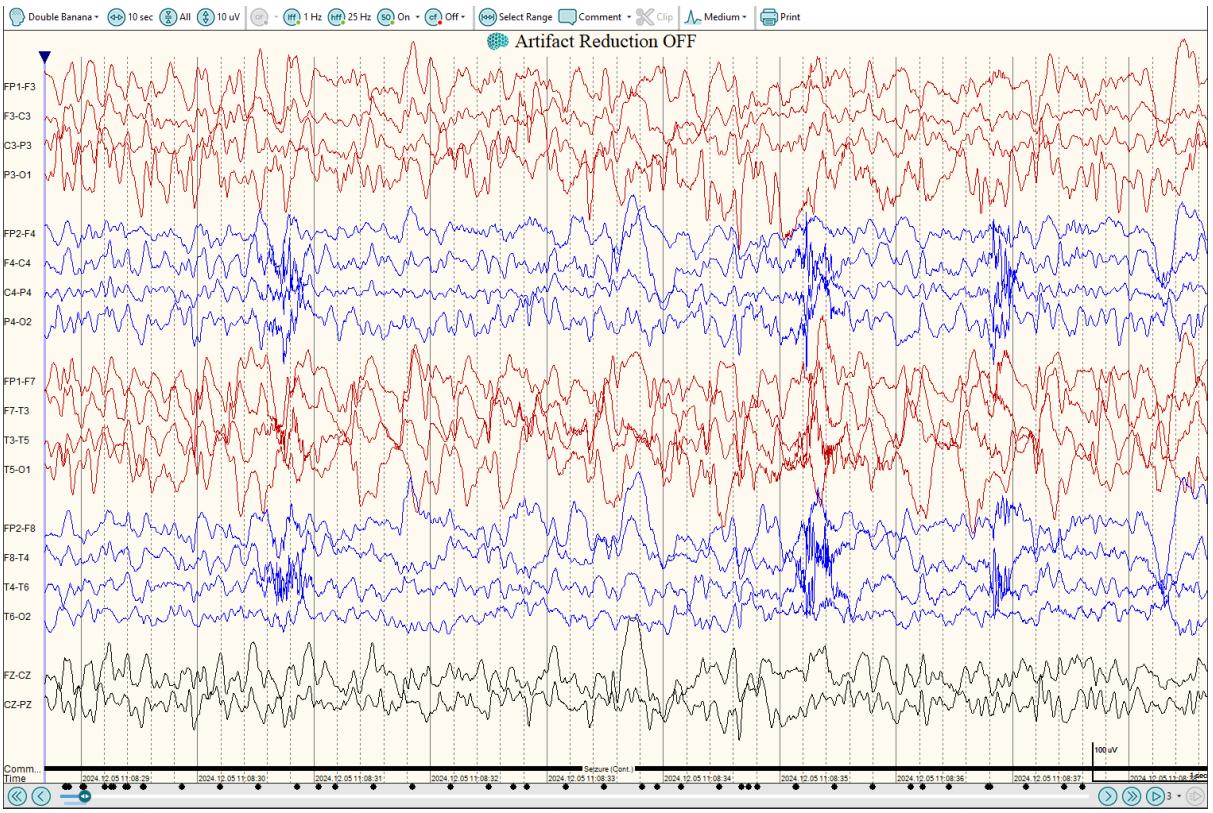
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P3-O1
FP2-F4
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C4-P4
P4-O2
FP1-F7
F7-T3
T3-T5
T5-O1
FP2-F8
F8-T4
T4-T6
T6-O2
FZ-CZ
CZ-PZ
Comm...
Time
Seizure (Cont.)
100 uV


Double Banana
10 sec
All
10 uV
1 Hz
25 Hz
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Off
Select Range
Comment
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Medium
Print
Artifact Reduction OFF
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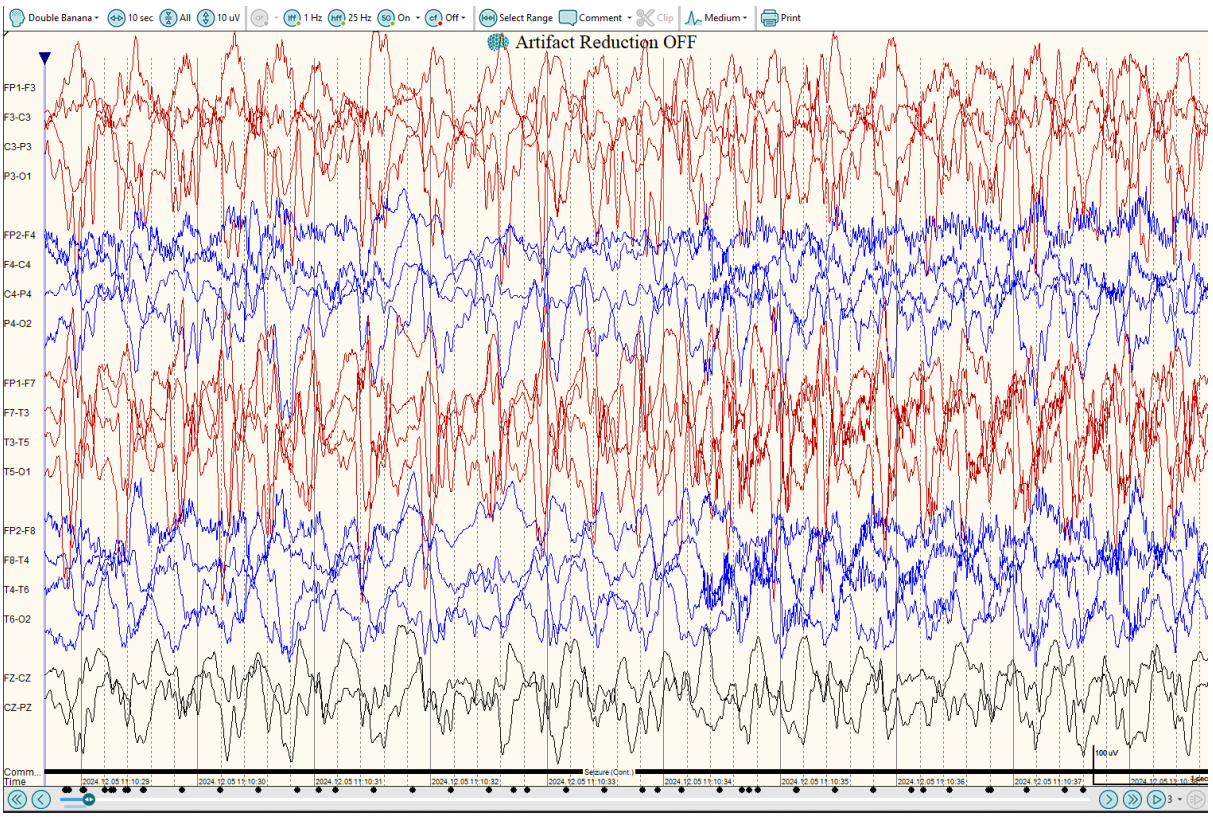
F3-C3
C3-P3
P3-O1
FP2-F4
F4-C4
C4-P4
P4-O2
FP1-F7
F7-T3
T3-T5
T5-O1
FP2-F8
F8-T4
T4-T6
T6-O2
FZ-CZ
CZ-PZ
Comm...
Time
Seizure (Cont.)
100 uV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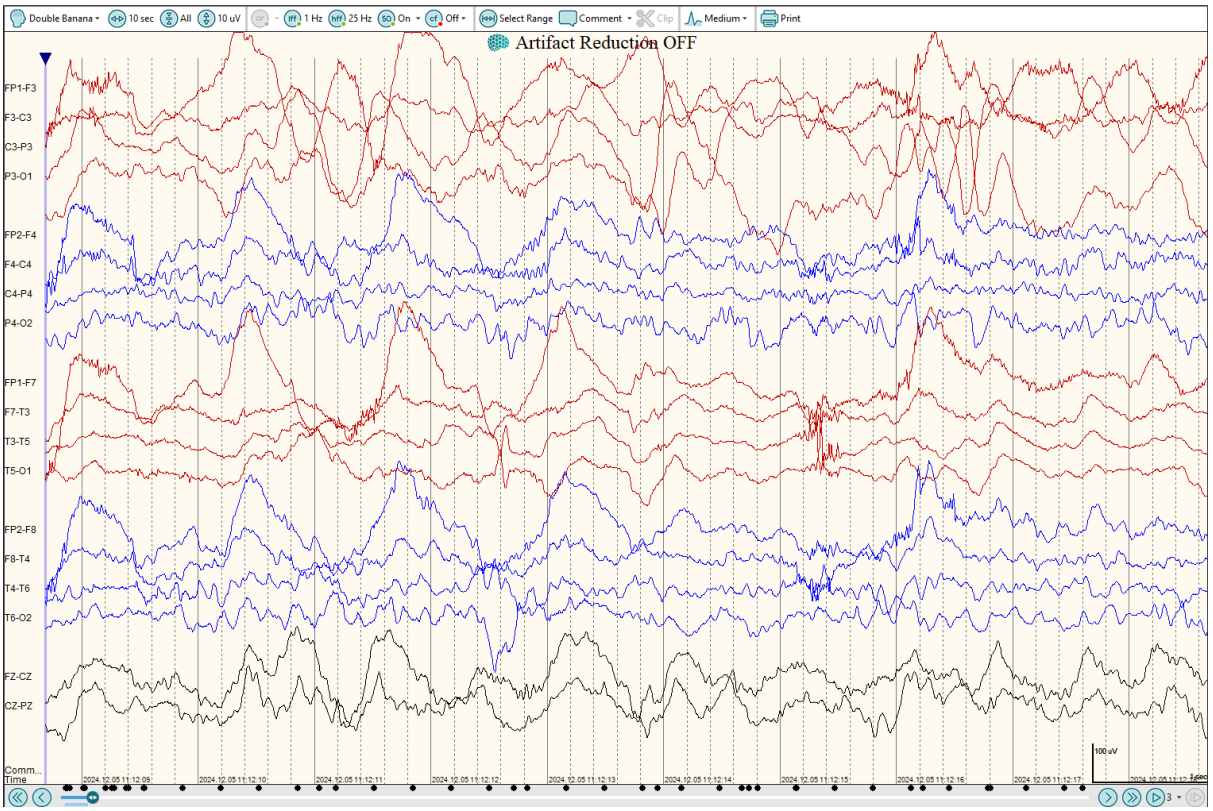
F7-T3
T3-T5
T5-O1
FP2-F8
F8-T4
T4-T6
T6-O2
FZ-CZ
CZ-PZ
Comm...
Time
Seizure (Cont.)
100 uV
1sec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C3-P3
P3-O1
FP2-F4
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C4-P4
P4-O2
FP1-F7
F7-T3
T3-T5
T5-O1
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T4-T6
T6-O2
FZ-CZ
CZ-PZ
Comm...
Time
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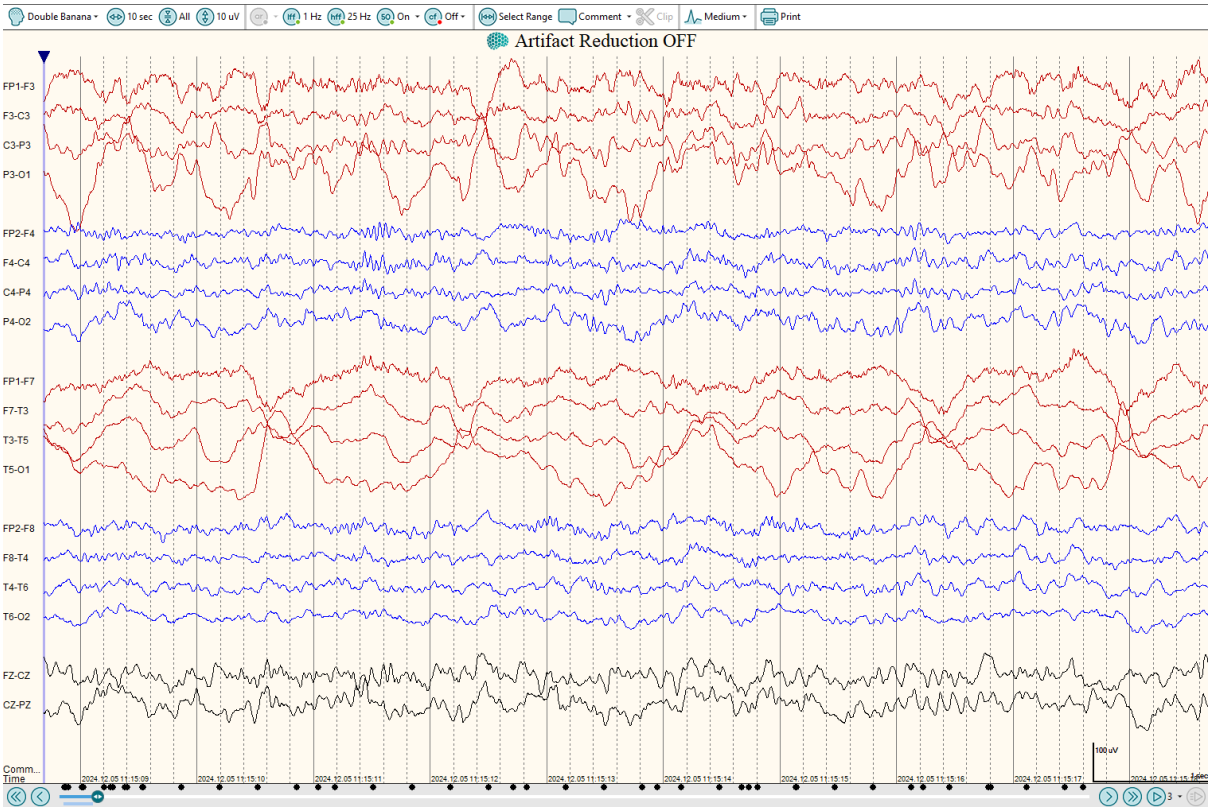
1sec



Report

Interictal: Background in the PC leads shows mainly alpha activity of 11-12 Hz bilaterally and symmetrical, intermixed with beta activity 14-16 Hz. This activity spreads fairly forwards to the fronto-temporal leads and responds to visual stimulation. Hv and photic stimulations were not done. The patient went to spontaneous sleep during the record where in the background slows down with typical EEG changes in the form of sleep spindles and vertex waves suggestive of stage N2 NREM sleep.

Interictal EEG showed the following abnormalities: (a) Occasional sharp waves over the left hemisphere (FP1-F7, F7-T3, T3-T5, T5-O1, P3-O1) spreading to the midline central and right parietal leads (CZ-PZ, P4-O2). (b) Bursts of high amplitude on the left fronto-temporal generalized slow sharp waves.

Clinical attacks: Two clinical events were and three visual auras in the form of 'rainbows' observed during the record.

Ictal events: Event-1 - The semiology was characterized by fearfulness (aura) followed by impaired awareness (unresponsiveness) with staring at the right for 3-4 minutes. There was an associated questionable immoble right hand.

Event-2 - Patient reported fearfulness (aura) followed by impaired awareness (unresponsiveness).

The patient reported 3 episodes of visual auras in the form of a rainbow. During this time the patient was fully conscious, alert and immediately responded to all the questions asked by the mother appropriately. There were no other ictal movements noticed during the period.
Ictal EEG: (a) In event-1, there were 4-5 Hz rhythmic activities over the left temporo-frontal region evolving to high amplitude slow sharp waves were seen. This was followed by spikes/polyspikes and wave discharges which spread to the midline central and right parieto-occipital regions. This lasted about 3-4 minutes. (b) In event-2, there were 4-5 Hz rhythmic activities over the left hemispheres evolving to spike and slow waves with spread to the midline central and right parieto-occipital regions.

Impression: This short term Video EEG recorded over 9 hours with the spontaneous sleep activity had two ictal events and three visual auras in the form of 'rainbows' as described above. Interictal EEG is abnormal as described above and is suggestive of an irritative zone over the left hemisphere. The clinical and its counterpart EEG is suggestive of seizure arising from the left hemisphere.