Alternating ictal and postictal nystagmus

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Video

Neurology.org/cp

A 65-year-old man presented with intermittent spells of unresponsiveness. EEG monitoring demonstrated seizures originating in the left temporo-occipital lobe attributed to hyperglycemia (>300 mg/dL).

At the onset of each seizure, the patient developed a rightward head turn and became unresponsive to verbal commands and tactile stimulation. He then developed primary-position horizontal jerk nystagmus (video at Neurology.org/cp). During the ictal period, the fast phases of the nystagmus were contraversive to the seizure focus and the eyes did not cross midline. In the postictal period, he became responsive again, and the direction of nystagmus transiently reversed, with low-amplitude ipsiversive fast phases (video).

The patient denied ictal sensory symptoms, auras, or vertigo. He did not take nystagmus-provoking medications. Brain MRI at presentation demonstrated left subcortical T2 hypointensity. The changes were attributed to the seizures and resolved after 1 month (figure).

Ictal nystagmus is usually characterized by contraversive fast phases and may result from various mechanisms.^{1,2} When the intervening slow phases decrease in velocity and the eyes approach but do not cross the midline, it is postulated that the nystagmus is the result of spontaneous activation of cortical saccade regions. This mechanism most likely accounts for the nystagmus exhibited by our patient. In contrast, epileptic discharges that activate cortical pursuit or optokinetic mechanisms may produce ipsiversive slow phase eye movements that cross the midline and are followed by reflexive contraversive fast phases.^{1,2} Spontaneous reversal of the direction of nystagmus in the postictal phase relates to transiently depressed activation in the affected networks.

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Figure T2-fluid-attenuated inversion recovery MRI

Axial brain T2-fluid-attenuated inversion recovery MRI at presentation (A) shows left temporo-occipital subcortical hypointensity (arrows) and at 1-month follow-up (B) shows near-complete resolution.

DISCLOSURES

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