Fixation-off sensitivity in focal epilepsy due to posterior quadrant dysplasia

Eric P. Nagele, DO, Camilo A. Gutierrez, MD, Elsie Achieng, MD, and Jennifer L. Hopp, MD

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Correspondence

Dr. Nagele
ericnagele@gmail.com

Figure Awake EEG and associated MRI

(A) An EEG in longitudinal bipolar montage reveals normal background frequencies with eyes open. (B) Eye closure induces left occipital spike discharges (blue arrows). (C) The left occipital spike discharges stop with eye opening (red arrow). (D) Brain MRI (axial fluid-attenuated inversion recovery) reveals localized left occipital posterior quadrant dysplasia (hemi-hemimegalencephaly).

A 38-year-old woman with localized left occipital posterior quadrant dysplasia complained of seizures described as “flashing lights” and confusion with rare convulsions. These were often induced by changes in lighting. EEG revealed left occipital spike discharges precipitated by eye closure (figure). Fixation-off sensitivity (FOS) is an uncommon phenomenon characterized by epileptiform discharges induced by elimination of central vision or fixation. FOS is most often associated with lesional epilepsy in adults, including focal cortical dysplasia, occipital calcifications in celiac disease, and parietal-occipital stroke.¹ The proposed mechanism includes cortical hyperexcitability involving magnocellular and parvocellular pathways, alpha-rhythm generators, or defective glutaminergic and GABAergic pathways.²

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Disclosure

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Appendix Authors

Name	Location	Contribution
Eric P. Nagele, DO	University of Maryland School of Medicine, Baltimore	Design and conceptualization, drafting and revision of manuscript for intellectual content
Camilo A. Gutierrez, MD	University of Maryland School of Medicine, Baltimore	Drafting and revision of manuscript for intellectual content

Appendix (continued)

Name	Location	Contribution
Elsie Achieng, MD	Riverside Neurology Specialists, Newport News, VA	Drafting and revision of manuscript for intellectual content
Jennifer L. Hopp, MD	University of Maryland School of Medicine, Baltimore	Design and conceptualization, drafting and revision of manuscript for intellectual content

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