

Teaching NeuroImage: Hyperglycemia-Induced Occipital Lobe Seizures

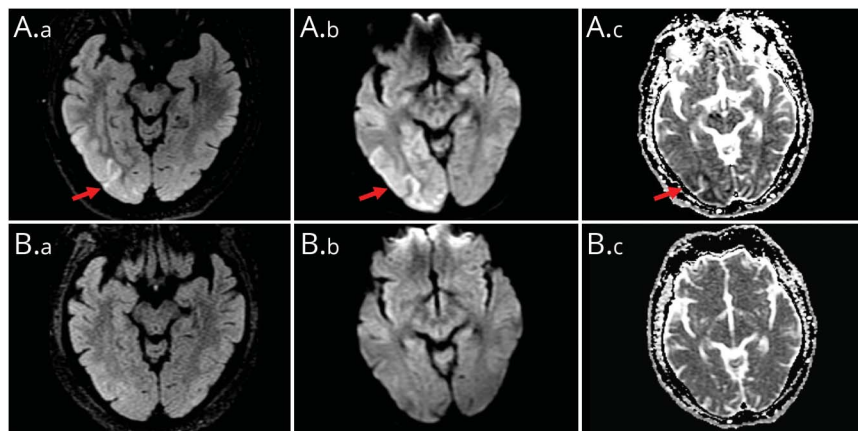
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Figure Brain MRI in Hyperglycemia-Induced Occipital Lobe Seizures



Axial T2-FLAIR shows right occipital lobe swelling with cortical hyperintensity (A.a). Axial diffusion-weighted imaging (DWI) shows corresponding hyperintensity (A.b) with hypointensity on apparent diffusion coefficient map (ADC) (A.c), indicating true diffusion restriction. Resolution of abnormalities is observed on repeat imaging 8 weeks later (B.a-B.c).

A 64-year-old man was admitted with right-sided headache and confusion. He experienced episodes of left-sided flashing lights evolving to left-beating nystagmus with impaired awareness, suggesting right occipital lobe-onset seizures, for which levetiracetam was prescribed. Between episodes, he had left homonymous hemianopia. Brain MRI showed right occipital lobe swelling with cortical T2-fluid-attenuated inversion recovery (FLAIR) hyperintensity and diffusion restriction (Figure). Blood glucose on admission was 21.8 mmol/L (normal: 3.4–11 mmol/L) and HbA1C was 12.8%, indicating a new diagnosis of diabetes mellitus and raising concern for hyperglycemia-induced occipital lobe seizures.^{1,2} Testing for alternative etiologies including CSF bacterial culture, viral PCRs, cytology, and autoimmune encephalitis antibodies, as well as serum anti-myelin oligodendrocyte glycoprotein (MOG), was negative. After blood glucose normalization, his symptoms resolved. Repeat brain MRI 8 weeks later was unremarkable (Figure). Occipital lobe seizures are a rare but characteristic manifestation of hyperglycemia. Glycemic control generally results in their resolution, emphasizing the importance of prompt diagnosis.^{1,2}

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Author Contributions

R.A. Bessemer: drafting/revision of the manuscript for content, including medical writing for content; major role in the acquisition of data; study concept or design; Analysis or interpretation of data. K.Y. Tay: drafting/revision of the manuscript for content, including medical writing for content; major role in the acquisition of data; analysis or interpretation of data. A. Budhram: drafting/revision of the manuscript for content, including medical writing for

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