

Teaching NeuroImages: Nonketotic hyperglycemic hyperosmolar state mimicking acute ischemic stroke

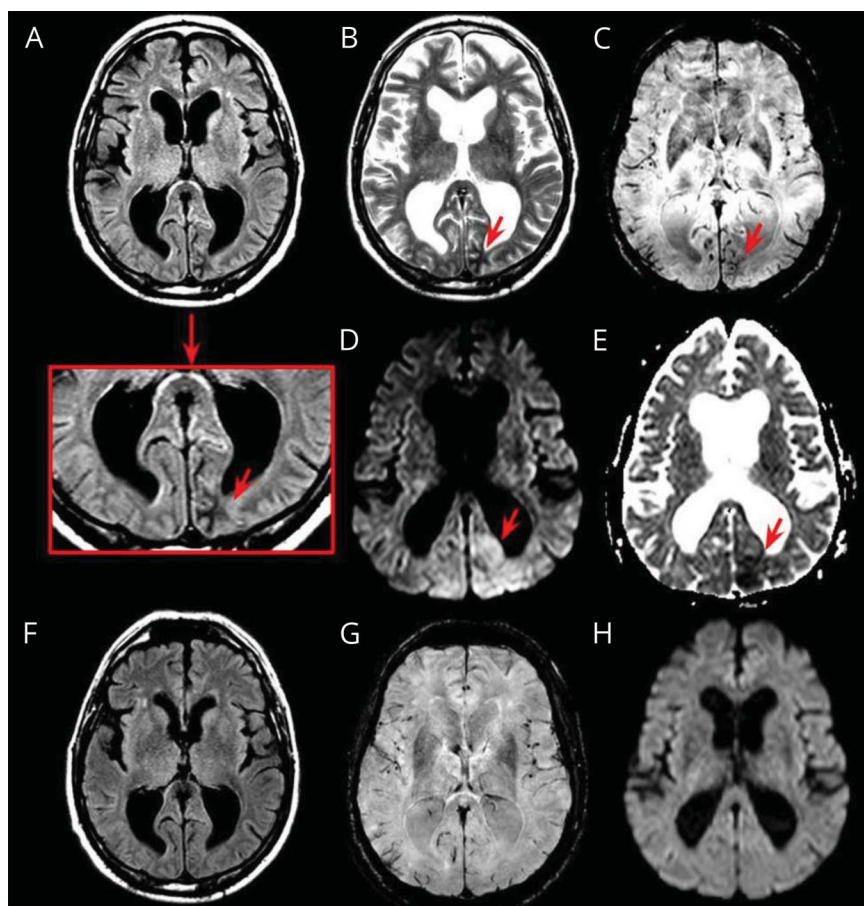
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Figure Occipital MRI changes in nonketotic hyperglycemic hyperosmolar state



On admission, brain MRI showed a left subcortical occipital lesion that was hypointense on fluid-attenuated inversion recovery, T2, susceptibility-weighted imaging, and apparent diffusion coefficient map (A–C and E) and hyperintense on diffusion-weighted imaging (D). A control brain MRI performed at 3 months was normal (F–H).

A 55-year-old man with diabetes mellitus type 2 presented with persistent right homonymous hemianopia of 72 hours evolution. At admission, the laboratory examination revealed blood glucose of 497 mg/dL and hyperosmolality without ketosis; the EEG did not show epileptic discharges. EEG done during the following days did not show any abnormalities. Brain MRI

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showed a subcortical lesion on the left occipital lobe (figure). The patient's symptoms and MRI abnormalities resolved after glucose-lowering treatment.

Nonketotic hyperglycemic hyperosmolar state is a condition associated with neurologic deficits that could mimic an acute ischemic stroke. The underlying mechanisms for MRI findings in this condition have not been fully elucidated, but it has been postulated that increased plasma osmolality with the subsequent development of hyperviscosity may lead to a hypoxic–ischemic insult resulting in the release of free radicals in the brain.^{1,2}

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Name	Location	Contribution
Marta I. Bala, MD	Hospital Britanico, Buenos Aires, Argentina	Study concept and design, drafting of the manuscript, critical revision of the manuscript

Appendix (continued)

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Anibal Chertcoff, MD	Hospital Britanico, Buenos Aires, Argentina	Drafting of the manuscript, critical revision of the manuscript
Miguel Saucedo, MD	Hospital Britanico, Buenos Aires, Argentina	Drafting of the manuscript, critical revision of the manuscript
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