

Teaching NeuroImage: Central Pontine Myelinolysis in Diabetic Ketoacidosis

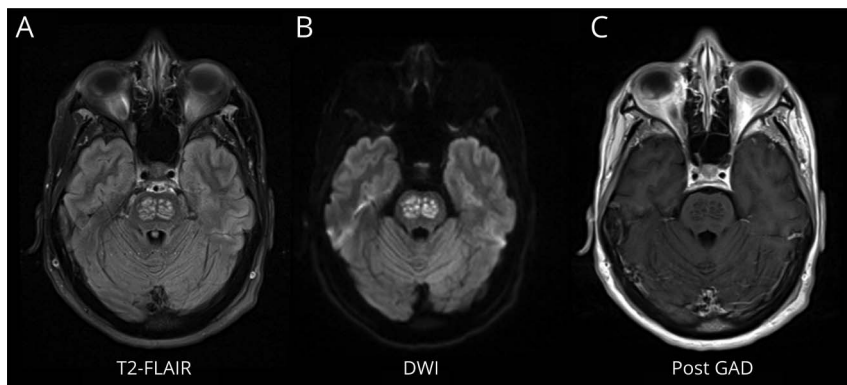
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Figure Central Pontine Myelinolysis in Diabetic Ketoacidosis



T2 fluid-attenuated inversion recovery (FLAIR) reveals symmetric hyperintensities centered in the pons (A) with restricted diffusion (B). T1 postcontrast with gadolinium demonstrated no enhancement (C). DWI = diffusion-weighted imaging; GAD = gadolinium.

A 38-year-old woman with uncontrolled type 1 diabetes (HbA1c 12.8%) was admitted for diabetic ketoacidosis (731 mg/dL blood glucose). Hyperglycemia was corrected within 24 hours to 129 mg/dL. Upon presentation, her sodium and potassium levels were 139 and 3.9 mmol/L, respectively, remaining stable until discharge. There was no history of malnutrition or alcohol abuse.

Four days later, the patient developed acute diffuse pyramidal weakness. Brain MRI revealed symmetric restricted diffusion in the pons with normal magnetic resonance angiography (figure). The patient remained stable and was discharged to a rehabilitation facility.

Central pontine myelinolysis (CPM) is a clinically heterogeneous neurologic disorder of demyelination in the pons, usually from rapid correction of hyponatremia.^{1,2}

Diabetic ketoacidosis is an uncommon cause of CPM with uncertain pathophysiology.³ Here, it is plausible that a rapid drop in osmolality in a chronic state of high osmolality (uncontrolled diabetes) led to CPM. A slower correction of hyperglycemia possibly could have prevented it.

Study Funding

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Disclosure

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Appendix Authors

Name	Location	Contribution
Natalia Gonzalez Caldito, MD	University of Texas Southwestern Medical Center	Patient management, literature review, gathered data, drafted the manuscript for intellectual content
Nurose Karim, MD	University of Texas Southwestern Medical Center	Patient management and revised the manuscript for intellectual content

Appendix (continued)

Name	Location	Contribution
Mehari Gebreyohannis, MD	University of Texas Southwestern Medical Center	Patient management and revised the manuscript for intellectual content

References

1. Fitts W, Vogel AC, Mateen FJ. The changing face of osmotic demyelination syndrome: a retrospective, observational cohort study. *Neurol Clin Pract*. Epub 2020 Aug 26.
2. Rodríguez-Velver KV, Soto-García AJ, Zapata-Rivera MA, et al. Osmotic demyelination syndrome as the initial manifestation of a hyperosmolar hyperglycemic state. *Case Rep Neurol Med*. 2014;2014:e652523.
3. Matias-Guiu JA, Molino AM, Jorquera M, et al. Pontine and extrapontine myelinolysis secondary to glycemic fluctuation. *Neurologia*. 2016;31(5):345-347.

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