

Wernicke's Encephalopathy: A Case Report

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Clinical Presentation

- 52-year-old male presented to ED with acute onset altered mental status and balance impairment for 2 days
- History of severe alcoholism with a daily intake of at least 750 mL of vodka
- Serum thiamine levels were unremarkable

Imaging Discussion

Axial T2-FLAIR MRI (right):

- Hyperintensity of mamillary bodies and periaqueductal gray



Imaging Discussion

Axial T2-FLAIR MRI (right):

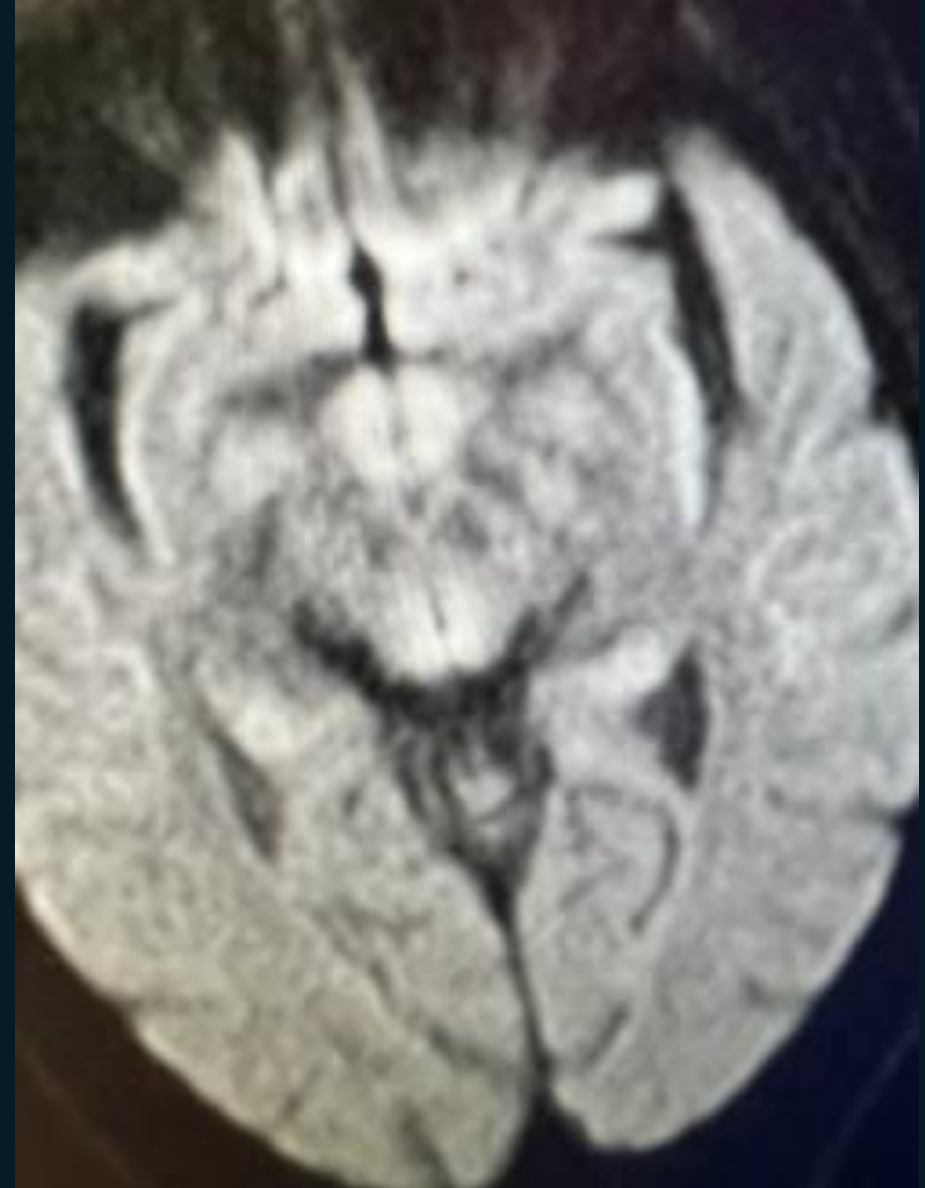
- Hyperintensity of periaqueductal gray



Imaging Discussion

Axial DWI (right):

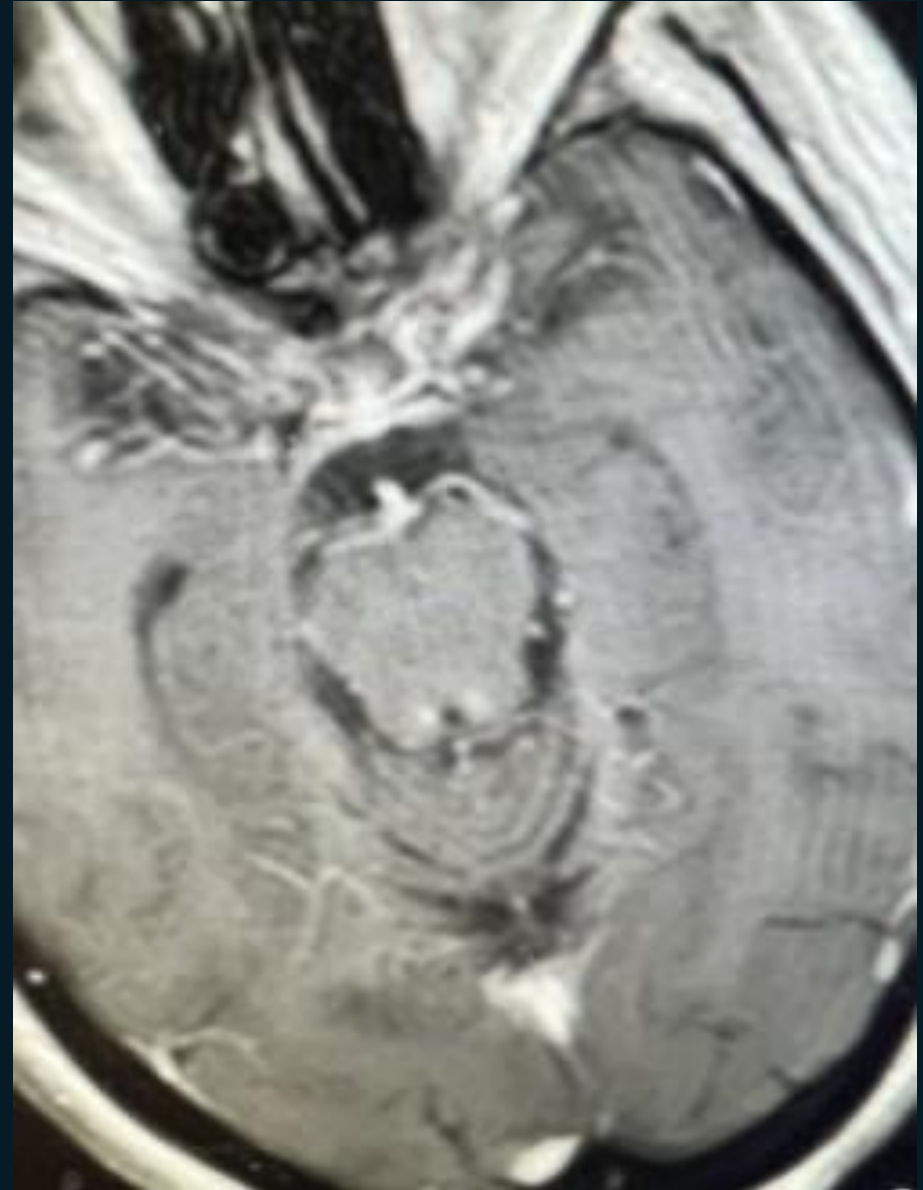
- Diffusion restriction in mamillary bodies and periaqueductal gray, suggesting cytotoxic edema



Imaging Discussion

Axial T1-weighted MRI with contrast (right):

- Enhancement of periaqueductal gray



Management and Outcome

- Patient showed symptom improvement following prompt thiamine administration.

Take-Home Points

- Wernicke's encephalopathy is a life-threatening neurological syndrome resulting from thiamine (vitamin B1) deficiency.
- Classic triad of symptoms includes mental status changes, ophthalmoplegia, and gait ataxia.
- However, the majority of patients do not present with the full triad.

Take-Home Points

- Serum thiamine levels do not reliably reflect intracellular or cerebral thiamine status. Therefore, not all cases of Wernicke's encephalopathy will present with low serum thiamine.
- MRI findings typically include bilateral symmetric hyperintensities on T2-FLAIR in the medial thalamus, mammillary bodies, and periaqueductal region.
 - Low sensitivity (53%) but high specificity (93%) for Wernicke's encephalopathy

Take-Home Points

- 80% of cases of untreated cases of Wernicke's encephalopathy will progress to Korsakoff syndrome, a form of anterograde and retrograde amnesia with confabulation.
- Progression to Korsakoff syndrome is largely irreversible and can be fatal, so it is crucial to catch and treat Wernicke's encephalopathy in its early stages.

References

- Arendt CT, Uckermark C, Kovacheva L, Lieschke F, Golbach R, Edwin Thanarajah S, Hattingen E, Weidauer S. Wernicke Encephalopathy: Typical and Atypical Findings in Alcoholics and Non-Alcoholics and Correlation with Clinical Symptoms. Clin Neuroradiol. 2024 Dec;34(4):881-897.
- Ota Y, Capizzano AA, Moritani T, Naganawa S, Kurokawa R, Srinivasan A. Comprehensive review of Wernicke encephalopathy: pathophysiology, clinical symptoms and imaging findings. Jpn J Radiol. 2020 Sep;38(9):809-820.
- Zuccoli G, Gallucci M, Capellades J, Regnicolo L, Tumiatì B, Giadàs TC, Bottari W, Mandrioli J, Bertolini M. Wernicke encephalopathy: MR findings at clinical presentation in twenty-six alcoholic and nonalcoholic patients. AJNR Am J Neuroradiol. 2007 Aug;28(7):1328-31.