To B or not to B: An 11- year old with delusions and nystagmus

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Background

- 11 year old female with anxiety and recent 30lb weight loss, admitted for persistent vomiting and refusal to eat

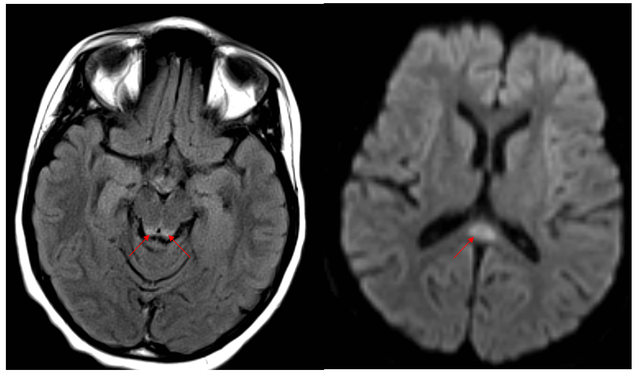
Case Presentation

- Adopted child with history of significant anxiety, behavioral changes, visual hallucinations and delusions over the preceding year
- Persistent delusion of choking while swallowing, causing fear of eating
- Several months of restricted intake and a 30-lb weight loss
- Negative outpatient work-up for swallowing difficulties
- PMH: Previously healthy
- SH: Denies drug, alcohol, tobacco use
- FH: Unknown biological family history
- Physical Exam:
  - Vitals: BP 118/63, HR 105, Temp 37.2 C RR 23 SpO2 100% BMI 26.63 kg/m²
  - Positive findings:
    - Depressed affect, responding only with head nodding
    - Horizontal and vertical nystagmus present

Differential Diagnosis

- Autoimmune encephalitis (ex: anti-NMDA)
- Infectious encephalitis (ex: Herpes, HIV, arbovirus)
- Malignancy
- Psychiatric disorder such as Schizophrenia, Schizoaffective disorder, OCD
- Metabolic disorder
- Primary GI such as esophageal dysmotility

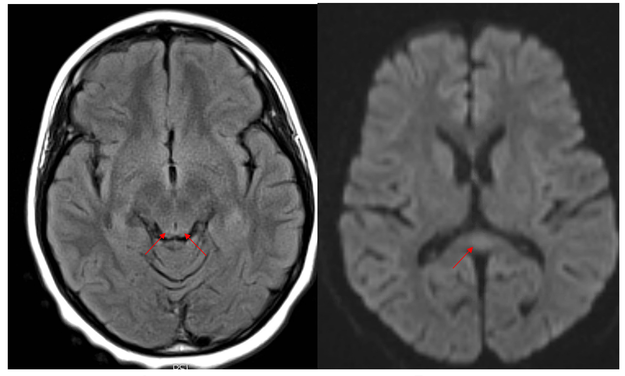
Imaging



A B

Initial brain MRI:

- **A) Axial FLAIR image demonstrating abnormal T2/FLAIR hyperintense signal in the midbrain and periaqueductal gray matter (red arrows).**
- **B) Axial DWI image showing abnormal diffusion restricting lesion in the splenium of the corpus callosum (red arrow).**



A B

Post treatment MRI 3 days after thiamine therapy and NG nutrition:

- **A) Axial FLAIR image demonstrates near resolution of T2/FLAIR hyperintensities in the midbrain and periaqueductal gray matter (red arrows).**
- **B) Axial DWI image demonstrates that the restricted diffusion in the splenium of the corpus callosum has nearly resolved (red arrow).**

Outcome and Follow-up

- After two days of treatment with thiamine and NG nutrition, her speech and nystagmus were significantly improved.
- MRI findings improved after thiamine treatment
- **Diagnosis: Wernicke's encephalopathy**
- Transferred to Psychiatry where she completed a course of high-dose thiamine in addition to psychiatric care
- Discharged from psychiatry after 19 days, gained 10 pounds, eating 100% of meals by mouth
- Continued to have anxiety and delusions, although improved
- Evaluation for autoimmune encephalopathies returned negative
- **Diagnosed with underlying psychiatric disease, likely schizophrenia**

Discussion

- Wernicke encephalopathy is a neurologic syndrome caused by thiamine (vitamin B1) deficiency characterized by: ophthalmoplegia, encephalopathy, ataxia
- The symptoms correspond to the anatomic location of the CNS lesions most commonly in:
  - Brainstem tegmentum (ocular, pupillary and extraocular muscle symptoms)
  - Mammillary bodies (memory)
  - Cerebellum (ataxia)
- In adults: most often caused by alcoholism
- In children, risk factors for the disorder include anorexia nervosa, gastrointestinal disorders, malignancy and prolonged fasting or starvation.
- Underlying behavioral disorders including anxiety, OCD and autism can present with restricted eating patterns which can lead to isolated nutritional deficiencies.
- Pediatricians should recognize risk factors for malnutrition in children and be prepared to treat promptly

Conclusions

- Wernicke encephalopathy is not exclusively found in adults
- Children do not always present with the classic triad
- Although rare in children in the developed world, the **general pediatric hospitalist should recognize risk factors for nutritional deficiency**

References/Contact

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- 2. Zuccoli G, Siddiqui N, Bailey A, Bartoletti SC. Neuroimaging findings in pediatric Wernicke encephalopathy: a review. Neuroradiology. 2010;52(6):523-529. doi:10.1007/s00234-009-0604-

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