Nystagmus in non-alcoholic Wernicke encephalopathy

Kojiro Ikeda, Hiroyuki Yano, Tetsushi Higa, Mitsuyo Kinjo

DESCRIPTION
A 46-year-old woman with no history of alcohol use presented with blurry vision and difficulty walking. She reported that her eyes were unfocused when texting messages on iPhone. She had been eating only ice cream for three months, felt extremely fatigued and lost 3 kg after her mother’s death. She could not keep herself upright and sought medical attention. Her medical and family history was unremarkable. She did not smoke or use illicit drugs.

Her height was 153 cm and weight was 38.8 kg. Her temperature was 37.8°C, blood pressure was 106/73 mm Hg, pulse was regular at 110 beats per minute, respirations were 20 per minute and oxygen saturation was 97% on ambient air. She was alert and oriented to time, place and person; appeared cachexic with masked faces, and was barely responsive to questions. Neurological examination revealed impaired eye movements with horizontal nystagmus, spontaneous nystagmus and upgaze-evoked spontaneous upbeat nystagmus (video 1). Strength and sensation to light touch were intact. Deep tendon reflexes were symmetrical. Cerebellar dysmetria were absent. Romberg testing could not be performed. Physical examination was otherwise unremarkable.

Laboratory studies showed normal electrolyte levels, kidney and liver function, total protein, albumin and haemoglobin A1c. Complete blood count showed mild leucocytosis and increased haematocrit. Thyroid function tests, serum levels of vitamin B12, folic acid, copper and zinc were normal. Thiamine level was measured. Brain MRI revealed high intensity in bilateral thalami on diffusion-weighted imaging, T2-weighted images and fluid-attenuated inversion recovery; T2WI, T2-weighted image.

Learning points
• Wernicke encephalopathy (WE) develops in chronic alcoholism, severe malnutrition, hyperemesis gravidarum, intestinal obstruction, gastrointestinal surgery (bariatric surgery, gastrectomy and colectomy), cancer chemotherapy, haemodialysis and malignant diseases.
• Non-alcoholic WE may demonstrate a more acute presentation than alcoholic WE, and ocular dysfunction tends to be the first presentation in non-alcoholic WE.
• Characteristic features of MRI include increased intensity of bilateral medial thalami, the mamillary bodies, tectal plate, periaqueductal area and around the third ventricle on T2 and fluid-attenuated inversion recovery images.
nystagmus is the typical ocular manifestation of WE, and vertical gaze-evoked nystagmus is less common.\(^6\)

MRI is helpful in diagnosing WE. Characteristic features of MRI include increased intensity of bilateral medial thalami, the mammillary bodies, tectal plate, periaqueductal area and around the third ventricle on T2 and FLAIR images.\(^2\)

WE is a medical emergency and under-recognised especially in non-alcoholic patients. Prolonged neurological impairment such as Korsakoff syndrome could be prevented with thiamine.\(^1\)

Acknowledgements We would like to thank Dr Lisa Rucker (General Internal Medicine, Jacobi Medical Center, New York, USA) for kind English correction of this manuscript.

Contributors KI wrote manuscript and collected data. TH contributed to formulate idea of manuscript and editing. HY wrote manuscript and edited data. MK contributed to overall writing.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient consent for publication Obtained.

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