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Wernicke encephalopathy following advanced caecum cancer

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A 26-year-old lactating mother presented with a 3-week history of abdominal pain,

constipation and vomiting. She denied a history of alcohol abuse or other gastrointestinal problem. Contrast-enhanced CT revealed a small bowel obstruction caused by caecum cancer (Fig.1A). Therefore, she underwent a right hemicolectomy and ileocolic anastomosis. Post-operatively, she gradually developed drowsiness, fainting and a rapid heart rate of 130. But blood tests were all normal. On the fourteenth postoperative day, she experienced two episodes of generalized tonic-clonic seizure. Neurologic examination revealed nystagmus, ophthalmoplegia and gait ataxia. She complained of impaired memory and blurred vision. Brain magnetic resonance image (MRI) showed bilaterally symmetric hyperintensities in paramedial thalami surrounding the third ventricle, dorsal brainstem and periaqueductal region in the axial T2-FLAIR images (Fig.1B, 1C). Wernicke's encephalopathy (WE) was suspected and the patient was treated with Vitamin B1 immediately. Her symptoms improved rapidly, and a brain MRI two weeks later demonstrated marked resolution of the hyperintensities (Fig.1D).

WE is a potentially life-threatening neurological disorder secondary to thiamine (Vitamin B1) deficiency. Thiamine deficiency in time produces an imbalance of brain energy metabolism, leading to rupture of the blood-brain barrier and lowering the osmotic gradient through cell membranes (1). Typical MRI showed areas of increased T2-FLAIR signals symmetrically surrounding the aqueduct and the third ventricles at the floor of the fourth ventricle, where thiamine-related glucose and oxidation metabolism is abundant (2). WE is most commonly seen in alcoholics, but can also appear after bariatric surgery, hyperemesis gravidarum or malnutrition (3). In our case, the reason of thiamine deficiency is thought to be a prolonged fasting due to caecum cancer-induced bowel obstruction. We think there are two reasons for thiamine deficiency in this case. First, a prolonged vomiting and fasting result in insufficient thiamine intake. Second, breastfeeding causes higher consumption for thiamine than ordinary women.

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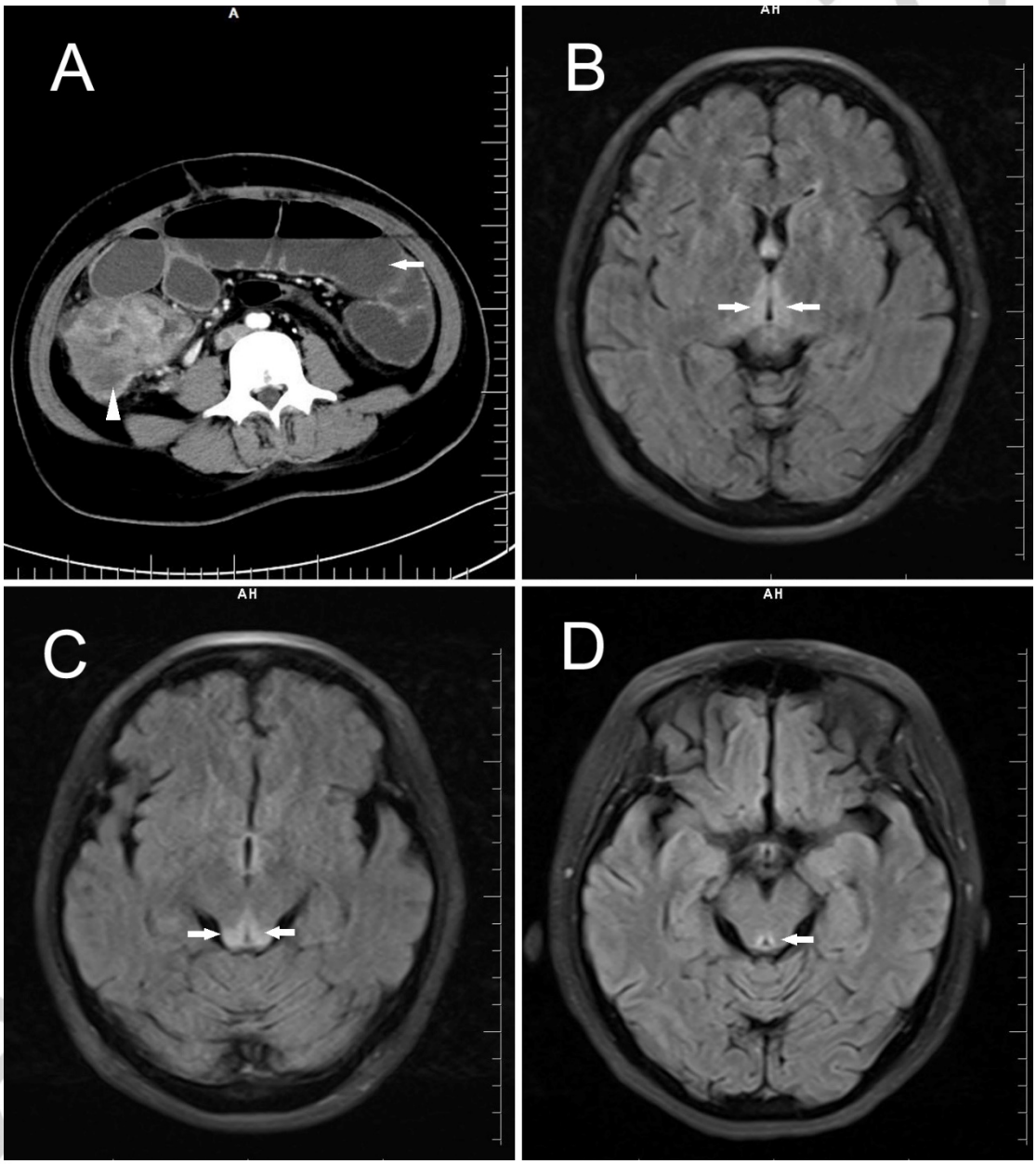

Figure 1. Axial contrast-enhanced CT scan shows irregular caecum wall thickening **(A, arrows)** and small bowel dilation **(A, arrowheads)**. Axial T2-weighted fluid-

attenuated inversion recovery (T2-FLAIR) images showed bilaterally symmetric areas of marked T2 prolongation in the paramedian thalamus along the third ventricle **(B, arrowheads)**, dorsal brainstem and periaqueductal region **(C, arrowheads)**. Axial T2-FLAIR image showed mild T2 prolongation in the periaqueductal region **(D, arrowhead)**.