

## Hyperemesis gravidarum complicated by Wernicke's encephalopathy

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Nausea and vomiting are common complaints during the first 8-12 weeks of gestation. Intractable nausea and vomiting in early pregnancy resulting in dehydration, ketosis, and weight loss is known as hyperemesis gravidarum and affects approximately 0.5-1% of pregnancies.<sup>1</sup> Hyperemesis gravidarum is a multifactorial disease in which pregnancy induced hormonal changes are associated with gastrointestinal motility disturbances and *Helicobacter pylori* infection. Treatment is supportive, and perinatal outcome is usually good.<sup>2,3</sup> Wernicke's encephalopathy associated with prolonged vomiting is a rare but known complication of hyperemesis gravidarum.<sup>4-6</sup>

A 21-year-old gravida 3, para 2, with 22 weeks gestation was referred to Sultan Qaboos University Hospital, Sultanate of Oman with excessive vomiting and headache of 4 months duration and inability to walk of 2 weeks duration. She was being treated in a local hospital for the same complaints with intravenous fluids and antiemetics. Her previous 2 deliveries were by lower segment cesarean sections, she had no prior medical problems. On physical examination, she was dehydrated and pale with a pulse rate of 140/minute. Neurological examination revealed marked apathy with defective recent memory. She was not oriented to person or time. Object recall was very poor. She had papilledema and bilateral gaze evoked horizontal nystagmus. The rest of the cranial nerves were normal. Muscle power was 4/5 in upper and lower limbs, with gait ataxia. Sensations appeared normal. Abdominal examination revealed a uterus of 18 weeks gestational size, and fetal heart was heard. Investigations showed mild megaloblastic anemia due to folate deficiency, shortened activated partial thromboplastin time (APTT) on coagulation screen, low serum albumin and potassium. Liver enzymes, renal function tests, and thyroid function tests were normal. Antiphospholipid antibodies and infection screen were negative. Urine analysis showed 3+ ketones with no organisms. Ultrasonography revealed a single live fetus of 18 weeks gestation. Chest x-ray and CT brain were normal, and nerve conduction study revealed neuropathy. A diagnosis of Wernicke's encephalopathy secondary to hyperemesis gravidarum with nutritional neuropathy was made, and she was started on parenteral thiamine. She developed fever 2 days after admission, and 2 days later an intrauterine fetal death was diagnosed on ultrasonography. Two units of packed

RBCs were transfused as her hemoglobin dropped to 7.7 gm/dl. Her general condition improved after a week of antibiotics, low molecular weight heparin, and thiamine supplements. Termination of pregnancy was attempted with intravenous sulprostone at a dose of 500 µgm in 50 ml normal saline at 1.5 ml/hr, doubling every hour to a maximum of 24ml/hr. As she did not respond to 2 courses of sulprostone; laparotomy and hysterotomy were carried out. Her postoperative period was uneventful, and she recovered and was discharged 11 days after the surgery. At 6 weeks follow up visit, she was well and had no neurological symptoms.

Wernicke's encephalopathy is usually associated with alcohol abuse, but can also occur with hyperemesis gravidarum. It is caused by the deficiency of vitamin B1 (thiamine) and usually develops during prolonged intravenous fluid therapy without vitamin supplements. Unfortunately, our patient was on intravenous fluids and antiemetics for several weeks, prior to admission to our hospital. Wernicke's encephalopathy is characterized by disturbances of mental function, eye movement, and incoordination. This patient had all these signs (apathy, defective memory, nystagmus and gait incoordination), which rapidly responded to thiamine replacement. Papilledema, as seen in our patient, was reported in the original patient by Wernicke. An MRI brain is usually abnormal showing T2 hyperintensities in the dorso medial thalami, midbrain tectum, periaqueductal grey matter, around the fourth ventricle, and in the mamillary bodies. However, this facility was not available in our institution at that time. Abnormal liver function tests, and evidence of disseminated intravascular coagulation have been reported in hyperemesis gravidarum complicated by Wernicke's encephalopathy.<sup>6</sup> Our patient had normal liver function tests with a shortened APTT on coagulation profile. Although the perinatal outcome is usually good in hyperemesis gravidarum, a fetal loss of 50% is reported when hyperemesis gravidarum is complicated by Wernicke's encephalopathy.<sup>4</sup> Giuseppe et al,<sup>7</sup> in his recent review of 49 reported cases of Wernicke's encephalopathy, found an overall pregnancy loss of 47.9%. Complete remission of the disease occurred in only 14 of 49 cases; symptom resolution required months, and permanent impairments were common. Early thiamine replacement may decrease the rate of fetal loss and permanent neurological damage.<sup>5</sup> Our patient had an intrauterine fetal death 4 days after admission, and she developed high fever. Hysterotomy was performed, as she did not respond to induction with intravenous sulprostone.

The diagnosis of Wernicke's encephalopathy in the setting of hyperemesis gravidarum is readily made if it is included in the differential, and the treatment is simple and effective.

In conclusion, thiamine deficiency can lead to Wernicke's encephalopathy in women with severe nausea and vomiting of pregnancy. We emphasize the importance of thiamine replacement to all pregnant women with vomiting of more than 3 weeks duration. Early thiamine replacement will reduce maternal morbidity and fetal loss rate.

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