

Case Report

A Rare Complication of Adjustable Gastric Banding: Wernicke's Encephalopathy

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Background: Wernicke's encephalopathy is an uncommon complication seen after morbid obesity surgery. Neurological and cardiac symptoms can occur. Early and adequate replacement of thiamin is crucial.

Methods: A patient, who was operated by adjustable silicone gastric banding had severe vomiting 1 week after the operation. Physical examination showed no abnormalities except neurological signs consisting of ataxia, disorientation and diplopia. All radiological and biochemical parameters were in the normal range.

Result: After replacement of vitamin B₁ (thiamin) intravenously 20 mg twice daily, all the neurological signs regressed day by day. Oral thiamin pills have been continued.

Conclusion: Wernicke's encephalopathy which occurs as a result of thiamin deficiency is a rare complication that has serious morbidity with rapidly progressing neurologic symptoms, and must be treated immediately. Surgeons who treat morbidly obese patients must follow the metabolic and nutritional status of the patient.

Key Words: Morbid obesity, Wernicke's encephalopathy, thiamin, vomiting

Introduction

The treatment of the morbid obesity includes many

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surgical methods. Adjustable silicone gastric banding (ASGB) is one of the most useful operations. The complication rate is low and the results are quite satisfactory.

We report a very rare complication: the development of Wernicke's encephalopathy due to thiamin pyrophosphate deficiency after bariatric surgery. Thiamin pyrophosphate is an important enzyme co-factor in the Krebs' cycle. Tissue storage of vitamin B₁ is minimal. Biochemical deficiency can be demonstrated within a few weeks of cessation of thiamin intake. Neurogenic and cardiac symptoms can be seen in thiamin deficiencies. In general, thiamin deficiency has been encountered after gastrectomy, hyperemesis gravidarum and in alcoholic patients.^{1,2}

Case Report

A 28-year-old woman weighing 175 kg (BMI 55) underwent an ASGB in September 1998. Her preoperative medical examination showed normal blood count and biochemical results. The operation took 40 minutes and had no perioperative complication. Immediately after surgery all medical parameters were normal.

On the third postoperative day nausea, vomiting and fever began. Urinary infection was the reason

for the fever. Gastroscopic analysis showed no evidence of gastric stasis. Caloric requirements were replaced by intravenous glucose, and antibiotic was started. One week later, urinalysis was normal, but nausea and vomiting continued. Liquid and semi-solid oral feeding began, which the patient tolerated. Six weeks after the operation, mental confusion, ataxia and disorientation started. Cranial MRI and EEG were found to be normal.

These findings were consistent with Wernicke's encephalopathy. After intravenous administration of vitamin B₁ (thiamin) she improved. All neurological signs decreased slowly. Six months after the operation the patient had lost 39 kg and her BMI had decreased to 49. Complete neurological recovery occurred. Oral thiamin replacement therapy has been continued with a dose of 3 mg/day.

Discussion

The recent gastric restrictive developments in the surgery for morbid obesity have helped to decrease the metabolic and mechanical complication rates. The bilio-pancreatic, jejuno-ileal and gastro-ileal operations had potential metabolic complications.³ ASGB is one of the commonest techniques used in Europe, and the metabolic complication rate after ASGB is 1-3%.⁴

Wernicke's encephalopathy is a rare but potentially devastating complication of ASGB. It usually follows repeated nausea and vomiting occurring within 1 month following the operation. Fatigue, rigidity particularly in crural muscles, pain and weakness are usually associated. Inadequate treatment results in atrophy of extensor muscles. Diarrhea, if associated with the nausea, increases the thiamin requirements.⁵ Inadequate treatment causes diplopia, paresthesia, nystagmus, ataxia and peripheral neuropathy, which can rapidly become permanent. The cranial MRI and EEG do not show any pathological change. In addition, a severe high-output cardiac insufficiency can develop.

To differentiate the symptoms of nausea and vomiting from postoperative complications, an upper gastrointestinal radiologic series can be performed. Treatment is to replace thiamin intravenously immediately. The patient with Wernicke's

encephalopathy requires 20 mg of thiamin intravenously twice or three times a day. If the symptoms regress, the thiamin should be continued as 3-5 mg orally,⁶ if the vomiting has ceased.

The response to treatment is correlated with the degree of structural degeneration and the regeneration power of the nervous system. Cardiac symptoms regress rapidly with thiamin replacement. The neurological symptoms (ophthalmoplegia, ataxia, nystagmus, apathy, paresthesia) improve more slowly. Adequate thiamin replacement should be made before the irreversible period.

Wernicke's encephalopathy has also been associated with chronic alcoholism, severe hyperemesis gravidarum, total gastrectomy and long-term intravenous hyperalimentation if thiamine is not included.^{1,2,7}

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