Case Report

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Dumping-Like Symptoms After Roux-En-Y Gastric Bypass: Case Report

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Abstract

Background: Late dumping syndrome is a possible side-effect of gastric bypass. Hypoglycemic symptoms may develop 3-4 hours after certain types of foods. There may exist patients, however, who present hypoglycemia in the absence of dumping syndrome. The presence of only mild symptoms of hypo-glycemia may make the evaluation of these patients difficult and delay the identification of other possible sources of hyperinsulinemia, including an insulinoma.

Case Report: A 37-year-old woman underwent laparoscopic roux-en-Y gastric bypass (LRYGB) for morbid obesity. After operation, the patient had repeated episodes of hypoglycemia, diagnosed at follow-up as late dumping syndrome. The persistence of hypo-glycemic episodes after nutritional counseling and modifications in the feeding pattern led to consideration of an autonomous source of hyperinsulinemia, and MRI and endoscopic ultrasound identified insulinoma. After a laparoscopy and pancreatic tumor resection, she remains free of symptoms.

Conclusion: Hypoglycemic episodes after obesity surgery are not always related to dumping syndrome. The persistence of hypoglycemia despite nutritional counseling should raise the possibility that there may be other causes of dumping-like symptoms. Insulinoma, the most common cause of endogenous hyperinsulinemia, should be investigated in these patients, since it is a tumor that can be cured.

Introduction

Bariatric surgery is the most efficient treatment for morbid obesity. The combined properties of restrictive and malabsorptive gastric bypass lead to a low incidence of complications and to long-term weight loss [1]. Good results, however, depend on the bariatric surgeon and the multidisciplinary team dealing with the patients before and after surgery [2]. Physicians must be prepared to recognize complications and side-effects related to surgery. Dumping syndrome is a not uncommon complication of gastric bypass. The ingestion of calorie-dense, high-osmotic food followed by rapid emptying into the small intestine causes the release of peptides that induce tachycardia, palpitations, diaphoresis, and nausea [3]. Although these symptoms are considered side-effects of the surgery, their occurrence helps to limit the amount of food ingested, and, therefore, is one of the possible mechanisms for the good results of the gastric bypass. In most cases, the patients learn to avoid dumping syndrome by changes in quantity and quality of food ingested. We report the case of an obese patient who, after LRYGB, had started to experience symptoms of hypoglycemia. The patient was misdiagnosed as dumping syndrome and continued to have symptoms despite the nutritional counseling. Investigation found an insulinoma as the cause of hypoglycemia.

Case Report

A 37-year-old Caucasian woman was referred to our center because of morbid obesity. She had tried to lose weight several times, including with medications, but never succeeded. Her incapacity in adhering to different nutritional approaches associated with a persistent feeling of hunger became worse in the past year. Her height was 179cm and body weight 130kg $Body\ Mass\ Index\ (BMI) = 41\ kg/m2$. She underwent an Oral Glucose Tolerance Test (OGTT), which demonstrated deep hypoglycemia after 90min, she received nutritional counseling and

returned 3 months later, with further weight gain of 7kg, unable to follow the prescribed diet. She was then referred to our center and she passed LRYGB. She lost weight (BMI 25), but 6 years later she complained of episodes of nausea, tachycardia, and vomiting. However, she did not associate these with feeding. She was diagnosed as having late dumping syndrome and was advised to decrease the ingestion of sweets and high osmolar fluids and to increase the number of meals per day. The patient continued to have these symptoms despite all changes in the eating pattern. She was then referred to an endocrinologist for further investigation. Since no response was observed after nutritional counseling, biochemical tests were performed to investigate hyperinsulinemia.

MRI and endoscopic ultrasound were performed, and both demonstrated the presence of a Well differentiated endocrine pancreatic neoplasia. (diameter 1.8cm) of approximately 1.8cm in the body of the pancreas without lympho-vascular or perineural invasion. (Figures 1A & 1B). A laparoscopy was performed, and an insulinoma was identified and enucleated. After surgery, there have been no further hypoglycemic episodes or symptoms.

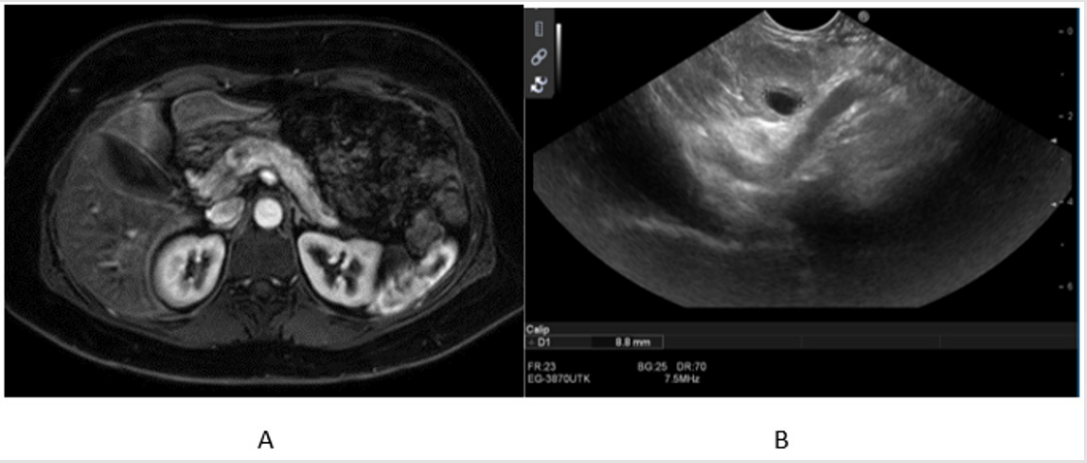

Figure 1:

a. Magnetic resonance imaging and

b. Endoscopic ultrasound scans of the abdomen showing the presence of an insulinoma in the body of the pancreas.

Discussion

Insulinomas are the most common source of hyper-insulinemic hypoglycemia [4]. The occurrence of hypoglycemic episodes, although strongly suggestive of insulinoma, may be underestimated in some patients, delaying the identification of the disease for up to 5 years [5]. Even though neuroglycopenic symptoms are the most known, some patients may present only mild symptoms or signs, including weight gain in approximately 40% of the patients [5]. Clinical and biochemical data from our patient suggest that an insulinoma could have been one of the possible causes for the weight gain and lack of response to clinical treatment of obesity before bariatric surgery. The presence of hypoglycemia during oral glucose tolerance test may indicate that, at that time, the patient already had an autonomous source of insulin, which was missed due to the major concern with weight gain and insulin resistance. Moreover, persistent hyperinsulinemia in morbidly obese patients is almost always suggestive of insulin resistance. The elevated insulin levels in these patients are usual. Thus, only a prolonged fast test would allow a better distinction between insulin resistance and autonomous hyperinsulinemia. Lack of awareness of symptoms of hypoglycemia by the patient may also result in delay in the identification of the insulinoma. These patients often fail to recognize autonomic warning symptoms. Therefore, hypoglycemia is only detected through the presence of neuroglycopenic symptoms. This situation has been described in patients with insulinomas [6,7] as in a patient after vagotomy and gastric resection for ulcer recurrence [8].

It has been suggested that this lack of awareness of hypoglycemia may be due to a generalized central system adaptation after repeated episodes of hypoglycemia [9,10]. If the patient did have the insulinoma before surgery, she may have been suffering episodes for a long time, which may have ultimately resulted in her unawareness of episodes. Also, the persistent feeling of hunger reported by the patient as the cause of her inability to follow the prescribed diets may be an indirect sign of persistent hypoglycemia. Hypoglycemic symptoms in obese patients after bariatric surgery are usually related to dumping syndrome. Late dumping syndrome is characterized by reactive hypoglycemia secondary to hyperinsulinemia. Symptoms, mainly perspiration, shakiness, difficulty in concentrating, decreased consciousness, and hunger [11] occur 2-3 hours after feeding and are related to glucagon-like peptide-1 (GLP-1), gastro-intestinal inhibitory

peptide (GIP), and high glucagon levels [12,13]. These symptoms are expected in the early phases of follow-up after gastric bypass. Therefore, their occurrence is usually considered normal and no further investigation is performed. The frequency and severity of symptoms usually ameliorate with nutritional counseling and modifications in the feeding pattern.

Some patients who present late dumping syndrome require medications to control the hypo-glycemia. During the post-surgery period, our patient received nutritional counseling as an attempt to control the hypoglycemic episodes. She was advised to reduce the amount of carbohydrate ingested and to increase the number of tiny meals. It is interesting to speculate that these recommendations may have worsened the episodes. Since the desirable effect was not achieved, the patient was referred to an endocrinologist for further evaluation. The prompt identification of fasting hypoglycemia and hyperinsulinemia indicated that there may be an alternative cause for hypoglycemia instead of late dumping syndrome. The endoscopic ultrasound and MRI were then performed and identified the pancreatic tumor as the organic cause of the hypoglycemia. A laparoscopy was performed, and the insulinoma was enucleated. It is important to consider that symptoms of dumping are usually nonspecific, resembling those observed in hypoglycemic patients. Based on this, nutritional counseling should always be the first therapeutic intervention for patients with such symptoms. However, if the symptoms persist, careful investigation for an autonomous source of insulin should be performed before beginning pharmacologic therapy for dumping syndrome. Patients with persistent hypoglycemic episodes should have glucose, insulin and C-peptide levels determined after a 12-hour fast, to exclude an autonomous source of insulin secretion. In cases where these tests are considered still doubtful, the patient should be hospitalized, and the test should be repeated after a prolonged fast.

Conclusion

Bariatric surgeons should be aware of metabolic conditions including hypoglycemia, as a treatable cause of dumping-like symptoms.

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