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Malnutrition secondary to gastrojejunal stricture after biliopancreatic diversion

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ABSTRACT

CONTEXT: Bariatric surgery has beneficial effects on obesity and associated comorbidities such as glycaemic control in type 2 diabetes, dyslipidaemia, hypertension, and renal and hepatic function. Nevertheless, this surgery is not free of complications and possible side effects due to restrictive and/or malabsorptive related components.

CASE DESCRIPTION: We report the case of a 60-year-old woman whose past medical history included morbid obesity, hypertension and Scopinaro biliopancreatic diversion (BPD) with duodenal switch in 1998. In 2015, she attended the emergency department hypotensive with bad general condition and reporting chronic constitutional symptoms. A wide variety of tests were performed including endoscopic studies as her symptoms were not immediately correlated with the BPD surgery. Finally, she was diagnosed from gastrojejunal stricture which caused her severe malnutrition. The patient underwent successful surgical management.

DISCUSSION: BPD is one of the most effective surgical procedures for obesity, with an overall 5-year loss of excess body weight higher than 72%. Nonetheless, it is associated with long-term complications such as protein malnutrition and vitamin deficiencies due to malabsorption. Being surgically challenging, with high risk of nutritional complications and lifelong needed for the follow-up, BPD is rarely performed nowadays.

CONCLUSIONS: Bariatric Surgery is a well-known effective therapeutic measure to improve obesity and cardiovascular related disease. However, this case highlights the importance of robust multidisciplinary lifelong surgical and medical follow-up in all BPD patients. BPD complications can be minimised and recognised early with patient and healthcare staff education on the importance of lifetime follow-up and adherence to dietary and supplement regimes.

1. Introduction

Bariatric surgery provides excellent outcomes in terms of weight loss and amelioration of associated metabolic syndrome comorbidities such as type 2 diabetes, dyslipidaemia and hypertension [1,2]. However, it also carries certain morbidity risk. This work has been reported in line with the SCARE criteria [3].

2. Case report

We report the case of a 60-year-old woman who presented to our institution, in January 2015. She gave 6 months history of vomiting (daily over the preceding three weeks), general malaise, anorexia, dizziness, severe back pain and weight loss of approximately 6 kg. Her past medical history included morbid obesity and hypertension, Scopinaro biliopancreatic diversion (BPD) with duodenal switch in 1998 (her follow up ceased in 2010 when patient stopped attending appointments), secondary hyperparathyroidism. She was a non-smoker. Her regular medications included a proton pump inhibitor, multivitamin and iron supplements, calcium, vitamin D, pain killers and an angiotensin-converting enzyme inhibitor. Three months prior to this admission she had already been diagnosed with iron deficiency anaemia. Gastroscopy and CT scan were normal at that time.

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On examination, she was dehydrated, pale, had thin hair and brittle nails, coated tongue, multiple haematomas and generalised oedema. She was hypotensive (85/40 mmHg), tachycardic and apyrexial. Her weight was 66 kg with BMI of 26.4 kg/m^2. Blood tests revealed hypoalbuminemia, microcytic/hypochromic anaemia with low ferritin level, deranged clotting, normal plasma glucose, creatinine 1.4 mg/dL (124 umol/L), uric acid 8.8 mg/dL (523 umol/L), raised C-reactive protein. Liver, renal, thyroid function and adrenal axis tests, procalcitonin, rheumatoid factor and tumour markers were all normal. She was diagnosed of severe malnutrition secondary to BPD and was admitted for further investigations. CT-scans excluded any anatomical abnormalities, pulmonary embolism or active bleeding. MRI showed multiple vertebral osteoporotic fractures. Echocardiogram was normal.

Patient was given a trial of enteral nutrition via a nasogastric but it was not tolerated due to recurrent vomiting. Parenteral nutrition was therefore administered. Concomitantly, degree of anaemia deteriorated despite intravenous iron supplementation, therefore a diagnostic gastroscopy was performed. A tight anastomotic stenosis with coexisting ulceration at gastrojejunostomy level was diagnosed and neither the scope or a guidewire could not be passed through on 2 separate attempts (Fig. 1). Biopsy of the area confirmed benign inflammatory tissue.

Small bowel follow-through study was performed with Gastrografin® administered orally and no contrast passage beyond the gastric pouch was seen. When Gastrografin® was given through the nasojejunal tube, normal contrast passage through the jejunum was demonstrated (Fig. 2). Based on the findings above, an obstruction at gastrojejunostomy level was diagnosed. Therefore, patient was referred to the surgical team and a resection of stenosed gastrojejunostomy with refashioning of alimentary Roux limb was performed. The histopathology results of the resected gastrojejunostomy confirmed chronic inflammation, oedema and submucosal fibrosis. Patient had uneventful postoperative recovery, tolerated oral intake well and was discharged home after 70 days with supplementary oral nutrition (Diben Drink®), multivitamin and mineral supplementation. Three months after surgery, her weight was stable (67 kg, BMI 26.8 kg/m^2), anaemia has resolved and nutritional status improved.

3. Discussion

Bariatric surgery is treatment of choice for patients presenting with severe obesity and associated comorbidities [1,2,4]. Roux-en-Y gastric bypass (RYGB) and BPD result in good weight loss and remission of many metabolic syndrome comorbidities [1,5–7]. These effects are thought to be mediated by enhanced gut hormones secretion (glucagon-like peptide 1, peptide YY and oxyntomodulin), bile acids signalling, reduced intestinal glucose transport via SGLT1 and circulating branched-chain amino acids and changes in gut microbiome, leading to improved early insulin secretion and sensitivity, and increased satiety [8,9]. However, due to the limited food intake and/or malabsorption, nutritional deficiencies are not uncommon. BPD, first described by Scopinaro, has been performed over the last 25 years and results in effective and sustained long-term weight loss [5,10]. It involves formation of a horizontal partial gastrectomy, leaving a gastric pouch of 200–500 mls in volume, anastomosing it to 250 cm alimentary

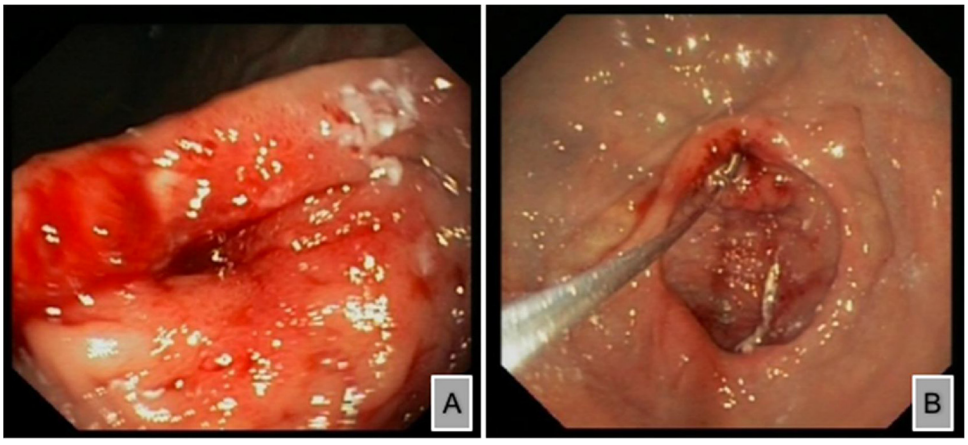

Fig. 1. Gastroscopy (A) Gastrojejunal anastomosis with ulceration. (B) Guide wire not passing the stricture during an attempt of dilatation.

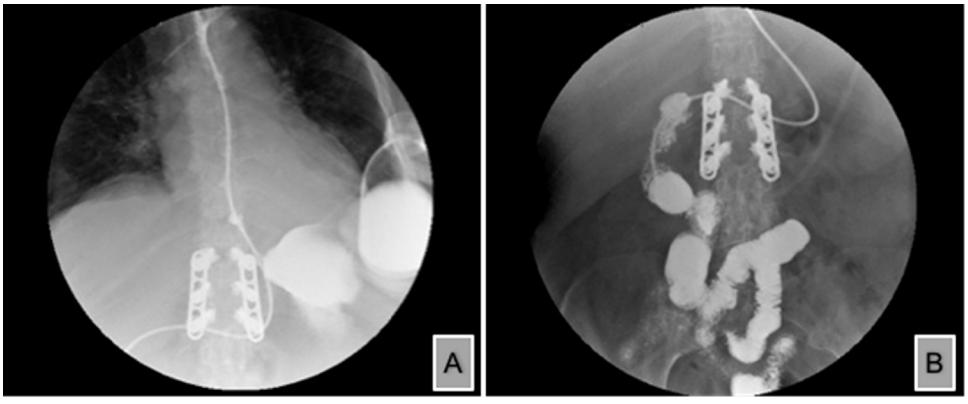

Fig. 2. Small bowel follows through (A) Gastrografin® given orally fills the gastric pouch but does not pass to the small intestine. (B) Gastrografin® administered via the nasojejunal tube passes into jejunum.

(Roux) limb which is then anastomosed to the long biliopancreatic limb 50 cm proximal to the ileocecal valve, resulting in a very short common channel. It is one of the most effective surgical procedures for obesity, with an overall 5-year loss of excess body weight higher than 72% [1,6,7]. Nonetheless, it is associated with long-term complications such as protein malnutrition and vitamin deficiencies due to malabsorption [5,11,12], especially in patients who are not monitored closely. Protein malnutrition can occur in 7.7–11.9% BPD patients and when gastric pouch is smaller than 200 mls – even in 17.8% [11]. This risk can be minimised by adapting size of the gastric pouch and length of the common limb (increasing it from 50 to 100 cm). Anatomical late complications of the BPD are reported less frequently. Scopinaro describes 1,2% of intestinal obstruction rate and 11.9% protein malnutrition rate in his large series with a follow-up of 18 years. Despite regular use of supplements, up to 94% of the patients may present with vitamin (especially fat-soluble) and mineral deficiencies [12,13]. Iron deficiency anaemia occur in approximately 60% of patients undergoing BPD and is caused by diminished secretion of stomach acids and the exclusion of the duodenum and proximal jejunum. Calcium deficiency occurs due to exclusion of the duodenum and causes decreased bone mineralization in one third of the BPD patients. Being surgically challenging, with high risk of nutritional complications and lifelong needed for the follow-up, BPD is rarely performed nowadays.

4. Conclusion

This patient presented 17 years after BPD hence her symptoms were not immediately correlated with the surgery. She had most likely developed an anastomotic ulcer which caused a stricture and subsequently obstructed the gastrojejunostomy (however, its aetiology could not be established). Robust multidisciplinary lifelong surgical and medical follow-up should be offered to all BPD patients. BPD complications can be minimised and recognised early with patient and healthcare staff education on the importance of lifetime follow-up and adherence to dietary and supplement regimes.

Conflicts of interest

No conflict of interest.

Sources of funding

There were no sources of funding for this research.

Ethical approval

IRB/Ethics Committee ruled that approval was not required for this study.

Consent

Consent was obtained from the patient. All identifying details have been omitted.

Author contribution

All authors involved in the report contributed to the concept of the paper, the data collection and to the writing of the manuscript. All authors reviewed the paper prior to the final manuscript to be submitted.

Guarantor

Belén Pérez-Pevida.

Disclosure statement

The authors have nothing to disclose.

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