

Undo of Vertical Gastroplasty and Mini Gastric Bypass in a Severely Malnourished Patient: A Case Report

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Abstract

Introduction: Bariatric surgery, including vertical gastroplasty and mini gastric bypass (MGB), poses challenges in severely malnourished patients due to the risk of worsening nutrient deficits.

Case Presentation: A 57-year-old woman with past history of mini gastric bypass presented with neurological symptoms from thiamine deficiency which resolved with IV thiamine. After the patient had been nutritionally optimized, she underwent surgery to undo the vertical gastroplasty and create a side-to-side gastro-gastrostomy, and she was discharged in good condition.

Discussion: Mini-Gastric Bypass and vertical gastroplasty may lead to nutritional problems in malnourished patients which need close observation and aggressive nutrition support in the postoperative period.

Conclusion: The management of bariatric surgery in malnourished patients' needs a multidisciplinary approach to nutritional optimization, appropriate surgical techniques, and close monitoring after surgery.

Keywords

Bariatric surgery; vertical gastroplasty; Abdominoplasty; Mini gastric bypass

Introduction

We here report a case of a highly malnourished patient who required both vertical gastroplasty and mini gastric bypass and later needed surgical intervention. Managing such patients can be tedious, it requires an understanding of both surgical and nutritional management. These procedures are usually done for people with obesity (BMI ≥ 40 or ≥ 35 with comorbidities) to promote weight loss and to address obesity-related comorbidities. However, in malnourished patients, the nutritional status and the risks of surgery should be carefully evaluated.

Malnutrition is a leading cause of surgical mortality and many patients do not receive adequate nutritional support, thereby developing perioperative malnutrition. In bariatric surgery, procedures like mini gastric bypass can worsen the deficiency of nutrients if not well managed during the preoperative period. A proper nutritional plan is of paramount importance to decrease post operative adverse effects.

Psychosocial factors also play a role in the surgery outcomes as severely malnourished patients may develop psychological problems that interfere with the recovery. Integrated care is important in the management of nutritional and psychological problems. Enhanced recovery after anaesthesia (ERAS) protocols which include preoperative counselling and postoperative nutritional care has been seen to enhance the results in these patients.

The following protocols were followed during the preoperative and postoperative periods to improve the general health of the patient; increasing the intake of fluids and foods, increasing the physical activity, and controlling pain.

Case Presentation

A 57-year-old female with past medical history of hypertension and other past surgical history including myomectomy for uterine fibroid, two cesarean sections, abdominoplasty, and gastro-ileal bypass was admitted on 8th December 2024 under neurology department. She had lower limb weakness, swelling and dizziness for 10 days. On physical examination the patient had lower limb oedema and required help to walk. She could not stand without assistance; however her sensory function was intact.

Thiamine deficiency was diagnosed and her neurological symptoms greatly improved with thiamine supplementation.

The patient was then readmitted under the general surgery team for pre-operative optimization. Pre-operative testing done on the patient showed that her serum albumin level was 16 g/L (normal value 34-54 g/L). The patient was given Total parental nutrition (TPN) through the PICC line and her general condition improved. The patient was seen by a nutritionist, and the patient developed fever due to the sepsis of the peripherally inserted central catheter (PICC) line. The PICC line was removed and the patient displayed improvement, and the post-operative albumin level was 29 g/L.

When the patient had reached an accepted level of nutrition after 4 weeks of hospitalization, the patient underwent for the procedure. The procedure performed was to undo the vertical gastroplasty and create a side-to-side gastro-gastrostomy. Intra-operative findings included a mini gastric bypass with a vertical

gastroplasty (Figure 1), constituting two limbs; a gastric alimentary limb with continuation with gastro-ileal anastomosis, and an excluded part of the stomach in continuation with pylorus and the duodenum, and there was surgical endo-clips fixing the gastric alimentary channel and the left liver edge which was taken down along with the adhesion from the previous procedure.



Figure 1: Showing post adhesiolysis demonstrating vertical gastroplasty and gastro-ileal bypass.

The gastro ileal anastomosis was dismantled and disconnected using a GIA endo- stapler (Figure 2)

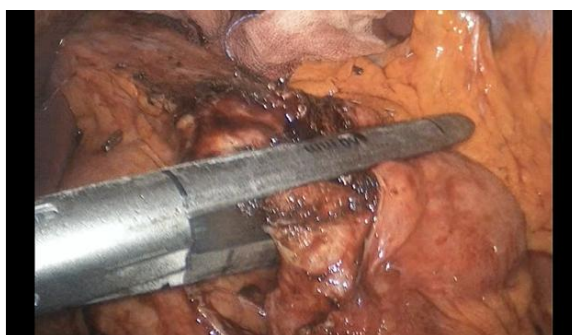


Figure 2: Separation of common limb the gastro-ileal anastomosis.

Then the two parts of the stomach were anastomosed using two 60 GIA black staplers for a wide anastomosis (Figure 3). The boogie was inserted via the oesophagus and showed patent lumen in the anastomosed gastro- gastrostomy stomach. The anastomosis and the staplers' lines were reinforced with surgical adhesive glue. The mesenteric defect was closed with self-retaining sutures to assure less internal hernia occurrence.



Figure 3: Side to side gastro-gastrostomy.

Postoperative course

The patient was able to tolerate oral feeding, have passage of flatus and had no major surgical complication except for fever due to PICC line related sepsis thrombophlebitis. A pan CT was done for the work up for the fever and the abdominal CT showed good intra-abdominal condition with no collections or other pathology, The source control was done by removing the line and culture-oriented antibiotics started, and the patient was discharged in good condition after the fever subsided.

Discussion

This paper aims to assess the success, side effects and nutritional benefits of vertical gastroplasty and mini gastric bypass in severely malnourished patients. The articles discussed herein provide information on the success, side effects and nutritional aspects of these surgeries particularly in the context of patients who may be admitted with severe levels of malnutrition.

Vertical gastroplasty is a type of restrictive bariatric surgery which has been used in the past to achieve weight loss through stomach stapling. But recently, the durability has been a problem especially in the malnourished patients. It has been established that vertical gastroplasty assists in weight loss but may not be long-term compared to malabsorptive procedures like mini gastric bypass (MGB) [1,2]. MGB has been shown to not only aid in weight loss but also change the body's metabolism such that it can lead to the cure of diabetes mellites type two T2DM [3,2].

Mini gastric bypass (MGB) also known as single-anastomosis gastric bypass is less invasive and has a shorter operating time than the traditional Roux-en-Y gastric bypass (RYGB). This has been adopted because it produces similar results in weight loss and metabolic changes and is particularly useful in obese patients with T2DM [4, 5]. It has been found that MGB can lead to weight loss of 60% to 70% in the first year after surgery which is almost equal to that of RYGB [6, 7]. Moreover, MGB has been linked with lower complication rates and is therefore recommended for use in the severely malnourished patients [7,8].

Nutritional depletion is a major problem after bariatric surgery, and it is especially a problem for those patients who are already malnourished prior to the surgery. Bétry et al. [9] reported that a high number of patients with severe nutritional complications after bariatric surgery had an one-anastomosis gastric bypass (OAGB) and that the type of surgery could influence the patient's nutritional status greatly. These facts are significant because many patients may require parenteral nutrition due to deficiencies particularly in cases of malabsorption [9,8].

Some complications of mini gastric bypass like hypoalbuminemia and steatohepatitis make the management of severely malnourished patients even more challenging [8, 4]. These can be attributed to the malabsorptive nature of the procedure that only worsens the existing nutritional deficiencies. It is important for healthcare providers to implement strict nutritional surveillance and treatment protocols to avoid these complications [9,10].

However, the short and medium-term impacts of MGB on nutritional status and metabolic functions must also be taken into consideration. Studies have shown that MGB leads to a significant decrease in weight and enhancement of metabolic functions; nevertheless, potential long-term complications, such as bile reflux

and gastric remnant cancer, must be considered [3, 11]. Many of these complications require further surgical management which may further complicate the clinical picture for severely malnourished patients [12].

With regard to the postoperative course, the application of enhanced recovery after surgery (ERAS) protocols has been found to benefit bariatric patients including those with mini gastric bypass [13]. These protocols are based on the ideas of early ambulation, nutrition, and pain control, which can be very useful for the patients with pre-existing nutritional deficiencies.

The comparison of the effectiveness of MGB with other bariatric surgeries like sleeve gastrectomy and RYGB has been the subject of numerous studies [14] observed that both MGB and sleeve gastrectomy are good for weight loss and T2DM control. However, MGB has some advantages in terms of simplicity and safety which is important for severely malnourished patients who may be at a higher risk of complications from more complex surgical procedures.

Conclusion

Management of severely malnourished patients with vertical gastroplasty and mini gastric bypass is a complex process that needs thorough consideration of the surgical technique, nutrition, and postoperative course. Even though mini gastric bypass is quite effective in weight loss and metabolic functions, the risk of nutrient deficiencies and other complications means that these patients need to be managed holistically. Further studies should be directed towards the improvement of surgical techniques and postoperative care for this patient population.

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