



Case Report

Gastrogastric herniation: An unusual complication following greater curve plication for the treatment of morbid obesity: Case report

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ABSTRACT

Bariatric surgery is the most effective treatment for obese patients. Laparoscopic greater curvature plication (LGCP) is a good, effective and feasible surgical option for the treatment of obese patients. But it has some complications that should be considered such as gastric remnant distention, stomal stenosis and marginal ulcers.

Here, we reported an extremely rare complication "gastro-gastric herniation". This condition was diagnosed through upper gastrointestinal contrast imaging and treated through laparoscopy. The hernia was invaginated and firm continuous sutures were placed. We followed the patient for one year and the results were great.

Thus, we can add gastro-gastric hernia to the medical literature as a rare complication of laparoscopic greater curvature gastric plication, and It is considered a serious condition that requires immediate treatment and follow-up.

1. Introduction

Obesity is considered an important risk factor for many serious diseases such as cardiovascular diseases, diabetes mellitus, and cancers during the last decade. A variety of surgical techniques have evolved for the treatment of obesity despite the availability of gastric bypass, adjustable banding, sleeve gastrectomy, and duodenal switch, the number of potential candidates who undergo surgical therapy for obesity in the United States remains approximately 1% [1]. Laparoscopic greater curvature plication (LGCP) has been used as a bariatric procedure for the treatment of obesity, regarded as less invasive and less expensive than other surgical bariatric procedures. By performing this technique, the median one-year excess weight loss lies between 53.4% and 61% [2–5]. However, in 2006, Fusco et al. [6,7] presented data suggesting that plication in rats creates significant weight loss and subsequently showed that infolding of the greater curve produces superior results to anterior wall plication.

Fortunately, laparoscopy is a method for diagnosing all the following complications of gastric plication and In the event of this rare complication, the hernia should be retracted with an internal absorbable proline electrode at the level of two rows of the stomach wall to prevent

leakage of gastric contents into the peritoneal cavity. The most important thing is to follow up on the patient's condition after treatment.

This case report has been reported in line with the SCARE criteria [14].

2. Case presentation

A 35-year-old woman presented to our bariatric centre with over obesity. She wanted to decrease her weight. She had no symptoms or complaints. She had a body mass index of 43.26 that meant she had morbid obesity. There is no history of surgery. preparation before surgery we did some investigations that included superior gastrointestinal endoscopy (Normal) chest- X-ray, echocardiography abdominal echography and blood tests and the results were within normal ranges. We explained the surgical bariatric options for the patient (Sleeve gastrectomy, laparoscopic gastric plication Roux-en-Y gastric bypass, Adjustable gastric banding) and she selected gastric plication operation and refused sleeve gastrectomy because of the lack of financial capabilities and no need to use beads The decision about surgery was taken for the treatment. The operation was performed as laparoscopic greater curvature plication under general anaesthesia and it took 75 minutes

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Sutures were performed on one row of the stomach wall to fold the large curve inward in a sleeve shape to reduce the size of the stomach. There were no intraoperative complications, and we didn't find any difficulties during surgery.

By postoperative follow up, the patient was hospitalized for two days, and was discharged on a semi-solid diet without any postsurgical or clinical complications.

One month after the operation, she revised our centre complaining of no weight loss without any other symptoms such as nausea, vomiting, abdominal pain, gastroesophageal reflux or bowel habits changes. Her body mass index was 43.05 Kg/m². On physical examination, the abdomen was distended with no pain or tenderness. We did some radiological investigations. Ultrasonography was normal. Upper contrast gastrointestinal imaging showed an overfill focus on the greater curvature of the stomach that may be referred to as gastro-gastric hernia through suture row without leakage of contrast substance (Fig. 1). We decided laparoscopy after good presurgical preparation.

At laparoscopy, we found gastro-gastric hernia protruding throughout plication sutures. As the best option, we performed an invagination of the hernia using 2-0 prolene continuous sutures on two rows (Fig. 2). After that, the patient was discharged on the third postoperative day with some recommendations. She lost 12 Kg in the first postoperative month and 13 Kg in the second month. The patient's condition was followed up for a year, and the results were very satisfactory.

3. Discussion

Bariatric surgery today is the only effective therapy for morbid obesity, which has increased steadily over the past several decades. Bariatric surgery can be performed either via an open approach or via a laparoscopic approach. The laparoscopic approach has become the more popular one. Types of bariatric surgery include the following: sleeve gastrectomy, adjustable gastric banding, Roux-en-Y gastric bypass and biliopancreatic diversion with duodenal switch. Greater curve plication is an emerging procedure for the treatment of morbid obesity. Most existing bariatric procedures produce a median five-year excess weight loss (EWL) of at least 50% [8,9]. The technique is straightforward and there is minimal morbidity and no reported mortality [10–12]. In 2007, Talebpour and Amoli [8] presented the results of 100 patients undergoing laparoscopic plication. The results supported the idea that plication may be a safe and effective weight loss surgery alternative. The results of this technique should be monitored to investigate the presence of complications. The common complications of (LGCP) are Gastric remnant distension, Stomal stenosis, Marginal ulcers, Candy cane Roux syndrome and cholelithiasis, but gastro gastric herniation is an extremely rare complication. The presence of this rare complication is confirmed by re-laparoscopy. The best option for treatment, invagination of the hernia using 2-0 prolene continuous sutures on two rows. In comparison with other cases, our case is considered the second in the world after the similar case, that was diagnosed in Royal Brisbane and Women's Hospital, Herston, Queensland, Australia and which recommend that greater curve plication is performed over a bougie and that two rows of closely spaced interrupted sutures are used to secure the plication.

Regarding this very rare complication, we believe that there was a mismatch between the sutures during the operation as a result of a technical error or because we used sutures on one row, so it is very important to adhere to accuracy in matching the sutures and performing the process on two rows.

Of course, it is very necessary to evaluate the patient's condition by following up on the body mass index to investigate the success of gastric folding, in addition to investigating the presence of any accompanying symptoms that reveal the presence of complications.



Fig. 1. Upper Gastrointestinal contrast image shows gastrogastric hernia.



Fig. 2. Laparoscopy during surgical repair of gastroesophageal hernia.

4. Conclusion

Laparoscopic Greater Curvature Plication is a delicate and effective bariatric operation, but it has some complication. One of the complications is gastro-gastric herniation, as a result of a technical error in matching the sutures or a change in the structure of the stomach after the gastric plication, and the most important cause is the performing of sutures on one row of the gastric wall. This should be kept in mind as a cause for failure of weight loss, and it should be treated with re-laparoscopy and invagination of the hernia to prevent the occurrence of these complications, Bariatric surgeon should perform plication with two rows of sutures. This is consistent with the findings of Menchaca et al., who also proposed that two rows of sutures provide the most durable serosa-to-serosa adhesions [13].

Declaration of competing interest

All authors declared no conflict of interest.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.amsu.2021.102900>.

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Ethical approval

This case report didn't require review by ethics committee, Aleppo university hospital, Aleppo university, Faculty of medicine, Aleppo-Syria.

Registration of research studies

Not applicable.

Consent for publication

Written informed consent was obtained from the patient for publication of these two case reports, and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

Author contribution

Ahmad ALHAJ: contributed in study concept and design, data collection, and writing the paper.

Ammar niazi: contributed in data interpretation and writing the paper.

Sarya Swed: contributed in data interpretation and writing the paper.

Bassel Banjah: contributed in writing the paper.

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Guarantor

Kusay Ayoub.

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