

Management of High Output Enterocutaneous Fistula Due to Richter's Hernia After Gastric Bypass: Video Demonstration

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Abstract

Introduction: The increase in laparoscopic surgery in patients with obesity increases the incidence of trocar site hernia (TSH). Therefore, TSH represents a risk for the development of Richter's Hernia (RH).

Methods: We present the unusual case of a postoperative Gastric Bypass patient complicated with a high output enterocutaneous fistula through a trocar site wound.

Results: The Laparoscopic surgery consists of an RH reduction, enterotomy, and repair of the preperitoneal space.

Conclusion: RH complicated by high-output enterocutaneous fistula has not been previously reported. It is essential to close the preperitoneal space in bariatric surgery to avoid these complications.

Key Point

1. There are few reports of RH with variable clinical manifestations, making its diagnosis and management challenging.
2. We present the unusual case of a postoperative Gastric Bypass patient complicated with a high output enterocutaneous fistula through a trocar site wound

Background

TSH is an incisional hernia after laparoscopic trocar use [1]. A TSH classification was proposed in 2004 [2]; however, the classification does not include what may occur in the population suffering from obesity. Hence, we suggest the following update:

1. Early presentation: dehiscence of the anterior and posterior fascia and peritoneum
2. Late presentation: anterior and posterior fascia dehiscence; the peritoneum forms the hernia sac.
3. Special type: dehiscence of the entire abdominal wall, protrusion of intestine or omentum.
4. Hernia in preperitoneal space: occurring in a vast preperitoneal space.

The population undergoing bariatric surgery has a poorly estimated frequency of TSH, up to 39.3% [3]. Some factors that increase its incidence have been identified: a BMI ≥ 45 kg/m², the use of imaging studies for its detection, and longer follow-ups of ≥ 12 months [3]. Surprisingly, no difference in the prevalence of TSH has been demonstrated between patients with routine fascia closure and those without [3, 4]. TSH represents a risk for the development of RH, defined as the herniation of an anti-mesenteric portion of the intestine through the fascia [5]. We present an unusual case of a patient who underwent laparoscopic Roux-en-Y gastric bypass (LRYGB) and presented early TSH, RH, and high-output enterocutaneous fistula.

Methods

A 47-year-old female presents with grade III obesity (body mass index 40 kg/m²). Their diseases are systemic arterial hypertension, gonarthrosis, and a history of abdominal surgeries (laparoscopic cholecystectomy and cesarean section). Therefore, it was decided to perform a Roux-en-Y gastric bypass; the author routinely did not close fascia ports. However, two days after surgery, she presented uncontrollable nausea and hyperemia at the supraumbilical trocar wound. Enterocutaneous fistula is suspected due to the leakage of food material through the injury, and high output is quantified at 800ml in 24 hours. In addition, the contrast-enhanced tomography shows adherence of a segment of the small intestine through the preperitoneal space with extravasation of the contrast material.

Results

The nasojejun tube is placed by endoscopy to facilitate the identification of Roux's alimentary limb. The surgery is performed, and the supraumbilical trocar fascia defect identifies a perforated and herniated anti-mesenteric segment of the Roux limb. The intestinal segment is reduced, and perforation is repaired using separate stitches with non-absorbable sutures. The defect of the trocar site and the preperitoneal space is restored with a non-absorbable suture. The edges of the fascia were repaired under laparoscopic direct vision, and the suture was inserted and removed from the peritoneal cavity (bird pick technique) using the Endo close device (Tyco Auto Suture International, Inc. Norwalk, CT, USA). During post-surgical recovery, the patient received total parenteral nutrition, and drainage output was monitored. She tolerated the oral route on the fifth post-surgical day without presenting nausea or other eventualities, and she was discharged to her home. Twenty-one months later, at the follow-up visit, the patient remained asymptomatic; she had lost 39.6 kg (84.5% excess weight loss and 36.4% total weight loss) and had a BMI of 25.4 kg/m². The supraumbilical wound has adequate healing, and no trocar hernia is found on palpation.

Discussion

Table 1 shows a few cases of RH after bariatric surgery, with a clinical presentation characterized by nausea, vomiting, intestinal obstruction, persistent purulent discharge through the gastric band port, and enterocutaneous fistula. Another case presented respiratory distress due to a diaphragmatic hernia. No previous case showed a high-output enterocutaneous fistula caused by herniation in the preperitoneal space and perforation of a segment of the Roux limb.

The following mechanisms could have influenced its formation [2, 7, 9]:

- a. Wide space and increased intra-abdominal pressure are both present in obesity.
- b. Partial vacuum effect is caused by removing the trocars, which could cause suction, entrapment, and perforation of the intestine in the fascia defect.

Treatment has not changed over time and consists of laparotomy or laparoscopy, enterotomy or intestinal resection, and closure of the preperitoneal space. No recurrence of RH has been reported after adequate treatment in this and other cases.

Conclusion

Although it does not influence the prevalence of TSH, a routine closure of the fascia obliterates the preperitoneal space, a risk site for developing RH and its complications.

Declarations

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

Conflict of interest: The authors declare no competing interests.

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Tables

Table 1 Reported cases of RH after bariatric surgery

Author and year	Age, sex, BMI kg/m ² , Type of Surgery	10-12mm Trocar Fascia Closed	Clinic Presentation	Richter hernia Site	Treatment	Outcome
Matthews BD, 2001 [6]	34y, F, 58.6, LRYGB	Yes (suture-passing device)	Small bowel obstruction at 12 pd	10mm supraumbilical trocar, 3cm antimesenteric border of the small intestine was incarcerated	Midline laparotomy, Fascia was reapproximated	Discharged on pd 5, asymptomatic at 10-month follow-up, losing 91 pounds.
Cottam DR, 2002 [7]	19y, F, 55, LRYGB	Closed extracorporeally	Abdominal pain, nausea, and vomiting 48 h after surgery	3 cm left subcostal incision (use for circular stapler). A bowel segment 3cm distal to entero-enterostomy	Laparotomy: preperitoneal fat space was repaired and gastrostomy tube in the distal stomach	Recovery was unremarkable
Elakkary E, 2005 [8]	50y, M, 47, LAGB	No	Persistent purulent discharge from the access port site, 2 wk after surgery (cultures grew pseudomonas)	A bowel segment herniating through fascia defect at the port site. The catheter had eroded into the small bowel causing enterocutaneous fistula.	Laparoscopy: enterotomy with interrupted vicryl suture. Port was removed and fascia defect closed	Discharged home on pd 3, local wound cared, scheduled for port replacement
Rice RD, 2008 [9]	34y, F, 45.7, LRYGB	Closed extracorporeally	Nausea, abdominal distension, bilious emesis 48 h after surgery	Intestinal loop through a peritoneal defect at the left lower quadrante port site	Laparoscopy: hernia reduced; fascia closed with a percutaneous suture passer.	Discharged home on pd 7.
Alfa-Wali M, 2013 [10]	42y, F, 43, LRYGB 2 years prior	NR	Left-sided back pain, shortness of breath, and pyrexia	Ischemic transverse colon herniating into a 1cm defect of the left posterior hemidiaphragm	Laparotomy: segmental colectomy, colostomy, drain into diaphragmatic defect; 16 days later relaparotomy for and intrabdominal abscess, diaphragmatic defect closed with biological mesh	Well recovered after 2 wk of hospitalization for antibiotic therapy and pleural lavage.
Loret N, 2017 [11]	63y, F, 58.6, LRYGB 12 years ago	NR	3 months with epigastric pain, regurgitation, and abdominal distension. CT: 23cm multilocular cystic mass and epigastric hernia	Previous 12mm trocar in left epigastric quadrant with a blind loop of jejunojejunostomy which showed strangulation	Laparotomy: Cystic mass resection, radical hysterectomy (cystadenoma), and incarcerated blind loop were resected	At 3 wk postoperative well recovery

Present case	47y, F, 40, LRYGB	No	Nausea and high-output enterocutaneous fistula	A segment of the roux limb perforated and herniating through fascia defect at 12mm supraumbilical port	Laparoscopy: hernia reduced, enterotomy with interrupted suture and fascia closed with a suture passing device.	Discharged home on pd 6. 21 months later remains asymptomatic and has 84.5% of EWL.
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LRYGB: Laparoscopic Roux-en-Y Gastric Bypass, LAGB: Laparoscopic Adjustable Gastric Band, NR: Not Reported, pd: postoperative day, wk: weeks, EWL: excess weight loss

Supplementary Files

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