

A Rare Case of a Gastro-Peritoneal Fistula Following Laparoscopic Sleeve Gastrectomy Successfully Treated with Endoscopic Stenting

KOSAI NR¹, KHAN A¹, MUSTAFA MT¹, ZALIZAWATI ZA¹, MOHD FIRDAUS CA^{1,2}, LEONG JH¹

¹*Minimally Invasive, Upper Gastro-Intestinal & Bariatric Surgery Unit, Department of Surgery, Faculty of Medicine, Universiti Kebangsaan Malaysia Medical Centre, Jalan Yaacob Latif, Bandar Tun Razak, 56000 Cheras, Kuala Lumpur, Malaysia.*

²*General Surgery Unit, Surgical Sciences Cluster, Faculty of Medicine, Universiti Teknologi MARA, 47000 Sungai Buloh, Selangor, Malaysia.*

ABSTRAK

Fistula gaster-peritoneum merupakan salah satu komplikasi pembedahan gastrektomi lengan laparoskopik yang jarang berlaku tetapi memberi kesan morbiditi dan mortaliti yang signifikan. Kes ini melibatkan seorang pesakit lelaki berumur 42 tahun yang mempunyai masalah obesiti morbid dan telah menjalani pembedahan gastrektomi lengan laparoskopik. Setelah pembedahan, beliau mengalami masalah gastric kronik dan refluks berpanjangan. Siri gaster usus menunjukkan terdapat fistula yang berhubung di antara gaster dengan hemi-diafragma kiri dan kawasan sekeliling limpa.

Kata kunci: fistula gaster-peritoneum, laparoscopi, gastrektomi lengan

ABSTRACT

Gastro-peritoneal fistula is a rare but serious complication of laparoscopic sleeve gastrectomy with significant morbidity and mortality. We present the case of a 42-year-old man who underwent laparoscopic sleeve gastrectomy for morbid obesity and presented later with a history of chronic epigastric pain and severe reflux. Upper gastrointestinal series showed the presence of a communicating fistula between the stomach and the left hemi-diaphragm and peri-splenic area.

Keywords: gastro-peritoneal fistula, laparoscopy, sleeve gastrectomy

Address for correspondence and reprint requests: Dr. Nik Ritza Kosai, Minimally Invasive, Upper Gastro-Intestinal & Bariatric Surgery Unit, Department of Surgery, Faculty of Medicine, Universiti Kebangsaan Malaysia Medical Centre, Jalan Yaacob Latif, Bandar Tun Razak, 56000 Cheras, Kuala Lumpur, Malaysia. Tel: +603-9145 6202 Fax: +603-9145 6684 Email: nikkosai@yahoo.co.uk

INTRODUCTION

Obesity, which is a chronic disease associated with comorbidities, should be controlled by physical exercise and changes in dietary habits, and surgical treatment is indicated when clinical measures are inefficient (Campos et al. 2007). Laparoscopic sleeve gastrectomy is a relatively new and evolving surgical technique indicated in the treatment of morbid obesity. This procedure has been gaining widespread popularity among both patients and surgeons. (Abraham et al. 2012a). Post-operative complications are mainly represented by gastric fistula, with an occurrence rate of 0-5.1% in the literature. This complication is difficult to manage and requires multiple radiological, endoscopic and surgical procedures (Burgos et al. 2009).

CASE REPORT

A 42-year-old male patient with morbid obesity underwent a laparoscopic sleeve gastrectomy in our hospital.

During the post-operative course, the patient experienced abdominal pain and severe gastro-oesophageal reflux symptoms. An upper gastrointestinal scope was performed, which showed fundal pouch lesion. Histopathological examination showed chronic gastritis for which he was started on esomeprazole (a proton-pump inhibitor). Two months later, he underwent a repeat upper gastrointestinal (UGI) endoscopy, which showed fundal pouch lesion covered with bubble of air. An abdominal computed tomography with oral contrast study was performed, showing collection of air under the diaphragm at left hemi-diaphragmatic and peri-splenic area, which confirmed a leak. Drainage of the collection was performed and a bariatric giant stent was inserted, which covered the lesion.

Six weeks later, the stent was removed and the patient recovered fully. A UGI study was performed, which confirmed absence of leak. The following figures demonstrate the procedures and findings as outlined above.



Figure 1: Giant bariatric stent

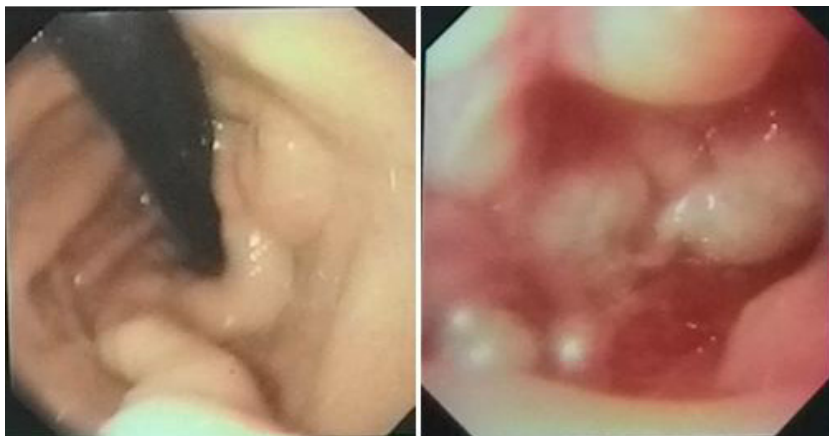


Figure 2: Fundal lesion with small bubbles



Figure 3: UGI contrast study showing leak at angle of his

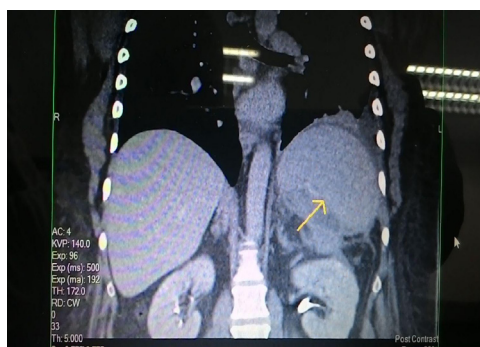


Figure 4: Peri-splenic collection (CT scan with oral contrast)

DISCUSSION

Gastric fistula following bariatric surgery occurs in about 3% of the cases, with increasing risk up to 8% in second operations, and most commonly occurs at the angle of His (Campos et al. 2007). It has been hypothesized that gastric fistulas and anastomotic leaks commonly occurs due to poor blood flow, causing ischemia to the gastric wall at the staple line (Abraham et al. 2012a).

Laparoscopic sleeve gastrectomy is the new surgical method to tackle morbid obesity. It has shown

to be an effective yet justifiable weight reduction method and is gaining enthusiasm among general populations. This surgery overcomes obesity via reduction of the gastric size and removes the fundal ghrelin. Thus inducing early satiety producing cells and also decreases appetite (Serra et al. 2007). Sleeve gastrectomy is not exhaustive from severe complications too, which includes bleeding of the staple line in nearly 2%, stricture of the mid-portion of the tubular stomach in 1%, and gastric leaks with incidence varying from 0.7 to 20% (Tan et al. 2010). Incidence tends to be higher intraining

centres owing to less experienced surgeons to a higher complication risk. Radiologic contrast studies with barium sulphate are routinely performed in certain centres on the post-operative day 3 which increases the chance of detecting minute subclinical leaks not normally seen with a liquid contrast.

Past research reports have classified leaks based on duration of appearance, clinical severity and location of leaks after surgery (Csendes et al. 2005). The period leaks appear could be groups as: early - between first and fourth day post-surgery; intermediate - between the fifth and ninth day after surgery, and late - appearing after day ten post-surgery. In terms of clinical severity, Type I or subclinical leaks are those that appear as localized without spillage, few clinical manifestations and suffice for medical treatment. Type II includes those with dissemination into the abdominal or pleural cavity. Leaks appear most commonly, with 85.7%, in the proximal third of the stomach, close to the gastro-oesophageal junction compared to only 14.3% in the distal third (Burgos et al. 2009).

Most authors suggest that the well-known risk factor for gastric leaks is attributed to ischemia along the gastric wall adjacent to the staple line and not dehiscence of the staple line itself. Classic ischemic fistulas tend to surface between Day 5 and 6 post-surgery when wall-healing process is between inflammation and fibrotic phase. Mechanical fistulas are usually discovered earlier, within the first two days post-surgery (Marquez et al. 2010). Clinical spectrum of patients with gastric leak varies accordingly, from

the complete asymptomatic patient to patients with sepsis, multi-organ failures and followed by death. Patients usually present with fever (81%), epigastric pain (69%), tachycardia (44%), and leukocytosis (75%) (Csendes et al. 2010). Methylene blue test, upper gastro-intestinal gastrografen study and computerized axial tomography test is sensitive and effective to detect potential leaks (Csendes et al. 2010).

Treatment of fistulas and anastomotic leaks should be tailored to the clinical state of the patient. Haemodynamic instability patients without regards of sepsis require prompt surgical re-intervention. The time initial clinical symptoms, presentation to hospital and diagnosis, as well as the time for initiation of therapy are crucial and will help in the patient outcome. Early leaks usually require prompt surgical approach. On the contrary, intermediate and late leaks, in majority of cases, are managed conservatively (Csendes et al. 2010). Conservative or medical management includes introducing abdominal drains, parenteral or enteral nutrition, high-dose proton pump inhibitors, broad spectrum antibiotics, use of biological glues (such as Seamguard, Tissucol, and fibrin sealant), and use of flexible coated stents when necessary.

Giant bariatric stent starting to gain popularity with few recently published reports. There have been successful deployments of a covered stent in a series of three patients with no complications relating to the stent placement (Serra et al. 2007). The incorporation of coated self-expanding stents was successful in six patients with control of leaks in 83%. It was reported

of a 50% success rate for closure of leaks with four patients requiring premature removal of the stent due to migration, hematemesis, or obstruction from kinking at the proximal aspect of the stent (Tan et al. 2010). Evidence had also revealed complete healing in all three patients treated with endoscopic insertion of bariatric gastric stents (Casella et al. 2009). Inbar et al. (2011) reported five patients with oesophago-gastric leaks or post-operative fistulas, in which self-expanding metal stents were successfully inserted and retrieved following full recovery of all patients.

Several considerations should be made when using stents for the management of gastric leak post laparoscopic sleeve gastrectomies. Endoscopic assessment should be performed at initial stage to evaluate the site and size of leakage and also the viability of the conduit. Gastric leaks at the proximal and mid-aspect of the gastric sleeve are amenable to endoscopic treatment with a stent (Burgos et al. 2009; Tan et al. 2010). A leak at the distal staple line near to the gastric antrum would not be amenable via endoscopic stenting as the stent would be too small, thus unsuitable to provide appropriate sealing effect to the defect. The gastric sleeve diameter should also be evaluated at the time of endoscopy for the selection of the appropriate endoscopic stent size. A larger-sized stent would be less predisposed to migration (Csendes et al. 2010). Another strategy to minimize or preclude stent migration would be using a longer stent whereby the distal aspect of the stent is rested along the wall of the gastric antrum (Inbar et al.

2011). Furthermore, any abdominal collection should be drained with either laparoscopic or percutaneous means in combination with nothing per oral and nutritional support with either total parenteral nutrition or jejunostomy feeding (Serra et al. 2007; Csendes et al. 2010).

Nausea, vomiting, drooling, early satiety, and retrosternal discomfort are the commonest symptoms after stent placement and tend to resolve within the initial days (Csendes et al. 2005). Stent migration is one of the main concerns in a third of the patients. Stent migration warrants immediate stent replacement, removal, relocation, or passing out per rectum. Most authors recommend a period of 6-8 weeks as the optimal time to withdraw the stent. This can be challenging as adhesions are common and therefore might lead to mucosal tears and bleeding post-procedure (Marquez et al. 2010; Csendes et al. 2010). Few centres routinely perform methylene blue test at the end of the surgery. However, a negative test only demonstrates that the surgical technique was appropriate at that time (Csendes et al. 2010).

Given the complexities in management of gastric leaks, it is likely achievable that those patients may have improved with solely conservative management (Casella et al. 2009; Inbar et al. 2011). The usage of stent could lead to a more predictable outcome and a speedier recovery and every effort must be made to prevent its occurrence (Csendes et al. 2010; Casella et al. 2009; Inbar et al. 2011). General surgical principles such as careful selection of patients, experience of the surgeons,

gentle handling of tissues, appropriate surgical techniques including careful management of electro-cautery, and vessel sealing are essential.

CONCLUSION

Gastrointestinal fistulae are a common occurrence after surgery, but surgical revision is associated with high morbidity. Patients with fistulae may already have concurrent infection, nutritional deficiency, or organ failure, making surgical revision more difficult. Despite the inherent challenges in this patient population, endoscopic therapies for fistula closure have demonstrated safety and efficacy. These techniques can be used alone but are even more effective when used in combination. Further research is on-going to determine which fistula types are most suitable for a specific endoscopic therapy. As evidence builds for the efficacy of these endoscopic techniques relative to surgical management, gastroenterologists will play a more prominent role in the treatment of gastrointestinal fistulae. Clinical suspicion is the hallmark of detecting gastro-peritoneal fistulas and anastomotic leaks. Confirmatory test is essential in aiding the diagnosis to help the detection rate to be better. Endoscopic assessment is essential for both diagnostic and therapeutic purposes, and could be an option of treatment of gastro-peritoneal fistulas in the future.

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