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CASE REPORT

Management of gastro-colic fistula after laparoscopic sleeve gastrectomy

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Abstract

Laparoscopic sleeve gastrectomy (LSG) is the most common bariatric procedure performed in Asia. Staple-line leaks post LSG are notoriously difficult to treat. Here we report a case of a gastro-colic fistula after a post-LSG leak. While reperforming laparoscopy and/or stenting remain the mainstay of early leak management, chronic complications such as a gastro-colic fistula are rare and require a tailor-made approach. Stenting alone has a limited role in managing chronic fistulas after LSG.

Introduction

Laparoscopic sleeve gastrectomy (LSG) is currently the most common bariatric procedure performed in India (1). Staple-line leaks after LSG are the most dreaded of all complications and are notoriously difficult to treat.

While immediately re-performing laparoscopy and/or stenting remain the mainstay of early leak management, these modalities are of limited use in the management of chronic leaks. Chronic leaks after LSG are rare and a tailor-made approach is needed for every case.

Here we report a rare case of a gastro-colic fistula after a leak from a LSG.

Case Presentation

A 27-year-old woman (weight, 106 kg; BMI, 38 kg/m^2) underwent LSG in October 2011. There were no intraoperative complications. An oral contrast study done on the first postoperative day was within normal limits, and the patient had an uneventful immediate postoperative course.

After 2 months, the patient reported to the emergency department with acute onset pain in the upper abdomen that radiated to the left shoulder and a fever that had lasted 2 days. White blood cell count was 25 000/mm^3, and a contrast CT revealed a localized 5 × 6-cm perigastric abscess. Upper GI endoscopy revealed a tiny fistulous opening at the gastroesophageal junction. After it was confirmed that there was no distal obstruction, an endoscopic dilatation of the fistulous tract was performed with a Controlled Radial Expansion balloon (Boston Scientific, Malborough, USA), and the abscess was drained internally into the stomach. A nasojejunal tube was kept *in situ* for 1 week. Thereafter, an oral contrast study was performed, revealing a small but contained leak near the upper part of the stomach. The patient also began oral intake and had a relatively comfortable period after that. A contrast abdominal CT was done 3 months later; it showed no evidence of any residual abscess or collection.

A year and a half after the postoperative abdominal CT, the patient complained of diarrhea after meals and intermittent left shoulder pain. A barium study revealed a fistula between the gastroesophageal junction and

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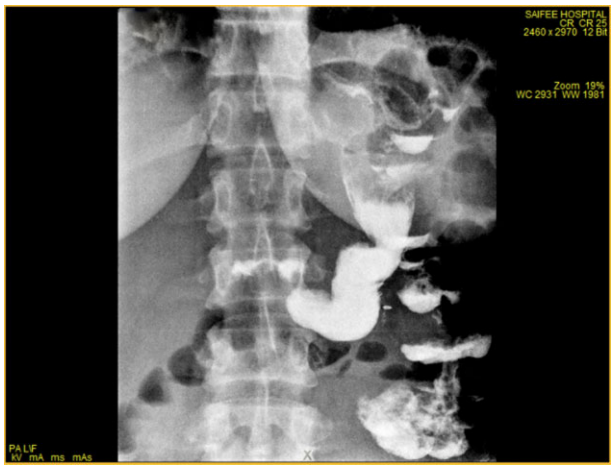

Figure 1 Oral contrast study demonstrating a gastro-colic fistula between the gastro-esophageal junction and the splenic flexure of the colon.

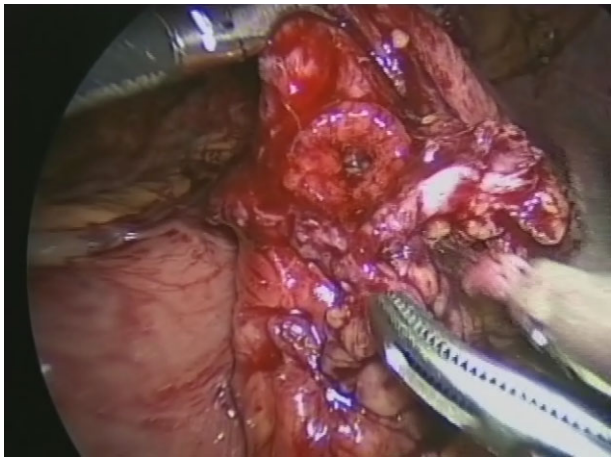

Figure 2 Fistulous tract in the splenic flexure of the colon.

splenic flexure of the colon (Figure 1). A laparoscopic resection of the gastro-colic fistula was recommended.

Surgical procedure

The patient was placed in the split leg position. Trocar placement was the same as for LSG. Adhesions between the liver and the stomach were removed with sharp scissor dissection. The left lobe of the liver, the upper part of the stomach, and the splenic flexure of the colon were densely adherent at the site of the fistula. The left lobe of the liver was dissected with sharp dissection. The splenic flexure of the colon was then dissected from this area (Figure 2). The fistulous opening on the colonic side was resected using a green cartridge without compromising the lumen. The staple line on the colon was oversewn with a 2-0 monofilament suture.

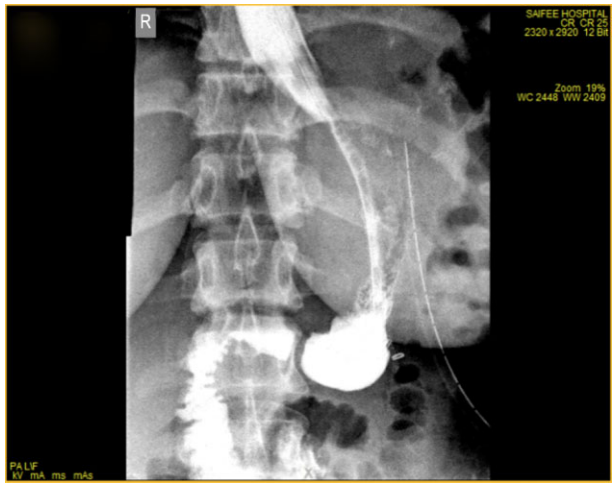

Figure 3 Oral contrast study on postoperative day 5.

Next, the left crus was dissected to define the angle of His. Dense adhesions between the posterior wall of the stomach were dissected to free the upper part of the stomach and the lower esophagus from the crura. In primary sleeve gastrectomy, the last cartridge is routinely fired half a centimeter lateral to the angle of His, which tends to dilate a bit over time. In this case, we depended on this extra half a centimeter. After a 0.5-cm fistulous opening was identified below the angle of His, a 38-Fr gastric bougie was inserted and the stomach remnant was re-sleeved over the bougie along with the area of the fistula. The staple line was overrun with a 2-0 monofilament suture, and an omentoplasty was done (Supporting information – Video S1).

An underwater leak test showed no evidence of a leak. A nasogastric tube was inserted and a drain was kept in the perisplenic region.

The procedure lasted for 105 min, and intraoperative blood loss was 50 mL.

Postoperative course

The nasogastric tube was removed on the fifth postoperative day. An oral contrast study revealed no leak (Figure 3). A clear liquid diet was commenced after that. The patient was discharged on day 6 with the drain *in situ*, and the drain was removed 2 weeks after surgery. There were no complications, and at the 3 month follow-up, the patient was doing very well and there was no evidence of leak.

Discussion

Reported in 1%–7% of patients, a leak is the most dreaded complication after LSG (2). Leaks have been

classified into acute (within 7 days), early (within 1–6 weeks), late (after 6 weeks), and chronic (after 12 weeks) (3). Leaks after LSG have a high degree of morbidity and even mortality if not tackled in time with appropriate measures. Unresolved leaks can lead to chronic complications such as gastrocutaneous, esophago-pleural and gastro-colic fistulas in the long term.

Here, we have reported a case of gastro-colic fistula secondary to a late leak after LSG. Although gastro-colic fistulas commonly occur after benign ulcer disease, gastric cancer, and colon cancer (4,5), they are very rare after a bariatric procedure such as LSG. A literature search revealed only one similar case reported by Trelles *et al*. in 2010 (6).

Management of a gastro-colic fistula is primarily surgical and principally involves excision of the entire fistula tract with a margin of adjacent tissues (7). In case of a chronic gastric fistula after LSG, be it gastrocutaneous, gastro-pleural, or gastro-colic, repairing the fistula site near the gastro-esophageal junction on the stomach can be challenging due to the considerably reduced size of the stomach and fibrosis. Various options have been described such as a T-tube in the fistulous opening, cauterization of the fistulous tract, anastomosis with a jejunal Roux loop, or even a total gastrectomy for persistent fistula (2,8).

Trelles *et al*. initially used a nitinol silicon-covered stent in as the primary mode of treatment their case of gastro-colic fistula after a re-sleeve gastrectomy. The stent was removed without incident after 19 days, but the patient returned after 3 weeks with a persistent fistula. They had to remove the stent and repair the fistula laparoscopically, after which the patient recovered.

In the present case, we were able to resect the fistula en bloc both from the colonic side and from the stomach by longitudinally re-sleeving the stomach over a 38-Fr bougie. The staple line was reinforced and a stent was not inserted.

A minimally invasive approach involving resection of the fistula at the stomach and colonic end without compromising on the lumen was the best solution for this patient. If feasible, this approach can be attempted before subjecting the patient to more morbid procedures such as total gastrectomy and esophagojejunostomy.

In conclusion, late leaks after LSG are a known complication. Stenting alone has limited utility in late and chronic fistulas. A gastro-colic fistula after LSG is rare, and its management must be tailor made to ensure complete excision of the fistulous tract.

Acknowledgments

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Supporting Information

Additional Supporting Information may be found in the online version of this article at the publisher's web-site:

Video S1 Laparoscopic management of gastro-colic fistula post sleeve gastrectomy.