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Gastro-colo-diaphragmatic fistula after sleeve gastrectomy

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ABSTRACT

INTRODUCTION: Postsleeve gastrectomy fistula is a serious complication, and its management remains quite challenging. The clinical presentation of chronic fistula after sleeve gastrectomy (SG) varies widely and depends on the type of fistula. Management requires a multidisciplinary approach and patient cooperation.

CASE PRESENTATION: We present a case of a 41-year-old woman with a body mass index (BMI) of 46 kg/m^2 who initially underwent laparoscopic sleeve gastrectomy in our hospital. Later, she developed a gastro-colo-diaphragmatic fistula (GCD), which was successfully treated using an endolaparoscopic approach. Follow-up imaging and endoscopy showed complete healing of the fistula, as well as a marked clinical improvement of the patient.

DISCUSSION: Gastro-colo-diaphragmatic fistula following sleeve gastrectomy is an extremely rare complication. This is the first case of a GCD fistula after sleeve gastrectomy that has been reported in the literature.

CONCLUSION: One staged endolaparoscopic management was successful approach in our case and can be considered for complex gastric fistula following sleeve gastrectomy.

1. Introduction

Laparoscopic sleeve gastrectomy (LSG) is an efficient therapy for treating different degrees of obesity. This restrictive procedure is increasingly performed worldwide [1].

LSG has been reported to have a lower morbidity rate than that of Roux-en-Y gastric bypass or biliopancreatic diversion, with or without duodenal switching [2].

LSG is associated with four significant complications, including staple-line bleeding, leaks, fistulas, and gastric strictures [3].

Despite the relatively low incidence of fistula after sleeve gastrectomy (0.9%–2.6%) [4], they are associated with significant morbidity and a prolonged hospital stay and remain one of the most devastating complications [5,6].

The management of these patients is quite challenging, and different treatment approaches are used, ranging from endoscopic therapy to more complex revision surgery [7,8]. Unfortunately, at the moment, no consensus or treatment algorithm has been proposed [9].

2. Case presentation

A 41-year-old woman with a known case of arterial hypertension, metabolic syndrome, type 2 DM, depression, nicotine abuse, and chronic pain syndrome on multiple painkillers underwent laparoscopic sleeve gastrectomy in September 2018 at our institution, with an initial BMI of 46.4 kg/m^2. The initial postoperative recovery was uneventful, and the patient was discharged after 5 days.

Three months postoperatively, the patient developed symptoms of progressive postprandial epigastric and left subcostal pain. She denied any history of fever, shivering, chest pain, or shortness of breath. She was noncompliant with her proton pump inhibitors and did not quit smoking. No history of allergy. On clinical examination, she was vitally stable, with mild tenderness in the epigastric region and the left hypochondrium. Her laboratory results showed a mild elevation of CRP (11 mg/l) and a normal leukocyte count. The patient was admitted to our hospital for a further diagnostic workup to exclude stable line-related complications.

The upper GI series showed no abnormalities (Fig. 5).

Abdominal CT with oral and intravenous contrast revealed perigastric and perisplenic fluid collection within a walled-off cavity measuring 4 × 4.5 cm, with no extravasation of oral contrast (Figs. 1 and 2).

Initial endoscopy, which is done by our gastroenterologist, showed no evidence of stable-line leakage, twisting, or stenosi.

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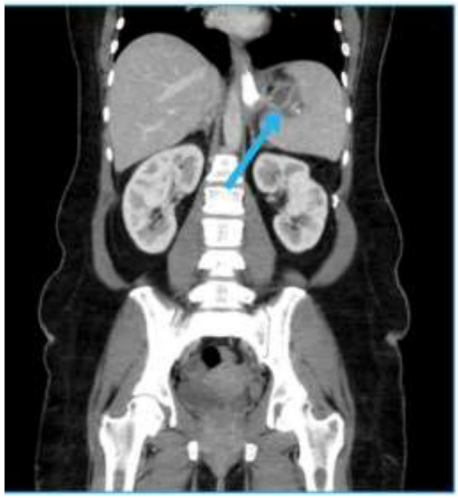
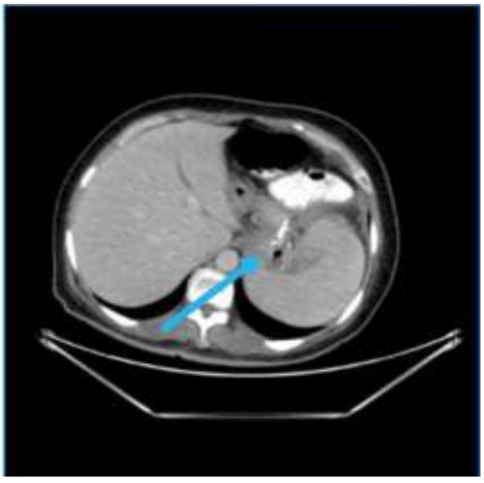


Figs. 1 and 2. CT-Abdomen shows perigastric und perisplenic fluid collection.



Figs. 3 and 4. Gastro-colo-diaphragmatic fistula; the abnormal fistulous tract between the stapled line and transverse colon as well as left diaphragm.

Because of her persistent symptoms and a high clinical suspicion of chronic sleeve leakage, as well as close proximity of collection to splenic hilum, we decided to re-explore the patient laparoscopically.

Diagnostic laparoscopy was performed by consultant bariatric surgeon and revealed severe inflammatory adhesions in the proximal part of the gastric sleeve with tissue friability. Therefore, the procedure is terminated and a drain was placed. Postoperatively, she was started on intravenous antibiotics and parenteral nutrition for 5 days. The drain output was unremarkable and removed on 4th postoperative day, and the patient was discharged after 5 days. At follow up visit after 2 weeks, she reported marked improvement of her symptoms.

Ten months later, the patient presented again with persistent epigastric and left upper quadrant pain radiating to the left shoulder and associated with frequent loose stools and feculent breath, with no history of vomiting or respiratory symptoms. Clinical examination revealed an emaciated female with epigastric tenderness and signs of pleuritis. Her laboratory results showed a mild elevation of CRP (27 mg/l) and a normal leukocyte count. Abdominal CT revealed an abnormal fistulous tract between the stapled line and the transverse colon, as well as the left diaphragm and reactive minimal pleural effusion on the left side (Figs. 3 and 4).

A decision was made to perform laparoscopic re-exploration with intraoperative gastroscopy. This procedure was performed by a senior consultant bariatric surgeon.

The first intraoperative gastroscopy showed 3 tiny fistulous openings at the gastroesophageal junction, as shown in Fig. 6, with no stenosis or twisting of the gastric sleeve.

Intraoperative laparoscopy showed a left subphrenic abscess, and small fistula tracts were identified between the proximal stable line and the left diaphragm, as well as the transverse colon (gastro-colo-diaphragmatic fistula). Both fistulae were resected, and the defect on the transverse colon was closed by suture repair in two layers (Figs. 7 and 8).

Peritoneal lavage was performed, abscess was drained, and a drain was placed in the abscess cavity. At the end of procedure, we decided to endoscopically place a polyurethane sponge (Endo-Sponge) at the fistula opening to reduce intragastric pressure and promote granulation and healing processes. Continuous suction (100 mmHg) was applied via drainage tubes fixed to the sponge, which was changed every three days. Postoperatively, she was started on antibiotics and parenteral nutrition. Adequate closure of

Fig. 5. No abnormalities were seen.

the fistulous opening was achieved within 10 days. The drain was removed on 8th postoperative day. The pleural effusion was treated conservatively without chest tube. The patient was started on a clear diet and then advanced as tolerated, and she was discharged in good condition.

At last follow-up, she reported no pain. Controlled endoscopy and UGI series were performed 4 weeks following discharge, which revealed complete healing of the fistula site and no extravasation.

3. Discussion

Gastro-colo-diaphragmatic fistula is a rare surgical entity after sleeve gastrectomy, and it is frequently reported secondary to malignancy of the stomach or transverse colon, complicated peptic ulcer disease, and trauma [10].

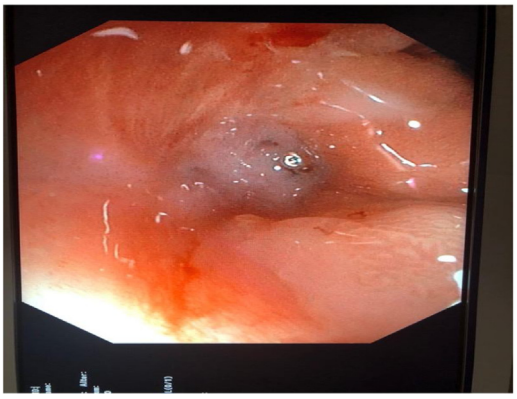


Fig. 6. Gastro-colo-diaphragmatic fistula.
Gastroscopy Finding, showing 3 tiny fistulous openings at the gastroesophageal junction

To our knowledge, this is the first case of a GCD fistula after SG that has been reported in the literature. Smoking was the major risk factor in our case.

GCD fistula can occur within 1 year postsurgery, as mentioned above, but may be observed later after initial surgery.

The diagnosis of GCD fistula can be confirmed by gastrointestinal imaging, endoscopy, and diagnostic laparoscopy.

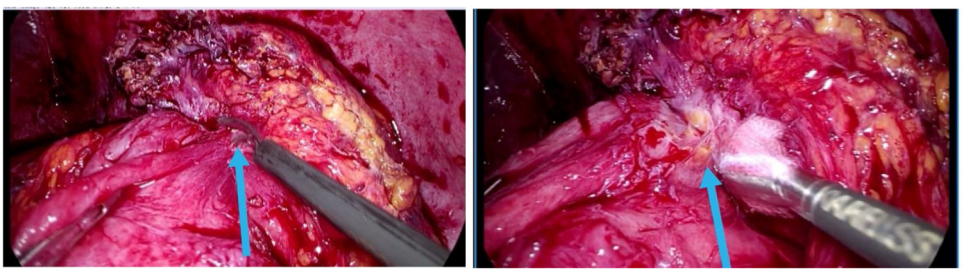
The effectiveness of operative revision after such a complex fistula is sometimes limited by inflamed friable tissue adjacent to the fistula and severe adhesion, which prevents adequate closure of the defect. By contrast, different endoscopic interventions, such as a double pigtail, septostomy, intraluminal covered stents, and endo-VAC therapy, have been shown to be effective treatment options in selected cases [11].

Our case was noncompliant, a heavy smoker, and under several painkillers; therefore, conversion to a gastric bypass procedure was not a suitable option.

In our opinion, management of postsleeve gastrectomy fistulas must be guided by their onset, type, degree of sepsis, and size, as well as the presence or absence of gastric stenosis. The decision on the endoscopic approach must be individualized based on endoscopic findings. This case was reported in line with the SCARE Guidelines [12].

4. Conclusion

The hybrid technique (endolaparoscopic management) was effective treatment for gastro-colo-diaphragmatic fistula. The



Figs. 7 and 8. Gastro-colo-diaphragmatic fistula.

technique can be an initial option in an experienced tertiary bariatric unit.

Declaration of Competing Interest

The authors report no declarations of interest.

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Ethical approval

Not applicable. This are a case report based on the clinical notes of an individual patient where written consent for publication has been obtained from the patient.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the editor-in-chief of this journal on request.

Author contribution

Dr Ezzy; contributed to the literature review, data collection, writing, subsequent revision and submission of the report.

Dr. Schriener; cared for the patient and was part of the team.

Dr. Weiner; supervised the project and contributed to revision of the report.

Dr. Elshafei: primary surgeon, contributed to revision of the report and Editing.

All authors approved the content of the final manuscript.

Registration of research studies

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