

CASE REPORT

A rare presentation of gastro-pleural fistula after Roux-en-Y gastric bypass, simultaneous fistula of gastric pouch, and remnant to the pleural space

Ghasem Khalilian Movahhed¹ | Amin Dalili¹  | Tooraj Zandbaf²  |
Alireza Rezapanah¹  | Ali Jangjoo¹ | Benyamin Seyfari¹ 

¹Surgical Oncology Research Center, Mashhad University of Medical Sciences, Mashhad, Iran

²Department of General Surgery, Faculty of Medicine, Mashhad Medical Sciences, Islamic Azad University, Mashhad, Iran

Correspondence

Benyamin Seyfari, Surgical Oncology Research Center, Mashhad University of Medical Sciences, Imam Reza Hospital, Mashhad, Iran.
Email: benyaminseyfari1369@yahoo.com

Key Clinical Message

Although gastro-pleural fistulas after bariatric surgeries are rare, they are life-threatening complications that should be suspected in patients who present with gastrointestinal or respiratory symptoms after bariatric surgery.

Abstract

Previous studies showed an incidence rate of 0.2%–0.37% for gastro-pleural fistulas after bariatric surgery. We report a 56-year-old female with a rare presentation of gastro-pleural fistula after Roux-en-Y gastric bypass, simultaneous fistula of the gastric pouch, and remnant to the pleural space.

KEYWORDS

bariatric surgery, case report, gastro-pleural fistula, Roux-en-Y gastric bypass

1 | INTRODUCTION

Bariatric surgery remains the preferred treatment for morbid obesity, resulting in significant and long-lasting weight loss.¹ However, perioperative complications, such as leaks and fistulas, carry substantial risks of morbidity and mortality.² While anastomotic leaks account for 3%–5% of postoperative complications, developing an intrathoracic gastric fistula is considered a source of severe morbidity.³ Chronic gastric fistula located in the chest can lead to some complex anatomical situations, including gastro-pleural and gastro-bronchial fistulas (GPF or GBF).⁴ Previous studies showed an incidence rate of 0.2%–0.37% for GPF after bariatric surgery, which seems to be underestimated due to a lack of robust epidemiological data.⁵ GPF/GBF occurs more frequently after a laparoscopic sleeve gastrectomy (LSG) than after a Roux-en-Y gastric bypass (RYGB).⁶ Due to different clinical presentations,

being a rare complication, and a lack of guidelines or consensus on the multidisciplinary approach, clinical evolution approach, and surgical treatment, the diagnosis and management of GPF/GBF are challenging. We would like to present our clinical experience with this rare complication.

2 | CASE PRESENTATION

2.1 | Presentation

A 56-year-old female patient recently came to our department with a body mass index (BMI) of 44.5 (weight = 114 kg and height = 160 cm). Her past medical history, preoperative abdominal ultrasound, upper endoscopy, and laboratory investigations were unremarkable. The patient underwent an uneventful RYGB with

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biliopancreatic and alimentary limbs 100 cm in length. The day after surgery, methylene blue and UGI tests with gastrografin were done, and both were normal. The patient consumed a clear fluid diet during their hospitalization, and finally, she was discharged in good general condition and without any problems, and she received detailed dietary guidelines, medication instructions, and personalized exercise recommendations to facilitate their recovery and long-term weight management. She returned to the clinic 10 days later with no complaints, and her vital signs and abdominal exam were normal.

One month later, the patient presented to the emergency department with nausea and vomiting and food intolerance. On her physical examination, the vital signs were within the normal range (temperature = 37.2°C, pulse rate = 80/min, respiratory rate = 15/min, oxygen saturation = 97%, and blood pressure = 130/80 mmHg). The cardiac and respiratory auscultation were normal and had no pathological problems. Abdominal examination showed epigastric tenderness without guarding and rebound tenderness. An upper endoscopy showed a normal esophagus and erythematous gastric pouch. The chest computerized tomography (CT) showed an abscess-like lesion on the left lower lobe of the lung (Figure 1), and a CT-guided drainage was performed, and antibiotic treatment was started. The patient also underwent a bronchoscopy, which did not show any specific findings.

Because of intolerance to oral feeding, the patient underwent surgery. The finding during reoperation was a left subdiaphragmatic collection, which was suctioned, and the abdominal cavity was washed with large amounts of normal saline, and finally, a feeding gastrostomy was placed in the gastric remnant. Three days later and after starting to feed from the tube, the patient felt chest pain and had several episodes of hemoptysis. Feeding was stopped, and then gastrography was done via a feeding tube, which showed a GPF (Figure 2). At this time, TPN

(total parenteral nutrition) was started for the patient. Afterward, the patient underwent left thoracotomy, segmentectomy, diaphragm repair, and a chest tube placement (about 4 months after the primary bariatric surgery) (Figure 3). After the surgery, the patient started oral feeding, and food particles were surprisingly seen in the chest tube. A methylene blue test was performed, and the chest tube turned blue, showing a simultaneous fistula between the gastric pouch and pleural space. After that, the surgeons decided to stop feeding through the rest of the stomach and use a gastrostomy as an external drain. Also, a covered esophageal stent was implanted over the fistula between the gastric pouch and the pleura. After 15 days of stent implantation (about 5 months after the initial surgery), a nasojejunal tube was inserted for the patient due to stent migration. The patient was able to tolerate feeding from the nasojejunal tube for a month with no issues. Lab investigations also showed that the patient's total protein and albumin levels had returned to normal.

2.2 | Postoperative follow-up

An upper endoscopy was performed, revealing that the fistula had completely healed and closed. Following this, both the chest tube and nasojejunal tube were removed. The patient reported no complaints and had experienced healthy weight loss, with a current BMI of 24 kg/m².

3 | DISCUSSION

The etiology of the GPF was historically divided into gastric ulcers, trauma, subphrenic abscesses, neoplasm, and prior esophageal or gastric surgeries.⁷ The presence of postoperative gastric fistula after bariatric surgery seems to be the most important cause of GPF/GBF through the formation of subphrenic abscesses

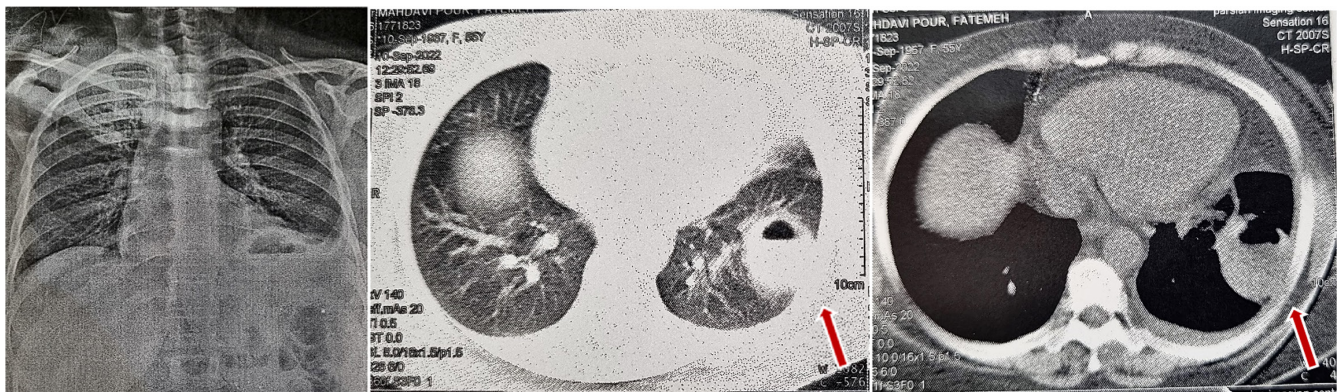


FIGURE 1 The chest computerized tomography scan showed an abscess-like lesion on the left lower lobe of the lung.

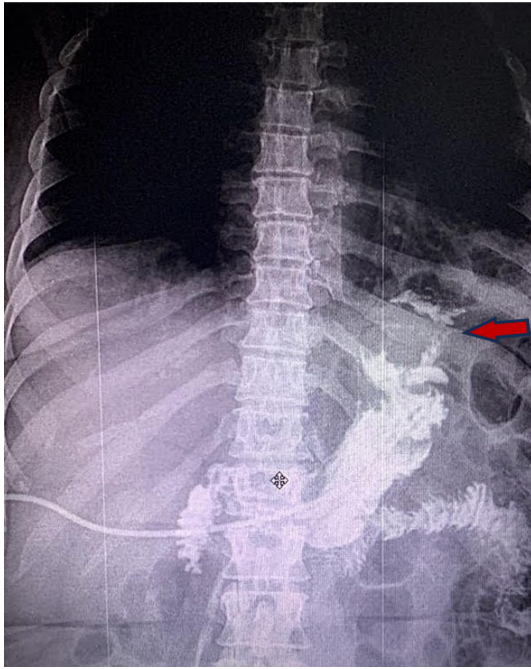


FIGURE 2 Gastrography from gastrostomy shows a gastro-pleural fistulas.

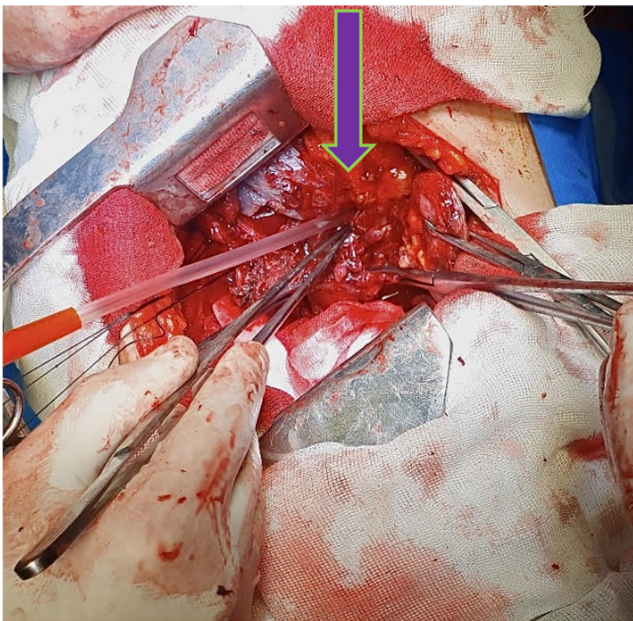


FIGURE 3 Location of gastro-pleural fistulas during left thoracotomy.

and diaphragmatic erosion.⁸ Patients with GPF after bariatric surgery can present with abdominal pain, cough, fever, recurrent pneumonia, chest pain, hemoptysis, or food intolerance.⁹ Furthermore, a mean time of 7 months (30 months maximum) is usually reported for the onset of GPF/GBF after bariatric surgery.⁶ However,

some studies showed that this complication can appear as early as 7 days after the operation.⁸

The diagnosis of GPF is challenging. Imaging is crucial for detecting GPFs, with MRI and CT being the primary diagnostic tools that can be used to locate the abscess before surgery. To accurately locate GPF/GBFs and measure fistula diameter, gastroscopy, and pulmonary fibroscopy are required. However, fistulas can form anywhere in the respiratory tract, making them hard to locate and often invisible during bronchoscopy.¹⁰ Therefore, a contrast study of the upper gastrointestinal tract is highly recommended for diagnosing GPF.¹¹ Other methods include methylene blue staining and measuring the pH of bronchial secretions.¹² The diagnosis is confirmed using oral contrast, allowing visualization of a nonspecific pleural effusion and a specific fistulous path with an intrathoracic opacification.¹³

There is a lack of guidelines on the management of GPFs. Some argue for laparoscopic treatment, while others suggest a more conservative approach involving antibiotic use and percutaneous drainage. However, the best treatment should be tailored for the patient based on the clinical presentation and fistula location. According to a previous systematic review, the recommended approach is to start with noninvasive measures, then move on to minimally invasive procedures, and only consider surgical intervention as a last resort.⁹ Rebibo et al.¹⁴ reported six cases of GBF after SG that underwent 60-cm Roux-Y gastrojejunal anastomosis with lobectomy or segmentectomy and diaphragmatic resections. However, it is essential to note that the morbidity of these combined surgeries was significant, with 67% of patients experiencing complications. Among these complications, two cases required reoperations due to recurrent fistula, accounting for 33.3%.

Finally, patients with GPF/GBFs usually suffer from malnutrition; a previous study reported a 79% malnutrition rate among their patients.⁸ Therefore, it is crucial to emphasize the importance of enteral or parenteral nutrition and electrolyte disorder correction before delving into curative treatments.¹⁵

4 | CONCLUSION

Although gastro-pleural fistulas after bariatric surgeries are rare, they are life-threatening complications that should be suspected in patients who present with gastrointestinal or respiratory symptoms after bariatric surgery. If noninvasive treatment is not feasible, it is essential to have a joint effort between bariatric and thoracic surgeons to address gastro-pleural fistulas.

AUTHOR CONTRIBUTIONS

Ghasem Khalilian Movahhed: Data curation; investigation; writing – original draft. **Amin Dalili:** Data curation; investigation; writing – review and editing. **Tooraj Zandbaf:** Investigation; writing – review and editing. **Alireza Rezapanah:** Investigation; writing – review and editing. **Ali Jangjoo:** Conceptualization. **Benyamin Seyfari:** Investigation; project administration; writing – original draft.

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CONFLICT OF INTEREST STATEMENT

None.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

CONSENT

Full verbal and written informed consent were obtained from the patient for the publication of this manuscript.

ORCID

Amin Dalili  <https://orcid.org/0009-0005-8637-0241>

Tooraj Zandbaf  <https://orcid.org/0000-0002-4882-5058>

Alireza Rezapanah  <https://orcid.org/0000-0002-6397-2443>

Benyamin Seyfari  <https://orcid.org/0000-0003-4437-9465>

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