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Citation

Hany, M., Ibrahim, M., Zidan, A., & Torensma, B. (2022). Acute parahiatal hernia after sleeve gastrectomy:: a case report. *Obesity Surgery*, 32(9), 3210-3212.
doi:10.1007/s11695-022-06200-y

Version: Publisher's Version

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Note: To cite this publication please use the final published version (if applicable).



Acute Parahiatal Hernia After Sleeve Gastrectomy: a Case Report

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Received: 30 March 2022 / Revised: 30 June 2022 / Accepted: 30 June 2022 / Published online: 7 July 2022
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Keywords Acute parahiatal hernia · Laparoscopic sleeve gastrectomy · Diaphragmatic intercrural defect

Introduction

Laparoscopic sleeve gastrectomy (LSG) has gained increasing popularity over the years, owing to its effectiveness and safety. However, complications exist, the most prominent of which are leaking (1.1–5.3%) [1], bleeding (1.16–4.94%) [2], and sleeve migration (6–13%) [3]. De novo hiatal herniation (type 1 sliding) is usually diagnosed during follow-up in SG patients [4]. Parahiatal hernia is a rare type of diaphragmatic hernia that occurs as an extralimital defect in the crural muscle lateral to the esophageal hiatus. We present a case of acute parahiatal hernia after sleeve gastrectomy at our center, which could have been due to trauma during dissection around the hiatus.

Materials and Methods

A 36-year-old woman with a BMI of 38 kg/m², osteoarthritis, and menstrual irregularities underwent LSG in September 2021 at Madina Women's Hospital, IFSO-certified bariatric

center, Alexandria, Egypt. All preoperative workups and upper endoscopy were normal. The greater omentum was dissected during surgery using Enseal (Ethicon Endo-Surgery, Cincinnati, OH, USA) until the left crus was exposed and the esophageal pad of fat was removed. Stapling with non-reinforced reloads was used, and suturing over the entire staple line was performed for reinforcement. Intraoperative inspection of the hiatus for gross defects or dimpling anterior to the esophagus was performed. On postoperative day one, the patient complained of severe back pain. Her vital signs were normal, and she tolerated all the oral fluids. On the second day, her pain worsened, and she demonstrated an elevated heart rate of 120–140 beats/min with dyspnea. Complete laboratory investigations, blood gas analysis, and abdominal computed tomography (CT) were performed. Blood gas results were normal, white blood cell count was 12,000 cells/μL, and C-reactive protein level was 50 mg/L. However, CT revealed a collapsed left lung and herniation of the small bowel loops through a diaphragmatic opening lateral to the hiatus, with moderate pleural effusion. We decided to perform immediate laparoscopic surgical exploration using the same trocar sites for the initial SG.

Key points:

- Sleeve gastrectomy complications include bleeding, leakage, hiatal herniation, and sleeve migration.
- Worrisome signs in the postoperative period are tachycardia and dyspnea.
- Parahiatal hernia is rarely described in the literature, and its acute occurrence after sleeve gastrectomy has not been reported.

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Results

We observed congested bowel loops displaced upward through a left diaphragmatic intercrural defect and a severely congested spleen with an almost dusky color during laparoscopic exploratory examination. Retrieval of approximately 3 m of the small bowel from the intercrural defect, followed by closure using a continuous barbed V-Loc™ PBT non-absorbable 2–0 suture (Medtronic, Mansfield, MA), narrowing of the esophageal hiatus, and attachment of the lateral part of the esophagus and the upper part of the stomach to the left crus was performed using the same type of suture. A composite mesh, Ventralight ST (Bard, Warwick, RI, USA),

was applied around the esophageal hiatus and fixed using tacks (AbsorbaTack; Covidien Corp, Mansfield, MA, USA). A left intercostal chest tube was inserted due to diminished air entry.

On the first postoperative day, the tachycardia resolved, and a chest radiograph revealed inflation of the left lung. Oral fluids were administered and tolerated by the patient. The intercostal drain was removed on the second postoperative day, and CT revealed lung inflation, minimal effusion, and complete resolution of the hernia. The patient was discharged and prescribed a regular diet schedule with no modifications. After 2 weeks, the patient was healthy with no complaints.

Discussion

To the best of our knowledge, this is the first published case of an acute hernia lateral to the hiatus after LSG. We believe that the cause is ascribed to overlooked thermal trauma to this area during dissection, which may have yielded after straining. The defect was noticed during a careful review of the original video. Owing to its rarity, its existence was denied early on. Li et al. included 27 patients in a study of paraesophageal hernia, which reviewed all similar reported cases in the literature; 19 patients were categorized as primary/congenital and eight as secondary/acquired/iatrogenic. Secondary hernia might have been caused by trauma to the diaphragm or iatrogenic hernia after previous surgery [5].

Diaphragmatic hernia after bariatric surgery is unusual but may be lethal if strangulation of the viscera occurs. While reviewing the literature, four case reports describe its occurrence at a variable interval of time postoperatively and attributed to trauma done by stapler, instruments, and thermal injury; the earliest occurred 5 months after band insertion: one case report, 3 years after SG, and 2 to 18 years after gastric bypass. The contents were variable, excluding the stomach and small and large bowel; the patients presented with recurrent intense abdominal pain, obstipation, and dyspnea [6–8]. Reinforcement of hiatal hernia repair with mesh has been described with variable results and aims to decrease the incidence of recurrence. Mesh erosion or migration is a possible complication, particularly with polypropylene meshes [9, 10]. Subsequently, absorbable biological and synthetic meshes are used to avoid this problem. We used a composite mesh for hiatal hernia repair (Ventralight ST; Bard, Warwick, RI, USA). The mesh consisted of polypropylene and an absorbable hydrogel barrier on the diaphragmatic and peritoneal sides. The use of composite meshes with low recurrence rates has been described in the literature. [11]

Conclusion

Although this complication is rare and difficult to diagnose in the immediate postoperative period, surgeons must be aware of it and consider it in the differential diagnosis of patients with postoperative back pain, dyspnea, and tachycardia. Therefore, we recommend meticulous dissection around the hiatus and careful examination at the end of surgery.

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s11695-022-06200-y>.

Author Contribution All authors have contributed equally to this work.

Declarations

Ethics Approval All procedures performed in this study 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 The patient provided written and oral informed consent.

Conflict of Interest The authors declare no competing interests.

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