

A Rare Postoperative Complication Following Laparoscopic Sleeve Gastrectomy: Forgotten Stomach Segment in The Abdomen -A Case Report

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Received: 26 Sep 2024

Accepted: 10 Oct 2024

Published: 16 Oct 2024

J Short Name: AJSCCR

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Citation:

Meshal Fares. A Rare Postoperative Complication Following Laparoscopic Sleeve Gastrectomy: Forgotten Stomach Segment in The Abdomen -A Case Report. *Ame J Surg Clin Case Rep.* 2024; 8(3): 1-4

1. Introduction

Morbid obesity has emerged as a prevalent problem in Western civilizations and is gradually disseminating globally. By 2025, it is projected that 40% of the American population would be morbidly obese. Despite the availability of several nutritional therapy, patients seem to respond most well to surgical intervention [1]. Obesity is a significant public health issue in the United States, with over one-third of individuals classified as obese in 2009-2010, defined by a body mass index (BMI) over 30 kg/m² [2]. Bariatric surgery is recommended for individuals with a BMI over 40 kg/m² who do not have concurrent medical conditions and for whom the operation does not pose excessive risk, provided they qualify for bariatric intervention. Patients with a BMI over 35 kg/m² and one or more severe obesity-related comorbidities may be considered for a bariatric operation [3]. In 1998, the first phase of the duodenal switch procedure was conducted. In high-risk and super-obese patients (BMI >50 kg/m²), the gastric sleeve component of the duodenal switch procedure was often executed in isolation to mitigate morbidity and mortality, as well as to enhance the laparoscopic technique [4]. Over the last 15 years, LSG has progressively been used as an independent main bariatric operation and has garnered favor among patients and bariatric doctors [5]. LSG is the second most prevalent bariatric procedure globally, exceeded only by LRYGB. Furthermore, LSG has eclipsed LRYGB as the predominant bariatric treatment performed in American academic institutions since 2013. Laparoscopic sleeve gastrectomy (LSG) has shown advantages similar to other bariatric surgeries and is becoming recognized as one of the most prevalent bariatric treatments globally. Compared to other bariatric procedures like

the laparoscopic Roux-en-Y gastric bypass (LRYGB), laparoscopic sleeve gastrectomy (LSG) is a more concise and technically simpler technique, resulting in less alterations to the body's natural architecture and physiology. Its popularity has lately surged due to its effectiveness in achieving significant weight reduction and resolving comorbidities without increasing the risk of consequences [6, 7]. Laparoscopic sleeve gastrectomy (LSG) is a widely performed surgical procedure for the treatment of morbid obesity. LSG has gained popularity owing to its straightforwardness and minimal complication rate. LSG was first conducted in 2000 by Gagner and Patterson during a duodenal switch surgery [8,9]. Proposed sleeve gastrectomy as the first phase of gastric bypass surgery for high-risk obese patients to reduce mortality and morbidity [10, 9]. Presently, several surgeons see LSG as an independent treatment that provides significant weight reduction for obese patients [10]. It has shown efficacy in lowering extra weight by 60–70% for three years [11].

The physiological and anatomical rationale for the effectiveness of LSG is linked to the decrease in total stomach capacity, demonstrating a restrictive impact [12]. Furthermore, a variation in orexigenic/anorexigenic hormones is seen after the excision of fundal ghrelin-secreting cells [13].

LSG is a straightforward surgical intervention associated with a minimal complication rate and negligible long-term nutritional inadequacies, particularly in contrast to other, more invasive bariatric treatments. The consequences mostly include staple-line hemorrhage, strictures (often seen in the central or distal sections of the remaining stomach), and the most severe and perilous complication, staple-line leakage [13]. The documented rates of gastric

leaks from the sleeve staple line are 1.4–2.5% for initial sleeve gastrectomies and 16–20% for reoperative surgeries after a prior gastric procedure, while it has shown to be effective in achieving significant weight loss, the procedure is not without risks. Common complications include staple line leaks, strictures, and bleeding. However, complications such as retained gastric segments are exceedingly rare [14].

2. Post-LSG Failure

LSG has been beneficial in facilitating weight reduction and resolving obesity-related comorbidities. The principle of sleeve gastrectomy is straightforward; yet, some aspects of the procedure, if executed improperly, may lead to significant difficulties. A new consensus statement from an expert panel has been issued, promoting uniformity and offering advice on critical elements of the surgery, including indications, contraindications, surgical technique, treatment, and complication avoidance [15]. Nonetheless, even under the care of proficient surgical teams and high-capacity bariatric centers, failures occur. LSG failure may be categorized as inadequate weight loss, specifically defined as a weight

reduction of less than 50% of extra weight or the resurgence of weight and surgical problems [16]. The aim of this case report is to highlight a rare but significant complication following laparoscopic sleeve gastrectomy (LSG), specifically the occurrence of a retained stomach segment in the abdominal cavity. This report seeks to underscore the importance of meticulous surgical technique and thorough intraoperative evaluation to prevent such complications. By documenting this case, we aim to raise awareness among surgeons and healthcare professionals about the potential for this uncommon complication, to discuss its diagnostic and management challenges, and to contribute to the existing literature on the safe practice of bariatric surgery.

3. Methodology

This case report follows a single-case descriptive study design conducted in a tertiary care hospital specializing in bariatric surgery. Informed consent was obtained from the patient for the publication of case details. Data were gathered from medical records, imaging studies, and follow-up visits. The primary outcome measure was the successful retrieval of the forgotten segment and patient recovery without further complications.

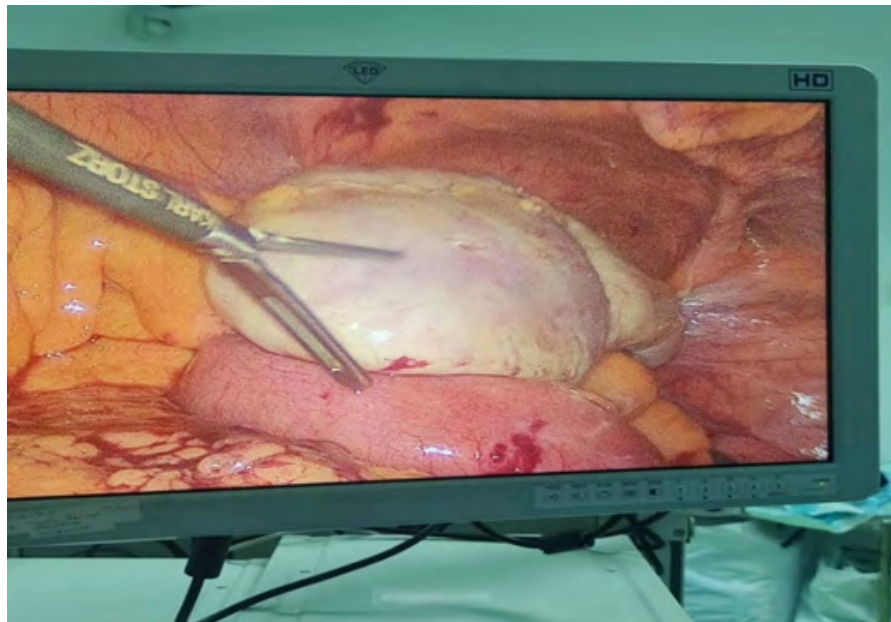


Figure 1: Laparoscopic Image of a Retained Gastric Segment: Visualization of the Retained Portion of the Stomach During Laparoscopic Exploration Post-Sleeve Gastrectomy.

4. Case Description

4.1. Patient Background

A 35-year-old female with a history of morbid obesity presented to the emergency room (ER) two days post-LSG and hiatal hernia repair, which were performed in Jordan. The patient presented to the emergency department with severe right-sided abdominal pain two days after undergoing LSG and hiatal hernia repair in Jordan. Her significant past surgical history includes a laparoscopic cholecystectomy performed 7 years ago and an open appendectomy 15 years ago.

4.2. Clinical Presentation

The patient reported intense, localized abdominal pain predominantly in the right iliac fossa, without accompanying symptoms of fever or nausea. On examination, her vital signs were stable; she was alert, oriented, and in no acute distress. The abdominal examination revealed distension and diffuse tenderness, particularly in the right upper quadrant and right iliac fossa.

4.3. Investigations

A contrast-enhanced CT scan of the abdomen showed a well-defined structure measuring 68 x 90 mm with internal air/fluid loc-

ules, suggestive of a foreign body, possibly a retained segment of the stomach from the LSG procedure. The scan also revealed mild free fluid in the pelvic region and mild hepatomegaly. Laboratory investigations showed elevated white blood cell (WBC) count and elevated liver enzymes, indicating an inflammatory or infectious process.

4.4. Surgical Management

Based on clinical and radiological findings, the patient was taken to the operating room for laparoscopic exploration. Intraoperatively, a foreign body was identified, which was confirmed to be a retained segment of the stomach. The retained segment was safely removed, and the surrounding area was thoroughly irrigated. No immediate complications were encountered during the procedure.

4.5. Intraoperative Findings

A foreign body, confirmed to be a retained segment of the stomach, was identified and safely removed. The surrounding area in the pelvic region was irrigated to ensure no residual contaminants.

4.6. Postoperative Course

The patient recovered well postoperatively. She was monitored for any signs of infection or complications and was discharged with follow-up instructions. She was prescribed antibiotics (Ciprofloxacin and Adol) and was advised to closely monitor her clinical status, particularly for any signs of infection or gastrointestinal complications.

4.7. Follow-Up

The patient was scheduled for regular follow-up visits to monitor her recovery and ensure that no further complications arose from the retained foreign body removal. The prescribed treatment included antibiotics for infection prevention and pain management. Early ambulation was encouraged to prevent postoperative complications.

5. Discussion

Retained foreign bodies, although rare, represent a serious complication in bariatric surgery. This case highlights the need for meticulous surgical technique during LSG and careful intraoperative evaluation to prevent such incidents. The literature suggests that while common complications such as leaks and strictures are well-documented, there is limited data on the incidence and management of retained stomach segments post-LSG. Studies indicate that routine intraoperative imaging and careful inspection of resected specimens can help in reducing such risks. Early detection and timely intervention are crucial in managing these complications effectively. Complications following LSG, such as retained gastric segments, are extremely rare and pose significant diagnostic challenges. The literature predominantly discusses more common complications such as staple line leaks, strictures, and bleeding. In this case, the forgotten stomach segment led to severe abdominal pain, which necessitated further surgical intervention.

A retrospective study by [17]. found a 0.46% incidence of gastric leaks in 650 patients who underwent LSG, emphasizing the importance of early detection and individualized treatment strategies. Similarly, identified risk factors for complications such as smoking and peptic ulcer disease, although these were not directly relevant in this patient. The rarity of retained segments like this one highlights the need for heightened awareness and vigilance during surgery [18]. In this case, the successful laparoscopic retrieval of the forgotten segment prevented further complications. The literature suggests that prompt recognition and management of such complications are crucial to achieving optimal outcomes. This case also underscores the importance of thorough intraoperative evaluation and appropriate postoperative imaging when complications are suspected.

6. Conclusion

This case underscores the importance of meticulous surgical technique and thorough intraoperative evaluation to prevent rare but serious complications such as retained stomach segments. Surgeons performing LSG must maintain high vigilance and adhere to stringent surgical protocols. Early detection and intervention were pivotal in managing this complication and ensuring a favourable outcome for the patient. This report adds to the limited literature on this rare complication and serves as a reminder for surgical teams to implement rigorous checks during bariatric procedures.

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