ACH Med J
(2025) 4: 138-141
ISSN:2822-5872
Doi : 10.5505/achmedj.2025.49469

CASE REPORT

A Rare Complication Related to Fully Covered Stent in the Treatment of Perforation in Laparoscopic Sleeve Gastrectomy: Early Stricture and Polyp Development

Mehmet Ali Karacaer[1]
[1]Department of General Surgery, Çanakkale Mehmet Akif Ersoy State Hospital, Çanakkale, Türkiye

Article Info

Received Date : 12.11.2025
Revision Date : 09.12.2025
Accepted Date : 18.12.2025

Keywords:
Sleeve gastrectomy,
Gastrointestinal perforation,
Fully covered stent,
Stricture,
Polyp

ORCIDs of the authors:
MAK :0000-0001-9357-0851

Abstract

Complications such as stricture and polyps may develop in the long term due to the fully covered stent used for the treatment of upper gastrointestinal tract perforations. However, the early presentation of these complications is rare. In the present report, our objective was to present a case of stricture development and polyp formation in the upper and lower ends of the stent in a 47-year-old woman who developed perforation during laparoscopic sleeve gastrectomy. The stent remained in place for a short period, and the lesions progressed rapidly. We aim to highlight that these complications can arise within a short period.

Correspondence Address: Hamidiye, Rauf Denktaş Cd No:17, 17100 Kepez/Çanakkale Merkez
Phone: **+90** 544 930 76 44 / **e-mail:** makktu@hotmail.com

Introduction

Definition

Early and late complications may occur during laparoscopic sleeve gastrectomy, which is one of the most commonly used methods in bariatric surgery. These complications include bleeding, leakage, abscess development, and stricture in the later period. Leakage occurs most commonly at the stapler site, and early reoperation is often necessary. In less common instances, leakage may develop as a result of organ damage due to the instruments used in surgery. This complication is usually present intraoperatively or in the first few days after surgery.

Aim

In the present report, we present a case of perforation caused by thermal injury due to harmonic use during LSG. The patient was initially treated with conservative methods in the postoperative period. When this approach proved unsuccessful, the patient was successfully treated with a fully covered stent. However, stricture and polyp development occurred early after stenting. The objective of this report is to raise awareness of these rare early stent complications and to contribute to the existing literature on this subject.

Case Report

A 47-year-old female patient was admitted to our clinic with a primary diagnosis of obesity. The patient exhibited no comorbidities and had no history of prior surgical procedures. The patient's body mass index (BMI) was 41. The patient was informed of all treatment options and indicated a preference for surgical intervention.

Laparoscopic sleeve gastrectomy was performed. During the operation, a perforation with a diameter of approximately 2 millimeters developed in the posterior part of the stomach approximately 3 centimeters from the duodenum as a result of thermal damage due to harmonic use. The surgical intervention was performed to address the observed defect, employing primary suturing techniques during the operation. Postoperative evaluation using methylene blue staining revealed no evidence of leakage.

On the second postoperative day, the patient underwent a second surgical procedure after the presence of bile was observed in the drain. The initial surgical intervention was repeated, yet two days following the second procedure, the patient underwent an endoscopic implantation of a fully covered stent extending from the esophagus to the bulbus, owing to the observation of recurrent bile drainage. The stent used was a fully covered nitinol alloy stent with tip diameters of 30 mm, a mid-diameter of 24 mm, and a length of 220 mm. Subsequent to a 15-day observation period, the stent was removed, and no leakage was detected. However, 15 days after the stent was removed, the patient presented with a complaint of difficulty in swallowing solid foods. Conventional imaging techniques, including ultrasonography and computed tomography, did not reveal any signs of leakage. A meticulous examination of the patient's gastrointestinal tract using a specialized endoscope (i.e., a gastroscopy) revealed the presence of a stricture in the region corresponding to the upper end of the stent. This structural abnormality was found to be the causative factor for the obstruction that precluded the successful passage of the endoscope. Upon the stricture's passage via balloon dilatation (35 mm diameter achalasia balloon), a polyp was observed to have developed in the region corresponding to the lower end of the stent (Image 1). The histopathological examination of the biopsy taken from the polyp reported a granulomatous reaction secondary to inflammation.

Gastroscopic balloon dilatation was performed once more in the subsequent month. No observable growth of the polyp was identified, and the patient was subsequently monitored. It has been six months since the most recent gastroscopy, and the patient is currently free of active complaints.

Figure 1. Endoscopic image of a polyp at the site of the lower end of the stent

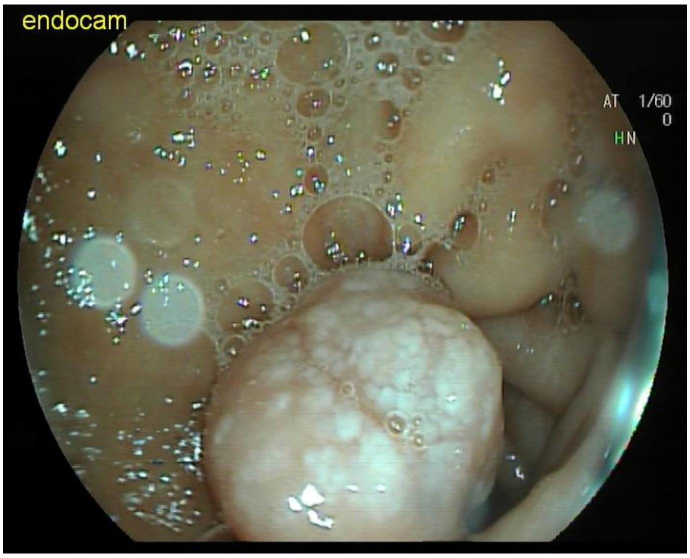

Figure 1

Discussion

Sleeve gastrectomy is a procedure that is frequently utilized in the field of bariatric surgery. This surgical procedure can be performed laparoscopically with a high degree of safety and efficacy. However, it is important to note that significant complications may develop, although they are not common. The most common complications that occur in the initial postoperative period are hemorrhage, leakage at the stapler site, and abscess development.[1] Complications may be observed in the period following one month, including the development of stenosis, reflux, nutrient deficiency, and mediastinal pouch development.[1]

A large series of 2,834 laparoscopic sleeve gastrectomy (LSG) cases revealed that 1.5% of patients developed an operation-related leak.[2] The International Sleeve Gastrectomy Expert Panel Consensus Statement documented this rate as 1.06%.[3] In the same series, leakage due to harmonic use was observed in one of 44 leak cases.[2] Early diagnosis and appropriate management have been shown to reduce morbidity. Treatment options include primary surgical repair, percutaneous drainage, and endoscopic stenting.[4] In the present case, leakage due to harmonic use developed, which was recognized at the time of operation and intervened with primary suture.

Endoscopic stent placement is a minimally invasive and effective treatment option that is widely preferred in the management of leaks after sleeve gastrectomy. In instances where conventional methods prove ineffective in sealing the leak, the utilization of fully covered stents emerges as a pivotal strategy. These stents are designed to prevent the leakage of gastric contents and to facilitate the healing process of the tissue. According to the extant literature, the success rate of stenting has been documented to exceed 90%.[5] In the present case, recurrent leakage despite primary suturing twice was successfully treated with endoscopic full-coated stent placement.

The most common post-stent complications include, but are not limited to, stent migration, dislocation, ulceration, granulation tissue formation, stricture, bleeding, and, in rare cases, pseudo-polypoid formations.[6] The term pseudo-polyp is used to describe reactive polypoid granulomatous reactions. Post-stent stricture is a complication believed to result from mucosal ischemia and inflammation due to prolonged mechanical compression. In some cases, endoscopic dilatation may be necessary to address strictures that reach a level that requires surgical revision. In the case presented, a patient who exhibited difficulty in the ingestion of solid foods following stent removal developed a stricture at the proximal end of the stent, thereby impeding the passage of the endoscope and necessitating balloon dilatation as a treatment modality.

In rare instances, polypoid mucosal proliferations may also develop subsequent to stenting. A limitation of the current literature is the lack of sufficient data regarding the histopathologic features of these lesions. Subsequent to the removal of the stent, the formation of "pseudo-polyp" formations has been observed, particularly at the distal end. These formations are believed to be associated with the granulation and healing process.[7] Post-stent strictures and pseudo-polypoid lesions have been sporadically documented in the extant literature, with these formations predominantly characterized in the late phase.

However, the occurrence of such pathologies only a few weeks after stent removal is extremely rare. In our case, although the stent was in place for a total duration of 15 days, stenosis at the upper end and polyps at the lower end were detected in the second week after removal. This finding suggests that the complications described are not confined to prolonged stent retention, and that in some patients, severe mucosal changes can occur even with short-term deployment. This may be explained by multifactorial factors, such as individual tissue response, stent characteristics, and concomitant inflammatory response. However, it should be noted that these lesions may recur. The results of a short six-month follow-up period are shared in our case, but it is essential to conduct long-term follow-ups of 12-24 months in such cases.

Our case represents a rare example of early stricture and polyp formation following short-term stenting after sleeve gastrectomy. It is noteworthy that the stent remained in place for only a short period, and the lesions developed very shortly thereafter. Given the prevalence of similar lesions in the late period in the literature, this case underscores the potential for earlier triggering of underlying pathophysiologic processes. Consequently, clinicians must pay closer attention to this possibility. Consequently, this case highlights complications that are rarely documented in the literature but may be overlooked in clinical practice. It contributes to the development of a preventive approach (early endoscopy, short-term follow-up, etc.) in this context.

References

1. Woźniewska P, Diemieszczyk I, Hady H. Complications associated with laparoscopic sleeve gastrectomy – a review. Gastroenterology Rev. 2021;16(1):5-9. doi:10.5114/pg.2021.104733
2. Sakran N, Goitein D, Raziel A, et al. Gastric leaks after sleeve gastrectomy: a multicenter experience with 2,834 patients. Surg Endosc. 2013;27(1):240-245. doi:10.1007/s00464-012-2426-x
3. Rosenthal RJ, International Sleeve Gastrectomy Expert Panel, Diaz AA, et al. International Sleeve Gastrectomy Expert Panel Consensus Statement: best practice guidelines based on experience of >12,000 cases. Surg Obes Relat Dis. 2012;8(1):8-19. doi:10.1016/j.soard.2011.10.019
4. El-Sayes IA, Frenken M, Weiner RA. Management of leakage and stenosis after sleeve gastrectomy. Surgery. 2017;162(3):652-661. doi:10.1016/j.surg.2017.04.015
5. Rogalski P, Swidnicka-Siergiejko A, Wasielica-Berger J, et al. Endoscopic management of leaks and fistulas after bariatric surgery: a systematic review and meta-analysis. Surg Endosc. 2021;35(3):1067-1087. doi:10.1007/s00464-020-07471-1
6. Arrowaili A. Updates in the management of leakage resulting from laparoscopic sleeve gastrectomy: a systematic review of the literature. Eur Surg. Published online September 9, 2025. doi:10.1007/s10353-025-00900-2
7. Abd Ellatif ME, Alfalah H, Asker WA, et al. Place of upper endoscopy before and after bariatric surgery: A multicenter experience with 3219 patients. World J Gastrointest Endosc. 2016;8(10):409-417. doi:10.4253/wjge.v8.i10.409