

# Mucus Impaction Related to Postoperative Anastomosis Site Obstruction: A Rare Case

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## Abstract

Anastomotic stricture has an incidence rate of 6-10% and typically manifests three to six months after colorectal surgery. Immediate postoperative stricture is exceedingly rare and underreported in the literature. The possible etiology includes poor circulation, leakage, local inflammation, or infection. We report a rare case of a patient with total obstruction by mucus on the anastomosis site on postoperation day two. We used a sigmoidoscope to remove mucus material, following which the patient recovered well.

**Categories:** Gastroenterology, General Surgery

**Keywords:** complication, laparoscopic surgery, complication management, colonoscopy, laparoscopic colon resection

## Introduction

Anastomotic stricture is a prevalent complication following colorectal surgery involving the use of a circular stapler [1]. The primary symptom often includes difficulty passing stool or gas, typically occurring three to six months after the operation. Symptomatic stricture necessitating intervention is observed in only 6%-10% of patients [2]. Immediate postoperative stricture is exceptionally rare, with a different etiology than ischemia or leakage, requiring time for stricture formation to develop. Current understanding of the etiology of anastomosis stricture is limited, and the well-known presentation of stenosis is stricture regarding the possible cause and risk factors. We report a rare case of postoperative mucus impaction on the anastomosis site after laparoscopic surgery, which led to total colon obstruction.

## Case Presentation

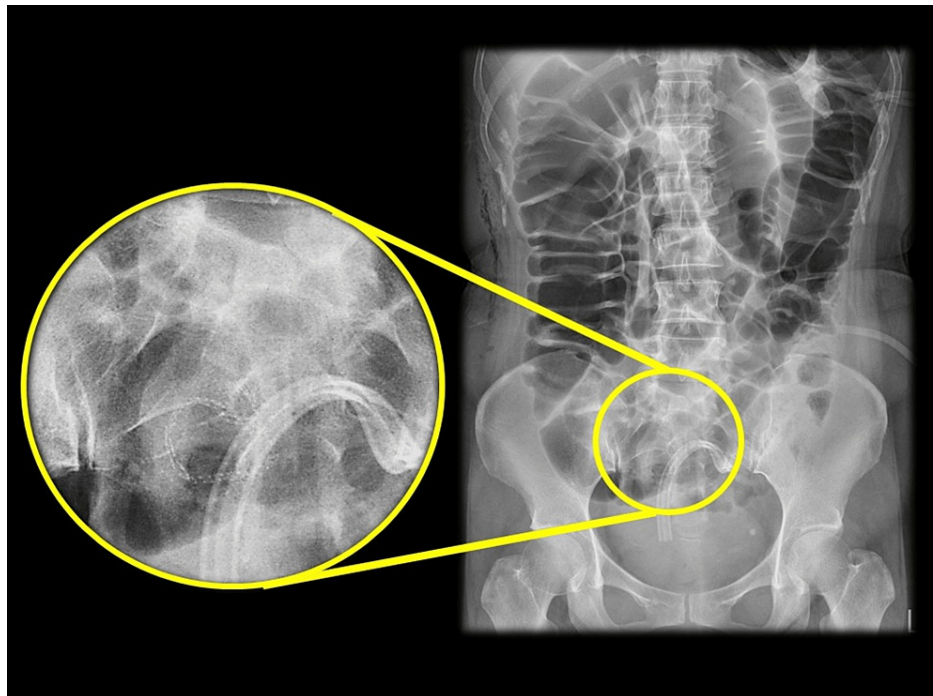
A 54-year-old female patient presented to our outpatient clinic for a rectal tumor incidentally found on an abdominal CT scan during a health examination. She reported no dizziness, bowel habit changes, constipation, bloody or blood-tinged stools, and abdominal pain. The patient was referred to our clinic for further evaluation regarding the need for surgical intervention.

During a colonoscopy, a large, soft tumor was observed at 30-38 cm from the anal verge around the descending sigmoid junction; hence, a colonic lipoma was suspected. The lower gastrointestinal series was similar to the colonoscopy findings, except for an intussusception at the sigmoid colon that reduced after an air enema. Subsequently, the patient received bowel preparation with 4 L split-dose polyethylene glycol, followed by laparoscopic anterior resection with end-to-end anastomosis with a circular stapler.

On postoperative day two, the patient complained of mild abdominal distention and cramping pain after drinking water. The symptoms worsened in the following days and became intolerable. An abdominal X-ray revealed a significant amount of bowel gas originating from the small bowel, diminishing in the anastomosis (Figure 1).

### How to cite this article

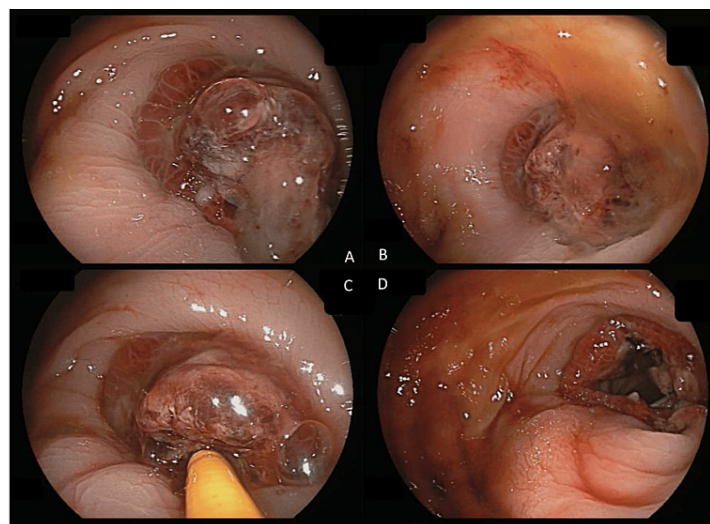
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**FIGURE 1: The abdominal X-ray.**

The abdominal X-ray revealed a significant amount of bowel gas originating from the small bowel to the descending colon and ended in anastomosis.

Owing to persistent symptoms, an emergent colonoscopy was conducted on postoperative day six, which revealed a mucus-based object occupying the entire lumen, causing bowel obstruction at the anastomosis site (above anal verge 15 cm). After the removal of the mucus content, the anastomosis and further colon lumen were patent (Figure 2).



**FIGURE 2: Colonoscopic examination.**

(A, B) Colonoscope showing mucus material at the anastomosis site leading to total obstruction. (C) The mucus was removed with a forceps through the colonoscope. (D) The patent anastomosis after the procedure.

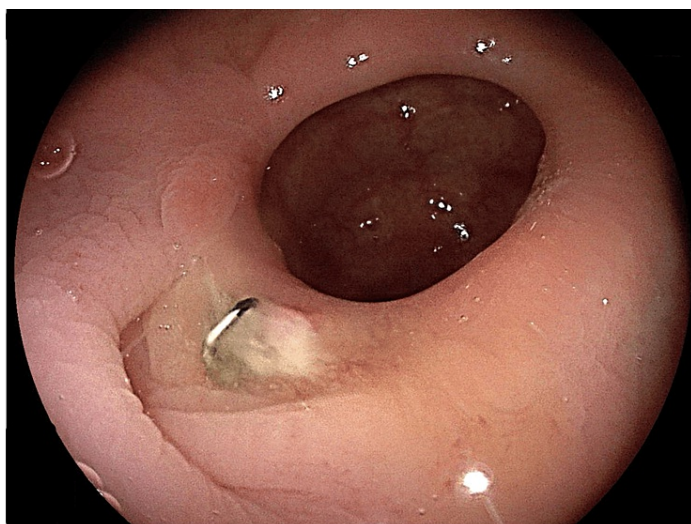
The patient experienced improvement on the same day. Furthermore, the radiograph obtained the following day showed improvement (Figure 3).



**FIGURE 3: Post-procedure abdominal X-ray.**

The abdominal X-ray after the sigmoidoscope showed much improvement in colon gas, with the gas passing through anastomosis to the rectum.

The patient's hospital course was uneventful. She was discharged with a full oral diet. The pathology results revealed a sigmoid colon lipoma. After discharge, the patient reported smooth defecation at home. Six months later, a follow-up colonoscopy showed favorable healing of the anastomosis (Figure 4).



**FIGURE 4: Follow-up colonoscopy.**

Follow-up colonoscopy after six months. The well-healed and patent anastomosis.

## Discussion

In colorectal surgery, circular staple anastomosis has long been an established procedure. Anastomosis stricture is a common complication following colorectal surgery, with a reported incidence of up to 30% under endoscopic assessment postoperatively, while most patients remain asymptomatic [2,3]. Ambrosetti et al. have reported symptomatic anastomosis stricture following elective laparoscopic sigmoidectomy, with an incidence of 17.6% [4]. The pathophysiology and risk factors of anastomosis stricture are poorly understood; however, anastomosis stricture is associated with the anastomotic technique, tissue tension over anastomosis, anastomosis leakage, use of circular stapler, blood circulation, digestive tract obstruction, infection, neoadjuvant chemoradiotherapy, and general nutrition status [4-6]. While some anastomosis strictures may improve spontaneously, symptomatic ones usually require treatment, with endoscopic intervention being the preferred treatment [2,7]. Other factors contributing to stricture encompass insufficient circular staple size, local tumor recurrence, or bowel adhesion [1,2,4]. Goblet cells play a crucial role in synthesizing and secreting gut mucus to safeguard the underlying epithelium. The continuous renewal of mucus is a highly active process. Preoperative antibiotic colon preparation can alter the microbiota, affecting mucus secretion and potentially causing damage. Surgical anastomosis, another form of trauma, can also trigger excessive mucus secretion [8]. Previous studies have reported postoperative anastomosis of colonic anastomosis by scar, managed with colonoscopic intervention [9]. We report a rare case of mucus impaction on anastomosis resulting in bowel obstruction in which colonoscopic removal of mucus material was successfully performed, and the anastomosis remained intact after the procedure. Colonoscopy provides diagnostic value and helps resolve stenosis in the perioperative period.

## Conclusions

Our case presents a unique etiology and presentation timeline compared to the previous literature. It is the first documented instance of postoperative anastomosis stenosis attributed to mucus. Various diagnostic and management tools are available, with the colonoscope being a particularly effective diagnostic instrument capable of promptly addressing obstructive material. Fortunately, our patient's recovery was uneventful, and no long-term sequelae were observed.

## Additional Information

### Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

**Acquisition, analysis, or interpretation of data:** Ren-Hao Chan, Fu-Fei Yang

**Drafting of the manuscript:** Ren-Hao Chan, Fu-Fei Yang

**Critical review of the manuscript for important intellectual content:** Ren-Hao Chan, Fu-Fei Yang

**Supervision:** Ren-Hao Chan

**Concept and design:** Fu-Fei Yang

## Disclosures

**Human subjects:** Consent was obtained or waived by all participants in this study. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

## References

1. Placer C, Enríquez-Navascués JM, Elorza G, et al.: Preventing complications in colorectal anastomosis: results of a randomized controlled trial using bioabsorbable staple line reinforcement for circular stapler. *Dis Colon Rectum*. 2014, 57:1195-201. [10.1097/DCR.0000000000000207](https://doi.org/10.1097/DCR.0000000000000207)
2. Bannura GC, Cumsille MA, Barrera AE, Contreras JP, Melo CL, Soto DC: Predictive factors of stenosis after stapled colorectal anastomosis: prospective analysis of 179 consecutive patients. *World J Surg*. 2004, 28:921-5. [10.1007/s00268-004-7375-7](https://doi.org/10.1007/s00268-004-7375-7)
3. Polese L, Vecchiato M, Frigo AC, et al.: Risk factors for colorectal anastomotic stenoses and their impact on quality of life: what are the lessons to learn?. *Colorectal Dis*. 2012, 14:e124-8. [10.1111/j.1463-1318.2011.02819.x](https://doi.org/10.1111/j.1463-1318.2011.02819.x)
4. Ambrosetti P, Francis K, De Peyer R, Frossard JL: Colorectal anastomotic stenosis after elective laparoscopic sigmoidectomy for diverticular disease: a prospective evaluation of 68 patients. *Dis Colon Rectum*. 2008, 51:1345-9. [10.1007/s10350-008-9319-z](https://doi.org/10.1007/s10350-008-9319-z)
5. Clifford RE, Fowler H, Manu N, Vimalachandran D: Management of benign anastomotic strictures following rectal resection: a systematic review. *Colorectal Dis*. 2021, 23:3090-100. [10.1111/codi.15865](https://doi.org/10.1111/codi.15865)
6. Hiranyakas A, Da Silva G, Denoya P, Shawki S, Wexner SD: Colorectal anastomotic stricture: is it associated with inadequate colonic mobilization?. *Tech Coloproctol*. 2013, 17:371-5. [10.1007/s10151-012-0929-z](https://doi.org/10.1007/s10151-012-0929-z)
7. Sartori A, De Luca M, Fiscon V, Frego M, Portale G: Retrospective multicenter study of post-operative stenosis after stapled colorectal anastomosis. *Updates Surg*. 2019, 71:539-42. [10.1007/s13304-018-0575-8](https://doi.org/10.1007/s13304-018-0575-8)
8. Loktionov A: Colon mucus in colorectal neoplasia and beyond. *World J Gastroenterol*. 2022, 28:4475-92. [10.3748/wjg.v28.i32.4475](https://doi.org/10.3748/wjg.v28.i32.4475)
9. Deng S, Cao Y, Gu J, et al.: Endoscopic diagnosis and treatment of complete anastomosis stenosis after colorectal resection without protective ileostomy: report of two cases and literature review. *J Int Med Res*. 2020, 48:300060520914833. [10.1177/0300060520914833](https://doi.org/10.1177/0300060520914833)