https://doi.org/10.22516/25007440.1446

Case report

The Role of Colonoscopy in a Hostile Abdomen: Successful Management of a Coloatmospheric Fistula Due to Late Iatrogenic Perforation

Nairo Senejoa-Núñez,[1] Carlos Martínez-Jaramillo,[1] Ada Bustos-Guerrero,[2*] Diego Efraín Valbuena,[1] Heinz Ibáñez,[1] Sergio Camilo Ayala,[2] Ronel Eduardo Barbosa,[1] Juan Camilo Arboleda,[2] Eliana Cortés.[2]

OPEN ACCESS

Citation:
Senejoa-Núñez N, Martínez-Jaramillo C, Ibáñez H, Barbosa RE, Valbuena DE, Ayala SC, Cortés C, Arboleda JC, Bustos-Guerrero A. The Role of Colonoscopy in a Hostile Abdomen: Successful Management of a Coloatmospheric Fistula Due to Late Iatrogenic Perforation. Revista. colomb. Gastroenterol. 2026;41(2):234-238.
https://doi.org/10.22516/25007440.1446

[1] Physician, Specialist in General Surgery and Subspecialist in Colorectal Surgery and Endoscopy, Hospital Militar Central, Coloproctology Service. Bogotá, Colombia.
[2] Physician, Specialist in General Surgery and Fellow in Colorectal Surgery and Endoscopy, Hospital Militar Central, Coloproctology Service. Bogotá, Colombia.

***Correspondence:** Ada Bustos-Guerrero.
adabustosmd@gmail.com

Received: 05/09/2025
Accepted: 12/11/2025

Abstract

Objective: To report the contribution of endoscopic management in the therapeutic approach to a patient with complex late colonic perforation and enteroatmospheric fistula, highlighting its impact on treatment, clinical course, and relevance as a minimally invasive tool in medical practice. **Case report:** We present the case of a patient with a fistula at the splenic flexure of the colon, secondary to a late perforation caused by a retroperitoneal and perisplenic abscess following nephrectomy. The clinical course was marked by a hostile abdomen resulting from multiple surgical interventions, including peritoneal lavage and the use of negative pressure therapy. Despite these measures, adequate fistula control was not achieved. Given the complexity of the condition and lack of response to conventional treatment, the patient underwent endoscopic management as a therapeutic alternative. **Conclusion:** Endoscopic management using hemoclips represents an effective and safe alternative for the closure of colonic fistulas in patients with a hostile abdomen. It reduces hospital stay and avoids major surgical reinterventions, thereby promoting full recovery.

Keywords

Colonoscopy; clips; endoscopy; intestinal perforation.

INTRODUCTION

Coloatmospheric fistulas are traditionally managed surgically, either through primary repair in acute settings or by means of more extensive colonic resections and stoma creation, which increases morbidity and mortality in these patients. The literature describes successful endoscopic management of early colonoscopic colonic perforations treated immediately with hemoclips or over-the-scope clips (OTSC), depending on the size of the perforation[1,2]. However, the available literature provides limited data regarding the effectiveness of endoscopic management in the setting of coloatmospheric fistulas, particularly in patients with a hostile abdomen. We present a case of successful endoscopic closure of a fecal fistula using hemoclips, which resulted in favorable and satisfactory clinical outcomes.

CASE PRESENTATION

A 60-year-old female patient was initially managed at a lower-complexity institution with left nephrectomy and drainage of a psoas abscess through a lumbotomy. She was subsequently referred to a higher-level center, where the general surgery team performed a laparotomy with drai-

© 2026 Asociación Colombiana de Gastroenterología

nage of a perisplenic abscess, splenectomy, and placement of a subatmospheric pressure system because of persistent contamination of the abdominal cavity.

During one of the peritoneal washouts, a colonic fistula at the splenic flexure was identified, which could neither be controlled nor localized (**Figure 1**), resulting in ongoing intra-abdominal contamination in the setting of a hostile abdomen. Its location was confirmed by a contrast enema study (**Figure 2**). An endoscopic closure attempt was subsequently performed, and during colonoscopy indigo carmine was applied, allowing precise identification of the fistulous site at the splenic flexure of the colon, a region that is difficult to approach because of its anatomical configuration. Two hemoclips were placed, achieving complete closure of the fistula (**Figure 3**). The effectiveness of the procedure was confirmed by contrast enema (**Figure 4**). This allowed progressive closure of the abdominal cavity, with favorable clinical evolution (**Figure 5**).

DISCUSSION

The management of intestinal fistulas continues to represent one of the greatest challenges in gastrointestinal surgery, particularly when they occur in the setting of a hostile abdomen or after delayed colonic perforation. Their management requires a comprehensive evaluation that considers anatomical, physiological, and clinical factors, including the location of the defect, its size, duration, degree of peritoneal contamination, and the patient's overall condition. Traditionally, surgical management has constituted the cornerstone of treatment, aimed at controlling the septic focus, resecting the affected segment, and restoring intestinal continuity whenever possible[3,4]. However, this strategy is associated with considerable morbidity and mortality, particularly in patients with established sepsis secondary to extensive contamination of the peritoneal cavity, which triggers a systemic inflammatory cascade and rapid clinical deterioration, increasing mortality to as high as 40% in cases of severe sepsis[5].

In this setting, technological advances in therapeutic endoscopy have enabled the development of less invasive alternatives for the management of gastrointestinal fistulas and have consolidated clip closure as a minimally invasive alternative to conventional surgical treatment. Endoscopic clip closure, whether using conventional devices or OTSC systems, has demonstrated promising results in the upper gastrointestinal tract, particularly in esophageal and gastroduodenal fistulas and perforations of iatrogenic, postoperative, or spontaneous origin (6–8).

In the colon, the application of this technique has been described mainly for the management of perforations secondary to colonoscopic procedures and has



Figure 1. Open abdomen with a subatmospheric pressure system and a non-localized coloatmospheric fistula. Author's file.

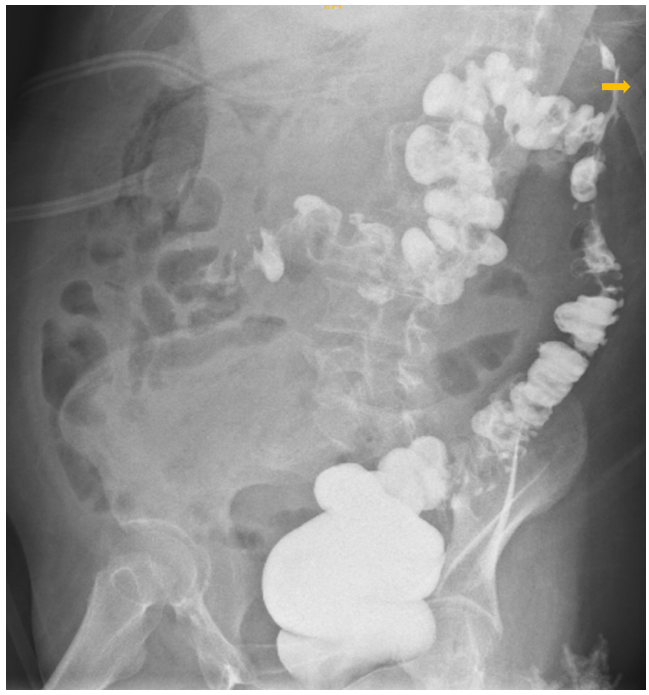


Figure 2. Fistula at the splenic flexure of the colon (yellow arrow). Author's file.

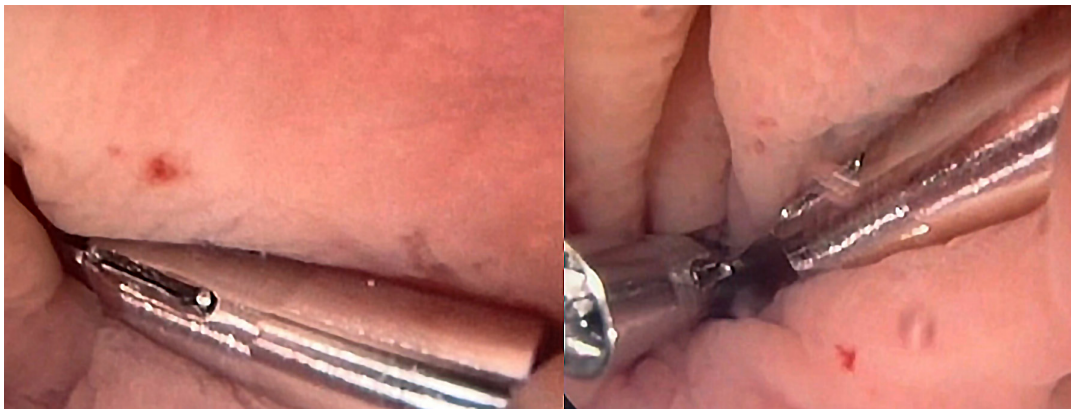


Figure 3. Endoscopic closure of the coloatmospheric fistula using two hemoclips. Author's file.

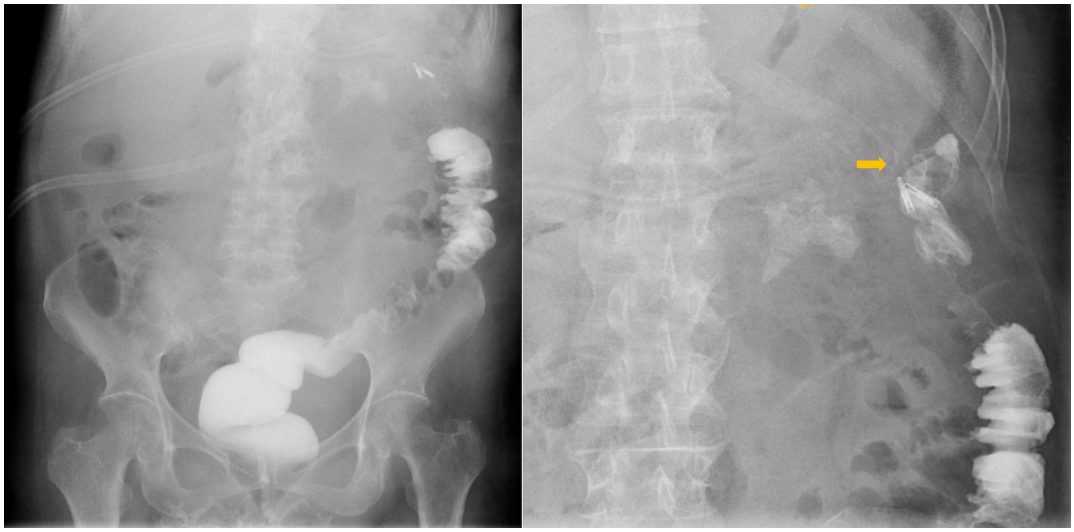


Figure 4. Adequate filling of the rectal ampulla and the sigmoid and descending colon. Passage of contrast medium through the site of hemoclip placement is observed, with no evidence of fistulous tracts (yellow arrow). Images property of the authors. Author's file.



Figure 5. Progressive closure of the abdominal cavity with adequate control of contamination. Author's file.

shown encouraging results in terms of efficacy and safety. Nevertheless, the success of this strategy depends largely on appropriate patient selection, and ideal candidates are those without established fecal peritonitis who maintain stable hemodynamic and physiological conditions. In this context, early identification of the lesion, tissue edge viability, and the availability of an experienced colonoscopist are key determinants of a favorable prognosis[9–11].

The available evidence regarding endoscopic repair of colocutaneous fistulas in the setting of a contaminated and hostile abdomen remains limited. Although some successful cases have been reported in postoperative settings (12–14), the available data are still insufficient to establish strong recommendations for its implementation. Preprocedural assessment using imaging studies such as fistulography, contrast enema, and contrast-enhanced computed tomography allows more accurate planning of the therapeutic strategy, optimizing localization of the fistulous tract and reducing the risk of therapeutic failure[15]. Assessment of defect characteristics, including size, anatomical location, and edge viability, constitutes a critical aspect in selecting the therapeutic approach. Furthermore, the choice of endoscopic device should be individualized according to the size and morphology of the defect: conventional clips are useful for small perforations (<10 mm), whereas OTSC systems or endoscopic suturing are reserved for larger lesions or those with irregular edges[15,16].

In our case, the location of the fistula was confirmed through both clinical evaluation and imaging studies, which enabled pre-colonoscopy planning and facilitated localization of the fistula. Endoscopic closure was successfully performed using two hemoclips guided by indigo carmine staining, and adequate exclusion of the fistulous tract with passage of contrast medium into the proximal colon was subsequently confirmed. This result favored progressive closure of the abdominal cavity by controlling the source of contamination, thereby avoiding the need for proximal diversion and resulting in a satisfactory clinical outcome. The experience of the colonoscopist and appropriate patient selection are consolidated as fundamental factors for the success of this strategy, especially in complex scenarios such as a hostile abdomen. Although surgery continues to be the therapeutic cornerstone in most cases, endoscopic closure may be considered a valid alternative in carefully selected patients, provided that the necessary resources and expertise are available.

Nevertheless, the absence of prospective studies and large case series constitutes a significant limitation, emphasizing the need for additional research to more precisely define the role of endoscopic management within the therapeutic algorithm for colocutaneous fistulas.

CONCLUSION

In cases of delayed colonic perforation, surgical management remains the first-line therapy. Endoscopic management constitutes an effective and safe alternative, in expert hands, for the closure of colonic fistulas in patients with a hostile abdomen, allowing reduction of hospital stay and avoidance of major surgical reinterventions, thereby promoting complete patient recovery.

REFERENCES

1. Jung Y. Endoscopic Management of Iatrogenic Colon Perforation. Clin Endosc. 2020;53(1):29-36. https://doi.org/10.5946/ce.2019.061
2. Inoki K, Sakamoto T, Sekiguchi M, Yamada M, Nakajima T, Matsuda T, et al. Successful endoscopic closure of a colonic perforation one day after endoscopic mucosal resection of a lesion in the transverse colon. World J Clin Cases. 2016;4(8):238-42. https://doi.org/10.12998/wjcc.v4.i8.238
3. Singh RR, Nussbaum JS, Kumta NA. Endoscopic management of perforations, leaks and fistulas. Transl Gastroenterol Hepatol. 2018;3:85. https://doi.org/10.21037/tgh.2018.10.09
4. Hedrick TL, Kane W. Management of Acute Anastomotic Leaks. Clin Colon Rectal Surg. 2021;34(6):400-405. https://doi.org/10.1055/s-0041-1735271
5. Waibel BH, Rotondo MF. Damage control for intra-abdominal sepsis. Surg Clin North Am. 2012;92(2):243-57. https://doi.org/10.1016/j.suc.2012.01.006
6. Rustagi T, McCarty TR, Aslanian HR. Endoscopic Treatment of Gastrointestinal Perforations, Leaks, and Fistulae. J Clin Gastroenterol. 2015;49(10):804-9. https://doi.org/10.1097/MCG.0000000000000409
7. Fockens P. Endoscopic Management of Perforations in the Gastrointestinal Tract. Gastroenterol Hepatol (N Y). 2016;12(10):641-643.
8. Rodella L, Laterza E, De Manzoni G, Kind R, Lombardo F, Catalano F, et al. Endoscopic clipping of anastomotic leakages in esophagogastric surgery. Endoscopy. 1998;30(5):453-6. https://doi.org/10.1055/s-2007-1001307

9. Hassan MA, Thomsen CØ, Vilmann P. Endoscopic treatment of colorectal perforations: a systematic review. Dan Med J. 2016;63(4):A5220.
10. Byeon JS. Colonic perforation: can we manage it endoscopically? Clin Endosc. 2013;46(5):495-9. https://doi.org/10.5946/ce.2013.46.5.495
11. Raju GS, Saito Y, Matsuda T, Kaltenbach T, Soetikno R. Endoscopic management of colonoscopic perforations. Gastrointest Endosc. 2011;74(6):1380-8. https://doi.org/10.1016/j.gie.2011.08.007
12. Familiari P, Macrì A, Consolo P, Angiò L, Scaffidi MG, Famulari C, et al. Endoscopic clipping of a colocutaneous fistula following necrotizing pancreatitis: case report. Dig Liver Dis. 2003;35(12):907-10. https://doi.org/10.1016/j.dld.2003.05.001
13. Lee SO, Jeong YJ. Colonoscopic clipping of fecal fistula that occurred as a postoperative complication in patients with perforated appendicitis: two case reports. Gastrointest Endosc. 2001;54(2):245-7. https://doi.org/10.1067/mge.2001.114411
14. Kumar R, Naik S, Tiwari N, Sharma S, Varsheney S, Pruthi HS. Endoscopic closure of fecal colo-cutaneous fistula by using metal clips. Surg Laparosc Endosc Percutan Tech. 2007;17(5):447-51. https://doi.org/10.1097/SLE.0b013e3180dc9392
15. Su CH, Yu FJ, Tsai HL, Wang JY. Endoscopic closure of colonic fistulas in colon cancer patients using a combination of hemoclips and endoloops: two case reports. Tech Coloproctol. 2014;18(2):205-8. https://doi.org/10.1007/s10151-011-0793-2
16. Boumitri C, Kumta NA, Patel M, Kahaleh M. Closing perforations and postperforation management in endoscopy: duodenal, biliary, and colorectal. Gastrointest Endosc Clin N Am. 2015;25(1):47-54. https://doi.org/10.1016/j.giec.2014.09.010