A scarce advantage of spontaneous closure as a stoma complication

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ABSTRACT

Background: Stoma is made for various indications and the closure is performed with open surgery once the indication is resolved. The case of spontaneous stoma closure rarely happens.

Case presentation: In this case report, we present a 62-year-old male with a malignant rectal tumor who experienced spontaneous closure of a stoma. Laparotomy adhesiolysis exteriorization of the sigmoid and transverse colon was made with distended with tenderness all over the abdominal area as the indication. After nine months, the indication was resolved, stoma closure was planned, but the right-sided stoma was closed. Left stoma closure was performed. The patient is currently stable now.

Conclusion: Spontaneous stoma closure can be considered the outcome of progressive stoma retraction followed by healing of the mucocutaneous fistula. In this case, we report the benefit of spontaneous stomal closure, no complications were found from stoma closure, and the primary goal of stoma placement was achieved. Management of spontaneous stoma closure can be done conservatively after carrying out a comprehensive examination to rule out possible complications. We report the usefulness of endoscopy and looposcopy in achieving these goals.

Keywords: Stoma, spontaneous stoma closure, colon.

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Background

The exteriorization of the large bowel (colostomy) through the anterior abdominal wall is performed to manage malignant or benign gastrointestinal conditions on elective or emergency procedures [1]. The stoma will be closed through surgery if the indications have been resolved and the patient's complaints have improved. Spontaneous closure of the stoma is very rare [2]. Here is an interesting case of spontaneous stoma closure.

Case Presentation

A 62-year-old male with a malignant rectal tumor was admitted to the emergency ward from another hospital with a history of iatrogenic injury post-colonoscopy. He complained of worsening diarrhea and abdominal pain over the last three months. He also experienced weight loss and decreased appetite. Based on physical examination, the abdomen looks distended with tenderness all over the abdominal area. There was abdominal wall rigidity with musculature and guarding signs. From percussion, we found hyper tympany and no liver dullness with minimal bowel sound. We found pneumoperitoneum and focal ileus in small bowels from the abdominal radiograph. Thus, laparotomy adhesiolysis exteriorization of the sigmoid and transverse colon was performed in December 2022.

There was >50% diameter perforation of the sigmoid and transverse colon. We decided to resect each perforated segment. The white line was freed, and we extruded the perforated part in the lower left and right abdomen. We made a loop colostomy of the transverse colon at the lower right abdomen and sigmoid at the left (Figure 1). Each stoma was fixated in eight corners and maturated. The patient was discharged on day ten and received follow-up every two months with satisfactory results.

After seven months of routine follow-up and stomal care, there were no complaints, and gastrointestinal function was sufficiently restored. Thus, we scheduled the patient for stomal closure. The patient came to the outpatient department for pre-operative preparation one month later and found a retraction on the right-sided stoma (Figure 2). When the patient came for the surgery, we found a spontaneous stomal closure six weeks after the first retraction was identified. Then, a colonoscopy

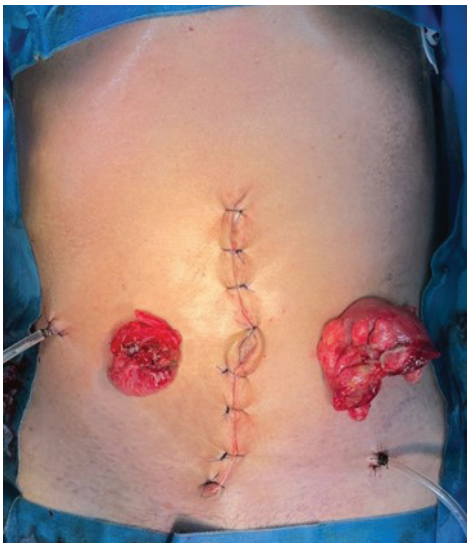

Figure 1. *Loop colostomy of the transverse colon at the right lower abdomen and sigmoid at the left.*

Figure 2. *Spontaneous stoma closure 6 weeks after the first retraction was identified.*

was ordered to ensure any colitis, or any mass developed. We confirmed the stomal closure with a lopography examination that showed no contrast extravasation along the rectum, sigmoid, descending, and transverse colon.

We identified adhesions between the ileostomy and peritoneum during the other stomal closure procedure. Thus, surgical adhesiolysis and ileum resection were carried out, followed by an end-to-end colo-colic anastomosis with continuous interlocking sutures. The patient was discharged after five days postoperative and was in good condition. We routinely checked up on the patient at the one week, one month, six months, and one year after surgery at the outpatient department. The patient had good gastrointestinal functioning, defecated per rectal, and had regular bowel habits (Figure 3).

Figure 3. *Currently, the patient has good gastrointestinal function.*

Discussion

We conducted an advanced search on case reports of spontaneous stoma closure across several online databases (PubMed, Cochrane, EBSCO, ClinicalKey, and Scopus) and found only nine published cases of spontaneous stoma closure (5 ileostomies and 4 colostomies) (Table 1) [2–9]. Each case had its indications for stoma creation, such as colon malignancies, perforations, trauma, and abdominal infections in a varied age group (15-67 years). Although stoma is a standard procedure, understanding spontaneous stoma closure remains scarce, and the factors influencing it are unknown. Spontaneous closure of a stoma could become problematic when the purpose of it has not been achieved [8]. Also, spontaneous closure can lead to obstructions caused by ventral herniation of the old stoma site and colonic mucosa adhesions [7,9]. Stoma procedure has the risk of postoperative complications such as strangulation, obstruction, stenosis, and mucocutaneous fistula. Late complications (>1 month) such as stoma retraction, para-stomal hernia, and skin issues may occur [4]. Based on the known pathophysiology of spontaneous stoma closure, this condition can be categorized as one of the complications of the stoma procedure.

On the other hand, if the function and purpose of stoma placement have been achieved, spontaneous closure can benefit the patient. In this case, we reported spontaneous stoma closure occurred 40 weeks after the patient underwent the procedure due to transverse and sigmoid colon perforation. The stoma function, colon recovery post-resection, and anastomosis were achieved during that period, thus eliminating the need for stoma repair. We conducted endoscopic and lopography examinations to rule out any abnormalities or complications (ventral herniation, obstruction, and mucocutaneous fistula) due to spontaneous stoma closure. All examinations found no abnormalities, and GI function was running well. Therefore, in cases

Table 1. *Summary of reported cases.*

AUTHOR, COUNTRY (YEAR)	AGE, GENDER	TYPE OF STOMA	RISK FACTORS	OBSTRUCTING DISTAL LESION (INTERVENTION*)	TIME FOR STOMA CLOSURE	FOLLOW-UP (PERIOD)
Albandar, SAU. (2024) [6]	67, F	Loop Ileostomy	Chemo-radiotherapy Self-manipulation (pushing stoma inside) after 12 weeks Retracted stoma (gradual decreased of stoma output, weeks 20)	No Diagnostic laparoscopy: a complete closed stoma	24 weeks complete closure of the stoma and epithelialization	N/A
Aghahowa, Nigeria (2023) [5]	22, M	Transverse loop colostomy	Surgical site infection Retracted stoma, day 6 (Well function)	No	6 weeks complete closure of the stoma and epithelialization	No complaint (6 months)
Saxena, India (2022) [3]	18, M	Loop ileostomy	Wound dehiscence due to SSI History of the stoma suture falling out on the 12th postoperative day stoma retraction (gradual decreased of stoma output, 1st month)	No	16 weeks complete closure of the stoma	N/A
Thota et al., India (2022) [7]	15, M	Sigmoid loop colostomy	None	Yes*, after 27 years Strangulated ventral hernia (at the level of the skin) laparoscopic segmental sigmoid colectomy with a mesh hernioplasty	8 weeks post surgery	No complaint (6 months)
Jin-Jiun, Malaysia (2021) [9]	66, F	Sigmoid loop colostomy	None	Yes*, Performed transverse loop colostomy	35 weeks complete closure of the stoma and epithelialization	N/A
Alyami et al., France (2016) [8]	65, F	Loop Ileostomy	Adjuvant chemotherapy	Yes*, Performed refistulization	10 weeks complete epithelialized (1st) 8 weeks complete closure of the stoma (2nd)	N/A
Pandit, India (2016) [2]	64, M	Sigmoid Loop Colostomy	Retracted stoma (Well function)	No	11 weeks complete closure of the stoma and complete epithelialization	No complaint (12 months)
Pandit, India (2016) [2]	45, M	Loop Ileostomy	Adjuvant chemoradiotherapy	No	6 weeks complete retraction 13 weeks complete epithelialization	No complaint (6 months)
Saxena, India (2015) [4]	26, F	Loop Ileostomy	Anti-TB therapy Surgical site invection Retracted stomal (Well function)	No	24 weeks complete closudre of the stoma 32 weeks complete epithelialization	N/A

like this, the phenomenon benefits the patient by eliminating the need for surgical stoma closure procedures. Avoiding unnecessary surgical procedures equates to protecting the patient from the risk of postoperative morbidity [10]. Such benefits have also been found in six other cases where spontaneous stoma closure occurred after the purpose of stoma formation was achieved.

Principally, a stoma is an intentionally created mucocutaneous fistula to achieve the expected function through a surgical procedure. When the goal of healing the anastomosis or reconstruction post-perforation of the intestine has been achieved, the stoma will be reversed through surgery. However, in that period, the stoma's patency must be maintained to prevent retraction or necrosis of the stoma that will disrupt its function. Most (up to 92%) pathological enterocutaneous fistula management can be handled conservatively, where the tunnel can close spontaneously [11]. The concept of mucocutaneous fistula spontaneous healing can apply to spontaneous stoma closure. Several factors hinder the spontaneous healing of a mucocutaneous fistula, namely FRIEND (foreign body, radiation, infection, epithelialization, neoplasm, and distal obstruction), high output fistula (>500 ml/24 hours), involvement >50% of the mucosa, and a fistula tract length of less than 2.5 cm [12]. As an iatrogenic mucocutaneous fistula, spontaneous healing of the fistula will occur when none of the above factors are found in a stoma.

Based on the stoma creation procedure, there is a stomal maturation step to prevent retraction that initiates spontaneous mucocutaneous healing. However, 1.4%-9% of stomas are reported to retract for several reasons [13]. In patients with nutritional disorders (malnourished, obese, and immunocompromised), there will be impaired wound healing processes that cause unachieved stomal maturation function. Meanwhile, in some cases where the mobilization of the intestine made into a stoma is inadequate or there is tension from the mesentery, stomal retraction can also occur due to the separation of the stoma with mucocutaneous fascial planes. This mechanism is the initial phase of spontaneous stoma closure [13].

Conclusion

Spontaneous stoma closure can be considered the outcome of progressive stoma retraction followed by healing of the mucocutaneous fistula. In this case, we report the benefit of spontaneous stomal closure, no complications were found from stoma closure, and the primary goal of stoma placement was achieved. Apart from that, up to a follow-up period of 18 months, the patient was able to defecate generally through the anus and had no complaints. Management of spontaneous stoma closure can be done conservatively after carrying out a comprehensive examination to rule out possible complications. We report the usefulness of endoscopy and lopography in achieving these goals.

What is new?

A few journals report almost the same case, but the authors see that this could be an advantage if the timing of spontaneous stoma closure can be adjusted according to when the indication is resolved.

List of Abbreviations

FRIEND Foreign body, radiation, infection, epithelialization, neoplasm, and distal obstruction.

Conflict of interest

The authors declare that they have no conflict of interest regarding the publication of this case report.

Funding

None.

Consent for publication

Written consent was obtained from the patient.

Ethical Approval

Ethical approval is not required at our institution to publish an anonymous case report.

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References

1. Mulita F, Lotfollahzadeh S. Intestinal stoma. Treasure Island, FL: StatPearls Publishing; 2024 Jan.
2. Pandit N, Singh H, Kumar H, Gupta R, Verma GR. Spontaneous closure of stoma. Gastroenterol Rep (Oxf). 2016 Nov;4(4):325–7.
3. Saxena N, Agarwal S, Akash A. The case of spontaneous stoma closure in patient with loop ileostomy. Int J Surg Case Rep. 2022 May;94:107081. https://doi.org/10.1016/j.ijscr.2022.107081
4. Saxena A, Kumar L, Singh M, Kolhe Y, Karande SK, Venkatesh P, et al. Spontaneous closure of an ileostomy: a rare occurrence. Int J Surg Case Rep. 2015;7C:124–6. https://doi.org/10.1016/j.ijscr.2014.10.096
5. Aghahowa ME. Spontaneous closure of transverse loop colostomy: a case report. J Clin Images Med Case Rep. 2023;4(8):2529. https://doi.org/10.52768/2766-7820/2529
6. Albandar M, Fatani JA. Spontaneous Stoma closure: a case report and review of the literature. Cureus. 2024 Jan;16(1):e52403. https://doi.org/10.7759/cureus.52403
7. Thota R, Nachiappan M, Gadiyaram S. A rare occurrence of spontaneous closure of a sigmoid loop colostomy and an inevitable Ventral Hernia. Cureus. 2022 Jan;14(1):e21161. https://doi.org/10.7759/cureus.21161
8. Alyami MS, Lundberg PW, Cotte EG, Glehen OJ. Spontaneous ileostomy closure. Saudi Med J. 2016 Jun;37(6):694–7. https://doi.org/10.15537/smj.2016.6.14560
9. Mah JJ, Chuah JA, Hayati F. Curious case of a missing stoma. ANZ J Surg. 2021 Nov;91(11):2536–8. https://doi.org/10.1111/ans.16750

10. Inzunza M, Romero C, Irarrázaval MJ, Ruiz-Esquide M, Achurra P, Quezada N, et al. Morbidity and mortality in patients with perioperative COVID-19 infection: prospective cohort in general, gastroesophagic, hepatobiliary, and colorectal surgery. World J Surg. 2021 Jun;45(6):1652–62. https://doi.org/10.1007/s00268-021-06068-6
11. Gribovskaja-Rupp I, Melton GB. Enterocutaneous fistula: proven strategies and updates. Clin Colon Rectal Surg. 2016 Jun;29(2):130–7.https://doi.org/10.1055/s-0036-1580732
12. Cowan KB, Cassaro S. Enterocutaneous Fistula. Treasure Island, FL:StatPearls Publishing; 2024.
13. Kwiatt M, Kawata M. Avoidance and management of stomal complications. Clin Colon Rectal Surg. 2013 Jun;26(2):112–21. https://doi.org/10.1055/s-0033-1348050

Summary of the case

1	**Patient (gender, age)**	Male, 62 years old.
2	**Final diagnosis**	Malignant rectal tumor, pneumoperitoneum, and focal ileus in small bowels.
3	**Symptoms**	Worsening diarrhea, abdominal pain, weight loss, and decreased appetite over the last 3 months.
4	**Medications**	-
5	**Clinical procedure**	Loop colostomy of the transverse and sigmoid colon.
6	**Specialty**	Digestive surgery.