



Altemeier's Procedure for Loop Colostomy Prolapse in Severe Patients: Our Experience

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Abstract

Purpose: Stoma prolapse has an important impact on the patients' overall quality of life: it can cause the impossibility to correctly apply the stoma appliance on the skin and, sometimes, the incarceration or strangulation of prolapse. When conservative management becomes unsuccessful, surgery must be considered. Whereas abdominal approaches are feasible in healthy patients, critical patients require a local revision with minimally invasive approach. The aim of this study was to describe our experience about modified Altemeier's procedure for loop colostomy prolapse.

Methods: Single surgeon series of three patients underwent to modified Altemeier's procedure for loop colostomy prolapse. The main outcomes were feasibility of the procedure under local anesthesia and postoperative recurrence of the prolapse. Secondary outcome was average operative time.

Results: all three interventions were made under local anesthesia (one patient needed sedation for his critical compliance). The average operative time was 45 min. All patients had uneventful clinical course. No recurrence of prolapse occurred at postoperative follow up.

Conclusion: The described intervention presents many advantages: Effectiveness, minimal invasivity (feasible under local anesthesia), simplicity and low cost.

Introduction

As complications of stoma have important impacts on patients' overall quality of life, every possible effort should be made to prevent them. Particularly, prolapse can lead to the impossibility to correctly apply the stoma appliance on the skin and, sometimes, to incarceration or strangulation of prolapse.

When conservative management of prolapse becomes unsuccessful, surgery must be considered, using abdominal or local approaches. In critical patients, a minimally invasive approach is advisable.

In the following, we describe a single series of three patients affected by loop colostomy prolapse treated by the same surgeon with the Altemeier's procedure, a minimally invasive, simple, feasible under local anesthesia and effective technique.

Materials and Methods

Characteristics of the patients

Patient 1: Eighty six years old male affected by near-obstructing low rectal cancer with liver and lung metastasis. He underwent to diverting transverse loop colostomy at December 2017. Two months later (February 2018) he reached our division with a prolapse of the proximal limb of the colostomy. Conservative management and attempts at reduction were unsuccessful.

Patient 2: Eighty eight year old male affected by obstructing low rectal cancer with liver metastasis. He underwent to diverting transverse loop colostomy at April 2018. Three months later (July 2018) he reached our division with a prolapse of the proximal limb of the colostomy. Conservative management and attempts at reduction were unsuccessful.

Patient 3: 96-year-old male with bowel obstruction due to atonic colon and megacolon underwent to urgent diverting sigmoid loop colostomy at May 2020. Two months later (July 2020) he reached our division with a prolapse of the distal limb of the colostomy. Conservative management was unsuccessful and several attempts at reduction were only temporarily successful.

Preoperative management

- Hospitalization: The same day of the intervention.

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Received Date: 04 Jan 2021

Accepted Date: 19 Feb 2021

Published Date: 23 Feb 2021

Citation:

Lovisetto F, Zonta S. Altemeier's Procedure for Loop Colostomy Prolapse in Severe Patients: Our Experience. *Clin Surg.* 2021; 6: 3079.

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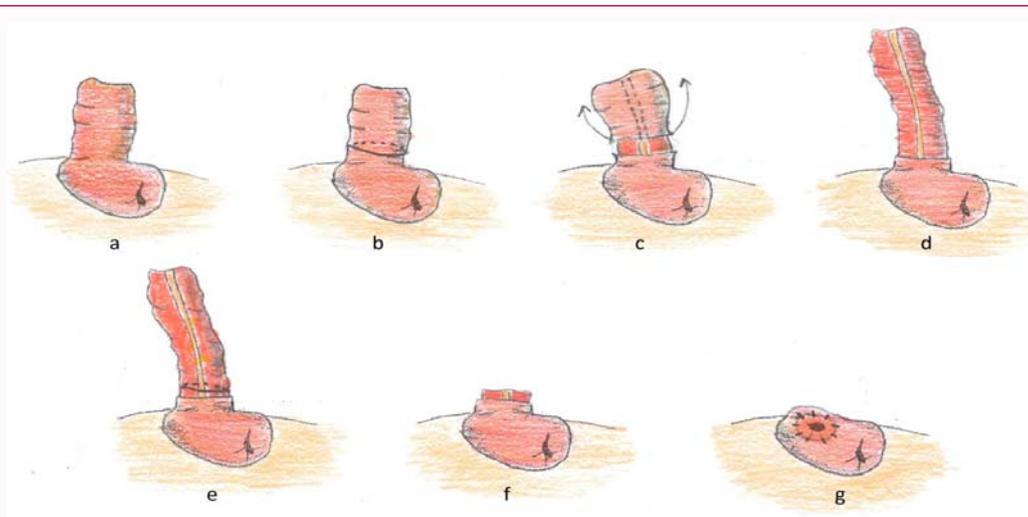


Figure 1: Schematic illustration of the complete step-by-step local revision of loop colostomy prolapse (description in the text).

- Bowel preparation: Not performed.
- Preoperative antibiotics prophylaxis: Metronidazole 500 mg e.v.
- Position of the patient: Supine position
- **Anesthesia:** Local anesthesia through injection of Mepivacaine 2% solution (10 ml) and Naropeine 0.75% solution (10 ml), infiltrating the peristomal skin and the colonic serosa. In patient 2, due to the critical cooperation, sedation was obtained with a Propofol loading dose of 40 mg e.v. and further smaller bolus loads (10 mg e.v.) to maintain sedation, with a total dose of 150 mg.
- In one case (patient 3) we preoperatively proceeded to evert the bowel and to reproduce the prolapse (Figure 1a).

Description of the technique

A full thickness incision of the outer cylinder of the prolapsed colon (proximal or distal limb) is made, approximately 1 cm from the mucocutaneous junction (Figure 1b). The space between the 2 layers of the prolapsed colonic wall is identified and the outer cylinder is circumferentially incised (Figure 1c). The colon is everted and dissected paying attention to ligate the feeding vessels immediately adjacent to the colonic wall. The elongated bowel is progressively drawn out through the colostomy opening (Figure 1d). A full thickness incision of the inner cylinder of the prolapse is made (Figure 1e) and the prolapsed limb is then amputated (Figure 1f). The level of the amputation is “à la demande”: It depends on the amount of the colonic redundancy. In our three cases, the amount of colon removed was enough to ensure a light traction of the residual colon. The inner colon is then anastomosed to the remaining circular mucosal wound with absorbable suture, so that the circumferential margin of the stoma is reconstructed (Figure 1g).

Results

Operative time

Patient 1: 45 minutes, Patient 2: 45 minutes and Patient 3: 45 minutes

Postoperative course

All three patients had an uneventful clinical course. They were discharged at 5th postoperative day (patient 1 and 2) and at 10th

postoperative day (patient 3).

Follow up

Assessments have been programmed at 1, 3, 6, and 12 months and, then, every 6 months or in case of clinical symptoms. Patient 1 died 21 months after the local revision due to the progress of tumor disease, without recurrence of prolapse. Patient 2 (follow up of 28 months) and 3 (follow up of 4 months) are still alive and remain without recurrence of prolapse.

Discussion

To date, in Italy, the total number of patients with a stoma is uncertain: The estimate is approximately 75,000 cases. People with stoma live their everyday life with an appliance collecting stool. This situation can cause inconveniences not only to the patients, but also to their family members, with effects on quality of life. Stoma may require further surgery or contribute to morbidity and mortality. Financial implications for patients and healthcare services must be also considered [1]. As a consequence of the above mentioned implications, every effort should be made to reduce the stomies creation [2]. It has to be noted that in many conditions the surgeon is forced to create a stoma, temporary (e.g. for the treatment of complicated abdominal problems or to protect a distal anastomosis) or permanent (e.g. Miles procedure).

Complications of stoma can aggravate the inconveniences of the patient, so that they should be prevented by the surgeon. Therefore, the creation of a stoma requires a meticulous technique. Long-term complication rates (related to both operative and patient factors) are of about 60% to 70% in colostomies and 80% in ileostomies [2,3]: Early complications (within one month of surgery) are represented by high output stoma, peristomal irritation, stoma infection, ischemia and retraction, whereas parastomal hernia, prolapse and stenosis tend to occur later [1]. Prolapse is more frequent in case of colostomy respect to ileostomy [4], mostly in case of loop colostomy. Prolapse is often due to inadequate fixing of the stoma to the abdominal wall and it is more frequent on the colonic tracts with higher mobility, where the unfixed mesentery allows to protrusion of the bowel along with its mesentery through the stoma [3]. At first, prolapse interests only the mucosa, but bowel peristalsis associated with the mobility of the colon progressively conduces to a complete prolapse. Increase

of intra-abdominal pressure, as in case of obesity, constipation and chronic coughing, can predispose to prolapse. Prolapse can lead to severe inconveniences, until the impossibility to a correct application of the stoma appliance on the skin. The elective surgical revision is indeed needed when conservative management is no longer enough. In case of sliding prolapse, incarceration and strangulation require urgent intervention. Surgical techniques are classified into abdominal or local approaches. The surgical choice is based on two main factors:

- The main pathology that needed the creation of the stoma;
- The general conditions of the patient.

If the main pathology is resolved (e.g. previous Hartmann's procedure for complicated diverticulitis) and the general conditions of the patient are satisfactory, the surgical treatment of the prolapse could be the closure of the stoma and the restoration of intestinal continuity.

On the contrary, if the main pathology is not resolved (e.g. atonic colon, persistence of colonic neoplasia) or if the patient's general conditions are critical, closure of the stoma is not possible and a revision of the stoma is needed. The re-creation of the stoma (eventually in a different site) can be made in general anesthesia. In high-risk patients (e.g. old age, high ASA score) it is preferable a minimally invasive approach, represented by local revision. In most cases, this procedure is made by using circular or linear staplers, as indicated by the review of Papadopoulos et al. [3] and Monette et al. [5]. Local revision is more rarely manual and it involves adaption of surgical techniques used for the treatment of rectal prolapse, as Delorme [6-9], Thiersch [10] or Altemeier's procedure.

Considering the latter technique for the treatment of end colostomy prolapse, Bulut [11] describes a series of 10 patients with two cases of recurrence and two cases of anastomotic stricture, whereas a single case is reported by Papadopoulos et al. [3]. Considering only patients with loop colostomy prolapse underwent to Altemeier's procedure, in Literature, we found only a series of 3 patients described by Watanabe et al. [12].

We describe a single series of three patients affected by loop colostomy prolapse treated by the same surgeon with the adapted Altemeier's procedure. Our patients were not eligible for the closure of the stoma and the restoration of the bowel continuity due to their critical general conditions and persistence of the main pathology. We opted for a minimally invasive and feasible under local anesthesia (eventually with sedation) technique.

So that, we adapted the Altemeier's procedure for the treatment of the complete prolapse of the loop colostomy. Altemeier described originally a full thickness resection of the rectum (starting 1 cm proximal to the dentate line) that can often include resection up to the sigmoid colon. This intervention, applied to the stoma prolapse, has many advantages: The type of anesthesia (local with or without sedation), the simplicity and, finally, the cost-effectiveness (no request for staplers).

Furthermore, it's an effective technique. Our results are encouraging: Patient 1 died two years later due to the progress of tumor disease, without recurrence of prolapse; patients 2 and 3 remain nowadays without recurrence of prolapse.

Authors' Contributions

Federico Lovisetto performed the interventions and wrote the manuscript. Sandro Zonta critically revised the manuscript.

Acknowledgement

The authors thank Miss Arianna Lovisetto for helping on the illustrations.

References

1. Malik T, Lee MJ, Harikrishnan AB. The incidence of stoma related morbidity - a systematic review of randomised controlled trials. *Ann R Coll Surg Engl.* 2018;100(7):501-8.
2. Harris DA, Egbear D, Jones S, Benjamin H, Woodward A, Foster ME. Complications and mortality following stoma formation. *Ann R Coll Surg Engl.* 2005;87(6):427-31.
3. Papadopoulos V, Bangeas P, Xanthopoulou K, Paramythiotis D, Michalopoulos A. Stoma prolapse handmade repair under local anesthesia with variation of Altemeier method in severe patients: A case report and review of the literature. *J Surg Case Rep.* 2017;2017(2):rjx027.
4. Gavriilidis P, Azoulay D, Taflampas P. Loop transverse colostomy versus loop ileostomy for defunctioning of colorectal anastomosis: A systematic review, updated conventional meta-analysis, and cumulative meta-analysis. *Surg Today.* 2019;49(2):108-17.
5. Monette MM, Harney RT, Morris MS, Chu DI. Local repair of stoma prolapse: Case report of an *in vivo* application of linear stapler devices. *Ann Med Surg (Lond).* 2016;11:32-5.
6. Marrosu A, Paliogiannis P, Sassu MA, Attene F, Trignano M. Correction of an end colostomy prolapse with the Delorme technique. A case report. *Ann Ital Chir.* 2012;83(6):567-9.
7. Theodoropoulos GE, Plastiras A, Ntouvlis C, Zografos G. Delorme's procedure revisited for an incarcerated transverse loop colostomy prolapse repair. *Am Surg.* 2013;79(3):E121-3.
8. Mavroeidis VK, Menikou F, Karanikas ID. The Delorme technique in colostomy prolapse. *Tech Coloproctol.* 2017;21(8):679-81.
9. Abulafi AM, Sherman IW, Fiddian RV. Délorme operation for prolapsed colostomy. *Br J Surg.* 1989;76(12):1321-2.
10. Ono C, Iwama T, Kumamoto K, Ishida H. A simple technique for repair of distal limb prolapse of a loop colostomy. *Tech Coloproctol.* 2012;16(3):255-6.
11. Bulut O. The adaptation of Altemeier's procedure to treat end colostomy prolapse: A simple option for day surgery. 2013.
12. Watanabe M, Murakami M, Ozawa Y, Uchida M, Yamazaki K, Fujimori A, et al. The modified Altemeier procedure for a loop colostomy prolapse. *Surg Today.* 2015;45(11):1463-6.