



Case report

Appendix and ascending colon intussusception through a prolapsed transverse colostomy: A case report with literature review

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ABSTRACT

Introduction and importance: Stoma creation is one of the common performed surgical procedures. For both benign and malignant conditions, in elective and emergency settings. Like any surgical procedure, it is associated with complications. One of the most frequently encountered is prolapse, with the incidence rate reaching 26 %. On the other hand, intussusception of the bowel through the ostomy is a rare complication, with few cases being reported in the literature.

Case presentation: We reported a case of 52 years old female with a proximal limb transverse loop colostomy prolapse noted one-day prior to her presentation. Intraoperatively, cecal intussusception through the ostomy is encountered with unsalvageable right colon. The patient ended up with right hemicolectomy, end ileostomy, and mucus fistula.

Clinical discussion: Although stoma prolapse is a common late complication with an impact on quality of life in term of difficulty with appliance fitting, it can be an early sign of serious condition like intussusception. This necessitating a differentiation between intussusception through a prolapsed colostomy from simple prolapse. Based on literature, reduced stoma output along with significant irreducible prolapsed segment are the frequent clinical characteristic. Yet it should be noted that intussuscepted segment is only evident upon surgical exploration.

Conclusion: In conclusion, caution during stoma creation must be attempted, with avoidance of underestimating a significant irreducible prolapse. As it may be associated with an intussusception which may lead to ischemia and bowel perforation.

1. Introduction and importance

Stoma creation is a relatively common procedure in surgery for benign and malignant conditions. Nevertheless, it is associated with an overall 70 % complication rate [1].

Early and late complications are associated with significant patient and health care burdens.

There has been a considerable effort in clinical practice to avert these complications. That includes; patient education, stoma site marking, and the choice of ostomy.

Significant stoma prolapse is one of the most devastating complications following colostomy due to its impact on patient quality of life; it may result in problems with stoma hygiene and difficulty with appliance fitting, as well as an early sign of a serious condition like

intussusception. Surgeons must be aware and familiar with significant colostomy prolapse. This work has been reported in line with the SCARE 2020 criteria [2].

2. Case presentation

A 52 years old female, not known to have any chronic illness, presented to the emergency department with a proximal limb transverse loop colostomy prolapse. She came with a background of an elective transverse colostomy creation for an impending obstructed low rectal mass four months ago. At that time sigmoid or ileal stoma was not feasible due to large uterine fibroid occupying abdominopelvic cavity.

A day before the presentation, the patient noticed a long segment of bowel prolapsed from the stoma with difficulty applying the stoma seal

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Fig. 1. A picture of a massively prolapsed proximal segment transverse colostomy.



Fig. 2. Intraoperative photograph of the prolapsed stoma with the intussuscepted bowel segment before manual reduction.

(**Fig. 1**). Although the stoma was functioning with minimal output, the patient did not complain of abdominal pain, nausea, or vomiting.

On arrival at the emergency department, she was vitally stable.

Temperature: 36.9 °C blood pressure: 141/84 mm Hg pulse: 105 beats/min.

On examination, the abdomen was soft and lax. Stoma mucosa was warm but oedematous with about 15 cm prolapsed proximal limb. There was minimal output in the stoma bag.

Laboratory investigations were performed, and all were within normal range.

An abdominal x-ray series was unremarkable for an air-fluid level or



Fig. 3. Intraoperative photograph showing intussuscepted segment (appendix and right colon) after manual reduction.

air under the diaphragm.

The patient was admitted as a case of significant stoma prolapse for urgent surgical intervention.

Bowel rest with intravenous fluid, analgesia, and application of an osmotic agent to the stoma done upon admission.

Patient was taken to the operation theatre on the same day of admission, as the decision of her primary colorectal surgeon is to examine the stoma operatively due to significantly irreducible oedematous and dusky prolapsed proximal segment and to address patient concern regarding stoma care difficulties.

Intraoperative dissection and examination of the previously performed transverse loop colostomy were done with the finding of invagination of the cecum along with the appendix inside the right colon, reaching the orifice of the proximal limb (**Fig. 2**). A trial to salvage the right colon and the cecum was unsuccessful (**Fig. 3**), so a right hemicolectomy with end ileostomy and mucus fistula was performed.

The right colon was sent for a histopathology examination. Postoperatively the patient was transferred to a regular ward with an uneventful post-operative hospital course. She was discharged home on the third day postoperatively.

Surgical histopathology revealed a portion of the colon with marked ischemic colitis and an area of mucosal necrosis. Appendix examination revealed obliterated mucosa and lumen.

3. Clinical discussion

Stoma complications have a wide variation of severity; they can be minor, requiring local care only, to major necessitating intervention and reoperation. The rate of complication ranges from 6 % to 59 %. In general, complications are classified to early and late based on a time frame of thirty days. Moreover, skin irritation had a high incidence rate compared to other complications like; ischemia, retraction, prolapse, and parastomal hernia [3].

Stoma prolapse is a common late complication, with an incidence varying from 2 to 26 % [4]. It has been established that loop transverse colostomy is associated with a higher prolapse rate compared to other performed stomas, reaching a 30 % rate, most commonly involving the

Table 1
Reported ceases in the literature of colostomy prolapse with intussusception.

Reported cases	Age/ gender	Type of stoma	Disease	Stoma duration	Prolapse segment size	Duration of prolapse	Intussuscepted segment size	Viability of intussuscepted segment	Management
Shellito [7]	74 M	Transverse loop colostomy	Not specified	4 months	30 cm	1 day	15 cm	Ischemic	Subtotal colectomy + colo-colonic anastomoses
Nahas and Ceconello [8]	78 F	End colostomy (Hartman)	Sigmoid diverticulitis	2 months	NA	1 day	NA	Ischemic	Segmental resection colo-colonic anastomoses
Phillips and Rowson [9]	38 M	Transverse loop colostomy	Bowel fistula	5 years	NA	NA	NA	NA	Total colectomy with end ileostomy
Trabulsi et al. [10]	69 F	End colostomy (Hartman)	Metastatic rectal carcinoma	1 month	NA	1 day	NA	Ischemic	Subtotal colectomy + refashioning of end colostomy
Dan et al. [11]	62 M	End colostomy (Hartman)	Sigmoid volvulus	1 year	15 cm	1 day	10 cm	Ischemic	Subtotal colectomy + ileocolic anastomosis
Our case	52 F	Transverse loop colostomy	Rectal cancer	4 months	15 cm	1 day	10 cm	Ischemic	Right hemicolectomy with end ileostomy and mucus fistula

distal limb [5].

Risk factors for stoma prolapse are multifactorial that can be classified into patient factors and surgical techniques. Patient factors include increased abdominal pressure, for example, obesity, ascites, or mass effect lesion. The proposed surgical technique predisposing to prolapse includes excessive bowel mobilization, the exaggerated opening of the abdominal wall for exteriorization of the loop, and inadequate fixation of exteriorized bowel [6].

An intussusception through a prolapsed colostomy should be differentiated from just prolapsed stoma. Although clinical characteristics that may raise suspicion of intussusception include significant irreducible prolapsed segment along with reduced stoma output, patients may present with non-specific symptoms like abdominal distention, vomiting suggestive of intestinal obstruction, or ischemic changes of prolapsed bowel [7–11].

With the advancement of imaging modality, Computed Tomography (CT) scan has become the gold standard for diagnosing intussusception, previously evident only upon surgical exploration [12]. The application of a CT scan in case of intussusception through a prolapsed colostomy can be diagnostic, showing the affected segment [8,10]. On the other hand, it can be non-conclusive based on Temperley et al. and Dan et al. Reports, necessitating surgical exploration [9,11]. For our case patient was taken for urgent surgical exploration due to her acute presentation of a one-day history of long segment prolapse (15 cm).

A literature review of pumped and Google Scholar using the keywords “intussusception and colostomy” a total of five articles identified and summarized in (Table 1).

The intussusception of the small bowel and colostomy prolapse is rare. There have been only five similar reported cases [7–11].

Two cases were related to transverse loop colostomy, whereas others were related to end colostomy. Similar to our case, in most cases, the intussuscepted segment was ischemic and none viable.

All reported cases of a significant colostomy prolapse required surgical intervention due to colonic obstruction, irreducible stoma prolapse, and bowel ischemia which may progress to peritonitis. Nonetheless, all reported cases, as well as our case, miss an identifiable led point pathology.

4. Conclusion

The formation of colostomy should not be considered a minor procedure. Both colorectal and general surgeons should be aware of significant colostomy prolapse as it may be associated with intussusception, which is not evident clinically unless the abdomen is

opened and examined intraoperatively.

Consent

Written informed consent was obtained from the patient. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Reporting checklist

The authors have completed the SCARE reporting checklist.

Provenance and peer review

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Ethical approval

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Declaration of competing interest

Authors report no conflicts of interest.

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