

# Retrograde Intussusception of Distal Limb of Loop Ileostomy: A Rare Case Report and Review of Literature

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**ABSTRACT:** Stoma related complications affect the quality of life and may require another intervention for correction. Intussusception of either limb through a stoma is a rare complication which can be easily missed. Delay in presentation and diagnosis complicates the matter, necessitates laparotomy and resection of more bowel, ultimately increases the morbidity of the patient. Distal limb usually is empty and collapsed because of minimal function. Distal limb complications are rare. We report a case of intussusception of distal limb through loop ileostomy, which was diagnosed early and managed through local exploration.

**KEYWORDS:** Distal loop, distal limb of ileostomy, intussusception, loop ileostomy, retrograde.

## Brief Introduction

Construction of stoma is an adjunct but a life-saving procedure for protecting the anastomosis and diversion in emergency and elective intestinal surgeries.

Loop, end and double barrel/end stomas have their own indications.

Some cases of colorectal malignancies require neo-adjuvant chemoradiation and are candidates for an upfront stoma (ileostomy/colostomy) without a formal laparotomy.

Though the steps of stoma construction have been refined over the years, patients with stoma can have early complications (retraction, skin excoriations, necrosis) and late complications such as prolapse and hernia. These complications affect the quality of life [1].

Usually, colostomies are associated with structural complications, whereas ileostomies often have functional complications.

An intussusception of either limb of bowel through the stoma is an uncommon complication. Retrograde intussusception of the distal loop of an ileostomy is rarer than that of the proximal limb of the bowel.

We report a case of retrograde intussusception through the distal limb of loop ileostomy.

Knowledge of this complication helps for early diagnosis and management to prevent further morbidity in a patient with a stoma.

## Case Report

A 62-year-old male with locally advanced, poorly differentiated rectal adenocarcinoma was planned for neo-adjuvant chemoradiation. He

was referred to us for an upfront ileostomy. There was a circumferential ulcero-proliferative mass in the lower rectum with near-total luminal narrowing on computed tomography. The mass had infiltrated into para-rectal and peri-vesical spaces. There were multiple metastatic regional lymph nodes without distant metastasis.

We performed a standard loop ileostomy. The loop was fixed to the rectus sheath and matured in standard fashion with a spigot for the proximal limb. The early postoperative period was uneventful. Patient had resumed his routine diet, and the stoma was functioning well. On the fourth postoperative day, there was the protrusion of ileum of approximately 20 to 25cm length through the site of the distal limb. The proximal limb lumen of the ileostomy was normal. The protruding bowel was oedematous and congested (Figure 1).

There was no evidence of necrosis. We diagnosed this as a retrograde intussusception.

Gentle reduction of the affected bowel was successful. When the incidence recurred, the patient was explored locally and we found that the distal loop had telescoped through the intact stoma, confirming the diagnosis. The intussusception was gently reduced and the viability of the bowel was reconfirmed. There was no evidence of lead point. The loop ileostomy was converted to double barrel ileostomy fashioned through the previous stoma aperture. We fashioned a locally rotated skin flap to separate the limbs (Figure 2).

Both the limbs were again fixed to the abdominal wall with seromuscular sutures before final maturation at skin level. The patient was asymptomatic and the stoma was healthy for

two days. He was tolerating diet, and the proximal loop was functionally well. The intussusception had recurred in the distal loop again but to a much lesser extent. We could reduce it bedside. Over the next few days, three similar episodes occurred intermittently, each episode with a very small sized intussusception.

Since there were no signs or symptoms of any complication, these episodes were managed by successful gentle manual reduction. There were no signs of bowel ischaemia or peritonitis,

and despite the above episodes, the patient was tolerating diet with a functioning stoma. There were no further incidences of intussusception by the 15th post-operative day. The patient was referred back to the higher centre for neo-adjuvant chemoradiation.

A written informed consent was obtained from the patient for usage of case records and images for publication purposes. We have maintained confidentiality and dignity of the patient throughout the work for this report.



**Figure 1. Retrograde Intussusception of distal limb of loop ileostomy.  
Note that proximal limb is healthy while the distal limb is oedematous and congested.**



**Figure 2. The loop ileostomy was converted to a double barrel ileostomy.  
A locally rotated skin flap was placed to separate the two limbs.**

## Discussion

The terms and clinical picture of intussusception and prolapse of the stoma can be confusing. Ideally, intussusception means circumferential full-thickness telescoping of a bowel segment through the stoma and the mucosa forms the outer covering, rather than the serosa [2].

One can easily differentiate it from a sliding type of prolapse of the mucosa of the bowel limb, which can be partial.

Most of reported cases of “intussusception through a stoma” have occurred in patients with colostomy and where a terminal stoma was fashioned. There are eleven reports where the patients had an intussusception through an

ileostomy. Six cases have occurred through a loop ileostomy, three cases involving distal limb [2-4] and proximal limb each [5-7].

There are four reports of intussusception of the proximal limb through an end ileostomy [8-11] and one report of intussusception of the proximal limb in a patient with double-end ileostomy [12].

Retrograde intussusception against the natural direction of peristalsis itself accounts for a rare and separate complication that is unpredictable. The literature search revealed only three cases of retrograde intussusception of the distal limb, our case being the fourth case (Table 1).

**Table 1. Review of past reports of retrograde intussusception of distal limb of loop ileostomy.**

Study	Post-Ileostomy Presentation	Possible Predisposing factor	Affected Limb	Involved segment	Intervention
Chen 2009	1 Month	None	Distal	Oedema	Failure of manual reduction, laparotomy
Khan 2011	3 Days	Vomiting	Distal	Oedema and congestion	Failure of manual reduction, laparotomy
Shetty 2019	6 Weeks	None	Distal	Oedema And Long segment involvement	Local exploration and right hemicolectomy
Our case	4 Days	None	Distal	Oedema and congestion	Reduction, then local exploration and double barrel ileostomy

In the first case reported by Chen et al., a 91-years old lady had undergone a loop ileostomy as a diversion procedure adjunct to repair of rectal perforation. She had presented with intussusception of distal limb but without any symptoms. The patient was explored through an ileostomy wound and the affected limb was reduced and transected. The closed distal loop was placed in the subcutaneous plane. There was an uneventful recovery [3].

Khan et al. had reported similar intussusception in a 72-years-old man who had a covering loop ileostomy during definitive surgery for rectal malignancy. The patient had vomiting prior to occurrence of intussusception. The reduction was unsuccessful in the second case hence, the patient was explored through laparotomy and intussusception was reduced. As the loop was viable, the distal limb was just fixed to the parietal peritoneum [2].

Shetty et al. reported that their patient had a history of caecal volvulus, which was corrected by laparotomy and loop ileostomy. After six weeks, the patient had an intussusception containing the caecum and ascending colon inside the distal limb. The patient was also explored through the stoma wound and because

of precarious viability, right hemicolectomy was performed with an end ileostomy and mucus fistula of the transverse colon [4].

However, in our case, we could manage the condition by local exploration and conversion to the double-barrel stoma.

Etiopathogenesis is not well known. It has been tempting to link increased intra-abdominal pressure as a risk for intussusception through either loop in ileostomy or colostomy, as discussed in past reports [2,5,8-10].

There has been no report of a similar issue in other patients. Another hypothesis is the presence of redundant ileum adjacent to the stoma and a wider stoma defect [1].

Our hypothesis of intact contiguous neuronal connections in bowel wall for peristalsis and retro-peristalsis as a possible cause for this occurrence and risk of involvement of the proximal limb led us to convert the loop ileostomy into a double-barrel ileostomy separated by a skin bridge. We have not found a similar approach in the available literature. The recurrence of intussusception of the distal limb in our case could not be explained. Since it was uncomplicated, no further intervention was planned.

Viability and easy reducibility will determine further management. The two cases of intussusception through the proximal limb had presented with necrosis of the proximal limb [5,7].

Bhange et al. had reported a similar patient who had presented with intestinal obstruction [6].

All the patients from the past reports required exploration and resection/revision. For the cases where the stoma cannot be reversed, the gentle manual reduction should be attempted only when there is no evidence of necrosis. When the segment is gangrenous or if reduction fails, surgical resection is required with revision of the stoma. In patients where the stoma has served its purpose, reversal of stoma with appropriate anastomosis is the treatment of choice.

This rare complication of the stoma will require some intervention hence, an appropriate fashioning of stoma with fixing any redundant limb to peritoneum will prevent prolapse and intussusception. This step is not achievable in every case of upfront stoma creation that does not involve laparotomy or laparoscopy. Delayed presentation and diagnosis may occur if the proximal limb is well functioning and the intussuscepting distal segment only causes difficulties in the application of stoma bags. The patients with involvement of distal limb will not present with a non-functioning stoma or frank intestinal obstruction as in a patient of proximal limb intussusception [6].

Progression of ischaemia can present with features of peritonitis. Further management will add to the morbidity. An educated patient and a well aware stoma-care provider will help prevent such delay.

## Conflict of interests

None to declare.

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