



CT Features of Intussusception through an Ileostomy

회장루를 통한 장중첩의 CT소견

Mi Ran Jung, MD¹, Mi-hyun Park, MD^{1*}, Keum Nahn Jee, MD¹, Hwan Namgung, MD²Departments of ¹Radiology, ²Surgery, Dankook University School of Medicine, Cheonan, Korea

Intussusception of the small bowel through an ileostomy is very rare; when it causes necrosis of the bowel, immediate surgery is required. Computed tomography (CT) features of intussusception through an ileostomy have not been reported in the literature. Herein, we report the typical CT features of intussusception through an ileostomy, followed by a brief literature review.

Index termsIleostomy
Intussusception
Computed Tomography

Received November 7, 2016

Revised February 18, 2017

Accepted March 7, 2017

*Corresponding author: Mi-hyun Park, MD
Department of Radiology, Dankook University
School of Medicine, 201 Manghyang-ro, Dongnam-gu,
Cheonan 31116, Korea.
Tel. 82-41-550-6926 Fax. 82-41-552-9674
E-mail: deepva@hanmail.net

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/4.0>) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

INTRODUCTION

Ileostomy is associated with many complications, including prolapse, necrosis, stenosis, skin irritation, and infection, among others. Among them, prolapse accounts for 2% to 26% of stoma complications (1). Stoma prolapse is a full-thickness protrusion of intestine through the stoma. There are various causes of stoma prolapse, which are influenced by location of the bowel, stoma creation technique, and disease process. However, intussusception through an ileostomy is a rare cause of stoma prolapse (2). We found eight cases of intussusception through an ileostomy in the literature (3-9); however, there are no reports describing the radiological features. We report a rare case of intussusception of the small bowel through an ileostomy and describe the typical computed tomography (CT) features.

CASE REPORT

A 49-year-old man presented to the emergency department with a one-day history of pain at the stoma site created after loop

ileostomy, which was performed four months previously to treat colonic pseudo-obstruction. On physical examination, the bowel had protruded through the proximal stoma, resulting in prolapse. The protruding bowel exhibited color change (Fig. 1A). Laboratory investigations revealed leukocytosis, indicating inflammation; however, other parameters were within normal limits. An abdominal CT scan was performed immediately to evaluate the extent of ischemic bowel. CT revealed an intussusception of the small bowel through the proximal stoma, which was the intussusciens. The small bowel segment protruding through the proximal stoma was intussuscepted with the inner and middle layers (Fig. 1B-D). CT imaging revealed no evidence of ischemic or necrotic change in the small bowel in the peritoneal cavity, or a visible lead point of intussusception. Diffuse, mild distention of the proximal small bowel in the peritoneal cavity was also noted on CT. The patient underwent emergency surgery. Intussusception through the proximal stoma, overlapping the small bowel for approximately 10 cm with ischemic changes, was observed. Consequently, the protruding bowel loop was resected, and a new ileostomy was created through the

same site. Pathological examination of the resected portion of the small bowel revealed ischemic necrosis. The patient recovered well, with satisfactory function of the new ileostomy, and he was discharged on postoperative day 4.

DISCUSSION

Intussusception of the small bowel through an ileostomy is very rare. We found eight cases of intussusception through an

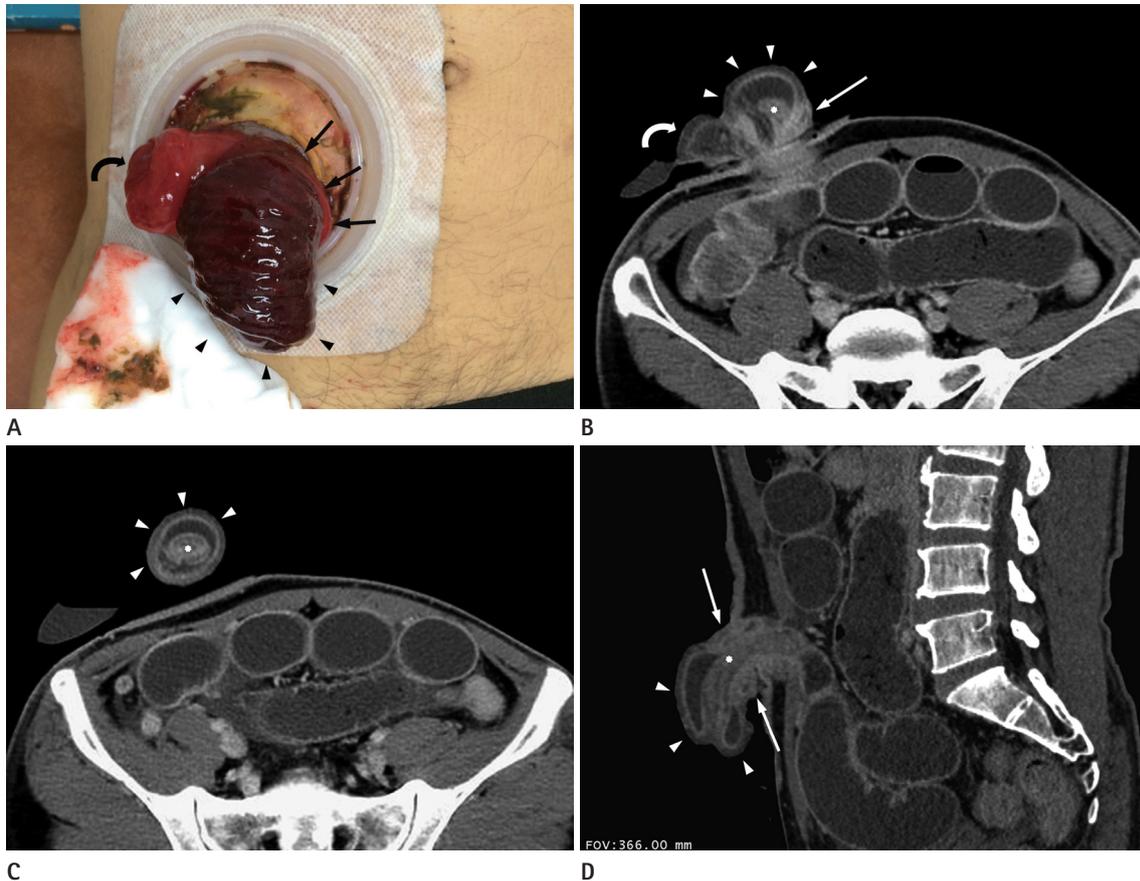


Fig. 1. A 49-year-old man with intussusception through an ileostomy.
A. Image showing loop ileostomy with a proximal stoma (arrows) and a distal stoma (curved arrow). The small bowel (arrowheads), edematous with color change, protruding through the proximal stoma.
B. An axial enhanced computed tomography (CT) image revealing loop ileostomy with a proximal stoma (arrow) and a distal stoma (curved arrow). The small bowel protruding through a proximal stoma is intussuscepted with mesentery slips. This intussusceptum consists of inner (asterisk) and middle (arrowheads) layers. The proximal stoma is the intussusciptens (arrow).
C. An axial enhanced CT image revealing the protruded intussusceptum with the target sign [the inner layer (asterisk) and the middle layer (arrowheads)].
D. An oblique sagittal reconstructed enhanced CT image depicting the intussusception through the proximal stoma (arrows): the protruded intussusceptum [the inner layer (asterisk) and the middle layer (arrowheads)] through the proximal stoma (arrows).

Table 1. Previously Reported Cases of Intussusception through an Ileostomy

No.	Reported Year	Age/Sex	Etiology of Ileostomy	Type of Ileostomy	Direction of Intussusceptions
1	1959	52/F	Ulcerative colitis	End ileostomy	Antegrade
2	1992	31/F	Ulcerative colitis	End ileostomy	Antegrade
3	2005	32/F	Crohn's disease	End ileostomy	Antegrade
4	2006	49/M	Complicated diverticulitis	Loop ileostomy	Antegrade
5	2009	91/F	Rectal perforation	Loop ileostomy	Retrograde
6	2010	36/F	Crohn's disease	End ileostomy	Antegrade
7	2011	72/M	Rectal cancer	Loop ileostomy	Retrograde
8	2013	72/M	Sigmoid cancer	End ileostomy	Antegrade

ileostomy that have been reported in the literature, which are summarized in Table 1 (3-9). In these cases, intussusception occurred through an end ileostomy or a loop ileostomy. The patients underwent ileostomy due to ulcerative colitis, Crohn's disease, complicated diverticulitis, rectal perforation, or colorectal cancer. Antegrade intussusception is common due to the direction of peristalsis; however, retrograde intussusception can occur against the normal direction of peristalsis (5, 6). In three cases (3-5), the patients were pregnant and increased intra-abdominal pressure during pregnancy was suspected to be an etiologic factor. Based on preoperative CT in our case, the patient may have experienced increased intra-abdominal pressure due to an ileus of the proximal small bowel loop. Nevertheless, risk factors for intussusception through an ileostomy remain unclear, and in all cases included in our review, there were no lead points, similar to our case.

In previously reported cases, bowel necrosis was observed in the intussusceptions and emergency surgery was performed. Radiological examinations were not performed before surgery (3-9). In our case, preoperative CT was performed to evaluate the extent of ischemic bowel. If necrotic changes involve the bowel in the peritoneal cavity, exploratory laparoscopy or laparotomy is mandatory. CT was able to clearly depict intussusception through a stoma in our case. Also, CT may reveal the lead point requiring surgery (10).

A prolapsed stoma can be treated conservatively. Before surgical repair, manual reduction can be attempted in patients without bowel necrosis. However, if reduction fails, surgical resection is required (5). Intussusception through a stoma may result in bowel strangulation and necrosis, which necessitates emergency surgery (8).

In summary, intussusception through an ileostomy should be treated promptly if bowel necrosis is detected. CT can clearly reveal intussusception at the ileostomy site.

REFERENCES

1. Duchesne JC, Wang YZ, Weintraub SL, Boyle M, Hunt JP. Stoma complications: a multivariate analysis. *Am Surg* 2002; 68:961-966; discussion 966
2. Husain SG, Cataldo TE. Late stomal complications. *Clin Colon Rectal Surg* 2008;21:31-40
3. Priest FO, Gilchrist RK, Long JS. Pregnancy in the patient with ileostomy and colectomy. *J Am Med Assoc* 1959;169: 213-215
4. Adedeji O, McAdam WA. Intussusception in ileostomy in a pregnant woman. *Postgrad Med J* 1992;68:67-68
5. Kwok H, Milsom P. Intussusception through an ileostomy. *ANZ J Surg* 2005;75:180-181
6. Chen Y, Richard H. A rare case of small bowel intussusception through a loop ileostomy. *ANZ J Surg* 2009;79:960-961
7. Bielecki K. Recurrent ileostomy prolapse: is it a solved problem? *Tech Coloproctol* 2010;14:283-284
8. Khan MA, Price R, Dewar EP. Retrograde intussusception through a loop ileostomy: a case report and review of the literature. *Ann R Coll Surg Engl* 2011;93:e81-e82
9. Bhang SA, Gala AP, Sathe SM, Bhansali MS. Intussusception through an ileostomy. *South Asian J Cancer* 2013;2:150
10. Kim YH, Blake MA, Harisinghani MG, Archer-Arroyo K, Hahn PF, Pitman MB, et al. Adult intestinal intussusception: CT appearances and identification of a causative lead point. *Radiographics* 2006;26:733-744

회장루를 통한 장중첩의 CT소견

정미란¹ · 박미현^{1*} · 지금난¹ · 남공환²

회장루를 통해 장중첩이 된 사례는 아주 드물게 보고가 되어 있으며, 장괴사를 동반한 회장루를 통한 장중첩의 경우 응급 수술이 필요하다. 회장루를 통한 장중첩의 영상소견은 문헌보고가 된 적이 없다. 이에 우리는 회장루를 통한 장중첩 환자의 CT소견을 보고하고자 한다.

단국대학교 의과대학 ¹영상의학과, ²외과