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Case Report

Free Colonic Perforation in a Patient With Crohn's Disease and Loop Ileostomy: Report of a Case

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Free bowel perforation in Crohn's disease is a relatively rare complication. In this report, we present a case of free colonic perforation in a Crohn's disease patient with loop ileostomy previously constructed for intractable perianal abscess. Normally, fecal diversion by ileostomy results in an improvement in Crohn's colitis. However, in some cases, fecal diversion is reported to adversely affect the inflammation of the diverted bowel, and it is this unusual complication of Crohn's disease that we discuss here.

Key words: Crohn's disease – Inflammatory bowel disease – Perforation – Peritonitis – Surgery

Free bowel perforation in Crohn's disease patients is a relatively rare complication.[1–5] Moreover, free perforation of the bowel that is diverted or defunctioned by the ileostomy or colostomy is considered to be an extremely unusual condition. We examined a case of free colonic perforation in a Crohn's disease patient with loop ileostomy previously constructed for intractable perianal abscess, and we discuss this rare complication.

Case Report

The patient was a 34-year-old Japanese male, who was diagnosed at the age of 19 years as having Crohn's disease by colonoscopy performed to investigate the cause of severe diarrhea and high fever. The inflammation extended throughout the entire colon, rectum, and terminal ileum. He suffered from severe periproctal abscess, and, although drainage was repeated many times with seton drains, the pain and inflammation were poorly controlled. The perianal abscess was exacerbated, and the loop ileostomy was constructed to divert fecal stream when he was 29 years old. After this, despite the partial relief of perianal pain, a purulent discharge from the anus persisted.

He was transferred to the emergency room, complaining of an acute and worsening abdominal

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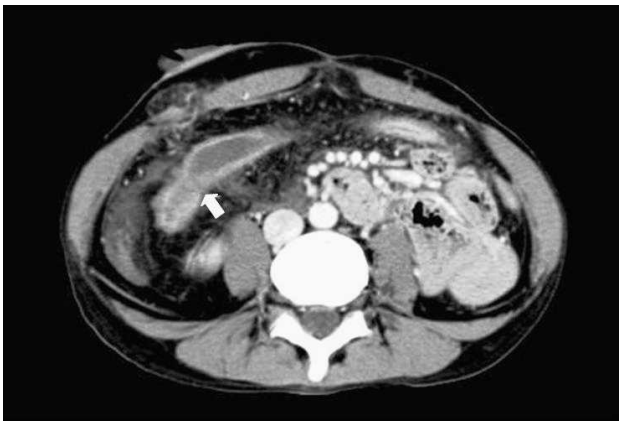

Fig. 1 Computed tomography revealed marked thickening of the transverse colon and increased density of the surrounding fat tissue (arrow).

pain. He was ill and septic, the abdomen was rigid, and muscular resistance could be felt. Computed tomography scan was performed immediately, which revealed marked thickening of the transverse colon and increased density of the surrounding fat tissue. Ascites was noted; however, signs of bowel perforation, such as free air in the abdominal cavity, were not apparent (Fig. 1).

Emergent laparotomy was performed. Purulent ascites was found, though no apparent bowel perforation was recognized at first. We attempted endoscopic inspection from the anus intraoperatively; however, severe rectal stenosis was encountered, so we were unable to insert the scope any further. Air was inflated into the colon and an air leak, indicating a bowel perforation, was found in the mesenteric side of the transverse colon (Fig. 2). Because the patient refused total coloproctectomy with permanent ileostomy at the time of the operation, loop transverse colostomy was constructed at the perforated site, and the peritoneal cavity was drained. The patient recovered gradually and was discharged 22 days after the operation.

Discussion

Our report discusses a case of Crohn's disease presented as panperitonitis because of a free perforation of the transverse colon, distal to the loop ileostomy previously constructed to divert fecal stream for severe perianal abscess and fistula. Free intestinal perforation is a relatively rare complication of Crohn's disease,[1] and it is an indication of emergent operation.[6] Its rate of occurrence is reported to be 1% to 5% among surgically treated

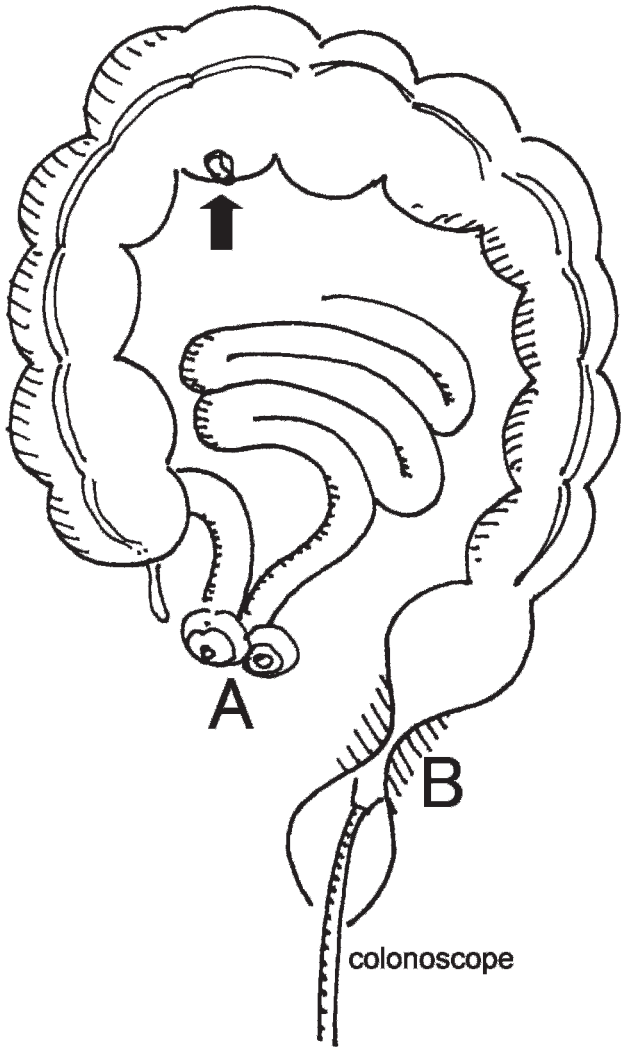

Fig. 2 Laparotomy revealed a perforation of the transverse colon (arrow), which had been defunctioned by the (A) ileostomy previously constructed for intractable perianal abscess. (B) Severe rectal stenosis was found by intraoperative colonoscopy.

cases.[2–5] In general, perforation of a diverted or defunctioned intestine is expected to occur rarely, because bowel content decreases and pressure is low.

Fecal diversion by ileostomy usually results in an improvement in Crohn's colitis.[7,8] It is a simple and less invasive procedure, applicable even in a severely ill patient, and an immediate recovery of the patient's general condition together with an improvement in the severity and extent of colitis are expected.[9] Thus, ileostomy is believed to facilitate future definite surgery, such as proctocolectomy, or to reduce the extent of colonic resection. However, it has been reported that a certain proportion of anorectal Crohn's disease or Crohn's colitis does

not improve and may even progress, in spite of a proximal fecal diversion.[10,11] Korelitz *et al*[10] reported 4 cases of Crohn's disease, in which the rectums, previously normal in appearance, became inflamed during a period of fecal diversion but then reverted to normal with the reestablishment of intestinal continuity. Williamson *et al*[11] reported 2 cases of Crohn's disease, in which inflammation was considered to deteriorate by fecal diversion. They speculated that the presence of anorectal stenosis and the accumulation of purulent content in the diverted bowel contributed to the progression of inflammation. In our case, perianal abscess persisted even after ileostomy construction. At operation, severe rectal stenosis was present, and purulent content was found in the diverted colon. Therefore, the same deteriorating mechanism as seen in the case repoted by Williamson *et al*[11] was considered a possibility, and the accumulation of purulent content might have further led to free colonic perforation in our case. In cases other than Crohn's disease, such as diverticular perforation, fecal diversion by colostomy or ileostomy can cause nonspecific inflammation in the previously normal colon or rectum.[12] In the present case, the patient had been treated with mesalazine. Mesalazine did not reach the colon after ileostomy construction. Thus, we speculated that it might have contributed to the progression of proctocolitis.

When ileostomy or colostomy is constructed in a patient with Crohn's disease, the possibility of exacerbated inflammation in the diverted colon and anorectum must be kept in mind and should be followed carefully. General symptoms and local inflammation might be unrelated in patients with Crohn's disease with ileostomy or colostomy. In spite of the exacerbated inflammation in the diverted region, the patient's symptoms, such as pain, might be relieved only because the feces do not appear in the diseased area. If a diversion is clinically warranted, reanastomosis should be considered as early as possible. If inflammation of the diverted region persists, proctocolectomy should be considered.

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References

1. Ikeuchi H, Yamamura T. Free perforation in Crohn's disease: review of the Japanese literature. *J Gastroenterol* 2002;**37**(2): 1020–1027
2. Greenstein AJ, Mann D, Sachar DB, Aufses AH Jr. Free perforation in Crohn's disease: I. A survey of 99 cases. *Am J Gastroenterol* 1985;**80**(9):682–689
3. Greenstein AJ, Sachar DB, Mann D, Lachman P, Heimann T, Aufses AH Jr. Spontaneous free perforation and perforated abscess in 30 patients with Crohn's disease. *Ann Surg* 1987;**205**(1):72–76
4. Greenstein AJ, Lachman P, Sachar DB, Springhom J, Heimann T, Janowitz HD. Perforating and non-perforating indications for repeated operations in Crohn's disease: evidence for two clinical forms. *Gut* 1988;**29**(5):588–592
5. Leowardi C, Heuschen G, Kienle P, Heuschen V, Schmidt J. Surgical treatment of severe inflammatory bowel diseases. *Digest Dis* 2003;**21**(1):54–62
6. Berg DF, Bahadursingh AM, Kaminski DL, Longo WE. Acute surgical emergencies in inflammatory bowel disease. *Am J Surg* 2002;**184**(1):45–51
7. Winslet MC, Allan A, Poxon V, Yongs D, Keighley MR. Faecal diversion for Crohn's colitis: a model to study the role of the faecal stream in the inflammatory process. *Gut* 1994;**35**(2): 236–242
8. Harper PH, Lee EC, Kettlewell MG, Bennet MK, Jewell DP. Role of the faecal stream in the maintenance of Crohn's colitis. *Gut* 1985;**26**(3):279–284
9. Harper PH, Truelove SC, Lee EC, Kettlewell MG, Jewell DP. Split ileostomy and ileocolostomy for Crohn's disease of the colon and ulcerative colitis: a 20 year survey. *Gut* 1983;**24** (2):106–113
10. Korelitz BI, Cheskin LJ, Sohn N, Sommers SC. Proctitis after fecal diversion in Crohn's disease and its elimination with reanastomosis: implications for surgical management—report of four cases. *Gastroenterology* 1984;**87**(3):710–713
11. Williamson ME, Hughes LE. Bowel diversion should be used with caution in stenosing anal Crohn's disease. *Gut* 1994; **35**(8):1139–1140
12. Glotzer DJ, Glick ME, Goldman H. Proctitis and colitis following diversion of the fecal stream. *Gastroenterology* 1981;**80**(3):438–441