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Rectal perforations caused by cleansing enemas in chronically constipated patients: Two case reports

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Abstract

Constipation is a common disease that is frequently treated with cleansing enemas. Enemas are considered as effective and in some cases may cause serious adverse events. Iatrogenic perforations due to enemas lead to adverse outcomes in elderly patients with a poor general condition. Perforation remains an infrequent and rarely reported complication. In this work, we describe the cases of two patients with rectal perforation caused by a cleansing enema. The first patient had rectal perforation that led to a para-rectal abscess and the second patient had generalized peritonitis caused by rectal perforation.

Keywords

Rectum, constipation, enema

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Introduction

Constipation is a common disease associated with significant healthcare costs. The elderly are more prone to constipation than young people owing to the effect of medications and immobility. Complaints about constipation and the habitual use of laxatives increase with age, resulting in increased use of cleansing enemas (CEs). According to a report by Choi H et al.[1] in Korea, a study of residents in rural communities showed a prevalence rate of 8% and the use of laxative or enema was performed in more than 10% for smooth defecation. Although enema administration is considered a benign procedure, it is not without risk at all. Rectal perforations occur very rare, but the associated morbidity and mortality are high.

Case presentation

Case 1

An 88-year-old woman had an acute onset of abdominal pain, high fever, and vomiting. She had no significant medical history except diabetes and hypertension. She has been suffering from constipation for more than 5 years, often treated with self-administered glycerin enema. On the day before admission, she underwent self-administered enema at home. At the time of admission, her blood pressure, temperature, and pulse were 140/80 mmHg, 38.3°C, and 98 beats/min, respectively. On physical examination, tenderness was elicited in the lower abdomen. In the peripheral blood test, her leukocyte count was 14,000/mm^3 and C-reactive protein level was 23 mg/dL. The results of coagulation studies were normal. Electrolyte, biochemical, and urine analysis results were within the normal ranges. Abdominal computed tomography (CT) revealed the presence of a right perirectal abscess lesion with wall thickening of the rectum and perirectal fat stranding and free air (Figure 1(a)–(c)). Initially, we diagnosed the patient as having localized peritonitis that was caused by rectal perforation. Surgical closure was indicated but was not possible owing to the patient's poor condition. Hence, informed consent was obtained from the patient's family for direct endoscopic fistula closure. Colonoscopy revealed a fistula in the right side of middle rectal wall (Figure 2(a)). The fistula was closed completely using multiple hemostatic clippings, and there was no event of

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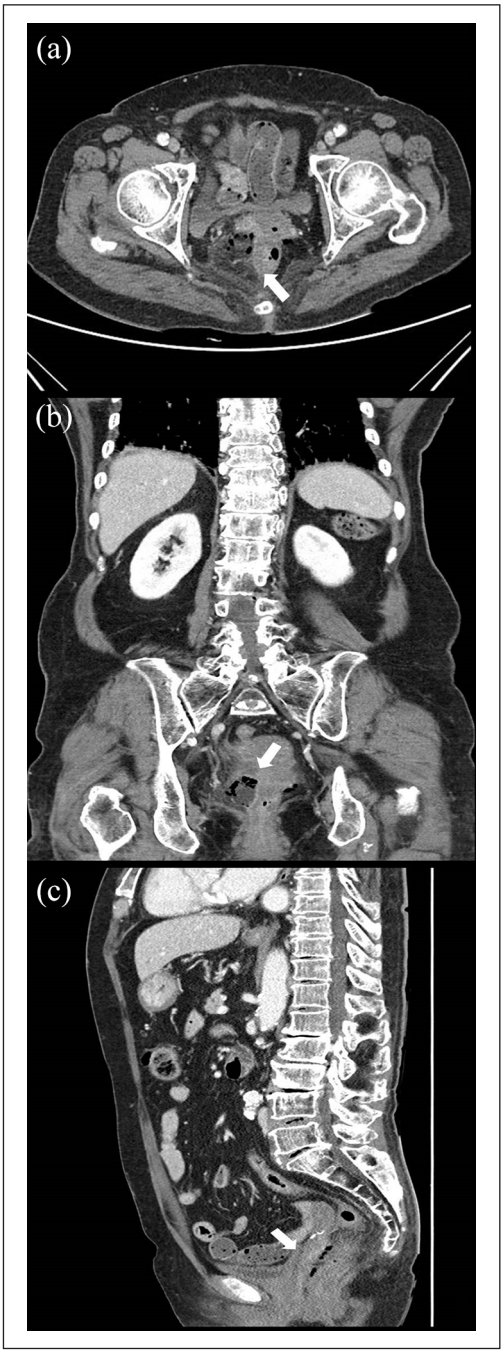

Figure 1. (a) Axial view, (b) coronal view, and (c) sagittal view of the abdominopelvic CT findings show an abscess in the right rectal wall (2.3 cm × 4.7 cm × 2 cm in diameter) and a fistula (white arrow).

procedure-related complications (Figure 2(b)). We administered an intravenous drip infusion of ceftriaxone (2 g/day) and metronidazole (1.5 g/day) for 5 days following the closure of the fistula. Five days later, a significant improvement in the patient's laboratory parameters was observed and CT revealed the disappearance of the abscess (Figure 3).

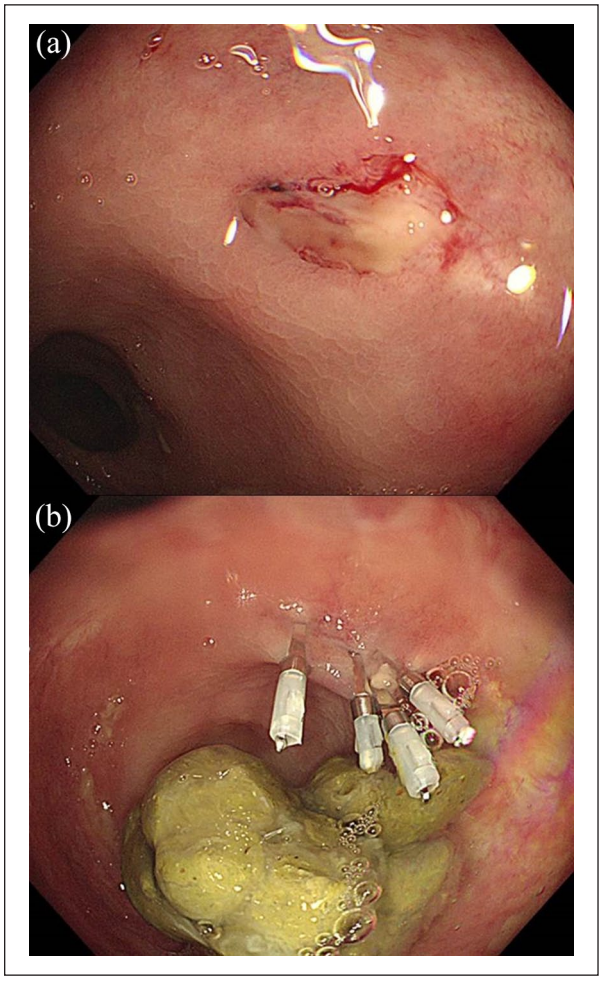

Figure 2. The colonoscopic findings include (a) a fistula in the right side wall of the rectum, which was (b) completely closed using hemostatic clipping.

Case 2

The second patient was a 78-year-old man with constipation. His medical history revealed dementia and hypertension. He was often treated with CE at the hospital with constipation symptoms for more than 3 years. On the day before admission, a glycerin enema was administered for constipation at a local clinic. About 24 h after receiving the enema, he developed sudden, severe, and sharp lower abdominal pain, fever, and hypotension. He was referred to our emergency department, and on arrival, he was found to be in septic shock. His blood pressure, pulse, and temperature were 68/50 mmHg, 101 beats/min, and 36.6°C, respectively. Laboratory findings revealed leukocyte count of 8900/mm^3, C-reactive protein level of 12.349 mg/dL, and creatinine 3.31 mg/dL. The results of initial arterial blood gas analyses were as follows: pH, 7.12; oxygen pressure, 56 mmHg; carbon dioxide pressure, 33 mmHg; base excess, −17.6 mmol/L; and lactic acid, 13.1 mmol/L. On physical examination, rebound tenderness

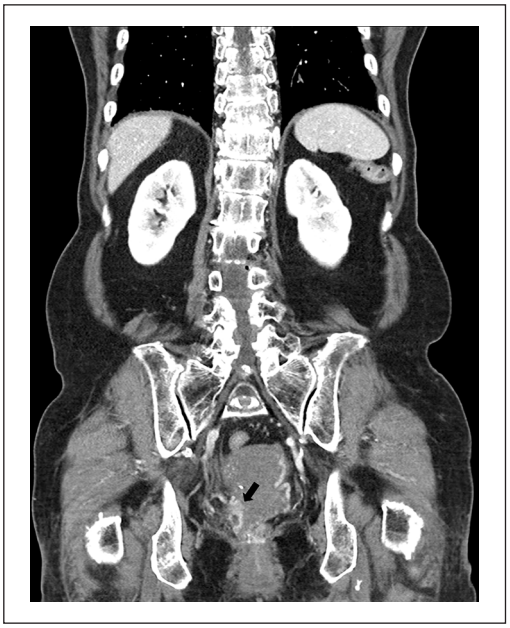

Figure 3. The coronal CT image shows the remarkable disappearance of the abscess (black arrow).

and muscle rigidity were elicited in the whole abdomen. Under the suspicion of the presence of complication from the recent enema, abdominal non-contrast CT was performed with creatinine elevation, which revealed pneumoperitoneum and large amounts of extra-luminal fecal material with ascites in the peritoneal cavity (Figure 4(a)–(c)). We initially diagnosed the patient as having peritonitis caused by the CE in the rectum and performed an emergency operation. During emergency laparotomy, necrotic changes were observed in most of the bowel and perforation occurred in the lateral side of the upper rectum (Figure 5(a)–(c)). The whole peritoneal cavity was filled with foul-smelling fluid and fecal matter. Total colonic segment and massive small bowel resections were performed with end-jejunostomy. After surgery, the patient was transferred to the intensive care unit for further management. During the course of recovery, the patient died from exacerbated complications of acute respiratory distress syndrome and septicemia.

Discussion

Constipation is becoming more common in the elderly population and is an important cause of morbidity. Urgent and comprehensive evaluation is necessary because serious medical conditions can be the underlying cause. For patients with severe constipation, careful analysis of medical history, investigation of drugs that can cause constipation, and physical examination including rectal examination are important in patients with severe constipation to define the type of constipation and direct the physician to make the correct diagnosis and treatment. The use of a CE is common in the treatment of chronic constipation. There exist rare

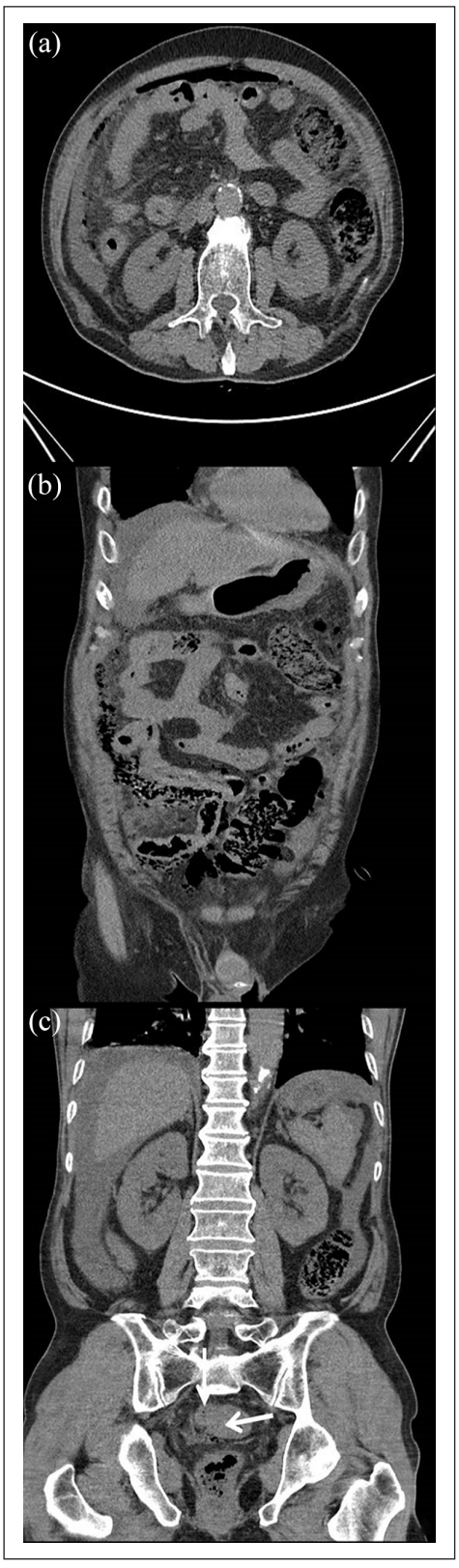

Figure 4. (a) Axial view, (b) and (c) coronal views of the CT image show multiple intraperitoneal air with a large amount of free fluid and extraluminal feces in the abdomen and pelvic cavity, and the coronal CT scan (white arrow) shows extraluminal air and feces in the right perirectal fat.

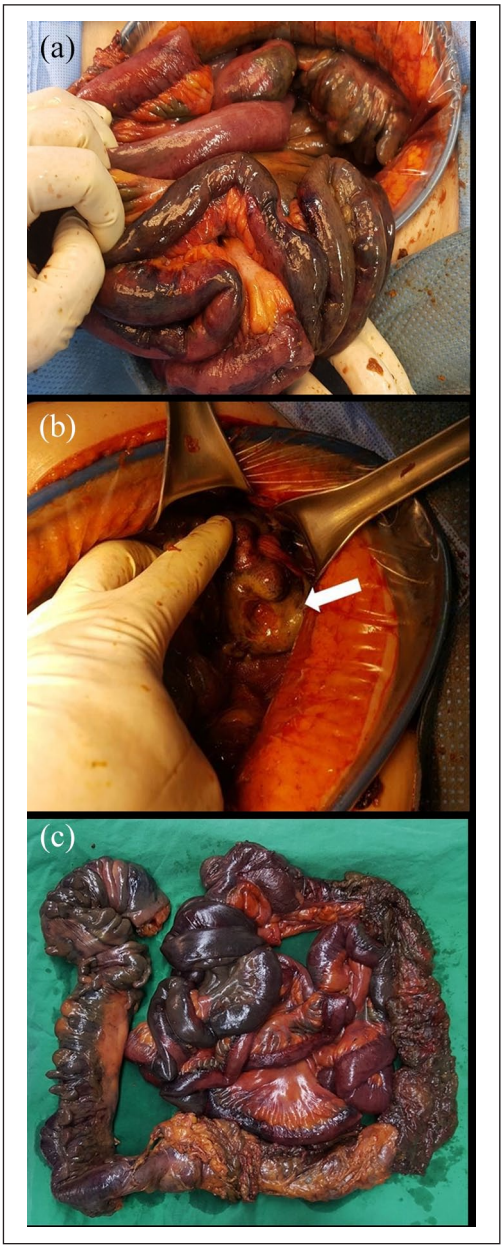

Figure 5. The operative findings included (a) and (b) the entire colon and most of the small intestine with necrotic changes and upper rectal perforation (white arrow), for which (c) total colonic segment and massive small bowel resections were performed.

reports about adverse events caused by CE in the literature, which are considered as life-threatening. Perforation occurs with a fecal material-filled colon and carries a high risk of peritoneal leakage and peritonitis. The most frequently reported rectal perforation in patients who receive enemas is the device tip. Another cause are related to localized weakness of the rectal wall, obstruction, or the position of patient during enema administration.[2,3] Failure to identify the symptoms and signs of rectal injury can result in a delay in the initiation of proper medical and surgical therapies. Clinical indicators of the development of these complications include pain and bleeding. The rectum is insensitive to pain, and if there is a significant discomfort after enema, leakage of colonic materials or the enema solution into the perirectal space should be considered. Bleeding after enema administration is also a common sign of rectal perforation. Therefore, rectal pain and bleeding are considered as indicators of possible rectal injury and need further evaluation. The anterior upper two-thirds of the rectum are located intraperitoneally and the remainder is extra-peritoneal. Therefore, when perforation occurs in the upper two-thirds of the rectum, there is a high possibility of fecal contamination in the abdominal cavity. Prompt abdominal surgery is usually recommended once perforation has occurred.[4]

CT plays an important role in the diagnosis of rectal perforation induced by CEs because a clinical history of CE use is not always known or reported, and symptoms are varied and nonspecific. The presence of extra-luminal air around the recto-sigmoid colon and accompanying inflammatory changes are signs suggestive of perforation of the distal colon.[5]

Intra-operative findings determine the surgical management. The primary repair or resection with primary anastomosis has been advocated for traumatic perforations of the colon and rectum in the absence of gross contamination.[6] Due to the extensive contamination, poor tissue situation and a higher complication rate, stoma or fecal diversion after reparation is chosen. Despite conservative treatment of lower one-third of the rectal perforation being possible for stable patients in good health and excellent bowel preparation, the most common approach is surgery.[7] A conservative approach is often chosen when retroperitoneal perforation occurs and when a properly prepared colon minimizes the amount of gross spillage.

Conclusion

In the elderly population, enema for the treatment of constipation is generally associated with adverse events, hence should be administered carefully. The occurrence of perforation and sepsis may cause death at a very high rate. We suggest an investigation of abdominal complaints of the elderly and chronically constipated patients, with emphasis on possible perforations caused by the use of enemas. A high degree of suspicion by the attending physician is extremely important. CEs should be administered carefully using a rectal tube by experienced personnel.

Authors' contributions

S. Y. L. and J. N. K. participated in the surgical treatment, prepared the manuscript, and performed the literature search; J. H. L. participated in manuscript revision and the final review. All authors read and approved the final manuscript.

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Ethical approval

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Guarantor

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Informed consent

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