Successful removal of a foreign body by endoscopic balloon dilatation at the colonic stricture

Chang Jo Im, Ji Hoon Na, Hyun Sik Kim, Sung Sam Ha, Yoo Li Lim, Ji Hyeon Lee, Hee Kyoung Choi, Hee Man Kim

Department of Internal Medicine, Wonju Severance Christian Hospital, Yonsei University Wonju College of Medicine, Wonju, Korea

Most ingested foreign bodies pass readily throughout intestinal tract if they reach the stomach. In some cases, foreign bodies may be impacted behind a luminal constriction but are rare in colon. Here, we report the case of a 59-year-old man who did laparoscopic anterior resection due to sigmoid colon cancer 2 years ago and ischemic colitis was repeated on the anastomosis site. He initially presented with symptoms of abdominal pain 3 months before and melena 1 day before admission. Abdomen computerized tomography showed a 3.2 cm segment of luminal narrowing of the proximal colon involving upstream foreign material stasis. Sigmoidoscopic approaches revealed near complete obstruction on the anal verge of 20 cm and scope passing failed. Balloon dilatations were done on the obstruction site four times all and a foreign body impacted above the obstruction site was removed by an alligator without any complications. The foreign body removed looks like plastic or a shell, about 20 mm in size.

Keywords: Foreign bodies; Colon; Dilatation

INTRODUCTION

Foreign bodies on lower gastrointestinal tract present a difficult diagnostic and management dilemma and systemic approaches are necessary. They can be caused by a wide variety of objects and have an effect on the subsequent treatment process. They also occur on account of luminal narrowing due to ischemic colitis like our case. The majority of rectal foreign bodies can be removed transanally [1]. Surgery is generally required if transanal approaches are not successful and in all patients with evidence of peritonitis or perforation. Regardless of the method used to remove the foreign body, patients should be evaluated for possibility of complication like bowel perforations.

CASE

A 59-year-old man was diagnosed with sigmoid colon cancer (pathologic stage T1N0M0) and did laparoscopic anterior resection 2 years ago. Ischemic colitis was repeated on the anastomosis site which is 20 cm above the anal verge. He had symptoms of abdominal pain 3 months before admission and melena 1 day before. He was in an alert mental state, and his blood pressure was 130/70 mmHg. Complete blood count revealed the white blood count 7,770/μL, hemoglobin 9.7 g/dL, platelet 454,000/μL. Arterial blood gas analysis did not show acidosis nor hypoxemia. Serum electrolytes and chemistry was within normal limits. C-reactive protein was 4.31 mg/dL and erythrocyte sedimentation rate was 41 mm/h.

Abdomen computerized tomography (CT), sigmoidoscopy and balloon dilatations were performed. Abdomen CT showed focal wall thickening enhancement of a 3.2 cm segment of the proximal colon, luminal narrowing with developed acute colitis involving upstream colon and foreign material stasis (Fig. 1). Sigmoidoscopic approaches revealed near complete obstruction on the prior laparoscopic anterior resection anastomosis site and scope passing failed. Balloon dilatations were
Fig. 1. Abdomen computerized tomography. Abdomen computed tomography showing focal wall thickening enhancement of distal colon and high dense radiopaque material (arrow).

Fig. 2. Endoscopic balloon dilatations and foreign body removal. (A) Endoscopic balloon dilatations were done four times on the anastomosis site. (B) Above the colonic stricture site, multiple ulcer, multiple polypoid mass, severe edema, and easy touch bleeding were observed. (C) A foreign body is like a shell or plastic material. (D) Foreign body, 20 mm sized was removed by an alligator.

Biopsies were taken on the anastomosis site at 20 cm above the anal verge. The results showed chronic mucosal injury and fibrosis, with the implication of ischemic colitis. Since there was a risk of cancer recurrence on the lesion which is located in the upper right part from the stenosis, biopsies were taken on the lesion. The result showed necroinflammatory exudates. In the polyp in the ascending colon, which was irrelevant to stenosis, adenocarcinoma in situ was reported and it was restricted to the lamina propria.

Fasting and parenteral nutrition were maintained with intravenous antibiotics. After balloon dilatation was done, the patient had a meal with water and thin rice gruel. Gastroproteolytic agents were given to the patient due to intestinal hypomotility. After removing the foreign body from the large intestine, colonoscopy was conducted on the patient. Since undigested pills were observed in the bowel, ground side dishes and drugs were given to the patient at the meal time. The patient was discharged because no melena was observed after the foreign substances were removed and the abdominal pain was relieved. He was diagnosed to have adenocarcinoma in situ in the biopsy test on the polyp in the ascending colon. The polyp was removed at that time and colonoscopy will be conducted later as a follow-up observation.

**DISCUSSION**

Colonic foreign bodies can present a difficult diagnostic and management dilemma. Studies of adults have suggested that most patients are men (65-100%) who are in their 30s or 40s [2-4].

Involuntary nonsexual foreign bodies often involve children or patients who are mentally ill. They have also resulted from medical instruments such as thermometers or enema tips, and, uncommonly, from peroral ingestion of objects that become lodged in the colon. The foreign body of this case’s patient also falls under the category of involuntary nonsexual foreign bodies.

Voluntary nonsexual placement includes such practices as “body-packing” of latex condoms or plastic bags of cocaine and other illicit drug paraphernalia. Although implanation and bowel obstruction can result from this practice, more devastating outcomes occur with rupture of the containers leading to drug absorption resulting in overdose or even death [5]. More commonly, foreign bodies are introduced through the anal canal voluntarily during sexual practices. Diagnosis of rectal foreign bodies depends upon an appropriate history, physical examination and radiological evaluation as needed. The presence of leukocytosis or metabolic acidosis are concerning due to the potential of extensive injury. Patients are often reluctant to fully disclose their situation and instead may complain of...
anorectal or abdominal pain, blood per rectum, or mucus discharge. In rare instances, presentation has been delayed for years. One report, for example, described a patient with a rectal perforation due to a thermometer. The patient remained asymptomatic for seven years before the thermometer was discovered incidentally on a plain abdominal radiograph [6]. The patient in this case had symptoms of abdominal pain and melena.

Findings on physical examination are variable. The abdominal examination can show tenderness or a palpable mass, or diffuse peritonitis if perforation has occurred. Rectal examination may demonstrate bright red blood or melena, depending upon the timing of presentation. Although the foreign body is typically found in the mid or distal rectum, the absence of a palpable foreign body on digital examination does not exclude its presence. The object may either be located proximally in the upper rectum or colon. The patient in this case displayed left lower quadrant tenderness on abdomen physical examination and digital rectal examination showed findings of melena.

If the foreign body is still in place, it should ideally be removed in an emergency room or an outpatient setting. Clinically stable patients with foreign bodies that are located proximally can be observed to see if the object will progress to the distal rectum, which facilitates transanal removal.

The majority of rectal foreign bodies can be removed transanally [1]. One of the most important factors required for success is adequate patient relaxation, which can be accomplished with intravenous sedation and perianal nerve blocks. The patient can be placed in any position, depending upon the physician's preference. We initially perform a digital rectal examination to confirm the object's presence, size, and location.

Following successful removal, we routinely perform rigid proctoscopy or flexible sigmoidoscopy to evaluate the mucosa for local damage, active bleeding, perforation, or additional retained objects.

Endoscopy provides an opportunity to avoid abdominal exploration. We generally perform flexible sigmoidoscopy to identify the object. Endoscopic snare commonly used for polypectomy or endoscopic retrograde cholangiopancreatography wires provide excellent tools to "lasso" the foreign body and remove it alongside the scope. This approach also provides the ability to watch the complete removal of the object, and repeat the endoscopy following removal to evaluate for local mucosal injury, perforation, or retained objects.

Surgery is generally required if this is not successful and in all patients with evidence of peritonitis or perforation. In a review of 87 cases, significantly more patients with a foreign body in the sigmoid colon ultimately required surgery compared with those in the rectum (55% versus 24%) [1]. Free perforation of the intraperitoneal rectum or colon mandates laparotomy with appropriate removal. Successful primary repair and avoidance of proximal diversion have been reported in trauma patients, but the approach needs to be individualized at the time of exploration [7,8].

Small extraperitoneal perforations in hemodynamically stable patients have been successfully treated with admission, complete bowel rest, and intravenous antibiotics alone [9]. However, patients should be observed in the hospital for progression of disease, which mandates surgical exploration.

There is a case report that endoscopic approaches combined with drugs like Coca-Cola, help to reduce the complications occurring during removing foreign bodies [10]. But in this case, except for endoscopic approaches, no drugs have been used.

The patient in this case showed nearly complete obstruction on the prior laparoscopic anterior resection anastomosis site, and the foreign body was observed in the right upper point of the obstruction site. It was thought to be meaningful that the large foreign body, 20 mm in size, was removed by endoscopy without reoperation and no complication occurred. So, here we report this case.

REFERENCES