CASE REPORT
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Percutaneous gas decompression can ease endoscopic derotation in sigmoid volvulus

Ufuk Uylas, Egemen Çiçek, Fatih Sümer, Cüneyt Kayaalp

Division of Gastrointestinal Surgery, İnönü University Faculty of Medicine, Malatya, Türkiye

ABSTRACT

Sigmoid volvulus is a disease of elderly and debilitated patients. In sigmoid volvulus patients, colonoscopic derotation is the most commonly applied approach as the first line treatment. However, colonoscopic derotation sometimes fail and then urgent surgery is required in these frail patients with high morbidity and mortality. Percutaneous colonic gas decompression has been described to sigmoid volvulus. In case of life-threating increase intraabdominal pressure and as a primary attempt before colonoscopy. However, this technique did not find wide acceptance in the literature. Here, we aimed to present a 78-year-old male with sigmoid volvulus in whom colonoscopic derotation failed and following percutaneous gas decompression, endoscopic derotation could be done successfully. Evacuation of percutaneous colon gas in the sigmoid volvulus may facilitate endoscopic derotation when the first colonoscopic attempt failed.

Keywords: Colorectal, dolichocolon, ileus, bowel obstruction, endoscopy, decompression

INTRODUCTION

Sigmoid volvulus most commonly occurs in elderly, frail patients. Emergency colonic surgery in those patients carry a substantial risk of morbidity and mortality. Nonoperative treatment by colonoscopic derotation risks and can be bridged the patients to a safe elective sigmoid resection (1). Derotation can be done by rigid or flexible colonoscopy. However, the success rate of colonoscopic derotation is not 100% and its failure compels the patients to an emergency and risky surgery.

In this case report, we presented a patient who has undergone a successful detorsion procedure by decompression of colonic gas percutaneously after a fail colonoscopic intervention.

CASE REPORT

A 78-year-old male admitted to emergency department with abdominal pain, nausea, and vomiting lasting for three days. He had asymmetric abdominal distension and abdominal tenderness but no rigidity. There was no stool or blood in rectal examination. Plain abdominal X-ray showed a coffee bean sign that revealed the diagnosis of sigmoid volvulus (Figure 1). Laboratory values demonstrated that white blood cells 10.100/mm^3, hemoglobin 13.4 g/dL, sodium 138 mmol/L, potassium 5.7 mmol/L and C-reactive protein (CRP) 0.9 mg/dL. The patient was admitted to the intensive care unit and monitored. Colonoscopic detorsion was tried but failed under sedation. Because the patient was elderly, we decided to retry colonoscopic detorsion. Informed consent was obtained from the patient and his relatives. Before the procedure, percutaneous gas decompression by 18G needle of the central venous catheter set (Figure 2). A needle was inserted from the top of the distention in the right upper quadrant of the abdomen, which is thought to be located after the rotation of the sigmoid colon. After the needle was entered, the sound of gas was heard, and the smell of stool came. If there was excessive bleeding, there was a smell of necrosis, if the patient had perforation peritonitis, the operation would be terminated, and emergency surgery would be planned. The colonoscopy was performed again successfully after percutaneous gas evacuation. Abundant gas and stool discharged after a rectal tube was placed, and the patient was followed for three days. Oral intake for liquid food was started on the first day after the pro-

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Corresponding Author
Ufuk Uylas
E-mail: ufukuylas@hotmail.com

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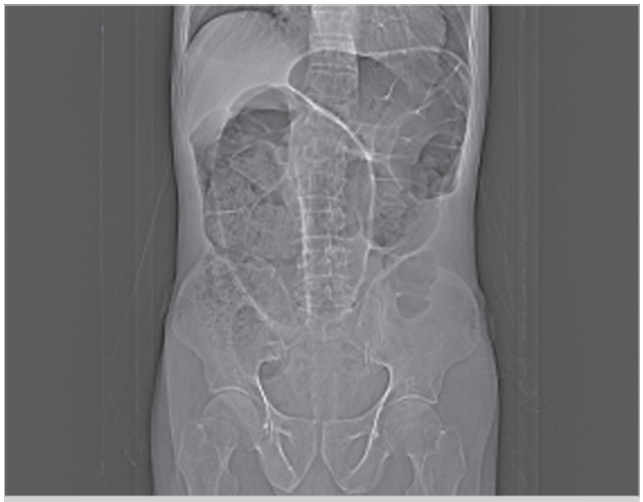

Figure 1. Coffee bean sign in the plain abdominal X-ray.

Figure 2. Percutaneous gas decompression technique by 18G needle.

cedure. On physical examination, the distention completely disappeared, and he discharged gas and stool. According to the visual analog scale, the pain score was 3, 3, 2 on the first, second and third days respectively (2). The patient was discharged on the fourth day because he denied an elective sigmoid resection surgery. At the eight-month follow-up of the patient, there was no sign of recurrence.

DISCUSSION

It is considered as physiological that the sigmoid colon is twisted less than 180 degrees around itself. The degree of torsion should be greater than 180 degrees for obstruction and more than 360 degrees for gangrene development (3). After the sigmoid colon rotates around itself, the gas in the colon increases with hyperperistaltic movements. In addition, bacterial fermentation in closed loop intestine contributes to the increase of gas in the colon (4). The dilatation in the sigmoid colon segment further increases and there is not enough space to allow a detorsion procedure.

Successful endoscopic detorsion of the sigmoid volvulus is not always possible and the failure rate varies between 0-52% in different series (5-7). As a result of the delay in the admission to the hospital, dilatation in the colon increases. Increased tension in the wall of the colon increases the degree of obstruction in the twisted part of the sigmoid colon. This situation does not allow detorsion because the sigmoid colon in the abdomen occupies a large area. Most sigmoid volvulus patients are slim and elderly males. Therefore, percutaneous evacuation of the colon gas was thought to facilitate the detorsion procedure.

According to the National Institute for Health and Clinical Excellence (NICE) 2006 guidelines, different treatment options are available for the treatment of sigmoid volvulus. Percutaneous endoscopic colostomy is recommended as an alternative treatment option in elderly and debilitated patients whom the resection is contraindicated (8). We think that we should consider non-operative treatment options in patient groups with high mortality and morbidity.

In case of failure of endoscopic detorsion procedure in elderly and debilitated patients, emergency surgery is unavoidable. After percutaneous discharge of the colon gas, the success of the detorsion procedure increases and elective surgery can be performed. There is one prospective randomized study in the literature and this study consists of 41 patients (9). In this series, endoscopic detorsion was performed on 21 patients as a control group and as a study group endoscopic detorsion procedure was applied to 20 patients after percutaneous colon gas discharge. The success rate in the primary endoscopic detorsion group was 15/21 (75%). The success rate of endoscopic detorsion after percutaneous colon gas discharge was found as 100%. The addition of percutaneous colon gas prior to the first endoscopic detorsion significantly improved the success rate. Six patients in this series who underwent unsuccessful endoscopic detorsion were performed emergency surgery and none of these patients experienced with percutaneous gas decompression before laparotomy. Mortality was detected in five patients, two in elective colectomy and three in emergency colectomy patients all from control group. There was no mortality in endoscopic detorsion after percutaneous colon gas evacuation group. Wound infection was seen in one patient after elective surgery in the study group. Mortality was significantly lower in endoscopic detorsion after percutaneous colon gas discharge than in the other group ($p= 0.04$). There was no associated with any clinical or ultrasonic evidence of leakage of colonic contents.

In a case report, percutaneous colon gas evacuation was performed up on the development of abdominal compartment after sigmoid volvulus (10). In this case, the author used a 16 G needle and its aim was to reduce the pressure in the abdomen. By using this method, the patient's blood pressure was improved, and the patient was operated. There was no intraabdominal contamination in exploration.

Percutaneous colonic gas desufflation can be performed in patients without any sign of acute abdomen. During percutaneous gas discharge may develop colon perforation of the dilated colon segment. This situation can create fecal peritonitis in these patients. While trying to provide the possibility of elective surgery, mortality and morbidity risk may increase due to fecal peritonitis. Surgeons who will perform this technique should be careful about perforation. However there is no perforation in our patient and in the previously published series.

CONCLUSION

Percutaneously evacuation of colon gas may facilitate endoscopic detorsion, in the sigmoid volvulus especially in unsuccessful endoscopic detorsion. Also, this technique may be performed for decompression by gas evacuation in patients with increased intraabdominal pressure and hemodynamic instability.

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OLGU SUNUMU-ÖZET
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Perkütan gaz dekompresyonu sigmoid volvulusta endoskopik derotasyonu kolaylaştırabilir

Ufuk Uylas, Egemen Çiçek, Fatih Sümer, Cüneyt Kayaalp

İnönü Üniversitesi Tıp Fakültesi, Gastrointestinal Cerrahi Bilim Dalı, Malatya, Türkiye

ÖZET

Sigmoid volvulus yaşlı ve düşkün hastaların bir hastalığıdır. Sigmoid volvulus hastalarında, birinci basamak tedavi olarak kolonoskopik derotasyon en sık uygulanan yaklaşımdır. Bununla birlikte, kolonoskopik derotasyon bazen başarısız olabilir ve yüksek morbidite ve mortalitesi olan bu zayıf hastalarda acil cerrahi gerekebilir. Perkütan kolonik gaz dekompresyonu, hayatı tehdit edecek kadar intraabdominal basıncın arttığı sigmoid volvulus hastalarında kolonoskopi öncesi ilk girişim olarak tarif edilmiştir. Hayatı tehdit eden durumlarda, intraabdominal basıncı ve kolonoskopi öncesi birincil girişim olarak artırılması literatürde geniş kabul görmemiştir. Burada, 78 yaşında, sigmoid volvuluslu, kolonoskopik derotasyonun başarısız olduğu ve perkütan gaz dekompresyonunu takiben endoskopik derotasyonun başarılı bir şekilde yapılabileceği bir erkek hasta sunuldu. Sigmoid volvulustaki perkütan kolon gazının boşaltılması, ilk kolonoskopik girişim başarısız olduğunda endoskopik derotasyonu kolaylaştırabilir.

Anahtar Kelimeler: Kolorektal, dolikokolon, ileus, bağırsak obstrüksiyonu, endoskopi, dekompresyon

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