



Splenic Rupture after Colonoscopy Presented with Syncope: A Rare but Fatal Complication

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Abstract

Splenic rupture (SR) is one of the rare complications of the colonoscopy procedure. The most widely accepted theory regarding the mechanism of the rupture formation is the excessive stretching of the splenocolic ligament. Computerized tomography is useful as a diagnostic tool, and the treatment is designed according to the hemodynamic status of the patient. In this study, we present a patient with splenic rupture as a complication of colonoscopy, who was admitted to the emergency service with syncope and was managed operatively after failure of conservative management. A short review of the literature is also provided.

Keywords: Colonoscopy, complication, splenic rupture

Introduction

Colonoscopy is an important method for the diagnosis of colorectal disease. Complications associated with colonoscopy include perforation (0.1%-0.2%), hemorrhage (1%-2%), and infection and abdominal distension (1). Patients with inflammatory bowel disease and intestinal adhesions because of previous abdominal surgery have increased risk of complication. Performing polypectomy during colonoscopy procedures increases the complication rate (2). Splenic rupture (SR) has been reported to be a rare complication after colonoscopy. Some parameters, including acute abdomen findings upon physical examination, hemodynamic instability, leukocytosis and/or anemia, may express a complication after colonoscopy. Intraluminal bleeding and perforation should be excluded primarily in the presence of these parameters. Most of the proposed mechanisms for SR after colonoscopy involve the excessive tension of splenocolic ligament, intestinal adhesions because of previous surgery and direct trauma at the time of turning the splenic flexure (3). This study aims to present the case of another patient with SR after colonoscopy and contribute to the existing literature.

Case Report

A 54-year-old woman who had no major medical history and had never undergone surgery applied for screening colonoscopy. Colonoscopy was performed without apparent complications.

She was readmitted to the emergency department with blood pressure of 60/40 mmHg and a pulse rate of 130 BPM at almost 24 hours after colonoscopy. Laboratory findings indicated anemia with hematocrit (Hct) as 29% and hemoglobin as 7.5 g/dL. Physical examination revealed mild tenderness in palpation and voluntary guarding in the lower left quadrant with no peritoneal signs. Resuscitation maneuvers were initiated, and blood pressure was 110/70 mmHg and pulse rate was 90 BPM. Emergent computed tomography (CT) showed signs of SR, with 7.5x3 cm² hypodense area starting from upper pole to the hilus and free fluid surrounding spleen and liver (Figure 1). The patient was hospitalized and nonoperative management was planned. During the treatment, the patient was transfused with six units of erythrocyte suspension and five units of fresh frozen plasma. Nevertheless, the patient could not attain hemodynamic stability. We scheduled surgery for the second day of hospitalization. In laparotomy, 3-L hemoperitoneum and SR were detected. The capsule of the spleen was attached to the left side of the diaphragm and the parenchyma had crumbled (Figure 2). Without further delay, standard splenectomy was performed. Immediately after surgery, the patient was administered standard post-splenectomy vaccination and was discharged without any problems 6 days after surgery. Informed consent was received from the patient that was presented in this study.

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Discussion

Of the 247 colonoscopies that they performed, the first case of SR as a complication of the colonoscopy was reported by Wherry and Zehner in 1974 (4). Since then, about 100 cases have been reported. Prevalence of this complication is variable according to the reported studies; Smith reported one case of SR in 20,139 colonoscopies, Ong et al. (5) reported one SR in 6387 colonoscopies, whereas Jentschura et al. (6) reported 0 SR in 30,000 colonoscopies.

The mechanisms of splenic injury during colonoscopy have been postulated as sudden trauma when transversing the left flexure, capsular avulsion owing to traction on the splenocolic ligament, and traction from the torque of the endoscope on adhesions between colon and the spleen. Excessive external pressure on the left subcostal region may cause blunt traumatic effects during the colonoscopy procedure to allow the easy passage of the left flexure (7). Severity of SR in the direction of these mechanisms may also vary. Some patients develop partial splenic injuries, whereas massive SRs can be observed in some patients. In some patients, the spleen may be excessively adherent to the lateral wall of the abdomen. When colonoscopy is performed in such cases, excessive stretching particularly on the splenic flexure can cause sudden breakage of the splenic capsule from the parenchyma and fragmentation of the decapitated spleen. We believe that the massive spleen rupture detected in the present case, was formed in this way.

Splenic rupture after colonoscopy can be a fatal complication that is rarely seen and has an incidence rate of 0.004% in a higher

proportion of females and with 5% mortality (8). In patients admitting with abdominal pain and syncope following colonoscopy, SR should be considered as a possible diagnosis. The diagnosis is commonly delayed. Mild discomfort and abdominal pain may persist for several hours after colonoscopy; beyond that, patients who present with severe cramp-like pain should be carefully monitored. Sudden abdominal pain in the upper left quadrant, pain in left shoulder (Kehr's sign), significant hemoglobin drop, or low blood pressure after colonoscopy are alarming symptoms that suggest SR. Emergent abdominal CT is the most valuable diagnostic choice (9). CT imaging is also important in diagnosis. In particular, three contrast (oral, intravenous, and rectal) CT scans are important for diagnosis. Application of oral and rectal contrasts is extremely valuable to exclude perforation. Intravenous contrast is useful in diagnosing bleeding and surrounding solid organ injuries.

Early diagnosis and treatment prevent morbidity and mortality associated with this rarely encountered complication. Despite splenectomy being the most common treatment for this complication, some hemodynamically stable patients who were treated conservatively are also mentioned in literature. However, some of these nonoperative follow-up patients required subsequent surgery (10). We also tried to manage the case conservatively but failure to stabilize hemodynamic parameters forced us to perform surgery. The choice of partial splenectomy may also be considered in appropriate patients. This option is applicable to patients who are not injured in the splenic hilus but are injured only in a part of the spleen parenchyma (only the lower pole or only the upper pole).

Furthermore, post-colonoscopy care is very important. Patients should be examined for rare complications such as SR, pneumothorax, intestinal invagination, as well as relatively more complications such as perforation and bleeding. After the procedure, it is important to observe the patients for a while, follow the vital signs, perform laboratory examinations if necessary, and inform about the possible early and late negative complications after discharge.

Conclusion

Splenic injury has to be suspected in patients with syncope or hypotension after colonoscopy, who are admitted to the emergency service. CT facilitates decision making during diagnosis, and blunt spleen trauma algorithms may also be applied to examine these patients. Hemodynamic instability is the most important condition warranting surgical treatment.

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Figure 1. CT shows 7.5×3 cm² hypodense area in spleen and free fluid surrounding spleen and liver

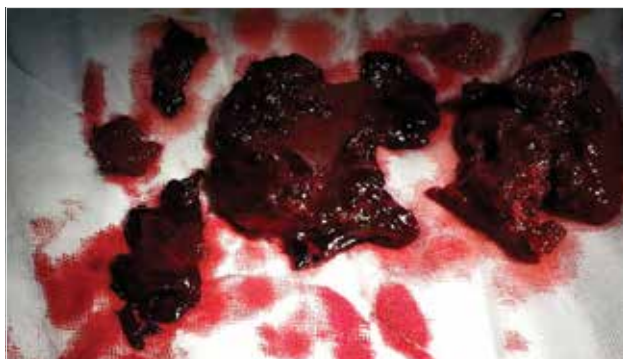


Figure 2. Crumbled splenic parenchyma

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