

Splenic rupture after colonoscopy diagnosed by bedside ultrasonography

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ABSTRACT

Introduction: Colonoscopy is a relatively safe procedure with low complication rates. A rare, but possible complication of colonoscopy is splenic rupture.

Case Presentation: A fifty nine years old patient presented one day post colonoscopy with vomiting and abdominal distention. The patient was hypotensive despite normal saline resuscitation. Bedside ultrasound showed fluid in the pelvis and a shattered spleen with splenic hematoma. The patient had an emergent laparotomy and splenectomy with no intraoperation complications.

Conclusion: Splenic rupture after colonoscopy is a rare complication and the use of bedside ultrasound by the emergency physicians is helpful in the early diagnosis and management of hemodynamically unstable patients.

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INTRODUCTION

Colonoscopy is a relatively safe procedure with low complication rates. The most common complications being perforation with an incidence rate of 0.01%-0.1% for diagnostic colonoscopy to 0-18% for patients with Crohn's disease, and hemorrhage with an incident rate of 1-2% [1]. A rare, but possible complication of colonoscopy is splenic rupture with an estimated incidence less than 0.017%, and a mortality rate of 5% [2].

CASE PRESENTATION

A 59-year-old healthy female patient presented to the emergency department (ED) with severe abdominal bloating, severe vomiting and decreased oral intake. She had a gastroscopy and colonoscopy

the day before presentation that showed multiple "black patches" in the esophagus that were biopsied. The patient tolerated well the procedure and left in a stable condition. Her vitals upon discharge were: blood pressure (BP) 112/76 mmHg, heart rate (HR) 75 beats per minute (b.min⁻¹), respiratory rate (RR) 18 breaths per minute (b.min⁻¹) and oxygen saturation (OS) 98%. At home, she had a low blood pressure (BP) reading of 95/60 mmHg and she was passing normal flatus. Upon arrival to the ED 28 hours after the colonoscopy, her BP was 60/30 mmHg, HR 147 b.min⁻¹, RR 24 b.min⁻¹ and OS 95% so two large bore peripheral lines were inserted, lab tests were sent and she was given a bolus of two liters of normal saline. On physical exam, she had diffuse tenderness with guarding and the digital rectal exam showed no blood in rectum. Chest X-ray for air under the diaphragm was

normal. The blood pressure improved after two Liters to 79/60 mmHg then dropped to 69/45 mmHg. Arterial blood gases revealed a drop in hemoglobin to 7.2 g.dL^{-1} (baseline 12.8 g.dL^{-1} five month ago). Bedside ultrasound (BUS) of her abdomen done by the ED physician showed blood in the abdomen, mainly in the Douglas pouch (**Figure 1**) and a shattered spleen with intrasplenic hematoma (**Figure 2**). Massive transfusion protocol (1 each of red blood cells, frozen plasma and platelets) was initiated and BP improved to 88/65 mmHg after the rapid transfusion of the first two blood units. Based on the BUS findings and the patient's condition, the decision was to take the patient directly to the operation room where a splenectomy was done and a large amount of blood and clots were evacuated from the abdomen. The patient was transferred to the surgical intensive care unit and then, after three days to a regular floor and discharged home after four days.

DISCUSSION

Splenic rupture due to colonoscopy or colon surgery is possible due to the presence of the colicosplenic ligament. Traction in the mediocranial direction along the same orientation of the collagen fibers of the colicosplenic ligament could cause tearing of the splenic capsule [3]. Several studies and systematic reviews have also found that female sex, elderly age group, adhesions between the spleen and the colon, biopsies and polypectomies, and large masses (polyps or tumors) at the splenic flexure can be factors

that increase the risk of splenic rupture due to colonoscopy [4].

Splenic rupture is a medical emergency whereby patients most commonly present 24 to 48 hours post colonoscopy with abdominal, back, or chest pain, fatigue and anemia, and hemodynamic instability in 42-43% of cases [5]. Patients require blood transfusions in most cases, laparotomy and splenectomy in 56% of cases, and embolization in 3% of cases [6]. It can be easily overlooked due to dismissal as pain due to insufflation, and the use of pain medications [6].

A literature review of this rare complication showed that the diagnosis is made by computed tomography of the abdomen [5] and only two cases were found to have free fluid in abdomen on ultrasound and another case showed intrasplenic hematoma [2]. We described the first case having both findings on bedside ultrasound and highlighting the importance of BUS done by ED physicians in the early and rapid diagnosis of splenic injury especially in hemodynamically unstable patients.

CONCLUSION

Splenic injury after colonoscopy is a rare complication. ED physicians should have a high index of suspicion if there is any presentation of abdominal pain with hemodynamic instability after colonoscopy. The use of BUS by ED physicians can help in early diagnosis and management of this critical complication.



Figure 1: Free fluid in pelvis in the Douglas pouch seen on the pelvic ultrasound view.



Figure 2: Splenic view on bedside ultrasound showing splenic rupture (white arrow) and hematoma (black arrows).

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