

## Case Report

# Splenic Rupture Following Colonoscopy: Case Report

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### Abstract

Colonoscopy is routinely performed as a screening modality for colorectal cancer. Although the well-documented complication of bowel perforation can occur, splenic injuries are exceptionally rare in the literature. We present a 56-year-old female who returned to the hospital 24 hours after her colonoscopy with vomiting and abdominal pain. Clinical picture was consistent with hemoperitoneum. Computed tomography revealed a grade IV splenic rupture with hemoperitoneum. Patient underwent emergency exploratory laparotomy with splenectomy for hemodynamic instability, and recuperated well after surgery. We conclude that though colonoscopy is one of most commonly performed office procedures, practitioners should be wary of this rare and dreaded complication, as massive exsanguination may have fatal consequences if complication is not recognized promptly.

### Introduction

Colonoscopy is a frequently performed procedure for the diagnosis and treatment of colorectal pathologies and for screening of colorectal malignancies. Under normal circumstances screening colonoscopy is generally considered a safe procedure with the most common complications being bleeding (1-2%) and colonic perforation (0.1-0.2%) [1]. Other less frequent complications include: pneumothorax, pneumomediastinum, volvulus, hernia incarceration, retroperitoneal abscess and emphysema, appendicitis, and bacteremia with endocarditis [2]. In 1974, the first case of splenic rupture after colonoscopy was published by Wherry and Zehner [2]. Since 1947, the number of cases reported in the literature until now is just over 100, making it a relatively rare entity. Typically, symptoms occur within the first few hours after colonoscopy but some patients present with delayed symptoms leading to an increased morbidity and mortality [3]. The diagnosis of splenic rupture is primarily clinical with a high index of suspicion in a patient with unaccounted hemodynamic instability following colonoscopy. Contrast Computed Tomography (CT) scan is the gold standard

for the diagnosis of hemodynamically stable patients [3]. We present a case of a delayed splenic laceration following a colonoscopy treated successfully with an emergent open splenectomy.

### Case Presentation

A 56-year-old female presented to an outpatient clinic for an elective screening colonoscopy. She had an otherwise normal colonoscopy and was discharged home shortly thereafter. The patient presented to the hospital 24 hours later with eight episodes of vomiting, two of which contained bright red blood. She complained of diffuse abdominal pain. Her only previous abdominal surgery was a partial hysterectomy. Her vital signs were significant for a blood pressure of 95/58 mmHg and a pulse of 100 beats/min. Her abdomen was soft but diffusely tender. Her laboratory results included a hemoglobin of 8.0 g/dL. Her most recent hemoglobin one year prior to admission was 15.8 g/dL. Her coagulation panel was within normal limits. A Computed Tomography (CT) scan of her abdomen and pelvis with Intravenous (IV) contrast revealed a massive sub capsular hematoma involving the superior aspect of the spleen with grade IV splenic laceration (Figure 1).



**Figure 1:** Massive Sub Capsular Hematoma Involving the Superior Aspect of the Spleen, with Moderate Hemoperitoneum and Associated Mesenteric Stranding.

There was a significant amount of hemoperitoneum, though no extraluminal air was present. Over the next twenty-four hours, she was treated non-operatively and monitored closely in the Intensive Care Unit (ICU) at an outside hospital. She was fluid resuscitated and transfused two units of Packed Red Blood Cells (PRBC). Her vital signs responded appropriately. On the second hospital day, she began to decompensate rapidly and became tachycardia to 160 beats/min. She was anxious and in severe distress. Her abdomen became markedly distended. She was transferred to our hospital, and was taken to the operating room and an emergent exploratory laparotomy was performed. Upon exploring her abdomen, there was approximately two liters of clotted blood. The spleen was essentially bisected through the hilum and was actively bleeding. The spleen was then subsequently resected, and the abdomen was extensively washed out with sterile irrigation.

Post operatively, the patient remained hemodynamically stable and was transferred to the surgical step down unit. She did not require any further blood transfusions. Her only complication was an ileus that resolved by her fifth hospital day. She was discharged in satisfactory condition.

## Discussion

There is a growing body of literature that documents the incidence of splenic rupture following colonoscopy. Although it is an uncommon complication, it is being increasingly reported and published [4]. The most accepted mechanism is likely excessive traction on the splenocolic ligament during colonoscopy. The tension results in sub capsular laceration with bleeding. Once sub capsular pressure exceeds the surface tension of the splenic capsule, rupture will occur with resulting hemoperitoneum [5].

Proposed risk factors include supine position, which can increase the tension on the splenocolic ligament, looping of the

colonoscopy, and excessive force particularly while hooking the splenic flexure [6]. Other studies have found an increased incidence with the female gender, previous abdominal surgeries, history of liver cirrhosis, and current anticoagulant use [7]. Additionally, there is some evidence to suggest heavier sedative use results in excessive force by the practitioner and could result in a higher rate of splenic injury [5].

A majority of patients present within twenty-four hours of colonoscopy with abdominal pain, typically left-sided. A significant portion of these patients have a positive Kehr's sign, which is left shoulder pain secondary to irritation of the left diaphragm. If injury has progressed to frank hemoperitoneum, expect concomitant tachycardia and possibly hypotension [8]. In an urgent setting of hemodynamic instability, a Focused Assessment with Sonography in Trauma (FAST) scan can be employed to quickly identify any intraperitoneal fluid. However, a computed tomography scan is the gold standard in the diagnosis of a hemodynamically stable patient [8].

Treatment options can range from observation to embolization to surgery. In the hemodynamically stable patient, a conservative approach may be employed with fluid resuscitation, blood transfusions as necessary, broad spectrum antibiotics, and intensive care unit monitoring. However, as in our case, some patients may not respond and will require urgent splenectomy. Some institutions have attempted splenic artery embolization, though splenectomy remains the universally accepted definitive standard of care [9].

## Conclusion

Patients who present with acute abdominal pain after colonoscopy there must be a high suspicion for perforation. Once perforation has been ruled out further examination with a CT scan of the abdomen and pelvis must be performed to rule out splenic injury as these rare injuries initially may have subtle signs and later may have delayed presentation with rapid exsanguination.

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