

A Case Report of Colonoscopy-Induced Splenic Laceration: Risks and Outcomes

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Received March 05, 2021; Revised April 09, 2021; Accepted April 19, 2021

Abstract Colonoscopies are performed in order to screen for and identify gastrointestinal malignancies, underlying colonic bleeds, and structural anomalies or defects. Though the procedure largely has few complications, some of the potential adverse outcomes include splenic laceration, colonic perforation, hemorrhage due to prolonged bleeding from biopsy sites, generalized abdominal bloating and pain, and anesthesia-related adverse reactions. In this paper, we present a case of grade 3 splenic laceration post routine colonoscopy. Splenic lacerations range in presentation from completely asymptomatic, non-life-threatening to immediate hemodynamic instability. It is vitally important to recognize this potential complication clinically because proper management and timely recognition has the potential to improve survival outcomes.

Keywords: colonoscopy, splenic laceration, gastroenterologist

Cite This Article: Omar Rafa, Aaron Campeas, and Eric J. Basile, "A Case Report of Colonoscopy-Induced Splenic Laceration: Risks and Outcomes." *American Journal of Medical Case Reports*, vol. 9, no. 7 (2021): 378-379. doi: 10.12691/ajmcr-9-7-10.

1. Introduction

Colonoscopies are a routine medical screening currently indicated for adults between the ages of fifty through seventy five years of age [1]. Nearly 14 million colonoscopies are conducted in the United States each year [2]. Although typically uneventful, complications can occur. Some notable complications include hemorrhagic bleed (0.48% incidence), bowel perforation (0.09% incidence) and splenic laceration with an incidence of roughly 1-21/100,000 [3,4]. Splenic injury is an extremely infrequent event with only 172 cases being reported as of 2015 [5]. Here we report the case of colonoscopy induced splenic injury. The prompt diagnosis of splenic injury decreases mortality by tenfold compared to those with delayed diagnoses [6]. Thus, there is a necessity for proper recognition as immediate intervention is crucial.

2. Case Presentation

A 59 year old female presented to the Emergency Room for abdominal pain. She had undergone a routine seemingly uncomplicated colonoscopy approximately 24 hours ago. The Patient had a past medical history of depression and chronic back pain. The patient denied any surgical history. The patient had a routine colonoscopy 10 years ago without complication.

In the emergency room, the patient's vitals were as follows: Blood pressure 120/82 mm Hg, heart rate 82 beats per minute, 99% Oxygen saturation, and 12.4 hemoglobin g/L. The vitals and mental status of the patient were normal. Overall, the abdominal exam yielded diffuse abdominal pain and a soft abdomen without, distention, masses, scarring, organomegaly, guarding. The patient was referred to Computed tomography (CT) with contrast.



Figure 1. CT scan image depicting grade 3 splenic laceration is shown [7]

CT was reviewed by radiology and revealed a grade 3 splenic laceration measuring 3.3 cm with trace perisplenic hemorrhage as can be seen in [Figure 1](#). There was hyperdense fluid in the pelvis with a volume 29 hounsfield units which was likely proteinaceous fluid or blood. The end impression was hemoperitoneum in the pelvis. CT did not reveal free air anywhere in the abdomen and pelvis.

The patient was managed conservatively with fluids and pain management. She was discharged without hospital admission.

3. Discussion

Although colonoscopy induced splenic damage may affect anyone, there are certain risk factors which increase the likelihood of splenic injury. Some notable risk factors were gender, age, and past abdominal surgical history. A 2011 study from the *Ochsner journal* detailed 92 patients who had colonoscopy induced splenic injury [1]. The study found that (72%) were females with the mean age of splenic laceration at 62 years. A plurality of cases nearly 35% were in the 61-70 year age group. These statistics suggest a higher propensity of splenic laceration in the older and female population. In addition, it was found that of the 53 participants of the same study who had surgical history detailed, 32 had prior abdominal surgery [1]. Thus, risk factors that should add to suspicion of possible splenic laceration should include female gender, age, and past abdominal surgery.

The main mechanism believed to be responsible for colonoscopy-related splenic injury are splenicocolic ligament stretching. Restriction in the movement of the spleen or factors that induce inflammation of the spleen can predispose to such injuries. Some common precipitating factors include peritoneal inflammatory diseases (IgG-4 related disease and pancreatitis), splenic congestion from extravascular hemolytic anemia disorders, liver cirrhosis-induced splenic congestion. In patients with these conditions manipulation of the colon during colonoscopy should be kept to a minimum to reduce stress to the ligament [4].

Symptomatic splenic injury most often presents with abdominal pain in 93% of cases and left shoulder pain in 88% of cases [1]. Less frequent clinical symptoms include hypotension, abdominal distention, hemodynamic instability. If an unstable patient is suspected of having splenic laceration a focused assessment with sonography should be performed to find the source of the bleeding. If no source is found an exploratory laparoscopy must be performed. As in our case, in a stable patient with a possible splenic laceration a CT with IV contrast of abdomen is the best initial test. A CT scan remains the most sensitive and specific modality of diagnostic imaging for splenic laceration.

Treatment depends whether the patient is hemodynamically stable or unstable. Hemodynamically stable patients are those defined by those who do not have signs of continuous bleeding and/or peritonitis. These patients are managed conservatively with fluid support and pain management. Unstable patients are those that have continuous bleeding of more than four units of blood in 24 hours or peritonitis. Unstable patients should be managed surgically with either, arterial embolization or splenectomy [8]. Recommendation for arterial embolization criteria include grade 3 or higher splenic injury, contrast blush on CT scan, moderate hemoperitoneum, and evidence of ongoing bleeding. Splenectomy is reserved for more severe cases and requires hemodynamic instability in the setting of blunt trauma, peritonitis, pseudoaneurysm formation, and co-existing intra-abdominal injuries. These interventions are essential as missed splenic injury is the second most common cause of preventable death, trailing behind blunt abdominal trauma [2].

Recognizing colonoscopy induced splenic injury for a stable patient can alleviate patients discomfort and for an unstable patient may save their life. Given the high incidence of colonoscopies it is essential that practitioners are aware of this complication. Knowledge of this complication, as well as how to diagnose and treat it will lead to a higher quality of patient care.

References

- [1] Bénard F, Barkun AN, Martel M, von Renteln D. Systematic review of colorectal cancer screening guidelines for average-risk adults: Summarizing the current global recommendations. *World J Gastroenterol*. 2018 Jan 7; 24(1): 124-138.
- [2] Ko CW, Riffle S, Michaels L, Morris C, Holub J, Shapiro JA, Ciol MA, Kimmey MB, Seeff LC, Lieberman D. Serious complications within 30 days of screening and surveillance colonoscopy are uncommon. *Clin Gastroenterol Hepatol*. 2010 Feb; 8(2): 166-73.
- [3] Chukwunonso Chime, Charbel Ishak, Kishore Kumar, Venkata Kella, Sridhar Chilimuri, "Splenic Trauma during Colonoscopy: The Role of Intra-Abdominal Adhesions", *Case Reports in Gastrointestinal Medicine*, vol. 2018, Article ID 4879413, 4 pages, 2018.
- [4] Shiao-Han Chen, Jiann-Ruey Ong, Hon-Ping Ma, Po-Shen Chen, "Hemoperitoneum due to Splenic Laceration Caused by Colonoscopy: A Rare and Catastrophic Complication", *Case Reports in Emergency Medicine*, vol. 2014, Article ID 985648, 3 pages, 2014.
- [5] Li S, Gupta N, Kumar Y, Mele F. Splenic laceration after routine colonoscopy, a case report of a rare iatrogenic complication. *Transl Gastroenterol Hepatol*. 2017 May 16; 2: 49.
- [6] Freiwald S. Late-presenting complications after splenic trauma. *Perm J*. 2010 Summer; 14(2): 41-4.
- [7] Themes, U. (2016, November 16). Splenic Trauma. Retrieved from <https://radiologykey.com/splenic-trauma/>.
- [8] Akoury T, Whetstone DR. Splenic Rupture. [Updated 2020 Aug 21]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2020 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK525951/>.

