

Single Case

Intramural Hematoma and Retroperitoneal Hematoma Following a Routine Colonoscopy: An Uncommon Complication of a Common Procedure

Ayesha Jalal^a Pratik Khatiwada^a Mohamed Shoreibah^b Ryan Dauer^c

^aDepartment of Internal Medicine, Memorial Healthcare System, Hollywood, FL, USA;

^bDivision of Gastroenterology and Hepatology, University of Alabama at Birmingham, Birmingham, AL, USA; ^cDepartment of Gastroenterology, Memorial Healthcare System, Hollywood, FL, USA

Keywords

Colonoscopy · Colorectal cancer · Intramural colonic hematoma · Retroperitoneal hematoma

Abstract

Colonoscopy is used worldwide for screening colon cancer. Routine colonoscopy is considered a safe procedure with relatively fewer adverse events. We present a case of intracolonic and retroperitoneal hematoma following a routine colonoscopy. This case highlights an uncommon life-threatening complication of a common procedure. A 50-year-old female presented with abdominal pain and syncopal episode following an uneventful screening colonoscopy. CT abdomen revealed intracolonic and retroperitoneal hematoma. This eventually led to exploratory laparotomy and right hemicolectomy after failure of conservative management. Clinicians need to be aware of the potentially life-threatening complications associated with colonoscopy for overall safety of colonoscopy.

© 2022 The Author(s).
Published by S. Karger AG, Basel

Introduction

Colonoscopy is a commonly performed procedure for the diagnosis and treatment of a wide range of conditions, symptoms and for the screening of colorectal neoplasia. It is the gold standard test for colorectal cancer screening. Despite being considered a relatively safe

procedure, it is associated with some risk of complications. Minor complications such as transient GI symptoms, abdominal pain or discomfort, and complications related to anesthesia as well as major complications, such as colonic perforation and hemorrhage, may occur [1].

Although up to 33% of patients report at least one minor, transient GI symptom after colonoscopy, serious complications are uncommon. We present a case of intramural colonic and retroperitoneal hematomas following a routine colonoscopy. This case shows the importance of recognition of a rare but potentially life-threatening complication of a routine procedure. Knowing about potential complications, their frequency, and the risk factors associated with their occurrence may help to minimize the incidence of complications.

Case Description

A 50-year-old female with past medical history of diverticulosis and diverticulitis presented to the emergency department with lower abdominal pain, associated nausea and vomiting for 1 day and a syncopal episode prior to the arrival. The patient underwent a routine outpatient colonoscopy a day prior to presentation. She was found to have pan-colonic diverticulosis, but no polyps or colonic masses, adhesions, and mucosal tears. No interventions were done during the procedure and no technical difficulty reported. The endoscopist had 10 years of experience and did not work with any residents or fellows in training. She was discharged home after uneventful postprocedural recovery. Three hours following colonoscopy, the patient developed sudden onset severe right lower quadrant pain which was constant, 8/10 in intensity, described as crampy and later the pain became generalized. Pain was aggravated by movement and relieved with rest. It was associated with multiple episodes of nonbiliary, nonbloody emesis. The patient also had dizziness and a syncopal episode prior to arrival to the hospital. She denied any fever, chills, diarrhea, hematochezia, melena, hematemesis, chest pain, difficulty in breathing, and palpitations. She was not taking any medications. She was not diagnosed with any chronic medical conditions and denied history of underlying bleeding disorder or chronic NSAID use. Family history was significant for stomach cancer in her maternal aunt and breast cancer in maternal cousin. Her past surgical history included two prior Caesarian sections. She denied smoking cigarettes and drank alcohol socially. Her initial vitals were temperature – 36.2°C, pulse – 72/min, blood pressure – 104/71, and respiratory rate – 16/min. Her BMI was 25.56 kg/m². Physical examination was notable for right lower quadrant tenderness on palpation with guarding.

In the emergency department, the patient was started on intravenous crystalloids, intravenous analgesics, and antiemetics. Initial laboratory studies were significant for leukocytosis WBC 17.5 (3.5–10.0 1,000/μL) with 91.5% neutrophils, normocytic anemia with hemoglobin 9.1 g/dL (11.4–15.4 g/dL), hematocrit 28.7%, MCV 92 fL (80–95 fL), and elevated venous lactic acid 2.9 mmol/L (0.4–2.0 mmol/L). Her baseline hemoglobin from prior admission was in the range of 12.8–13.9 g/dL. Other routine laboratory studies include platelet count, comprehensive metabolic panel, and lipase. The coagulation profile including PT/INR, aPTT, and urinalysis was within normal limits. CT abdomen and pelvis with intravenous contrast showed large amount of hyperdense material within the ascending colon likely ascending colon hematoma, retroperitoneal hemorrhage with extension into the peritoneal cavity, and perihepatic and perisplenic regions. There was no evidence of pneumoperitoneum and normal caliber of appendix (shown in Fig. 1.)

The in-house trauma surgery team was consulted for further management of intramural colon hematoma and retroperitoneal hematoma, and conservative management was recommended. The patient was kept NPO, and intravenous fluids, analgesics, and antiemetics were continued as needed, the exact frequency of monitoring hemoglobin and hematocrit level every 8 hourly, IV piperacillin/tazobactam 3.375 g every 8 h for colonic luminal injury in the setting of leukocytosis with neutrophilic predominance.

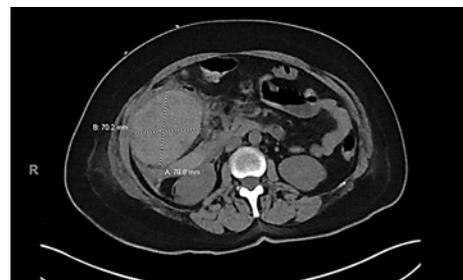
Fig. 1. CT abdomen with IV contrast on presentation showing ascending colon hematoma.



Fig. 2. CT abdomen and pelvis on the 3rd day of admission showing an interval increase in the size of ascending colon intramural hematoma.



Fig. 3. CT showing retroperitoneal hematoma centered about the right anterior right pararenal space measuring up to 10.4 × 7 × 9.5 cm.



The patient continued to complain of right lower quadrant abdominal pain. Her lactic acid normalized, and hemoglobin and hematocrit remained stable on serial monitoring. She was started on clear liquid diet as she denied further episodes of nausea and vomiting and was passing flatus. However, on 3rd day of admission due to worsening pain, inability to tolerate clear liquid diet, and worsening tenderness on right side and suprapubic region, a repeat noncontrast CT scan of abdomen and pelvis was obtained to rule out pneumoperitoneum and intra-abdominal abscess. Repeat CT scan showed increase in ascending colon hematoma with associated submucosal edema and thickening (shown in Fig. 2, 3). Due to her worsening clinical picture and radiographic findings, surgical intervention was planned by surgery team.

The patient underwent exploratory laparotomy with right hemicolectomy, ileo-colonic side-to-side anastomosis, and evacuation of hemoperitoneum under general anesthesia. Intra-operative findings included about 1 L of gross hemoperitoneum with bright red blood mixed with dark blood clot, ascending colon hematoma, large hematoma in right retroperitoneum, and mild ecchymosis to the second portion of duodenum (shown in Fig. 4–6). The patient was managed postoperatively with pain management, antiemetics as needed, incentive spirometry, slow advancement of diet as tolerated, and encouragement of ambulation. Her postoperative course was uncomplicated, and she was discharged home after she was able to tolerate regular diet with normal bowel movements.



Fig. 4. Posterior ascending colon.



Fig. 5. Anterior ascending colon.

Discussion

The adverse events (AEs) of colonoscopy could be underreported and rarely standardized reporting is used [1]. Common AEs include those of sedation and instrumentation, and serious but rare AEs include colonic perforation, intraluminal bleed, cardiovascular, and other events [2]. The risk of these AEs is reported predominantly in elderly population, patients with comorbidities, and those who undergo polypectomy and endoscopic mucosal resection [2, 3]. Potentially life-threatening AEs like pericolonic hematoma and massive retroperitoneal hematoma may also occur, and there is scant literature published on these rarer AEs [4, 5].

The risk of AEs associated with routine colonoscopy is reported in relatively small numbers [2]. Compilation of large-scale study data and population-based registries can give an estimate



Fig. 6. Large nonexpanding retroperitoneal hematoma and small area of ecchymosis to the second portion of duodenum.

of the rare AEs [3, 6]. In a 2008 systematic review of total 12 studies including 57,742 colonoscopies performed for screening, the overall AE rate was found to be 2.8 per 1,000 procedures (95% CI, 1.5–5.2), whereas AEs reported from diagnostic colonoscopies in a healthcare system in the USA were 5 per 1,000 procedures (95% CI, 4.0–6.2). In a 2016 evidence synthesis report by Agency of Healthcare Research and Policy, the authors reported the overall rate of major bleeding of 0.8 per 1,000 procedures (n Z 3,347,101, 95% CI, 0.5–1.4) and the perforation rate of 0.4 per 1,000 procedures (95% CI, 0.2–0.5) for screening colonoscopy [3]. Globally, most studies of AEs of this procedure are conducted in the West and relatively few studies have been conducted in the East [4, 6].

These life-threatening complications can cause severe distress to the patient and lead to exploratory surgeries, colectomy, associated risks, and complications. Early detection and appropriate intervention are the key to reduce morbidity and mortality [3]. The diagnostic imaging widely used is CT scan of abdomen. Dynamic CT or 3-dimensional CT scan over routinely performed CT is found to be useful in early detection [4]. Medical management of AEs like bleeding/intra-abdominal hematoma formation in the patient described above involves hemodynamic stability, bowel rest, and symptomatic management [5]. The need for appropriate intervention is based on clinical judgment of the practitioner. Early detection and appropriate intervention are the key to reduce morbidity and mortality [3].

Many national, international gastroenterology/endoscopy networks and committees stress on the quality of endoscopic training to be the key reduction of AEs [3, 6, 7]. European guidelines recommend inclusion of patient feedback forms to capture the full picture of AEs [8]. The lack of standardization hampers the understanding of serious AEs, and therefore, development of robust database for centralized reporting of AEs must be the focus to improve patient safety globally [1, 3, 6, 8].

Literature review of the data has revealed that complications of colonoscopy could be underreported. Our case report highlights one of the rare but potentially life-threatening complications of routine colonoscopy. Early detection and appropriate intervention are the key to reduce morbidity and mortality [3]. Although considered relatively safe procedure, clinicians should be aware of these rare AEs to allow for early diagnosis and appropriate management.

Statement of Ethics

Written informed consent was obtained from the patient for the publication of the details of their medical case and any accompanying images. This retrospective review of patient data did not require ethical approval in accordance with local/national guidelines.

Conflict of Interest Statement

All the authors have no conflicts of interest to declare.

Funding Sources

This research was performed under the guidance of the Memorial Healthcare System Internal Medicine Residency, without specific funding support.

Author Contributions

Ayesha Jalal and Pratik Khatiwada wrote the manuscript, revised the manuscript for intellectual content, and approved the final manuscript. Ryan Dauer and Mohamed Shoreibah revised the manuscript for intellectual content and approved the final manuscript.

Data Availability Statement

All data generated or analyzed during this study are included in this article. Further inquiries can be directed to the corresponding authors.

References

- 1 Pedersen L, Sorensen N, Lindorff-Larsen K, Carlsen CG, Wensel N, Torp-Pedersen C, et al. Colonoscopy adverse events: are we getting the full picture? *Scand J Gastroenterol*. 2020 Aug 2;55(8):979–87.
- 2 Stock C, Ihle P, Sieg A, Schubert I, Hoffmeister M, Brenner H. Adverse events requiring hospitalization within 30 days after outpatient screening and nonscreening colonoscopies. *Gastrointest Endosc*. 2013 Mar 1;77(3):419–29.
- 3 Kothari ST, Huang RJ, Shaikat A, Agrawal D, Buxbaum JL, Abbas Fehmi SM, et al. ASGE review of adverse events in colonoscopy. *Gastrointest Endosc*. 2019 Dec 1;90(6):863–76.e33.
- 4 Ohtsuka R, Amano H, Niida K, Yoshino T, Owari M, Takano R, et al. Massive retroperitoneal hematoma following colonoscopy: a case report. *Medicine*. 2018 Aug;97(31):e11723.
- 5 Page F, Adedeji O. Peri-colonic haematoma following routine colonoscopy. *Ann Med Surg*. 2016 Feb 1;5:97–100.
- 6 Kim SY, Kim HS, Park HJ. Adverse events related to colonoscopy: global trends and future challenges. *World J Gastroenterol*. 2019 Jan 14;25(2):190–204.
- 7 Yoon JY, Cha JM, Jeon YT, Medical Policy Committee of Korean Association for the Study of Intestinal Diseases (KASID); Quality Improvement Committee of Korean Society of Gastrointestinal Endoscopy (KSGE). Quality is the key for emerging issues of population-based colonoscopy screening. *Intest Res*. 2018 Jan;16(1):48–54.
- 8 Hoff G, de Lange T, Bretthauer M, Buset M, Dahler S, Halvorsen FA, et al. Patient-reported adverse events after colonoscopy in Norway. *Endoscopy*. 2017 Aug;49(8):745–53.